



University of Kentucky
UKnowledge

DNP Projects

College of Nursing

2018

Analysis and Evaluation of Fall Incidence and Registered Nurse Documentation of a Teach-Back Intervention at an Acute Care Hospital

Dawn M. Lechner
University of Kentucky, dawn.lechner@uky.edu

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Lechner, Dawn M., "Analysis and Evaluation of Fall Incidence and Registered Nurse Documentation of a Teach-Back Intervention at an Acute Care Hospital" (2018). *DNP Projects*. 214.
https://uknowledge.uky.edu/dnp_etds/214

This Practice Inquiry Project is brought to you for free and open access by the College of Nursing at UKnowledge. It has been accepted for inclusion in DNP Projects by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Running head: EVALUATION OF FALLS AND TEACH-BACK INTERVENTION

Analysis and Evaluation of Fall Incidence and Registered Nurse Documentation of a Teach-Back
Intervention at an Acute Care Hospital

Dawn M. Lechner RN, BSN, CCRN, CNRN

University of Kentucky

College of Nursing

Summer, 2018

Melanie G. Hardin-Pierce, DNP, RN, APRN, ACNP-BC—Committee Chair

Debra Hampton, PhD, MSN, RN, FACHE, NEA-BC—Committee Member

Karen Newman, EdD, MSN, RN, NEA-BC—Clinical Mentor

Dedication

This and the entirety of my work to complete the DNP journey is dedicated to God and my family. This journey has been long and arduous, but I have been so blessed to have my relationship with God first and foremost in my life. It is by His Grace that I am where I am today. To my husband, Ted, who has spent much of the last three years without a partner due to the endless hours of homework and studying, yet always still encouraging and standing by my side asking what he can do to help. To my children, Jessica, T.J. and Paige who have supported me and believed in me even when I did not believe in myself. To my parents, whose unyielding love and devotion of me through this journey has been immeasurable. I thank them all and know that I could not have made it without their unwavering faith, endless support and encouragement in me.

Acknowledgements

I would like to first thank the University of Kentucky College of Nursing and Norton Healthcare for the opportunity to participate in this DNP program. I am eternally grateful for the nursing leadership team of the University of Kentucky for their support and unyielding belief in me. A heartfelt gratitude goes out to my advisor, Dr. Melanie Hardin-Pierce, who has been such a supportive blessing throughout my 3 years in the program. She has spent countless hours mentoring and counseling me through trying times and I am eternally grateful. I would also like to extend my most sincere thanks to Dr. Sheila Melander and Dr. Patricia Howard for their wonderful words of encouragement and support, especially during my last year of this program. Their kind words and time spent with me has been invaluable. I would also like to acknowledge Dr. Debra Hampton, a member of my advisory committee, for her academic guidance and contribution throughout this program.

I would like to thank Baptist Healthcare for allowing me to complete my final project. I am blessed to be part of such a wonderful organization. I would also like to recognize Dr. Karen Newman for graciously accepting a position on my advisory committee. I am thankful for her support and mentorship. A large thank you to Laura Mitchell for her mentorship, and research advice and for allowing me to participate in this fall prevention intervention project. Laura has provided invaluable expertise in data collection and analysis, and I am eternally grateful.

A special thank you also to members of the University of Kentucky and Norton Healthcare who mentored me and provided the extra support I needed to complete my studies and project; Betty Hayes whose hugs and wisdom helped guide me through some bumps in the road, Dr. Amanda Wiggins whose statistician help was such an amazing asset and Whitney Kurtz-Ogilvie whose writing expertise has been invaluable.

Table of Contents

Acknowledgements.....	iii
List of Tables	v
List of Figures.....	v
Abstract.....	1
Introduction.....	3
Background.....	6
Purpose.....	7
Conceptual Framework.....	7
Organizational/Nursing Relevance.....	9
Methods.....	10
Setting	10
Sample.....	10
Features	11
Unit Specifics.....	11
Evaluation Duration	11
Data Collection	11
Data Analysis.....	12
Results.....	12
Discussion.....	14
Viewing of Video and Teach-Back Intervention.....	14
Rate of Falls.....	16
Limitations.....	16
Implications for Future Studies.....	18
Conclusion	19
References.....	21
Appendix A.....	26
Appendix B.....	27

List of Tables

Table 1. *Descriptive Summary of Study Variables*..... 28

Table 2. *Demographic and Group Statistic Results* 29

List of Figures

Figure 1. *3 Park Total Falls per 1000 Bed Days*30

Figure 2. *The IOWA Model*31

Figure 3. *Study Sample*32

Abstract

PURPOSE: The purpose of this descriptive study was to examine the impact of a fall prevention quality improvement initiative on one unit of an acute care hospital (Hospital A). This multimedia initiative consisted of a video led fall prevention presentation with nurse-led scripted teach-back education on all newly admitted patients of one medical surgical oncology unit of Hospital A. Two objectives guided this study and included: Analyze adherence of a fall prevention education video and registered nurse led scripted teach-back intervention on newly admitted patients in the electronic health record; and Evaluate the impact of video education and registered nurse led scripted teach-back on the incidence of inpatient falls per 1000 bed days.

METHODS: This study was conducted using a non-experimental, cross-sectional, descriptive design.

SAMPLE: There were 76 patients that were admitted during the study. A total of 56 patients (73.7%) met criteria for study inclusion with a total of 20 patients (26.3%) excluded from the study. Patients aged 19 through 90, who were cognitively intact (alert, oriented to self, place, and time), admitted over 24 hours and able to read, speak, and comprehend English were included. Exclusion criteria comprised patients who were not cognitively intact, or patients who were discharged, deceased, declined to participate or transferred to another unit within 24 hours of admission.

RESULTS: Out of 56 patients eligible for intervention, 26 patients (46.4%) received the video viewing and teach back intervention within the 24-hour time frame. Another 7 patients (12.5%) received the intervention in 48 hours, bringing the total to 33 patients (58.9%).

There was no statistical difference ($p = .087$) found between the age of the patient ($M = 65.7$) and the video viewing and teach back intervention within 24 hours. There was no statistical

difference ($p = .223$) found between the age of the patient ($M = 65.9$) and whether the video viewing and teach back intervention was completed after 48 hours. No statistical difference was found ($p = .373$) in the fall risk score ($M = 8.9$) and the intervention being completed within 48 hours nor no statistical difference ($p = .964$) found in the fall risk score ($M = 8.5$) and the intervention completion in 24 hours.

CONCLUSION: Evaluation of this fall prevention quality initiative resulted in expected but positive results in the limited two-week survey even though no statistical differences were found between confounding variables. This initiative may provide needed interventions to facilitate the organization's fall risk assessment tool and decrease fall rates throughout the hospital setting.

Analysis and Evaluation of Fall Incidence and Registered Nurse Documentation of a Teach-Back
Intervention at an Acute Care Hospital

Introduction

Hospitalized patients are at risk of falling due to a myriad of intrinsic and extrinsic factors that include gait and balance changes, polypharmacy, and unfamiliar environments and equipment. A fall can be defined as unintentionally coming to rest on the ground or other lower level, with or without loss of consciousness (Ang, Mordiffi, & Wong, 2011). These falls occur with or without injury and are the second most commonly occurring adverse events inside healthcare institutions (Wilbert, 2013), with rates ranging from two to seven falls per 1000 patient days (Choi, Lawler, Boenecke, Ponatoski, & Zimring, 2011). One third of these inpatient fallers are over the age of 65 and up to 40% of this age group will sustain a fall within two months of discharge. Evidence demonstrates that up to 42% of inpatient falls result in injuries with 8% characterized as serious injuries (Graham, 2012). The increased length of stay caused by these falls, on average lasts 6.3 days and add approximately \$14,000 to the total costs of the hospital stay (Pearson & Coburn, 2011). By 2020, the estimated cost for hospitals to treat these injuries is expected to reach \$54.9 billion (Tzeng & Yin, 2015).

The Centers for Medicare and Medicaid Services (CMS) stopped all reimbursement to hospitals for fall-related treatment in 2008 (CDC, 2015) and the National Quality Forum (NQF), a non-profit organization that sets performance improvement goals on hospital quality measures, identified a patient fall as a “never event”, a medical error that should never occur while a patient is under the care of licensed, trained medical personnel (AHRQ, 2014). These public quality measures and reimbursement changes have greatly affected many healthcare organization priorities. Falls continue to present a challenge at the bedside and have become a top safety

priority in healthcare organizations. (Roberts, Chaboyer, Gonzalez, & Marshall, 2017; Ganz, et al., 2013).

According to The Joint Commission, patient fall rates are measured as a rate per 1000 bed days: The number of patient falls, with or without injury to the patient, during the calendar month multiplied by 1000 divided by the patient days on the unit. Patient days are most accurately measured by taking the sum the actual hours of stay for all patients, whether in-patient or short stay, and divide by 24. The national benchmark is 3 falls per 1000 patient days (The Joint Commission, 2009).

There are many fall prevention interventions and tool kits that healthcare institutions have employed to reduce falls in the acute care setting. Research has shown that fall prevention programs with the greatest success are those that are multifactorial, multifaceted and multidisciplinary (Choi, et al., 2011), which commonly include a scoring system for fall risk with guided interventions such as bed alarms, colored non-slip socks and armbands, and patient education (Miake-Lye, Hempel, Ganz, & Shekelle, 2013). Fall prevention studies have also found success in regard to nursing adherence to fall prevention tools when it involves a methodical and standardized approach to patient education (Hill et al., 2013, Ohde, et al., 2012) In addition, audits and feedback hold staff accountable and provide increased nursing adherence to patient care protocols (Scales, et al., 2011). In a study by Ohde, et al., (2012), one hospital reported favorable results in fall rates and nursing adherence from a fall prevention quality improvement plan that consisted of a fall risk assessment tool, a multifactorial intervention protocol, standardized education and adherence monitoring of multidisciplinary staff. A significant decrease in fall rate from 2.13 falls per 1000 patient days to 1.53 falls per 1000

patient's days ($p = .039$) occurred in the first six months with a 91.5% reported staff adherence rate.

Patient education is an integral part of hospital-based patient safety initiatives (Gillespie, et al., 2009; Cameron, et al., 2010) and has traditionally consisted of nurse-patient interaction with printed materials on how to prevent falls. New studies emerging from Dupree, Fritz-Campiz, & Musheno, (2014) and Degelau, et al., (2012) are finding that engagement through multimedia (video) education has opened the door for increased discussion and collaboration between the patient and caregiver in regard to individual fall risk factors and common fall causes. This increased collaboration enables nurses to employ the teach-back method to evaluate patient's understanding of their perceived risks and fall prevention care plan (Graffigna, Barello, & Riva, 2013). The teach-back method is one of the most effective safety practices and "closes the loop" on communication between caregiver and patient (North Carolina Health Literacy, n.d.). In fact, 40% - 80% of healthcare related communication to the patient is forgotten immediately, and what is remembered, approximately 50% is incorrectly recalled (Kessels, 2003).

Studies have evaluated the use of multimedia fall prevention education with promising results. In one quantitative randomized controlled trial (RCT) by Hill, Etherton-Beer & Haines, (2013), older adults (>65 years of age) were provided multimedia fall prevention education in the hospital setting. There were significant positive results in fall risk knowledge gained ($p = 0.04$) and with behavioral modification ($p = 0.04$). These positive results led to a decreased fall rate 6 months post discharge with 5 falls in the intervention group and 18 in control group. In another RCT ($n=1206$) by Haines, et al., (2011), individual patient-level tailored multimedia fall prevention education was provided in the hospital setting with a 1:1 follow up or teach-back

intervention at bedside for reinforcement. Results showed that the intervention group sustained approximately 50% fewer falls than the control group (4.01 versus 8.72 respectively).

Background

Patients need to be engaged in their healthcare; Research has found that when patients are engaged, it can lead to measureable improvements in their health outcomes and safety and is a vital element that drives patient centered care (AHRQ, 2014; Esposito, Rhodes, Besthoff, & Bonuel, 2016). Hospital A, an acute care hospital located in the Midwest, is committed to delivering high-quality, patient centered care and works continuously to improve nursing care processes and patient outcomes such as fall rates and nursing adherence.

Hospital A monitors safety initiative goals, such as inpatient falls, set by the National Database of Nursing Quality Indicators (NDNQI). The NDNQI compares healthcare organization's internal data with the external benchmark that has been set by NDNQI. Hospital A currently has an existing fall prevention policy that utilizes a fall risk assessment tool to identify patients that are at an increased risk for falling. This High-Risk Fall Assessment Tool (See Appendix A) is completed on all new admissions to the hospital, every shift and any change of patient condition that may warrant fall risk reassessment.

Aware that nurse sensitive indicators define structures of care and care processes, which influence positive care outcomes (ANA, 2009), clinical leaders on one medical surgical oncology unit of Hospital A, implemented a fall prevention intervention to help reduce the unit's fall rate. This unit's NDNQI data report revealed a fall rate per 1000 bed days higher than the NDNQI national mean in two out of the four quarters of 2017 (See Figure 1). This intervention was conducted alongside the Hospital A's current Fall Risk Assessment Tool with aims to reduce the unit's fall rate and to measure nursing clinical documentation of the intervention in the electronic

health record (EHR). This intervention was comprised of multimedia (video) fall prevention education via an electronic tablet viewed by all patients within 24 hours of their admission followed up with nurse led teach-back via scripted education card (See Appendix B) with the patient. This was all subsequently documented in the patient's EHR.

Purpose

The purpose of this descriptive study was to examine the impact of a fall prevention quality improvement intervention by evaluating documentation adherence rate and patient fall rates per 1000 bed days. There were two objectives that guided this study:

1. Analyze the influence of a standardized process for falls prevention education using video instruction and teach-back technique on clinical documentation of the teach-back intervention by registered nurses in the electronic health record.
2. Evaluate the impact of video instruction and standardized teach-back technique on the incidence of falls per 1000 bed days in hospitalized patients.

Conceptual Framework

There were constructs of the IOWA Model (IM) utilized as a framework for the evaluation of this fall prevention initiative (See Figure 2). This practice change model is a useful approach to problem solving at various organizational levels and also facilitates the understanding of the proposed evidenced based process being put into place (Polit & Beck, 2012). This model, originally developed by Maria Titler and her colleagues in 1994, was revised in 2001 to incorporate and promote positive health outcomes (Grove, Burns and Gray, 2013).

This model engages findings from various evidenced based practice research such as meta-analysis, randomized clinical trials, qualitative research; others include expert opinion, case reports, scientific principles, and theory (Titler 2014). There have been a number of steps

identified in the IM from identifying a problem or trigger to developing a solution based on evidenced based research to incorporating findings into practice (Melnyk & Fineout-Overholt, 2015). Triggers can be problem-focused or knowledge-focused and illustrate the need for change in the clinical setting based on the best evidence-based research (Grove et al., 2013). Triggers can also be found by identifying problems in process improvement data or risk management data (Polit & Beck, 2012), such as fall occurrence reports.

Once a clinical problem for change is identified and addressed with an intervention based on the best research evidence, research is evaluated and monitored to measure the quality care outcomes (Grove et al., 2013). Lastly, the outcome results are analyzed, shared, and disseminated for a possible practice change throughout an organization (Polit & Beck 2012).

This project was based on fall rate as the trigger and consisted of an evaluation of a fall prevention intervention that was conducted on one unit of an acute care hospital. Constructs of the IM were used as the framework to guide this evaluation project. There was an extensive literature review done by this project investigator to substantiate and evaluate the fall prevention project and demonstrate its effectiveness as an important addition to the falls prevention program already in place within the organization. This literature review found evidenced based research to support the use of a fall prevention education video and scripted teach back intervention as an effort to reduce the rate of inpatient falls.

Once the unit leaders implemented the fall prevention project, a convenience sample of data was collected and analyzed based on the projects objectives. These analyzed results will be presented to the project unit leaders for dissemination and continued discussion regarding future evaluation metrics and outcomes.

The Iowa Model (IM) was found to have much strength and few limitations. Clinicians have found it to be easily followed and intuitively understandable and it is utilized in many health care organizations and academic settings. The IM also uses triggers that identify a problem, and uses specific steps that systematically determines if there is sufficient evidence to implement an organizational practice change (Brown, 2014). One limitation that was found with the IM was that although there are systematic steps in this conceptual framework it did not provide any structure for data collection methods.

Organizational/Nursing Relevance

The Center for Medicare and Medicaid Services (CMS) classifies an inpatient fall as a Hospital Acquired Condition (HAC). A HAC is defined as a preventative complication sustained by a patient during their hospitalization. In 2010, the Affordable Care Act introduced the Pay for Performance Program (P4P) in which hospitals are incentivized to lower HACs such as inpatient falls, which was followed in 2015 by the HAC Reduction Program. This program requires CMS to lower hospital reimbursements by 1% for hospitals with HAC scores that rank them among the lowest performing (25%) hospitals in regards to HACs (CMS, 2015). Due to these regulations that are put in place to improve patient care and prevent patient injury, it is critical that evidenced based interventions be in place and that there is a better understanding of the factors that influence falls rates in hospitalized patients (Kalisch, Tschannen, & Lee, 2012).

This study also has high relevance in regards to nursing care. Falls are considered a nursing-sensitive quality indicator (ANA, 2009) and according to the Joint Commission, (2009), nurses have a responsibility to identify patients who are at a risk of falls and to develop a plan of care to minimize that risk. In fact, Tzeng, Hu, & Yin (2011) stated that patient fall rates are seen

to be the nursing indicator that could benefit the most by nurse-led safety strategies or interventions.

Methods

A non-experimental, cross-sectional, descriptive design was used to evaluate the incidence of falls and registered nurse documentation of a multimedia fall prevention education and standardized teach-back intervention in hospitalized patients.

Setting

This research was conducted at a suburban acute care hospital in the Midwest (Hospital A). This project was specific to one 24-bed medical-surgical oncology unit. Hospital A is part of system of nine acute care facilities serving 93 counties across 3 states. Hospital A is a general medical and surgical hospital with 519 beds. This project is congruent with the mission and vision of Hospital A by utilizing evidence-based practices that will lead the transformation to healthier communities.

Sample

The patient study population of interest consisted of a convenience sample of all newly admitted patients on a designated medical-surgical oncology unit.

Patients aged 19 through 90, who were cognitively intact (alert, oriented to self, place, and time), admitted over 24 hours and able to read, speak, and comprehend English were included. Exclusion criteria comprised patients who were not cognitively intact (not alert or oriented to self, place and time), or patients who were discharged, deceased, declined, or transferred to another unit within 24 hours of admission.

Features

Unit Specifics. This evaluation study was completed on one medical-oncology unit of an acute care hospital. This unit has a total of 24 private inpatient beds.

Evaluation Duration. A retrospective chart review of electronic health records for all newly admitted patients to this unit was collected and analyzed for two weeks.

Data Collection

Appropriate permission to conduct this study was obtained from the University of Kentucky Institutional Review Board and Hospital A's Nursing Research Oversight Committee. This descriptive study was based on a retrospective chart review of desired data. Medical records of patients that were admitted to project unit were collected in coordination with the clinical unit leader and project initiator, for two weeks. Data was abstracted based variables of interest, and then transferred to an electronic spreadsheet, with intervention adherence measured by documentation of intervention in the EHR. Data reviewed and collected to satisfy study objectives included: Was the fall prevention video viewed and teach back intervention completed within specified time frame of 24 hours of admission (Y/N); Was the intervention completed in 48 hours of admission (Y/N); The age of patient; The fall risk score of patient upon admission;

- Again the current Fall Prevention Protocol in use at Hospital A consists of a High Risk Fall Assessment Tool used to measure a patient's risk of falling. It is a numerically calculated score based on a patient's previous fall history, the patient's age, patient's mental status, patient's elimination needs, patient's mobility issues, patient's current medications and nurse clinical judgment. A numerical score of 0-37 is possible. This assessment is completed and documented on every patient admission, every shift and/or

change of patient condition by a registered nurse in the EHR. A patient is considered to be at high risk of falling if score is 13 or above.

And did the patient sustain a fall during his/her hospital stay *monitored with post fall EHR documentation* (Y/N) and if so how many falls occurred.

- The best measure of falls is one that can be compared over time within a hospital unit to see if care is improving. It is recommended that you calculate falls as a rate and not simply as the total number of falls in a given timeframe. Calculating a rate allows you to take into consideration how full or empty the unit was during a given timeframe.

Calculation was done at number of fall per 1000 bed days.

Data Analysis

Descriptive statistics, including frequency distributions, means, and standard deviations (SD) were used to describe patient demographic characteristics and outcome variables.

Independent samples t-tests were utilized to determine differences in the outcome variables of intervention adherence by patient age and fall risk score. Fall rate per 1000 patient days was computed by measuring the number of inpatient falls on the unit divided by the number of inpatient days on the unit, multiplied by 1,000 ($\text{Rate} = \frac{\#Falls}{\#Days} \times 1000$). All analysis was conducted using SPSS version 24; an [*alpha*] level of .05 was used for statistical significance.

Results

During this evaluation a total of 76 patients admitted to project unit. A total of 56 patients (73.7%) met criteria for study inclusion; and 20 patients (26.3%) were excluded from the study (See Figure 3). Patients that were excluded were done so based on not being alert and/or oriented to person, place or time ($N = 6$), patient death occurring in than 24 hours ($N = 2$), patient transferred to other units of the hospital under 24 hours of admission ($N = 3$), patient discharged

under 24 hours ($N = 6$), patient that did not want to view video or participate in teach back ($N = 1$), and an uncertainty of why patient was documented as “excluded” ($N = 2$).

Patients’ ages ranged from 19-90 years of age with a mean age of 63.7 (SD 15.5). This SD was expected due to the small sample size leading to a greater sampling variability. Fall risk scores ranged from 0-22 with a mean of 8.4 (SD 5.5), which is well below a score of 13 that designates a patient as "high risk" according to the organizations fall prevention protocol.

Out of the 56 patients admitted, analysis revealed that 26 patients (46.4%) viewed the video and received the teach-back intervention within the 24-hour admission time. There were an additional 7 patients that received the intervention in 48 hours, which increased the total to 33 patients (58.9%) that received the intervention.

The patients receiving the intervention within 24 hours and at 48 hours were almost identical in mean ages at 65.7 years of age and 65.9 respectively. Again, the large SD in these samples was expected due to the small sample size leading to greater variability. The increased age although, may represent a meaningful finding regarding the typical demographic make up of this units population.

Age and fall risk scores were then studied for any using independent samples t-tests in regards to the intervention being completed within 24 hours and then at 48 hours (see Table 2). This study revealed that age or fall risk score had no bearing on whether the intervention was completed or not in the 24 hour or 48 hour mark as noted by the p values being greater than the $p = .05$ alpha level.

The patients who were presented the opportunity to view the video and receive the teach-back intervention in the 48-hour time frame were almost identical in age ($M=65.9$ vs. $M= 65.7$)

and fall risk scores ($M = 8.9$ versus $M = 8.4$), compared to those who were presented the video in 24 hours.

There were no falls occurred during the study for patients included in study. This is an expected result due to the limited study time frame.

The inability to identify a statistically significant association between the intervention and fall rate could be explained by the small sample size and short duration of study. As stated previously, fall rates per 1000 bed days are trended monthly and this limited two-week study simply is too short to determine any rigor with stated results, which was an expected result.

Discussion

This evaluation focused on whether or not newly admitted patients on one unit received and viewed the multimedia (video) fall prevention education and scripted teach-back intervention aimed at reducing inpatient falls. Research has shown that increasing patient and family knowledge through an educational fall prevention video and then being reinforced with this knowledge via scripted teach-back is intended to promote positive behavior change and increase adherence to a fall prevention plan of care and lead to a reduction of falls (Clark et al., 2011; Degelau et. al., 2012; Dupree, Fritz-Campiz, & Musheno, 2014; Friedman et al., 2011; Haines, et al., 2011; North Carolina Health Literacy, n.d.; Ohde et. al., 2012).

Viewing of Video and Teach-Back Intervention

This study showed that there were more patients presented with the intervention in the first 48 hours of admission than in 24 hours ($N = 33$ versus $N = 26$ respectively). It was also noted that of those patients that viewed the video either in 24 or 48 hours, all of them received the teach-back education portion of the intervention by the nursing staff. This indicates that the scripted teach-back education card may have been a factor in the 100% adherence rate by

allowing for a consistent and planned teach-back education session between nurse and patient. This possibly limited reasons for non-adherence due to time constraints, lack of education, or uncertainty. These expected results are congruent with previous literature results regarding high nursing adherence rates and fall prevention tools that involve standardized approaches to patient education (Scales, et al., 2011).

This study revealed that there was a slightly higher incidence of older patients versus younger patients that were presented the opportunity to view the video education within 48 hours, as well as a greater occurrence of patients that scored slightly higher on the fall risk assessment tool (See Appendix A) who viewed the video in 48 hours. Both of these were not statistically significant findings ($p = .223$ and $p = .373$ respectively) but possibly introduces some perceived urgency bias by the nursing staff based on a patient's increased age and/or their higher risk of falling as found in literature by (Milisen, et al., 2012). This is a relevant finding for the older patient population in regard to fall prevention protocols with such a short study.

Even though age and fall risk score was shown not to be a factor in regards to the adherence of the intervention in either the 24 or 48 hour time mark, the mean ages of 65.7 and 65.9 do reveal the importance of this intervention with this age group. One third of older persons or persons over the age of 65 sustain hospital falls with another 40% falling post discharge within 2 months (Haines, et al., 2011). Furthermore, Hill et al., (2009) found that the older population who viewed the fall prevention education via video format, increased their perceived risk of falling than the same age group that only received written instruction. Hill and colleagues further found that this heightened self perceived risk of a falling was a predictor to positive behavior change and increased self-engagement in this age group. Research has demonstrated that when patients are engaged in their health care, quantifiable improvements are seen in

regards to patient safety and increased quality of care (AHRQ, 2014). There is a vital importance of preventing disabling health problems in this older population, which could possibly result in long term care dependence at an earlier age and increased health care expenses related to caring for and treating fall injuries (Tzeng & Yin, 2015).

This study's adherence rate with both the video viewing and teach-back fared somewhat lower and less than expected than the 91.5% mentioned in a study evaluating nursing adherence rate of a standardized education tool by Ohde, et al., (2012). Certainly, study length may have contributed to rate differences in adherence with the present study and that of Ohde, et al., (2012), whose results were measured 6 months after implementation.

Rate of Falls

Literature has proven the effectiveness of reducing patient falls utilizing the teach-back method, as well as, lowering fall rates with the use of video education and written information alongside a hospital's existing fall prevention protocol (Clark et al., 2011; Degelau et. al., 2012; Dupree, Fritz-Campiz, & Musheno, 2014; Friedman et al., 2011; Haines, et al., 2011; North Carolina Health Literacy, n.d.; Ohde et. al., 2012). The inability to identify a meaningful correlation between the intervention and fall rate of zero could be explained by the small sample size and short duration of study. As stated previously, fall rates per 1000 bed days are trended monthly and this limited two-week study simply is too short to determine any rigor with stated results, which was an expected result.

Limitations

The primary limitation for the study was the short time frame of data collection. The overall adherence was positive 58.9% during the study, but it does have room for improvement. This study's adherence rate with both the video viewing and teach-back fared somewhat lower

than the 91.5% mentioned in a reviewed study evaluating nursing compliance rate of a standardized education tool. Certainly, study length may have contributed to rate differences in compliance with the present study and that of the published study whose results were measured 6 months after implementation (Ohde et al., 2012). A longer time frame for the study may help identify barriers to adherence, trend data and present a more meaningful and uniform evaluation.

The study was also only inclusive to English speaking patients due to no multi lingual video being available. Although no patients were excluded during this limited study due to the language barrier, future studies would want to be inclusive of all languages. The population was inclusive to newly admitted patients that could read, write, speak and understand English due to no multi-lingual fall education videos available at the time and this inclusion criteria posed a sampling bias for non-English speaking patients.

Another limitation was the size and type of the population studied. Due to the short time frame of the study, the population was small. This population also was mainly oncology patients with similar disease states. Future studies may benefit from a multiunit rollout setting rather than a solitary unit. The multiunit setting would allow a broader demographic base that could incorporate a larger and more varied population for the study.

Nursing readiness regarding the intervention may have also introduced limitations to adherence. Staff received one brief educational session regarding the new intervention introducing a possible barrier such as lack of educational readiness. Previous literature has shown that lack of education is a top barrier affecting nursing adherence of newly implemented fall prevention protocols, and by addressing this lack of knowledge with tailored educational sessions, nursing knowledge regarding fall prevention increased significantly ($p = .01$) and changed professional behavior (Koh, Hafizah, Lee, Loo, & Muthu, 2009).

Factors such as the Hawthorne effect may have also influenced nursing behavior in regards to adherence rates of new intervention and should be considered. The Hawthorne effect is when a person alters their behavior when they know that they are being observed. This alteration in behavior is a result of uncertainty in research participants and can alter their perceived expectations and even possibly their behavior. This effect introduces an unavoidable bias and ambiguity in research findings and needs to be taken into account when research is being analyzed and disseminated. (Benedetti, 2016).

Implications for Future Studies

Future studies may benefit from increasing the demographics, increasing nursing input and adding patient engagement measurements via surveys.

To increase the demographical base, inclusion of a multi-lingual video would enable more patients regardless of their language preference to benefit from this safety initiative. This in turn may reveal some important insight and data in regards to different cultural acceptance and/or engagement with this intervention.

A multi unit rollout could also increase demographics and should be considered to widen the population in both numbers and type. Differing disease states and/or trauma patients can introduce co founding variables such as a patient's acute change of gait/mobility due to a fracture that may affect the acceptance and adherence of the intervention.

In regards to nursing, study findings may be augmented with a nursing survey to identify possible barriers that may or many not have hindered completing the intervention. Such barriers could include inadequate nurse to patient ratios affecting the nurse workload. More nursing education and reinforcement could also be beneficial in increasing overall adherence to the fall

prevention intervention. Reminders such as an admission documentation banner could be used to flag patients in the EHR still needing the video education and teach back intervention.

Patient engagement strategies are another way that can be beneficial in promoting adherence to fall prevention interventions. Engaging patients in their own healthcare has been recognized by the Affordable Care Act as one of the most instrumental factors needed for successful health system reform (Hibbard & Greene, 2013). Simple surveys for patients and families can measure the patient's willingness to actively participate in preventing safety issues affecting their own health care. In fact, The Agency for Healthcare Research and Quality (2016), noted that research has demonstrated that patients who are active participants with their care achieve better outcomes than those who are not similarly engaged. Patient surveys can help identify "what works" or "what may hinder" engagement strategies such as behavioral modification or fall risk knowledge gained.

Conclusion

Patient falls continue to present a challenge at the hospital bedside and more effective measures are needed to prevent inpatient falls. Teach-back and multimedia based educational materials enhance patients' knowledge regarding their fall risk leading to improved preventive outcomes and decreased patient falls, (Clark et al., 2012; Degelau, et al., 2012; DuPree, Fritz-Campiz, & Musheno, 2014; Haines et al., 2011; Hill et al., 2016; Friedman et al., 2011; Tzeng & Yin, 2015). Furthermore, offering audiovisual and verbal education along with written instructions has been proven to increase patient adherence and understanding of fall prevention interventions. The teach back method adds, a useful strategy for assessing the learners understanding of the information, the need for further teaching and an provides an opportunity for patient engagement (Glick, Fernandez, Irby, Harleman, & Fernandez, 2010). Fall prevention

continues to be at the forefront of patient safety initiatives. Studies have shown that patient safety and quality of care are enhanced when patients are engaged in their health care (AHRQ, 2014).

This evaluation of the video formatted fall prevention tool and scripted teach-back intervention presented at a patient's admission achieved > 50% adherence within 48 hours thus demonstrating a possible benefit at reducing fall rates. In addition, the patient sample mean age of >65 that received the intervention was important due to the fact that 1/3 of this population sustain inpatient falls in reviewed literature (Haines et al., 2011). Other current study findings also found that older patients (>65) who view multimedia (video) fall prevention education followed by nurse led teach back have been found to increase the older patient's self-perceived risk of falling which is a strong predictor when it comes to future behavior and self-engagement in fall prevention (Hill et al., 2013). Video format also facilitates comprehension in lower literacy levels of some older patients, which increased adherence to protocols and increased levels of engagement (Hill et al., 2016).

There were 0 falls during this study. A longer study is needed to trend census data and present a more uniform set of data to be analyzed to measure the impact of this initiative on reduction of fall rates.

This initiative can be replicated in similar acute care settings. Insights from this project may compel nursing leaders to make evidence-based changes that may improve patient safety, patient engagement and satisfaction and relieve the financial burden hospitals face with decreased reimbursements related to falls.

References

- Agency for Healthcare Research and Quality (AHRQ).(2014). Preventing falls in hospitals. Retrieved from www.ahrq.gov
- American Nurses Association (2009). Nursing-sensitive indicators. Retrieved from [http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/Research-Measurement/The-National- Database/Nursing-Sensitive-Indicators_1.aspx](http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/Research-Measurement/The-National-Database/Nursing-Sensitive-Indicators_1.aspx)
- Ang, E., Mordiffi, S. Z., & Wong, H. B. (2011, February 5). Evaluating the use of a targeted multiple intervention strategy in reducing patient falls in an acute care hospital: a randomized controlled trial [randomized controlled trial]. *Journal of Advanced Nursing*, 67(9), 1984-1992.
- Benedetti, F., Carlino, E., & Piedimonte, A. (2016). Increasing uncertainty in CNS clinical trials: the role of placebo, nocebo, and Hawthorne effects. *The Lancet Neurology*, 15(7), 736-747.
- Brown, C. G. (2014). The Iowa Model of Evidence-Based Practice to Promote Quality Care: An Illustrated Example in Oncology Nursing. *Clinical Journal of Oncology Nursing*, 18(2).
- Cameron, I. D., Murray, G. R., Gillespie, L. D., Robertson, M. C., Hill, K. D., Cumming, R. G., & Kerse, N. (2010). Interventions for preventing falls in older people in nursing care facilities and hospitals. *Cochrane Database Syst Rev*, 1(1).
- Centers for Disease Control. (2015). (CDC). Risk Factors for Falls. Retrieved from https://www.cdc.gov/steady/pdf/risk_factors_for_falls-a.pdf
- Choi, Y. S., Lawler, E., Boenecke, C. A., Ponatoski, E. R., & Zimring, C. M. (2011). Developing a multi-systemic fall prevention model, incorporating the physical environment, the care

- process and technology: A systematic review. *Journal of Advanced Nursing*, 67(12), 2501-2524.
- Clarke, H. D., Timm, V. L., Goldberg, B. R., & Hatstrup, S. J. (2012). Preoperative patient education reduces in-hospital falls after total knee arthroplasty. *Clinical Orthopaedics and Related Research*®, 470(1), 244-249.
- CMS, Center for Medicare and Medicaid Services. *Hospital acquired condition Reduction Program* (2015). Retrieved from <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/HAC-Reduction-Program.html#>
- Degelau, J., Belz, M., Bungum, L., Flavin, P. L., Harper, C., Leys, K., ... & Webb, B. (2012). Prevention of falls (acute care). *Institute for Clinical Systems Improvement*. Retrieved from https://www.icsi.org/_asset/dcn15z/Falls.pdf.
- DuPree, E., Fritz-Campiz, A., & Musheno, D. (2014). A new approach to preventing falls with injuries. *Journal of nursing care quality*, 29(2), 99-102.
- Esposito, E. M., Rhodes, C. A., Besthoff, C. M., & Bonuel, N. (2016). Ambulatory care nurse-sensitive indicators series: patient engagement as a nurse-sensitive indicator in ambulatory care. *Nursing Economics*, 34(6), 303-307.
- Friedman, A. J., Cosby, R., Boyko, S., Hatton-Bauer, J., & Turnbull, G. (2011). Effective teaching strategies and methods of delivery for patient education: a systematic review and practice guideline recommendations. *Journal of Cancer Education*, 26(1), 12-21.
- Ganz, D. A., Huang, C., Saliba, D., Miake-Lye, I. M., Hempel, S., Ganz, D. A., & Ensrud, K. E. (2013). Preventing falls in hospitals: a toolkit for improving quality of care. *Ann Intern Med*, 158(5 Pt 2), 390-396.

- Gillespie, L. D., Robertson, M. C., Gillespie, W. J., Lamb, S. E., Gates, S., Cumming, R. G., & Rowe, B. H. (2009). Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev*, 2(2).
- Graffigna, G., Barelo, S., & Riva, G. (2013). Technologies for patient engagement. *Health affairs*, 32(6), 1172-1172.
- Graham, B. (2012). Examining evidenced-based interventions to prevent inpatient falls. *MEDSURG Nursing*, 21(5), 267-270.
- Grove, S.K., Burns, N., & Gray, J.R. (2013). *The practice of nursing research: Appraisal, synthesis, and generation of evidence* (7th ed.). St. Louis, MO: Saunders Elsevier
- Haines, T. P., Hill, A. M., Hill, K. D., McPhail, S., Oliver, D., Brauer, S., ... & Beer, C. (2011). Patient education to prevent falls among older hospital inpatients: a randomized controlled trial. *Archives of internal medicine*, 171(6), 516-524.
- Hibbard, J. H., & Greene, J. (2013). What the evidence shows about patient activation: better health outcomes and care experiences; fewer data on costs. *Health affairs*, 32(2), 207-214.
- Hill, A. M., Hill, K., Brauer, S., Oliver, D., Hoffmann, T., Beer, C., ... & Haines, T. P. (2009). Evaluation of the effect of patient education on rates of falls in older hospital patients: description of a randomised controlled trial. *BMC geriatrics*, 9(1), 14.
- Hill, A. M., Etherton-Ber, C., & Haines, T. P. (2013, May). Tailored education for older patients to facilitate engagement in falls prevention strategies after hospital discharge - a pilot randomized controlled trial [randomized controlled trial]. *Plos One*, 8(5).

- Hill, A. M., Francis-Coad, J., Haines, T. P., Waldron, N., Etherton-Ber, C., Flicker, L., ... & McPhail, S. M. (2016). 'My independent streak may get in the way': how older adults respond to falls prevention education in hospital. *BMJ open*, 6(7), e012363.
- Kalisch, B.J., Tschannen, D., & Lee, K.H. (2012). Missed nursing care, staffing and patient falls, *Journal Nursing Care Quality*, 27(1), 6-12.
- Kessels, R. P. (2003). Patients' memory for medical information. *Journal of the Royal Society of Medicine*, 96(5), 219-222.
- Koh, S. L., Hafizah, N., Lee, J. Y., Loo, Y. L., & Muthu, R. (2009). Impact of a fall prevention programme in acute hospital settings in Singapore. *Singapore Med J*, 50(4), 425-432.
- Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-Based Practice in Nursing & Healthcare (Rev.)*. Philadelphia: LWW.
- Miake-Lye, I. M., Hempel, S., Ganz, D. A., & Shekelle, P. G. (2013, March 5). Inpatient fall prevention programs as a patient safety strategy: a systematic review [review]. *Annals of Internal Medicine*, 158, 390-396.
- Milisen, K., Coussement, J., Flamaing, J., Vlaeyen, E., Schwendimann, R., Dejaeger, E., ... & Boonen, S. (2012). Fall prediction according to nurses' clinical judgment: differences between medical, surgical, and geriatric wards. *Journal of the American Geriatrics Society*, 60(6), 1115-1121.
- North Carolina Health Literacy. (n.d.). Tool 5: The teachback method. Retrieved from <http://www.nchealthliteracy.org/toolkit/tool5.pdf>.
- Ohde, S., Terai, M., Oizumi, A., Takahashi, O., Deshpande, G. A., Takekata, M., ... & Fukui, T. (2012). The effectiveness of a multidisciplinary QI activity for accidental fall prevention: Staff compliance is critical. *BMC health services research*, 12(1), 197.

- Pearson, K. B., & Coburn, A. F. (2011). Evidence-based falls prevention in critical access hospitals. Retrieved from <http://www.flexmonitoring.org/publications/pb24/>
- Polit, D.F., & Beck, C.T. (2012). Nursing research: Generating and assessing evidence for nursing practice. (9th e d.).NYLippincott.
- Roberts, S., Chaboyer, W., Gonzalez, R., & Marshall, A. (2017). Using technology to engage hospitalised patients in their care: a realist review. *BMC health services research*, 17(1), 388.
- Scales, D. C., Dainty, K., Hales, B., Pinto, R., Fowler, R. A., Adhikari, N. K., & Zwarenstein, M. (2011). A multifaceted intervention for quality improvement in a network of intensive care units: a cluster randomized trial. *Jama*, 305(4), 363-372.
- The Joint Commission for Accreditation of Health Care Organizations (2009). Performance measurement initiatives. Retrieved from <http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/NQF+Endorsed+Nursing+Sensitive+Care+Measures.htm>
- Titler, M. G. (2014). Overview of evidence-based practice and translation science. *Nursing Clinics*, 49(3), 269-274.
- Tzeng, H. M., Hu, H. M., & Yin, C. Y. (2011). The relationship of the hospital-acquired injurious fall rates with the quality profile of a hospital's care delivery and nursing staff patterns. *Nursing Economics*, 29(6), 299.
- Tzeng, H. M., & Yin, C. Y. (2015). Patient engagement in hospital fall prevention. *Nursing Economics*, 33(6), 326.
- Wilbert, W. U. (2013). The effectiveness of a fall prevention/management program in reducing patient falls: A retrospective study. *The Journal of Chi Eta Phi Sorority*, 57(1), 24-27.

Appendix A. Fall Risk Assessment Sheet

Date: ___/___/___

Place Sticker Here

High Risk Falls Assessment

_____ Unit

Room #: _____

High Risk Falls Assessment

	Points
Fallen in past 6 months	5
Age (this section is auto populated in the EHR)	
< 60	0
60 - 69	1
≥ 70	2
Mental Status	
Alert & Orientated	0
Confused	1
Elimination	
No issues	0
Frequent toileting	2
Urgency	2
Mobility	
No issue	0
New mobility issue	2
Requires assistance – transfer, walker, etc.	2
Medications	
Narcotics	1
Sedatives	1
Diuretics	5
Laxatives	1
Hypnotics	1
Oral Hypoglycemics	1
Assessment Score Total	

Nurses' Clinical Judgment

Low Risk	High Risk	Judgment Score	
0 1 2 3 4 5 6 7 8 9 10		→	

(Assessment Score + Judgment Score) = **TOTAL FALL RISK SCORE**

Total Score 13 or above = *HIGH

Appendix B. *Standardized Teach-Back Card*

I am glad to hear that you were able to view our hospital safety video on prevention of falls. It is critical that you understand the importance of being safe while you are here in the hospital.

1. Tell me in our own words at least three things you can do to lessen your risk for falling while you are here with us in the hospital.

Some strategies include:

- Use your call bell to ask for help while getting out of bed.
- Become familiar with your room.
- Ask your healthcare team if you are on medications that may put you at higher risk for falls.
- Turn on the light when getting out of bed at night.
- Wear non-skid socks or shoes when out of the bed.
- Get up slowly and carefully from a seated position.
- Use assistive devices such as a gait belt, cane or walker as warranted to ambulate.

2. What should you do if you need to get out of the bed at night to go to the bathroom?

- Call for help
- Turn on the light
- Put on non-skid socks or shoes
- Get up slowly

Table 1. *Descriptive Summary of Study Variables*

<i>Descriptive Summary of Study Variables</i>			
<i>Variable</i>	<i>Range</i>	<i>Mean (SD)</i>	
<i>Age, years</i>	19-90	63.7 (15.5)	
<i>Fall Risk Score</i>	0-22	8.4 (5.5)	
<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Mean Age (SD)</i>
<i>Video Viewed/Teach-Back in 24 Hours</i>			
<i>Yes</i>	26	46.4%	65.7 (18.1)
<i>No</i>	30	53.6%	69.1 (12.8)
<i>Video Viewed/Teach-Back within 48 Hours</i>			
<i>Yes</i>	33	58.9%	65.9 (16.7)
<i>No</i>	23	41.1%	60.5 (13.2)
<i>Fall Occurrence</i>			
<i>Yes</i>	0	0%	
<i>No</i>	56	100%	

Table 2. *Demographic and Group Statistic Results*

Video Viewed, Teach-Back Within 24 hours (n = 56)			
	Yes (n=26) Mean (SD)	No (n=30) Mean (SD)	p (alpha level .05)
Age	65.7 (18.1)	61.9 (12.8)	.087
Fall Risk score	8.4 (5.6)	8.5 (5.5)	.964
Video Viewed, Teach-Back Within 48 hours			
	Yes (n=33) Mean (SD)	No (n=23) Mean (SD)	p (alpha level .05)
<i>Age-years</i>	65.9 (16.7)	60.5 (13.2)	.223
<i>Fall Risk score</i>	8.9 (5.8)	7.8 (5.0)	.373

Figure 1. 3 Park Total Falls per 1000 Bed Days

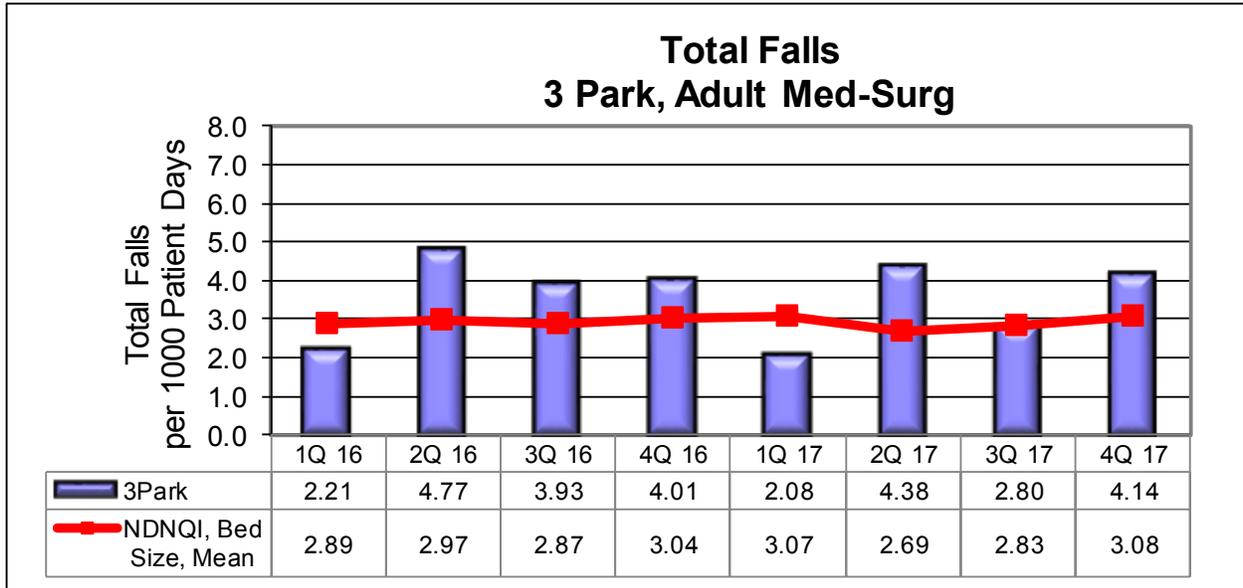


Figure 2. *The IOWA Model*

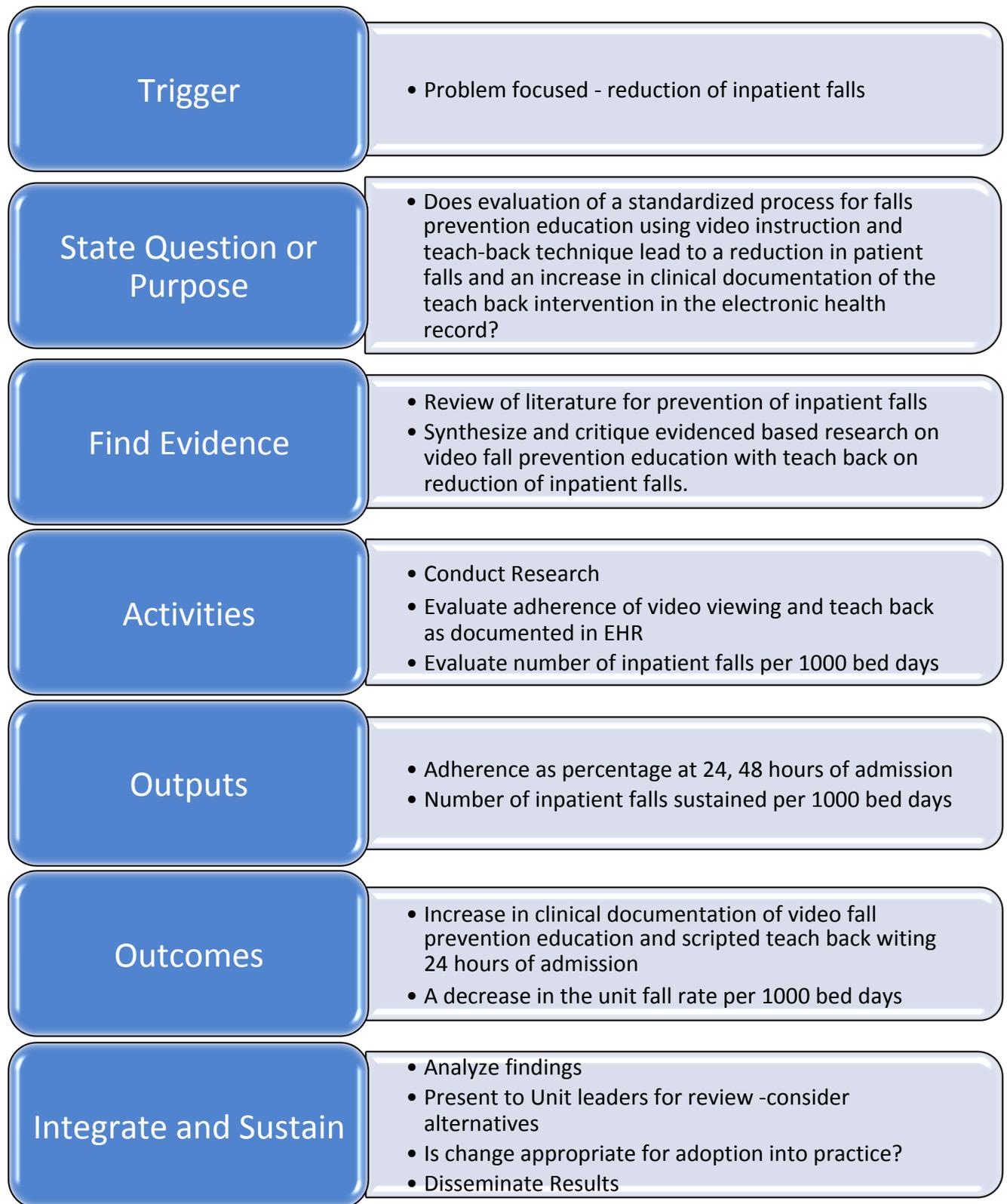


Figure 3. *Study Sample*

