Process Improvement to Increase Use of a Falls Prevention Patient Education Video on

an Inpatient Cardiac Unit

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Abstract

Falls in the inpatient setting are a safety concern and are associated negative patient outcomes and financial consequences for healthcare systems. The project purpose was to increase use of a patient falls prevention education video, through process improvement and staff education on an inpatient cardiac unit. A new process, that included nursing education and training on the video system,   was developed to integrate the video view process into current staff work flows. Desired project outcomes were that nursing assistant staff (1) participated in the falls prevention education and video system training, (2) had patients view the falls education video once per admission, and (3) reduced falls on the intermediate cardiac unit. Plan-Do-Study-Act (PDSA) cycles were conducted every 2 weeks during implementation to identify and address barriers. 86.3% (n=26) of nursing assistants participated in the in-services. 100% (n=152) of staff received education via electronic presentation. The falls education video was played an average 4.5 times per week. Number of falls on the unit decreased 45% from the pre-implementation phase compared to the implementation phase. While video views were not significantly increased during the implementation period, improvement was seen. Future PDSA cycles could include further other unit types and sizes and variation in work-flow processes to assist in determining best practices and developing clinical practice guidelines on patient education through the use of video on fall prevention in the inpatient setting.

Key words: falls, falls prevention, education, multi-media education, quality improvement, process improvement, patient education, video education

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Chapter One: Overview of the Problem of Interest

Falls in the healthcare setting are a serious safety concern for patients. Annually in hospitals, an estimated 700,000-1,000,000 patient falls occur and account for 1.9-3% of hospital admissions (France et al., 2017). Falls are associated with a range of negative outcomes including physical and psychological harm for patients, increased length of stay, and financial consequences for healthcare systems (Oliver, Healey, & Haines, 2010).

Background Information

A fall is defined as an unplanned descent to the floor or other unexpected surface, which may or may not result in injury and may be assisted or unassisted (Agency for Healthcare Research and Quality [AHRQ], 2015). The causes of falls are multifactorial, including patient risk factors, environmental factors, and systems factors. Factors that affect falls can be subdivided into two categories: intrinsic and extrinsic. Intrinsic factors include patient risk factors such as increased age and medical conditions such as heart disease or impaired mobility or cognition. Extrinsic factors are those outside of the patient, such as characteristics or processes of the health care organization (Zhao et al., 2019). Nursing processes are important extrinsic factors that affect falls rates. Falls risk assessment and falls prevention protocols are two nursing processes that significantly decrease falls. Additionally, teaching and magnet designated organizations tend to have less falls (Lake et al., 2010). At these institutions, there are thorough processes in place for prevention and reporting of falls and a culture of quality improvement (QI) is often present (Zhao et al., 2019).

Falls and falls with injury have a been identified as nursing-sensitive indicators (Montalvo, 2007). The National Quality Forum also deemed falls with injury as a serious reportable event (National Quality Forum, 2011). Additionally, the Centers for Medicare &

Medicaid Services (CMS) included falls with injury as a preventable hospital acquired condition. CMS no longer reimburses for additional treatment that is due to a preventable hospital acquired condition (Centers for Medicare & Medicaid Services, 2012).

There are numerous falls prevention methods, strategies, and protocols. Zhao et al. (2019) categorizes falls prevention methods in four categories: environmental, educational, communicational, and nursing process interventions. Environmental interventions focus on ensuring a safe physical environment, such as flooring type and bed height. Educational methods focus on educating health care staff and patients about falls and falls preventions. Communicational interventions utilize visual cues, such a signage and yellow armbands, auditory alerts, such as bed or chair alarms, and verbal communications, such as a nurse reminding a patient to use the call bell. Communicational interventions are generally used in conjunction with other methods. Although, nursing can be involved in the previously mentioned categories, nursing process interventions also focus on falls prevention through assessment of falls risk, implementation of protocols and processes, and completion of post-fall activities such as review and evaluation (Zhao et al., 2019).

There is no single intervention type or combination of interventions that is generalizable to all patient care settings. Many implemented interventions use several falls prevention strategies, which has limited the identification of what combination of elements are most effective in preventing falls. Common elements of multi-component interventions include: falls risk assessment, patient and staff education, medication review, toileting programs, and visual alerts such as footwear, wristbands, and signage. Support from leadership and interdisciplinary partners, intervention designs that included input from direct care staff, pilot-testing, and alteration of negative views of falls prevention have been identified as important aspects of

successful multi-component fall prevention interventions (Miake-Lye, Hempel, Ganz, & Shekelle, 2013).

Significance of Clinical Problem

According to the AHRQ (2015), inpatient hospital falls did not decrease from 2010-2014. A reduction in prevalence of falls has not occurred like that of other hospital acquired conditions such as catheter-associated urinary tract infections (CAUTI) and central line associated bloodstream infections (CLABSI), which had 38% and 72% respective decreases from 2010-2014 (AHRQ, 2015). Each inpatient hospital fall costs approximately $7,000 (AHRQ, 2015). Serious falls related injuries extend length of stay for patients for approximately 6 days and increase costs by approximately $14,000 (The Joint Commission, 2015). Healthcare organizations have a significant responsibility, in regard to both patient safety and financial accountability, in preventing falls. Nursing staff is in a distinctive position, as they are the discipline most often at the bedside with patients, to address and be active in falls prevention measures.

Question Guiding Inquiry (PICO)

A magnet-designated, large academic medical center in rural eastern North Carolina had recorded an increased number of inpatient falls. Various falls prevention strategies had been implemented over several years; the organization was interested in process improvement to enhance already implemented evidence-based prevention strategies on their units with the highest documented prevalence of falls.

Population. The targeted population for this project was nursing staff on the intermediate cardiac unit. This primary population was nursing assistants, but also included nursing unit leadership and registered nurses.

Intervention. The intervention for this project was implementation of a standardized process to prompt patients to view an already existing falls prevention patient education video. The intervention was implemented on an inpatient cardiac intermediate unit, which had been identified as a high prevalence falls unit. In-person in-services, including falls prevention education and video system training, were provided to nursing assistants. An online version was sent via email to all nursing staff, including registered nurses and nursing assistants, prior to implementation of the new process.

Comparison. Falls data was already routinely collected at the organization. Falls data in the form of total falls, the pre-implementation phase data was compared to the implementation phase data. Patient views of the video was tracked via an already existing database, the pre-implementation phase data was compared to the implementation phase data.

Outcome(s). Following a 3-week education period, the new work flow process was implemented on the unit over an 8-week period to increase staff education on falls prevention and video system training, increase views of the falls prevention patient education video, and decrease falls on the unit.

Summary

Falls are an important safety concern to address in the inpatient setting due to the negative effects that falls have for patients. The financial implications of both falls and falls with injury are significant to patients and health care organizations. As a nursing-sensitive indicator, a quality improvement project with a nursing process intervention to decrease falls would be appropriate to implement in the setting of a high prevalence falls unit at a large academic medical center.

Chapter Two: Review of the Literature

Prevention of falls is a priority across health care environments. The inpatient setting provides unique challenges in falls prevention. There is limited evidence on what specific interventions are advantageous in the reduction of falls, as many studied falls prevention measures are multicomponent. Patient education is commonly a part of fall prevention interventions and has been shown to increase patient awareness of falls and lead to reduction of falls in the inpatient setting.

Literature Appraisal Methodology

Sampling strategies. The literature review for this project was conducted utilizing the Medline via Ovid database. Search terms included: falls, education, patient education, toilet, nursing assistant, and hospital. Inclusion criteria implemented at the time of the initial searches were articles less than 10 years old, full-text and in the English language. With these parameters in place, various combinations of the search terms were used and yielded 108 articles. Many articles that resulted from the search were not related to the concept of "fall" or "falls" in the context of healthcare. Out of the 108 articles, 26 were selected for further screening based on article title and abstract. After further review of the article contents, 5 articles were selected.

An additional search was completed through OneSearch, which searches various databases, including CINAHL, PubMed, Medline, and Ovid. Further restrictions were placed on the search due to the initial large result of articles. The search was limited to the same criteria as stated previously, in addition the search was limited to the discipline of nursing and studies within the United States, and specifically excluded pediatrics, adolescents, mental health, and professional development. With these search parameters, 184 articles resulted. Upon further review of article title and abstract, only 2 were selected. An additional 7 articles were retrieved

from the references of previously found articles. All methods resulted in a total of 14 relevant

articles for review

Evaluation criteria. Inclusion criteria included at minimum that articles were no more

than 10 years old, except when deemed currently relevant, English language, and full-text

scholarly journal articles. Article titles and abstracts were then reviewed for additional

information. Further inclusion criteria were that articles were related to inpatient care, patient

education, and multifactorial falls prevention programs. Articles that were not relevant to at least

one of the previously mentioned subjects were excluded.

Of the articles that met inclusion criteria, 2 were systematic reviews of randomized

control trials (Level I), and 4 were randomized control trials (Level II). One systematic review

of qualitative or mixed methods studies was found (Level V), and four articles that were

descriptive or qualitative were found (Level VI). Additionally, 1 quality improvement project, 1

literature review, and 1 economic evaluation were included. See attached literature matrix in

Appendix A.

Literature Review Findings

Multicomponent falls interventions. Many interventions to prevent falls are

multicomponent, consisting of more than one strategy to prevent falls (Zhao et al., 2019). This

conceivably is due to the multifactorial nature of the causes of falls and is an attempt to address

numerous causes at one time, in order to have a greater impact (Zhao et al., 2019). Many

multicomponent falls interventions have been shown to have effective decreases in falls and falls

with injury (Zhao et al., 2019). Many multicomponent falls interventions include the use of

standardized fall risk assessment tools, staff education, patient education, falls alert signage, and

hourly rounding (Zhao et al., 2019). There has been no established combination of interventions that are most successful in reducing falls (Zhao et al., 2019).

There are also various strategies of implementation for multicomponent falls programs. Implementation strategies include staff education, leadership support, ongoing auditing, continuous quality improvement cycles, and falls committees (Zhao et al., 2019). Implementation challenges, such as a poor organizational structure and priorities and resistant or complacent staff, can lead to decreased adherence to interventions and ineffectiveness of the overall program (Zhao et al., 2019). Strong organizational structure and prioritization of preventing falls can positively influences fall rates, as demonstrated in Johnson et al. (2011). A multicomponent falls prevention program was implemented at a large hospital over 3 years. The program consisted of falls risk assessment, communication and reporting processes of falls risk, falls prevention champions, increased public awareness with signage, patient and family education, among other nursing interventions. Many of these interventions took place at various levels within the organization, not only at the bedside. The global and sustained approach of this program resulted in a 16.6% decreased in falls and a 9.4% decrease in falls with injury (Johnson et al., 2011).

Stern & Jayasekara (2009) conducted a systematic review of randomized control trials of falls prevention studies in acute-care hospitals. Of the seven trials reviewed, several interventions demonstrated a reduced number of falls including, patient education (as part of a large falls prevention program), targeted risk factor reduction, and two multidisciplinary multicomponent programs. Ineffective interventions reviewed were short-term vitamin d and calcium supplementation, an exercise program, and one multifactorial program (Stern &

Jayasekara, 2009). Multicomponent falls prevention programs, both including and not including patient education, have shown the capacity to decrease falls in the acute-hospital setting.

Patient education as a fall prevention intervention. Patient education is often a part of multicomponent falls prevention strategies (Zhao et al. 2019). It has also been studied as a standalone intervention (Hill et al., 2009; Hill et al., 2015; Lee, Pritchard, McDermott, & Haines, 2014). Lee et al. (2014) conducted a systematic review and metanalysis of falls prevention education for older adults during and after hospitalization. The review found that education while in the hospital, as both a standalone intervention and as part of a multicomponent program, decreased the falls rate in cognitively intact patients (Lee et al., 2014).

A wide array of methods and approaches to patient education exist, including written materials, videos, and one-on-one and group education sessions (Lee, et al., 2014). Hill et al. (2015) conducted a clustered-randomized control trial that used a multimedia falls education program which included a video and written materials, followed by a in person one-on-one education session, in addition to usual care. The study compared nursing units that completed the education program to units that did not, where patients received usual care alone. The authors found that falls and falls with injury rates decreased on the intervention units (Hill et al., 2015).

Haines et al. (2011) conducted a randomized control trial comparing material only-education, through the use of video and written materials, to material education plus a follow up in person education session. Total falls were not reduced in the total population for either intervention group, but falls were reduced in cognitively intact patients. Additionally, falls were significantly reduced in cognitively intact patients in the intervention group that received material education and the follow up session, compared to the materials only group. The

materials only group did see some reduction, compared to the control group who only received

usual care (Haines et al., 2011). This education program was also found to be cost-effective via

an economic evaluation (Haines et al., 2013). Cost per fall in this study was estimated at

$12,469. Since the educational intervention was effective in falls reduction among patients who

were cognitively intact, the program was shown to be cost saving if >4% of the patient

population on the unit is cognitively intact (Haines et al., 2013).

Multimedia methods, including the use of video, for falls prevention patient education

have been implemented as part of multicomponent falls prevention programs (Cuttler, Barr-

Walker, & Cuttler, 2017; Hoke & Guarracino, 2016). Cuttler et al. (2017) found that use of a fall

prevention patient education video, with prompting to watch the video, combined with the use of

bed alarms decreased falls by 40% and falls with injury by 20% over a 7-year period. Hoke &

Guarracino (2016) found that a falls prevention program that focused on nursing accountability,

toileting, nursing assistant involvement in patient education, and written and video education

significantly reduced falls by 55% and falls with injury by 72%. Both studies implemented a

process for patients to be prompted to view the educational video, either by volunteers or nursing

assistants.

Patient response to education. Another outcome of falls prevention patient education is

the patient's response to the intervention. Several studies have assessed patient knowledge and

perception of falls and falls risk post-education (Dykes et al., 2017; Hill et al., 2009; Hill et al.,

2016; Kuhlenschmidt et al., 2016; Lee et al., 2014). Lee et al. (2014) found that education

interventions, either alone or as part of multicomponent falls programs, increased patient

knowledge of falls. Hill et al. (2009) conducted a two-group randomized trial, with a control

group (no education), the intervention groups either received a video or written material as a

form of education for falls prevention. Post-education, the video group displayed an increased

perception of risk of falls, incentive to prevent falls, and understanding of falls prevention

strategies, compared to the written material and control groups (Hill et al., 2009). Hill et al.

(2016) conducted a qualitative survey of participants in Hill et al. (2015) who completed the

educational program that included a video, written materials, and a follow up education session.

The authors found that participants of the education program had increased knowledge,

confidence and motivation to engage in falls prevention strategies (Hill et al., 2016).

Additionally, there is some evidence highlighting the benefit of tailoring interventions to

help prevent falls. Kuhlenschmidt et al. (2016) used video and written materials tailored to the

nurse-assessed falls risk and the patient's perception of risk. Approximately one third of

patients, who were deemed high falls risk by nursing assessment, believed they were low risk for

falls. Post-intervention there was a statistically significant increase in the number of patients

who now perceived their risk for falls as high, indicating the tailored, nurse-administered

educational resources were effective in increasing patient awareness of their falls risk

(Kuhlenschmidt et al., 2016). Dykes et al. (2017) also addresses patient engagement and

communication of falls risk through the use of tailored interventions. This program did not

specifically focus on education but was centered around engaging patients in tailored

interventions to prevent falls, which led to increased patient knowledge of risk for falls and ways

to prevent falls (Dykes et al., 2017).

Limitations of Literature Review Process

As much of the fall prevention literature indicates, there is a lack of research that has

evaluated single falls prevention interventions. As previously stated, many falls prevention

interventions have many components. Patient education is not described in great detail and

implementation varies from study to study. Additionally, there is lack of evidence that discusses the content of falls education videos that have been a part of multicomponent or stand-alone interventions. Due to the limited evidence of patient education in general, there were no studies found with the specific population of cardiac patients in the inpatient hospital setting.

Discussion

Conclusion of findings. Prevention of falls is imperative in the inpatient setting, due to the physical, psychological, and financial consequences of falls. The nature of the cause of falls is multifactorial, and this is heightened in the inpatient setting with various levels of administration guiding policies and protocols and multiple disciplines caring for the patient. Due to this, over the years, hospitals have implemented numerous interventions to attempt to address the elusive task of significantly decreasing falls.

Many falls prevention interventions in the literature are intentionally multicomponent programs or are implemented in settings where there are already falls prevention efforts in place. This makes it difficult to distinguish what intervention or combination of interventions are effective in decreasing falls. Patient education is a mainstay of nursing practice and is present in many successful multicomponent fall prevention programs. The use of video as an education method is appealing in that all patients would receive a standardized message regarding content and delivery. Leveraging this technology as a patient education tool is also potentially beneficial to nursing staff in regard to efficiency and time management. Education of patients about falls risk and falls prevention using video technology, alongside ongoing falls prevention strategies, is effective in engaging patients in falls prevention and reduction of falls in cognitively intact patients.

Advantages and disadvantages of findings. One of the advantages of the proposed

intervention of increasing the use a falls prevention patient education video is that it has been

evaluated in settings where falls prevention strategies were already being implemented. This is

consistent with the setting where the intervention will be implemented. Also, the concept of

patient education is generally accepted and has been shown to be cost effective. In addition to

decreasing falls rates, the literature shows that video education increases patient knowledge and

awareness of falls prevention and risk (Hill et al., 2009; Hill et al., 2016; Lee et al., 2014).

One of the disadvantages of the findings in relation to the intervention, is that the content

of falls prevention education videos has not be evaluated in the literature. Also, the evidence

suggests that consistent use of the video may require real-time prompting by staff for patients to

watch the video (Cuttler et al., 2017; Hoke & Guarracino, 2016). This will require integration

into current unit work flow and processes.

Additionally, since falls prevention education interventions are more effective in

cognitively intact patients, to isolate this population, nurses would have to screen and determine

cognition prior to delivering the educational intervention. In spite of this, the economic analysis

of one study showed that even if a low percentage of the population is cognitively intact, the

intervention remains cost saving even when administered to all patients (Haines et al., 2013).

Utilization of findings in practice change. The use of an already existing falls

prevention patient education video will be implemented on a cardiac intermediate unit at a large

academic medical center. This unit has been identified as a high prevalence falls unit, and

already has a multicomponent falls prevention program in place. To implement the proposed

intervention, nursing assistants will need education and training on the already integrated patient-

education video system. Cognition of the patient will not be considered, so the additional

process steps of the nurse determining who should receive the intervention are eliminated. The intervention will be administered to all patients on the unit. Nursing assistants will prompt patients to watch the falls education video at a set time as part of an already existing work-flow process on the unit, ideally within 24 hours of admission to the unit. This will ensure early and consistent viewing of the video by patients. Views of the patient video will be tracked in an already existing information system database. Number of nursing assistant staff members educated will be recorded at each education session.

Summary

The implementation of a patient education falls prevention video to increase patient knowledge and awareness of falls risk and prevention and decrease falls on an inpatient cardiac unit addresses both Healthy People 2020 and the Institute for Healthcare Improvement's (IHI) Triple Aim. One of the goals of Healthy People 2020 is to address the quality of life of older adults. Reduction of injury is a strategy identified to work towards this goal. Falls are a major source of injury in the older adult population (United States Department of Health and Human Services, n.d.). Prevention of falls in the inpatient setting is in line with the goal of preventing injury in older adults.

This intervention also addresses all three components of the Triple Aim (Institute for Healthcare Improvement, n.d.). The prevention of falls through education increases the quality of care patients receive and increases patient safety. Implementation of a standardized process to reduce falls addresses the population of hospitalized patients and also older adults, in which injury prevention is beneficial to overall health. Reduction of falls also results in responsible provision of health care services and decreased costs, by reducing unnecessary injury and treatment. Overall, the prevention of falls in the inpatient setting is an essential area to address

through quality improvement, as the negative outcomes resulting from falls are detrimental to

patients.

Chapter Three: Theory and Concept Model for Evidence-based Practice

Clearly outlining concepts and defining terms is necessary in operationalizing the project

intervention and in communicating project outcomes. This is particularly important for the

subject of falls, since many definitions and outcome measures exist. Application of the

Diffusion of Innovations Theory provides a sound theoretical basis for the implementation of a

standardized process to prompt patients to view a falls prevention video facilitated by staff

education and training.

Concept Analysis

Across the literature there a varying definitions of a fall. For the purposes of this project,

a fall is any unintended descent to a lower surface that may or may not cause injury, may be

assisted or unassisted, and is inclusive of patients who potentially intended to fall. A fall with

injury is a fall that causes physical harm or injury and excludes emotional or psychological harm.

Falls prevention patient education video refers to a prerecorded presentation that is

accessed via a patient education video system that is displayed on the patient's hospital room

television. The video in use is appropriate for a wide audience of patients as its content focuses

on universal falls precautions that apply to all patients. The video is available in English and

Spanish, and closed captioning is available for patients with hearing impairment. Nursing staff is

defined as including registered nurses and nursing assistants, in direct bedside nursing care.

Staff education refers to engagement and communication with nursing staff members regarding

the proposed process and falls prevention items via in person educational sessions and online

methods such as email.

Patient video views, one of the project measures, refers to the number of times the patient

education falls video is viewed by patients in the project time frame. Another outcome measure

is falls on the inpatient unit, which is number of falls that occur on the unit and is tracked

through an internal event reporting system. Various definitions in relation to falls and falls

prevention exist throughout the literature and in the practice environment, therefore it is

important to clearly define the operational definitions for this project.

Theoretical Framework

Naming the Theory. The theoretical foundation of this project is the Diffusion of

Innovations Theory, a social science theory that describes how innovations are diffused through

a system. Rogers (2003) describes the four main components of the diffusion of innovations:

innovation, communication channels, time, and social system. Innovation is a proposed

intervention to address a problem of interest. Innovations are often met with uncertainty. The

consequences, both positive and negative, of adoption or rejection of an innovation are important

factors to consider, and contribute to the uncertainty (Rogers, 2003). Communication channels

are essential to the process of diffusion of innovations. Communication of information is the

method by which diffusion takes place, and this is facilitated by channels who transmit the

message to the end receivers. Communication can occur via interpersonal relationships or the

mass media, each with different advantages depending on the variables or stage of the process

(Rogers, 2003). Time is another central factor in the diffusion of innovation and is important to

note as many studies do not consider time of implementation as a factor (Rogers, 2003). The

final element is the social system, which may be individuals, groups, or even an entire

organization, and is where diffusion occurs. It is important to note, that the norms and structure

of the system affect the adoption of innovations (Rogers, 2003). The interaction of these four

elements alone highlights the complexity of the diffusion of innovations.

The innovation-decision process requires five steps: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). In the first stage, knowledge, an individual (or group or organization) becomes aware of an innovation and, either actively or passively, learns more about the innovation. There are different types of knowledge, each with a varying depth of understanding of the innovation and how it works (Rogers, 2003). The next stage is persuasion, in which the individual develops a positive or negative view of the innovation. This view alone does not determine whether the innovation will be adopted, as individuals are often influenced by the opinions, feelings, or recommendations of others such as peers, colleagues, or leaders (Rogers, 2003). While mass media is successful at creating awareness, interpersonal relationships, such as those of colleagues, are successful in persuasion (Greenhalgh, Bate, Kyriakidou, Macfarlane, & Robert, 2008). Following persuasion is the decision stage, where an individual decides whether to adopt or reject an innovation based on the previous two stages of knowledge and persuasion. If an innovation is adopted, the next step is implementation. During this stage, changes are often made for the innovation to better fit the context in which it is being applied, this is known as reinvention. Reinvention of an innovation increases the rate of adoption, as it is more seamlessly integrated into the system or more specifically addresses the problem or area of interest (Rogers, 2003). In the final stage, confirmation, an individual seeks to confirm the decision of adoption of the innovation. This is done by pursuing information that reinforces the decision, if opposing information is found the individual may discontinue the innovation (Rogers, 2003).

In addition to the innovation itself, the innovation's attributes help increase its chance of adoption (Rogers, 2003). Rogers (2003) asserts that innovations that have greater relative advantages, compatibility, trialability, and observability, and less complexity are more likely to

be adopted and be adopted at a faster rate. Another component of the Diffusion of Innovations

Theory is the characterization of different groups of adopters, based on how early or late they

adopt an innovation. Adopters are classified as: innovators, early adopters, early majority, late

majority, and laggards, in order from earliest to latest adopters. In cases where innovations are

fully adopted the distribution follows a bell-curve (or normal distribution), in which over half of

individuals fall into the early or late majority categories (Rogers, 2003). This demonstrates the

influence a few members have in persuading a large number of other members in the diffusion

and adoption of innovations.

       Application to practice change. The Diffusion of Innovations Theory supports the

intervention of implementing staff education to promote the use of a patient education falls

prevention video. The innovative component is the implementation of a standardized process to

prompt patients to view the education video. The implementation of the new process will be

facilitated by staff education and training on the process and falls prevention.

       The five steps of the innovation-decision process: knowledge, persuasion, decision,

implementation, and confirmation, are in line with the structure of the project. Staff will

participate in educational sessions to increase their knowledge of the patient education video

system and the benefits of patient education in falls prevention. At this point, staff are persuaded

to view the intervention negatively or positively and then decide to adopt the intervention or not.

Implementation occurs when the process is actually used in practice by the staff members.

Confirmation of the intervention will be supported by providing staff with feedback on the

outcomes of the new process.

       The educational sessions provided to staff will include information regarding the

importance of falls prevention and evidence to support the use of patient education videos as part

of a multicomponent falls prevention program. This addresses the attributes of the intervention

to increase adoption by highlighting its advantages and compatibility of addressing the problem

of falls. Communication channels and the social system are also important components of the

Diffusion of Innovations Theory that are applicable to this project. Partnering with unit

leadership and key stakeholders on the unit, will help identify innovators and early adopters to

assist in the rate and spread of adoption of the new process (see Appendix B for visual concept

map).

Summary

The Diffusion of Innovations Theory provides a strong theoretical foundation for the

implementation of this project. Implementation of any intervention that adds tasks to be

completed by nursing staff, who are already inundated with responsibilities, is challenging.

Application of the Diffusion of Innovations Theory to the project development and

implementation process will assist in mitigating these challenges.

Chapter Four: Pre-implementation Plan

A quality improvement project requires several steps in the pre-implementation stage. During pre-implementation, the QI project site and East Carolina University (ECU) granted approval to implement this project. This chapter describes how the project was implemented.

Project Purpose

The project purpose was to increase patient education about falls risk and prevention through a patient education video system on an inpatient cardiac intermediate unit. This purpose was achieved through educating nurses and nursing assistants and implementing a standardized process for nursing assistants to prompt patients to view the falls education video. Specifically, nursing assistants received (1) falls prevention education and (2) training about the patient education video system. The standardized process was for nursing assistants to prompt all patients on the unit to view the falls prevention patient education video at the 1600 vital sign time. Desired project outcomes were that (1) nursing assistants participated in the falls prevention education and patient education video system training, (2) nursing assistants had patients view the falls education video once per admission as part of the standardized process, and (3) falls were reduced on the cardiac intermediate unit.

Project Management

Organizational readiness for change. The impetus of this project was from a systems perspective. The organization is the flagship hospital of a multi-hospital health system. A system-wide falls task force was developed to address and standardize falls prevention strategies. One task force objective was to address the existing patient education video system. Readiness to change to address falls education was evident within the organization, i.e., the chief quality officer and quality nurse specialist specifically discussed reduction of falls as a goal at the

institution. The project site was identified as a high prevalence falls nursing unit. High falls

occurrence was a factor in the unit's readiness for change. Key unit stakeholders included the

unit nurse manager and unit falls representative. They were engaged early in the QI process and

provided unit support for pre-implementation planning.

       Interprofessional collaboration. The content expert at the site was a quality nurse

specialist with falls prevention identified as one of her main responsibilities. She leads the

system-wide and hospital-wide falls task forces. The quality nurse specialist, as part of the

quality department, has ongoing interactions with nursing units. These interactions provided

support and access to the specific nursing unit. Other key team members included the unit nurse

manager and unit falls representative. These team members provided operational details to best

inform how the patient education video could be integrated into existing unit workflows.

       Development and implementation of the project included individuals from a variety of

professions outside of nursing, including patient and family experience administrators,

information technology specialists, and media services. These professions assisted with the

patient education video system aspect of the project. With the Doctor of Nursing Practice (DNP)

student as the leader of the team, each profession played a unique role in the culmination of the

project.

       Risk management assessment. A SWOT analysis was completed to anticipate

challenges and enhance identified strengths in the pre-implementation plan. One project

weakness was the many competing demands that nursing staff confront daily. Lack of buy-in

and staff failure to adopt the new process were potential threats. One strength was engagement

of unit leaders to foster buy-in. Opportunities to address these threats were to actively engage

nursing staff and become familiar with the unit work flows.

Organizational approval process. Organizational project approval was obtained by several in-person meetings and email communication. The DNP student worked with the quality nurse specialist to determine project goals prior to approval. The project was formally approved by the vice president of quality for the organization (see Appendix C).

Information technology. Several information technology platforms were used in this project. The falls prevention patient education video was viewed through a patient education system that provides on-demand telehealth patient education. This system also allows tracking of video views, from which de-identified reports were generated. The fall event reports were generated by the falls safety intelligence dashboard, which is a system were information is entered to analyze de-identified falls events data. The data was compiled and analyzed using a computer spreadsheet. Voice-over slide presentation sent via email was used for staff education and training. The unit manager routinely records bi-weekly staff briefings on unit updates. Information about the unit in-services and new process were communicated through this platform. Staff education and training sessions used word documents and slide-show presentations.

Cost Analysis of Materials Needed for Project

The overall cost of the DNP project was low, because the technology was already in use at the organization. Anticipated project costs include travel, printing, and food for staff. An operational budget was created (see Appendix D). Travel expenses were calculated based on an estimated 21 site trips, 15 miles round trip, and 0.58 cents per mile, totaling $182.70 (Internal Revenue Service, 2018).

Plans for Institutional Review Board Approval

The project site has an Institutional Review Board (IRB), but it deemed the DNP project as quality improvement which did not require full IRB review process. The DNP project proposal was reviewed by the ECU College of Nursing via the Quality Improvement/Program Evaluation Self-Certification Tool, which did not categorize it as human subject research (see Appendix E). Thus, the project proposal did not require a full IRB review process.

Plan for Project Evaluation

Demographics. The only demographic data collected was nursing staff role: registered nurse or nursing assistant. The DNP Project Data Collection tool was used to collect this descriptive information (see Appendix F).

Outcome measurement. For this project, process measure was percentage of nursing staff who participated in the education and training session. This percentage indicated how many staff received information necessary to implement the new process. The project outcome measure was the number of times the patient education falls video was viewed. This outcome demonstrated if the practice of nursing assistants prompting patients to watch the video was adopted. Another outcome measure was the number of falls that occurred on the unit. Ideally, if more patients receive education on falls prevention, falls on the unit would decrease.

Evaluation tool. The DNP Data Collection tool was used to collect (1) descriptive demographic information and (2) participation in the education session (see Appendix F). The number of views of the patient education falls video was obtained from an information system-generated report and displayed in a graphic figure format. The falls event data was obtained from an information system-generated report and displayed in a graphic figure format. These reports were used to evaluate the outcomes of the project.

Data analysis. The nurse manager provided the number of nursing staff, both registered nurses and nursing assistants. Total number of day-shift nursing assistants was compared to the number of day-shift nursing assistants who participated in the education session (divide # educated by total #), to result in a percentage. Number of video views during the 8-week project implementation was compared to number of video views 8 weeks prior to implementation. Falls data is collected and compiled monthly at the organization. The number of falls during the 3 months of education and implementation was compared to the 3 months prior to education and implementation.

Data management. Hard copy data was stored in a locked box. Digital data was stored on the College of Nursing's protected, departmental storage drive. Hard copy data was kept through the end of the project and shredded at its conclusion. Digital data was stored on the departmental drive and was deleted at the project's conclusion.

Summary

This chapter described the project's pre-implementation process. Baseline falls event data and video view usage were collected before implementation. Then, education and training sessions for nursing staff were held, which included information on falls prevention and using the patient education video system. The DNP data collection tool was used to record staff number in participation and their role. After staff education, the new work-flow process was implemented on the unit. Falls events and video views were collected during and post-implementation. At all project stages, data were stored securely. Potential challenges and strengths of the project were identified. Key stakeholders were involved during development and before implementation. The next chapter will highlight the implementation phase.

Chapter Five: Implementation Process

The implementation phase of the project was the culmination of pre-implementation planning. This chapter describes the project's setting, participants, recruitment, and implementation. Variation from pre-implementation plans will also be discussed.

Setting

The project was conducted on a cardiac intermediate nursing unit at a large, academic medical center in North Carolina. The organization is a non-profit, private entity, associated with a public university. As noted in previous chapters, inpatient falls are a major concern due to patient harm. Falls prevention was an organizational priority that had been identified prior to project development. The project site actively sought to address this objective. The unit chosen for the project implementation was selected because of its high occurrence of falls.

Participants

The primary project population was the unit's nursing staff, i.e. registered nurses and nursing assistants. At implementation, there were 152 total nursing staff, of which 105 were nurses and 47 were nursing assistants. No staff were specifically excluded, except for those on extended leave from work. Organization leaders, including the unit manager and unit falls representative were also involved. These members were engaged in the pre-implementation and implementation process to give feedback about the proposed intervention and unit challenges. The project objective was to increase patient views of the fall prevention video, which was met through staff education on falls prevention and training on the video system. There were no exclusion criteria for patients. All patients were eligible to view the video, regardless of fall risk or cognitive status. No patient or staff demographics data, other than staff role (registered nurse or nursing assistant), were collected. .

Recruitment

All staff, nurses and nursing assistants, received an email that included a voice-over slide presentation on fall prevention education and video system training. Day-shift nursing assistants were invited to attend the unit's face-to-face in-services. Digital presentation and participation in on-unit sessions were voluntary. Unit leaders also voluntarily participated and provided verbal and written feedback before and during implementation.

Prior to implementation, staff were potentially resistant to the new process due to its workflow alteration. Unit leadership helped tailor the new process to integrate it into already existing workflows. Unit leadership was enthusiastic about addressing falls prevention. Their role was essential to promoting staff acceptance of the new process.

Implementation Process

DNP project implementation began by obtaining baseline unit falls data and number of patient views of the falls education video. The number of falls for the current and prior fiscal year were obtained by the quality nurse specialist who provided it to the DNP student. Video view data for the 3 months prior to implementation was generated through the patient education video system by the patient experience administrator and provided to the DNP student. This data was included in the digital presentation and unit in-services. The pre-recorded digital presentation was sent to the unit manager to email to all current nursing staff. This communication included information on falls prevention and the new process. Unit in-services targeted day shift nursing assistants and were conducted for three weeks. At in-service session completion, nursing assistants signed the attendance roster to document their participation. If nursing assistants did not attend the in-person training, they had previously received the voice-over slide show presentation that included the training information.

The new process "go-live" date was set after the three-week staff education period. Patient video views report was generated weekly and sent to the DNP student during the 8-week implementation. As part of the Plan-Do-Study-Act (PDSA) model, weekly site visits were conducted to meet with staff and elicit feedback about implementation barriers and successes. At implementation conclusion, a unit falls report was obtained from quality nurse specialist and total video views report during implementation was acquired.

Plan Variation

Variation from the initial implementation plan was necessary and expected. The use of PDSA cycles calls for changes to be made to address any identified barriers in the implementation of QI. PDSA cycles were conducted every two weeks, in addition to weekly site visits, as planned. With each PDSA cycle, changes were made based on the previous two weeks video view data and feedback from the site champion and unit staff and leaders.

After the three-week education period, implementation began with PDSA cycle 1. After discussion with the site champion and unit manager, charge nurses were asked to include a reminder about the new process in the daily huddle at the beginning of each shift. Additionally, unit secretaries were asked to broadcast an announcement each shift to remind nursing assistants to play the video for their assigned patients.

During PDSA cycle 2, signage was added at each computer workstation on the unit to serve as visual reminder for staff. The DNP student met with nursing assistants on the unit to elicit feedback, identify barriers, and answer any questions about the process. During this meeting a goal was set for 10 video views per week. Some staff identified the suggested time that the video to be played as a barrier. It was clarified that staff could play the video at any time

during the shift; this acknowledged the nuance that each individual has their own existing workflows and preferences within the larger unit workflows.

During PDSA cycle 3, several nursing assistants expressed concern about the number of video views that were in the report. They reported that they had played the video more times than the total number that was in the generated report. This potential technology issue concern was directed to the patient experience administrator in charge of the patient education video system for troubleshooting assistance. The unit manager and site champion were also notified of the potential technology issue.

During PDSA cycle 4, to continue data collection, hard copy data collection sheets were distributed to each nursing station on the unit. Nursing assistants were instructed via email to log the total number of times they played the video during their shift. Upon review of the hard copy logs, no video views had been logged by the nursing assistants. No identifiable issue was found in regard to the system logging the patient video views. Otherwise, cycle 4 continued as planned and the implementation phase concluded with a debriefing session for nursing assistants to attend. A review of falls prevention interventions and initial results of the implementation phase were shared with staff in attendance to the debriefing session.

Summary

Implementation began by meeting with the organizational and unit leadership to tailor the new process into existing staff work-flows. Project participants were unit nursing staff, who voluntarily participated in education sessions. Baseline unit falls data and patient video views of the falls education video were obtained before implementation. Site visits were conducted weekly to monitor new process adoption. Some variance from the original implementation plan was expected, secondary to using PDSA cycles to address implementation barriers.

Chapter Six: Evaluation of the Practice Change Initiative

The project purpose was staff education and training and implementation of a standardized process for nursing assistants to prompt patients to view an already existing falls prevention patient education video. At completion of this project, although the process was not fully adopted on the unit, some staff members had adopted the new work flow process of prompting patients to view the patient education falls video. This chapter will discuss the project patient demographics, intended outcomes, and findings.

Participant Demographics

The primary participants of the project were 26 day-shift nursing assistants on the unit. There was a total of 105 registered nurses and 47 nursing assistants, including both day-shift and night-shift staff, who participated via receiving education electronically. This demographic information was collected via the DNP Project Data Collection Tool. No patient demographic information was collected and no demographic data beyond the role of the staff member was collected.

Intended Outcomes

There were several intended outcomes of the project. The short-term outcome was for nursing assistant staff to participate in the falls prevention education and patient education video system training. This process was measured by the percentage of day-shift nursing assistants who participated in the sessions. The intermediate outcome was to have patients view the falls education video once per admission. This outcome was measured by weekly reports that were generated by the video system. The long-term outcome was to reduce falls on the intermediate cardiac unit. This outcome was measured by tracking the number of falls that occurred on the unit via an internal event reporting system.

Findings. The large majority, 86.3% (n=22) of nursing assistants participated in the in-person education and training session (see Figure 1). Additionally, 100% (n=152) of all staff including day-shift and night-shift received education electronically. The number of video views was tracked weekly (see Figure 2). During the 8-week pre-implementation phase the video was only played 1 time. During the 3-week education phase, the video was viewed 4 times. The number of views per week ranged from 0 to 3 and was viewed an average of 1.33 times per week. During the 8-week implementation phase, the video was played a total of 41 times. The number of views per week ranged from 0 to 15 and was viewed an average of 4.75 times per week (see Figure 3). The number of falls on the unit per month was tracked retrospectively (See Figure 4). In the three months prior to implementation there were 20 falls on the unit. In the three months during the implementation phase there were 11 falls (see Figure 5). This represents a 45% decrease in falls from the pre-implementation to the implementation phase.

Figure 1.

Nursing Assistant Participation in Education/Training Session
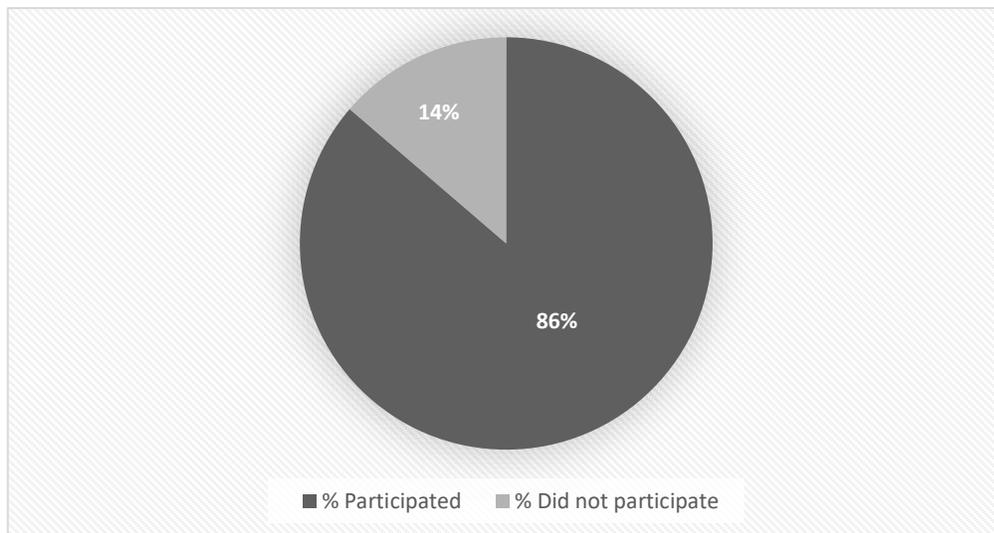
Figure 2.

Video Views Per Week: Pre-Implementation Phase through Implementation Phase
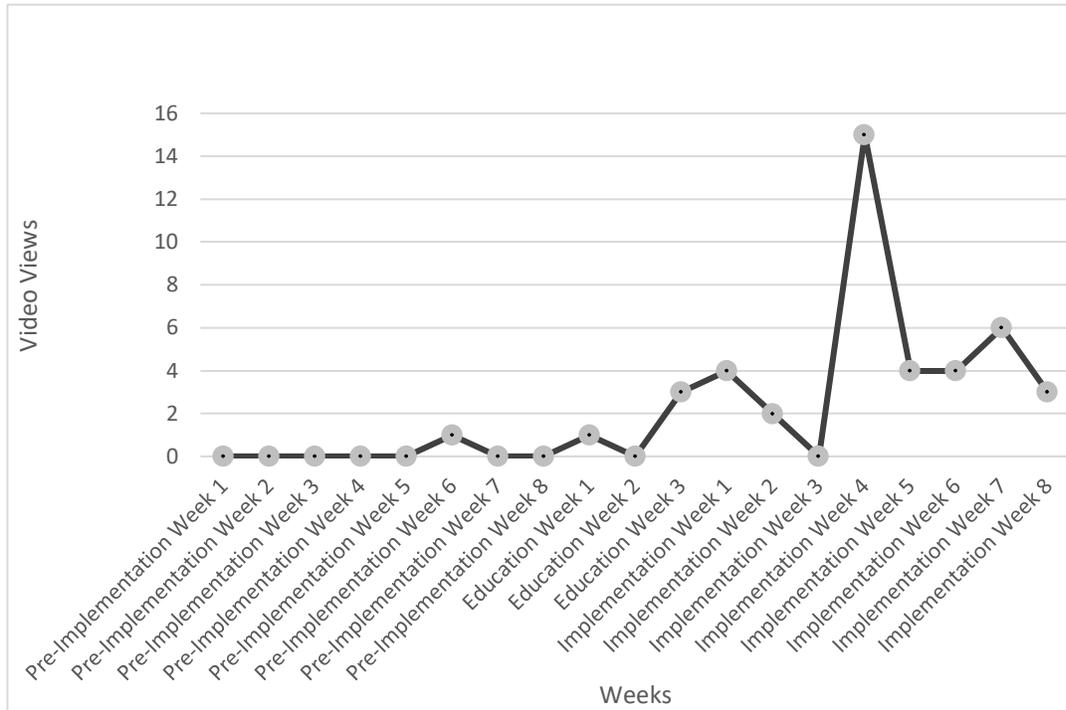
Figure 3.

Video Views per Week-Implementation Phase
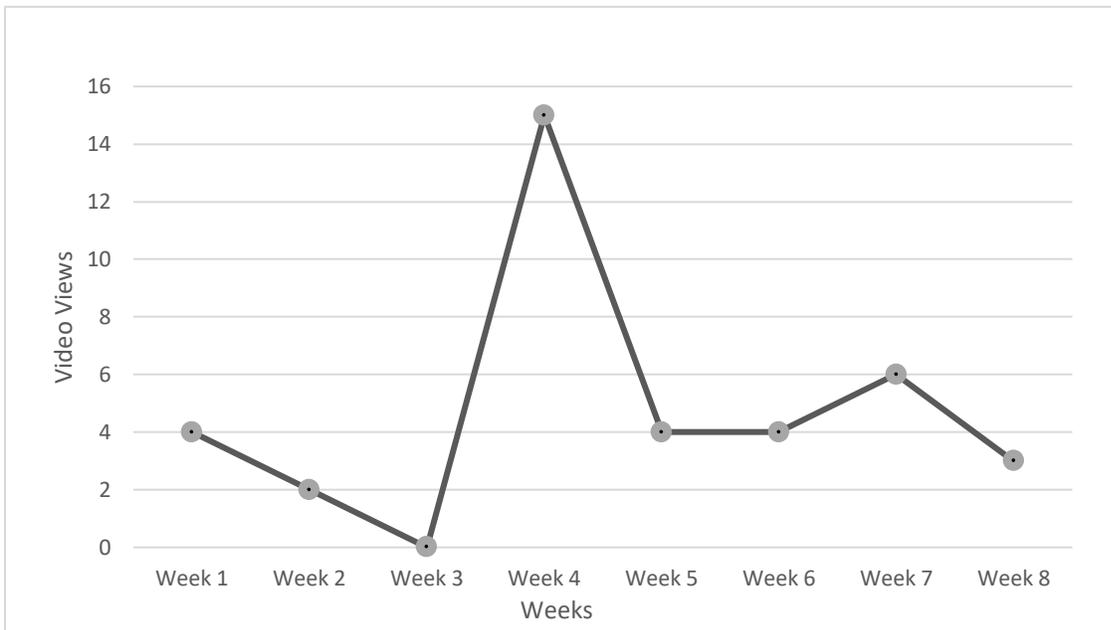
Figure 4.

Falls per Month
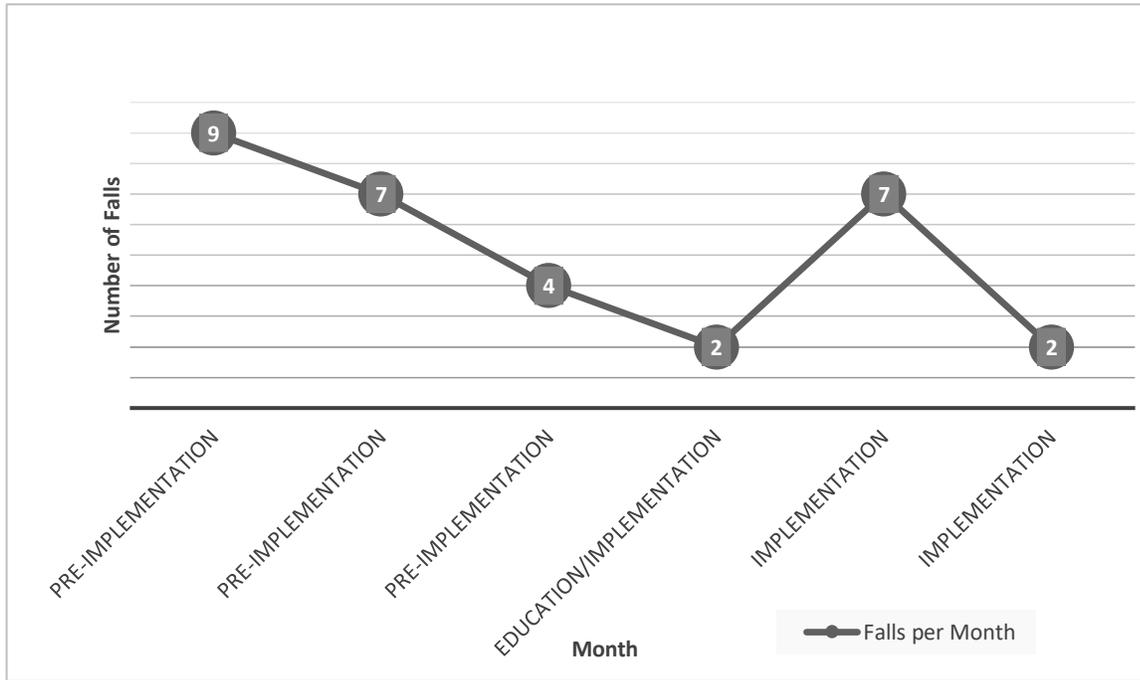
Figure 5.

Falls Pre-implementation vs. Implementation Phase
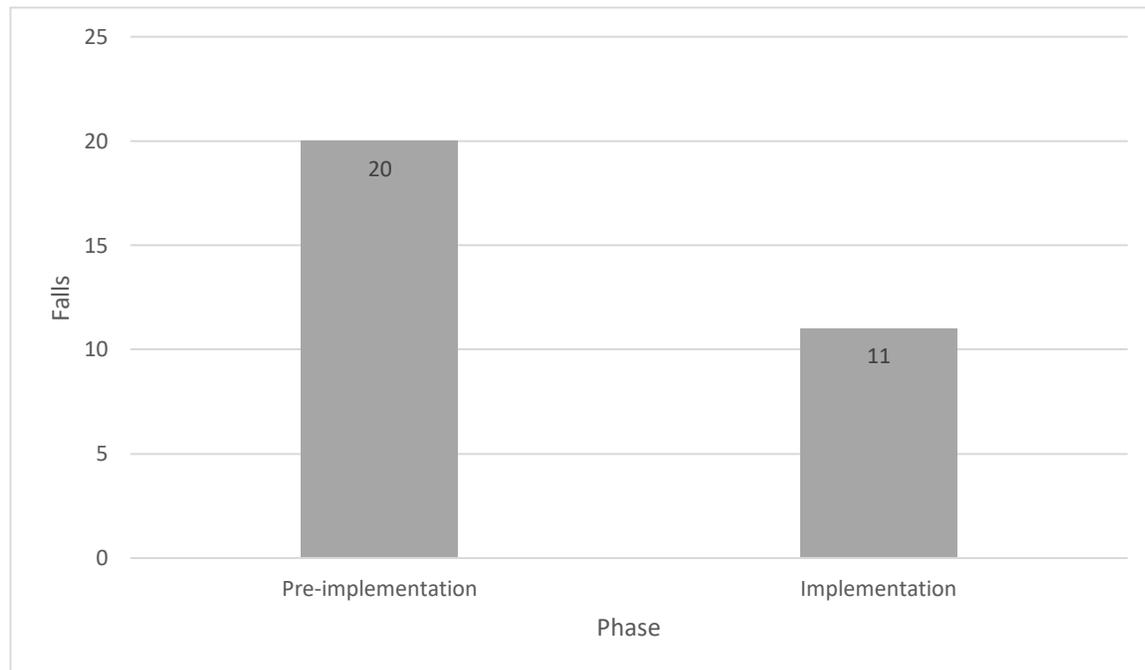
Summary

Majority of staff participated in the education and training sessions and the number of views of the falls prevention patient education video increased from pre-implementation to the implementation phase of the project. The new work flow process to prompt patients to view the falls education video was adopted by some staff members but was not fully adopted on the unit. Falls decreased on the unit from the pre-implementation phase compared to the implementation phase. These findings lead to a greater discussion of the project's implications for practice.

Chapter Seven: Implications for Nursing Practice

The American Association of Colleges of Nursing (AACN) developed and established the DNP Essentials, which are elements and competencies that DNP programs must include, and graduates must meet (AACN, 2006). Each of the eight essentials are foundational to advance nursing practice. This chapter will describe how each essential is incorporated in this QI project and its implications for nursing practice.

Practice Implications

Essential I: Scientific underpinnings for practice. This essential highlights science as the basis for advance practice nursing, which includes natural and social sciences. The ability of DNP graduates to use science, including nursing science, integrate theory, and translate research to improve patient outcomes is foundational to advance practice nursing (AACN, 2006). This QI project incorporated research and theory as the basis of practice change. A review of the literature regarding falls prevention interventions was conducted and supported the use of video for patient education as part of a multifactorial falls prevention program. (Lee et al., 2014).

The Diffusion of Innovations Theory provided a sound theoretical basis for the implementation of a standardized process to increase the use of the patient education falls video. The design of the implementation process was based on the innovation-decision process which includes: knowledge, persuasion, decision, implementation, and confirmation. Staff initially received fall prevention education and participated in trainings, which then led them to develop a positive or negative view of the new process. Staff then decided on whether or not to implement the innovation, and their actions were confirmed when the project outcomes were shared with them. Partnering with key stakeholders, such as the unit manager and falls representative,

provided a critical communication channel and helped to assist in the rate and spread of adoption of the new process throughout the social system.

Essential II: Organization and systems leadership for quality improvement and systems thinking. The necessity of DNP graduates to possess a systems viewpoint and leadership skills is highlighted in this essential (AACN, 2006). This QI project was initiated by partnering with organizational leadership to identify an area in need of change. This site identified a need to address the prevention of falls. Specific attention was given to selecting a cost-effective intervention that could be piloted in one area and then implemented on a larger scale.

The project also involved collaboration with organizational and unit leadership to identify system issues for why the already existing patient education falls prevention video was not being used. A systems approach is important for DNPs to employ when setting out to improve patient care for a population. This approach is necessary to balance the practical realities that occur within organizations while implementing evidence-based practice to promote widespread change.

Essential III: Clinical scholarship and analytical methods for EBP. This essential builds upon the scientific underpinning of practice to the translation of research into practice which takes form in the development and implementation of QI strategies. This essential includes analysis of literature to determine best practices, measurement of processes and patient outcomes, evaluation of practice, and dissemination of findings (AACN, 2006).

This project implemented QI strategies and was based on the translation of research into practice. These are essential skills that DNPs must possess as it is the basis of the evidence that

DNPs generate. A review of the literature of falls prevention was conducted, 14 articles met the

inclusion criteria of less than 10 years old, English language, full-text, and relevant to the topic.

The articles that met inclusion criteria were analyzed for their level of evidence, two were

systematic reviews of randomized control trials (Level I), and four were randomized control

trials (Level II). One was a systematic review of qualitative or mixed methods studies (Level V),

and four were descriptive or qualitative (Level VI). Additionally, one quality improvement

project, one literature review, and one economic evaluation were included. All of the articles

selected were important for providing the overall context of the project, but more significance

was placed on the articles that were higher levels of evidence, such as systematic reviews.

The process was measured by the number of staff who participated in the education and

trainings and the weekly number of video views. The patient outcome was measured in the

number of falls on the unit. Additionally, the project findings were disseminated within the

practice site and at the ECU College of Nursing's DNP poster presentation day.

Essential IV: Information systems/technology and patient care technology for the

improvement and transformation of healthcare. This essential demonstrates the roll that

technology and information systems play in the delivery of care and evaluation of outcomes.

Technology will continue to play an exceedingly important role in healthcare, DNPs must be

able to select and evaluate these technologies for a wide away of situations. This is particularly

important in QI initiatives, through the use of data extraction and its use to develop a plan and

evaluate outcomes (AACN, 2006).

The basis for this project was the patient care technology of a patient education video

system. Educating staff on the technology required operational understanding of the system.

The patient education video system was also used to generate reports from which the video view

data was collected. Technology was used via the falls safety intelligence dashboard, an

organizational information system, from which fall event reports were generated. Technology

served an important role in the planning, implementation, and evaluation of this QI project.

        Essential V: Healthcare policy for advocacy in healthcare. The development of

policy, both governmental and institutional, is an important aspect in healthcare today as its

impacts are far reaching. This essential highlights the importance of the DNPs involvement in

policy making and function as an advocate (AACN, 2006). Governmental policy was a factor in

this QI project as CMS policy deemed falls with injury as a preventable hospital acquired

condition. CMS no longer reimburses for additional treatment caused by a preventable hospital

acquired condition (CMS, 2012). The fact that organizations will not be reimbursed for costs

associated with falls makes reducing falls an organizational priority out of financial necessity.

        On an institutional level, this project has the potential to influence organizational policy.

This project highlights the importance of patient education on falls prevention and that the

patient education video system provides a standardized method for patients to receive this critical

information. Adoption of new processes by staff is challenging but is possible with the

appropriate amount of resources for education, training, and support. This project was conducted

on a single large nursing unit, but could be implemented in other areas in a similar manner with

the PDSA process at the center to address individual barriers. This project could aid in the

adoption of the process in other areas, by showing the beneficial outcomes of patient education

on falls prevention. The process of integrating the patient education video into existing

workflows could be made an organizational standard and incorporated into organizational policy

regarding falls prevention.

Essential VI: Interprofessional collaboration for improving patient and population health outcomes. This essential is focused on the impact that interprofessional teams have on high-quality patient care. Healthcare is made up of a variety of professions with each playing a unique role in the delivery of care, both direct and indirect (AACN, 2006). This QI project intervention was centered around nursing, including registered nurses and nursing assistants. The development and implementation of the project ultimately involved individuals from a range of professions including patient and family experience administrators, information technology specialists, media services, and nursing leadership and quality specialists.

The leader of the team was the DNP student; yet each other profession involved had a unique role in the development and implementation of the project. The project was initiated by nursing leadership, who identified a need to address falls within the organization. The quality nurse specialist served as the site champion. The site champion was a great source of support and resource of QI knowledge throughout the entire project, and also served as the connection to other professions. These included media services department who was initially in charge of the patient education video system but was then restructured under the patient and family experience department. The quality nurse specialist also provided connection with the cardiac unit leadership. Advance nursing practice is most effective with the collaboration of interprofessional teams, as each profession provides distinctive strengths and perspectives.

Essential VII: Clinical prevention and population health for improving the nation's health. This essential emphasizes the importance of health promotion, risk reduction, and illness prevention for aggregates of people, or populations. Population health also focuses on aspects of health beyond these including community, environmental, occupational, cultural, and socioeconomic factors (AACN, 2006). One of the goals of Healthy People 2020 is to improve

the function and quality of life for older adults. Prevention of injury, particularly falls as they are

the leading cause of injury in older adults, was identified as one way to address this goal

(ODPHP, n.d.).

For this QI project, the focus was risk reduction via the prevention of falls. Its aggregate

or population focus was patients admitted to the cardiac intermediate unit in the inpatient setting.

It addressed a gap in care in the target population, which was identified through analysis and

synthesis of the evidence, to increase falls prevention patient education.

Essential VIII: Advanced nursing practice. Advance practice nursing includes

various specialties and roles; each requires mastery in a specific area. The essential of advance

nursing practice outlines the competencies that all advance practice nurses should attain, no

matter what area of specialty. This enables DNP graduates to function within the profession of

nursing at large (AACN, 2006). For this QI project the development, implementation, and

evaluation of nursing interventions through systems thinking to address falls prevention in the

inpatient setting was central. The development of relationships with other professionals to

facilitate change and education and guidance of groups through transitional situations were also

important components of this project. These elements highlight the complexity of advance

practice nursing for DNP graduates and their ability to contribute to the nursing profession as a

whole, regardless of specialty.

Summary

The DNP Essentials are a vital set of competencies and elements that prepare DNP

graduates to effectively provide evidence-based care. These essentials serve as a basis for and

underscore the complexity of advance practice nursing. This QI project addressed each of the

eight DNP essentials. Incorporation of the DNP essentials into QI projects helps establish a solid

foundation that addresses the holistic needs of populations and the dynamic nature of healthcare

and nursing practice.

Chapter Eight: Final Conclusions

The findings of this QI project were significant to further nursing practice, at the project site and beyond. This chapter will discuss the project's significance of findings, strengths, weaknesses, limitations, and benefits. Final conclusions and recommendations for nursing practice will be made based on the culmination of these elements.

Significance of Findings

This QI project demonstrated the need for staff training on the patient education video system and incorporating patient education on falls prevention into unit processes. As the unit was identified as a high-falls unit this QI project was impactful in bringing awareness to staff, particularly nursing assistants, on fall prevention strategies and their role in patient education for fall prevention. Nursing assistants are in a unique position, due to their frequent presence at the patient's bedside, to be involved in quality improvement initiatives, such as falls prevention.

The majority (86.3%) of nursing assistants participated in the education and training session, but this means 13.7% of nursing assistants did not. This gap in the number of day shift nursing assistants on the unit who were trained to use the video system could have contributed to the lack of full adoption of the new work-flow process on the unit. Ideally, all nursing assistants on the unit should be trained on the patient education video system to increase adoption of the new process and increase video views by patients. Even though full adoption was not achieved the patient education video system is still valuable as the use of a fall prevention video allows for a consistent and standardized message for all patients, regardless of falls risk, as the content of the video focuses on universal falls precautions that are applicable to all patients. Although, staff did not fully adopt the new process of prompting patients to view the fall prevention video, use did increase from baseline which signifies that some staff did adopt the new process. For future

application into other practice settings, more intensive education and training and follow up may be needed to increase the adoption of the new process among staff.

During the implementation period falls decreased on the unit when compared to the pre-implementation period. There are several factors that may have impacted this decrease: (1) nursing assistants increased awareness of falls prevention and falls intervention strategies presented during the education phase, (2) patients received fall prevention education and implemented the fall prevention strategies presented in the video, (3) factors or falls interventions included in the multifactorial fall prevention program that was already in place on the unit. This scenario is found in much of the fall prevention literature, as falls are multifactorial in nature, and no single intervention has been identified to reduce falls and many interventions are tested in the presence of an already existing multifactorial fall prevention program. Patient and staff education have both been identified as important factors in fall prevention programs. Multifactorial fall prevention programs that incorporate patient education in video form have been shown to decrease falls (Cuttler et al., 2017; Haines et al., 2011; Hoke & Guarracino, 2016). Considering the totality of these factors, this project could be modified and implemented in other settings and populations to increase staff and patient education on fall prevention. The discussion of the finding of this project lead to further discussion of the project itself, including strengths and weaknesses.

Project Strengths and Weaknesses

Project strengths include buy-in from leadership at several levels within the organization, from unit management to the chief quality officer, to address falls prevention and the patient education falls prevention video. This aided in project development and support throughout all phases of the project. Another major strength of this QI project was an actively engaged site

champion. The site champion provided operational support pre-implementation through post-implementation in an array of capacities. The site champion assisted early on by introducing the DNP student to unit leaders and also encouraged sustainability during project implementation. The site champion also provided essential knowledge on the current falls prevention interventions already in place and the systems used for data collection. Another strength of this project was using systems for data collection and quality metrics that the organization already routinely collects. This increases the sustainability off the project and allows for replication of the project within the organization.

One weakness in analyzing the data was that the number of patients on the unit was not included in data collection. This decision was made due to the fact that the census on the unit remains consistent near full capacity. Additionally, the organization does not collect falls data based on patient population size, it is occurrence based and falls are compared year-to-year regardless of the number of patients admitted during that time. Collection of this additional data would have allowed for further analysis of the video views and fall events.

Project Limitations

The number of staff and large patient population was a limitation to project implementation. The project site was a 68-bed unit, with 105 registered nurses and 47 nursing assistants. Additionally, the decision was made to focus in-person education and training for day-shift nursing assistant staff members. One factor in this decision was that the work flow process that was chosen was a day-shift event i.e. the 1600 vital signs time. Another factor, was the limited 3-week education period, focus on day-shift nursing assistants allowed for more time to be spent educating and training the staff that would be implementing the new process. Due to the large number of staff and shift-work scheduling, a group in-person education and training

session was not able to be scheduled. In addition to digital communication, on-site in-services were solely conducted by the DNP student. The in-services were typically while the staff member was working on the unit. This limited the time and attention that each staff member could spend on participation. It also proved difficult for a single person, the DNP student, to reach every individual nursing assistant in the 3-week education period. Additionally, if a train-the-trainer method had been employed, by training nursing assistants to train fellow nursing assistants, more staff members could have received training. Also, buy-in and adoption of the new process could have been improved if in-services had been delivered by one of their own staff members.

During weekly check-ins on the unit during the implementation phase, staff often reported that the patient education video system was difficult and time consuming to use. The system requires use of the patient's room telephone and call bell and the process to play the video is multi-step. The cumbersome nature of the video system process is important to note as staff already have competing interests and time constraints.

Project Benefits

One of the project benefits was the decrease in the number of falls on the unit. At the organization, the cost of one fall event, which will not be reimburse by payors, is $16,077. The total cost savings of a reduction of 9 fall events was $144,693. Since the video system was already in place at the project site, there were no major additional costs incurred to implement the project. This project was cost efficient as the budget for the project was minimal (see Appendix D) and the cost savings by preventing falls were substantial.

Beyond the financial benefits, this project with modifications can serve as a guideline for further implementation on other units and hospitals within the health-system. Each unit and

hospital has unique needs that can be integrated into future project designs, while utilizing the concepts of (1) increasing awareness of falls prevention among staff, particularly nursing assistants, (2) video-based patient education on falls prevention, and (3) integration of new QI processes into already existing staff work-flows.

Practice Recommendations

Considering the projects findings, strengths, weaknesses, benefits, and limitations there are several recommendation to practice, for both nursing practice at large and the specific project site and organization. For nursing practice, patient education on falls prevention is an important part of multi-factorial fall prevention programs in the inpatient setting. Ensuring patient education is integrated into these programs is essential. Staff education and awareness is also crucial in order to deliver the education to patients. Further work is needed to continue to determine best practices for patient and staff education for falls prevention.

For the specific unit, which within the organization is a high falls unit, continuance of the project through further PDSA cycles is recommended. Future PDSA cycles could address many of the weaknesses and limitations and improve upon the strengths and benefits of this project. Additional data could be collected to capture the number of patients on the unit, which would allow for further analysis and comparison of results. More personnel and resources would be needed to provide education and training to staff. This could include an in-person group setting and incorporate a train-the-trainer method where nursing assistants would be trained to provide training to other nursing assistants. Ideally, this would include both day-shift and night-shift nursing assistants and be expanded to include registered nurses as well.

Future PDSA cycles could include focus-groups with nursing assistants to determine how to best integrate the patient education video process into current unit-workflows. This could

potentially increase engagement and buy-in from nursing assistants and accelerate the adoption

of the new process. Additional steps to ensure sustainability include continuing progress updates

of video views and number of falls on the unit and continuing to set attainable goals. These unit-

specific changes for future PDSA cycles could then be expanded to other units and

organizations, with appropriate modifications for the specific setting.

Recommendations for the organization include making the falls prevention patient

education video available to other hospitals within the system. Consideration would need to be

given to determine the best method of delivery for the specific site, whether to continue with the

current patient education video system or to explore other delivery methods such as tablets or

computers on wheels. The cost to implement these options would also need to be considered. A

factor in this would be if the site already has the patient education video system in place.

Additionally, recommendations on the organization level include considering the method

of integrating QI interventions into already existing work-flows and processes, as this has the

potential to decrease burden on staff who already have competing interests and time constraints.

Another recommendation is to engage staff members that are already available to implement QI

initiatives. This includes nursing assistants, who are often left out of QI as there was little in the

falls prevention literature that included this population of valuable health care workers. Overall,

the organization should consider making fall prevention patient education a priority in the

inpatient setting, including the appropriate measures for staff education, training, and

engagement.

Final Summary

Falls are a major source of harm for patients and pose great financial consequences for

health care organizations. Fall prevention continues to be an area of focus for inpatient settings,

and patient education is an important component of multi-factorial falls prevention programs. This QI project serves as a starting point for increasing the use of a fall prevention patient education video in the inpatient setting through the implementation of standardized work-flow processes. Future process improvement and QI projects should be conducted to include variation in unit types, sizes, and patient populations, work-flow processes, methods of delivery for the patient education video, and methods of delivery for staff education, training, and engagement. Further work needs to continue in order to determine best practices and develop clinical practice guidelines on falls prevention patient education through the use of video in the inpatient setting.

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      Nursing Administration, 49(2), 86-92. doi:10.1097/NNA.0000000000000715

Appendix A

Literature Review Matrix

Article (APA Citation)	Level of Evidence (I to VII)	Data/Evidence Findings	Conclusion or Summary	Use of Evidence in EBP Project Plan
Hill, A., Francis-Coad, J., Haines, T. P., Waldron, N., Etherton-Beer, 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. doi:10.1136/bmjopen-2016-012363	Level VI	Qualitative survey of responses that older patients had of falls education program which was a DVD and workbook written action plan, followed by education session.	Multi-media education plus in person education session, in older adults on inpatient rehab unit led to increased knowledge, confidence, and motivation to engage in falls prevention strategies.	Use of video as falls education; theoretical basis of health belief model (HBM)
Hill, A., McPhail, S. M., Waldron, N., Etherton-Beer, C., Ingram, K., Flicker, L., . . . Haines, T. P. (2015). Fall rates in hospital rehabilitation units after individualised patient and staff education programmes: A pragmatic, stepped-wedge, cluster-randomised controlled trial. *The Lancet, 385(*9987), 2592-2599. doi:10.1016/S0140-6736(14)61945-0	II	Multimedia falls education program which included a DVD and workbook written action plan, followed by in person education session. 13.78 falls per 1,000 patient days pre-intervention, 7.8 falls per 1,000 patient days during intervention. 4.75 falls with injury per 1,000 patient days pre-intervention, 2.63 falls with injury per 1,000 patient days during intervention.	Multi-media patient education on falls was effective in reducing falls and falls with injury.	Include patient education in addition to video regarding falls education.

Johnson, J. E., Veneziano, T., Green, J., Howarth, E., Malast, T., Mastro, K., . . . Smith, A. (2011). Breaking the fall. *JONA: The Journal of Nursing Administration, 41*(12), 538-545. doi:10.1097/NNA.0b013e3182378d53	VI	Implementation of a mulifactorial falls prevention program (which included fall risk assessment, communication and reporting processes, falls prevention champions, increased public awareness with signage, patient and family education, among other nursing interventions) over 3 years, led to a 16.6% and 9.4% decrease in falls and falls with injury.	A large hospital wide multi component falls prevention program over several years led to a decrease in falls and falls with harm .	Patient education was included in this mulitfactorial falls prevention program.
Dykes, P. C., Duckworth, M., Cunningham, S., Dubois, S., Driscoll, M., Feliciano, Z., . . . Scanlan, M. (2017). Pilot testing fall TIPS (tailoring interventions for patient safety): A patient-centered fall prevention toolkit. *The Joint Commission Journal on Quality and Patient Safety, 43*(8), 403-413. doi:10.1016/j.jcjq.2017.05.002	VI	Pilot testing of the fall TIPS (Tailoring Interventions for Patient Safety) Toolkit which integrates falls risk assessment, tailored fall prevention plan, and communication of plan and falls risk to patient via individualized poster in patient room. Implementation took place at 2 hospitals. Adherence to TIPS protocol was 82-90%. Fall rate decreased at hospital 1 from 3.2 per 1,000 patient days to 2.8, and falls with injury 1.00 per 1,000 patient days to .54 per 1,000 patient days. The other hospital saw a small increase in falls from 3.04 per 1,000 patient days to 3.10, but saw a decrease in falls with injury from .47 to .31 per 1,000 patient days. Pre and post intervention patient surveys were administered, and improvement was seen in perceived ability of patients to identify falls risk (pre mean 4.0, post 4.6) and knowledge of how to prevent falls (pre mean 3.6 and post 4.7)	Implementation of patient specific falls prevention interventions showed decreased falls in one hospital, but a slight increase at another, but both saw decreased in falls with harm. Fall rate at the second hospital was already relatively low. Identified barrier to implementation was resistance from nurses who thought intervention would not decrease falls. The intervention increased patients' knowledge of risk for falls and ways to prevent falls.	Implementation of a patient-focused falls prevention intervention, highlights communication of falls risk to the patient and education of basic falls prevention strategies, which increased patient knowledge and awareness.

|				
Lake, E. T., Shang, J., Klaus, S., & Dunton, N. E. (2010). Patient falls: Association with hospital magnet status and nursing unit staffing. *Research in Nursing & Health, 33*(5), 413-425. doi:10.1002/nur.20399	V	The fall rate was 5% lower a Magnet hospitals compared those without the designation. Each additional hour of RN care per patient day reduced falls by 2%. Each additional hour of LPN of NA care increased fall rate by 2.9 and 1.5%, respectively. Higher staffing at Magnet hospitals was not explanation for decreased falls.	Magnet hospital designation was associated with a 5% lower fall rate. RN care decreased falls and LPN/NA was associated with increased falls.	Site for implementation is Magnet designated hospital
Stern, C., & Jayasekara, R. (2009). Interventions to reduce the incidence of falls in older adult patients in acute-care hospitals: A systematic review. International *Journal of Evidence-Based Healthcare, 7*(4), 243-249. doi:10.1111/j.1744-1609.2009.00143.x	I	7 RCTs assessed the interventions of: exercise, patient education, vitamin D supplementation, a targeted risk factor reduction plan, and three multifactorial intervention programs.	Most effective: an education package, (which was part of a larger intervention), a targeted risk factor reduction plan and two multidisciplinary multifactorial programs. Less effective interventions (did not show significant decrease in falls): short-term vitamin D and calcium supplementation, a fall-prevention exercise program (also part of a large multifactorial intervention) and a multifactorial intervention	Patient education was studied outside of a multifactorial program, but only showed effectiveness with length of stay >45 days.

Haines, T. P., Hill, A., Hill, K. D., Brauer, S. G., Hoffmann, T., Etherton-Beer, C., & McPhail, S. M. (2013). Cost effectiveness of patient education for the prevention of falls in hospital: Economic evaluation from a randomized controlled trial. BMC Medicine, 11(1), 135-135. doi:10.1186/1741-7015-11-135	N/A-economic analysis	Cost effectiveness analysis based on RCT of multimedia patient education of falls prevention. Cost per fall was $12,469, cost per faller $24, 927. If >4% of patient population on unit is cognitively intact, then it is likely that the education program not only reduces falls but also reduces costs.	Depending on variation of actual cost per fall, which may vary per organization or population, patient education on falls prevention is cost effective.	Implementation of a patient education program is cost effective in regard to preventing falls and the high cost associated with falls.
Haines, T. P., Hill, A., 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. doi:10.1001/archinternmed.2010.444	II	Video and written materials education and follow-up education session. The second group received the materials only, without follow up session. Control group received no intervention and received usual care. Median time educator spend with patients was 25 minutes. Neither intervention reduced falls in the total population (cognitively intact and impaired), but the complete program, compared to the materials-only education, did reduce falls in cognitively intact patients.	Material only education was not as beneficial in reducing falls as material plus one-on-one education session.	Material education (video and written) on falls prevention may not be enough to reduce falls in the inpatient setting.
Lee, D. A., Pritchard, E., McDermott, F., & Haines, T. P. (2014). Falls prevention education for older adults during and after hospitalization: A systematic review and meta-analysis. *Health Education Journal, 73*(5), 530-544. doi:10.1177/0017896913499266	I	In cognitively intact patients, education or education as part of multifactorial program showed significant reduction in falls, no significant reduction in falls with injury and proportion of patients who became fallers. Inpatient education increased awareness of falls risk and falls prevention methods. No change for cognitively impaired patients.	Education interventions alone or as part of a multifactorial program are effective in reducing falls rate and increasing patient knowledge on falls for cognitively intact patients.	Consider education of only cognitively intact patients.

Hill, A., McPhail, S., Hoffmann, T., Hill, K., Oliver, D., Beer, C., . . . Haines, T. P. (2009). A randomized trial comparing digital video disc with written delivery of falls prevention education for older patients in hospital. *Journal of the American Geriatrics Society, 57*(8), 1458. doi:10.1111/j.1532-5415.2009.02346.x	II	100% of video education group was able to identify a fall prevention strategy, while only 96% of the booklet group did. 87.8% of video could identify 2 strategies, only 68.6% of booklet group could identify 2 strategies. The video group had statistically significant higher desired responses on 5/20 of the knowledge survey items (p>0.05).	Participants who received the video education had a greater self-perceived risk of falling, motivation to avoid falls, and knowledge of falls risk and of falls prevention strategies. Video education compared to written education or no education is more effective in increasing patients' knowledge of risk of falling.	Video education can be effective in increasing patient knowledge of falls and increases their perception of risk of falling. Uses HBM as theoretical pinning.
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, 32*(3), 252-258. doi:10.1097/NCQ.0000000000000232	QI project	A falls education video was developed and implemented on 2 inpatient hospital units (med-surg and orthopedics) for a 1-year period. Falls rate per 1,000 patient days pre-intervention: 2.86 and 3.37, ortho and med-surg units respectively. Falls rate per 1,000 patient day during implementation 0.88 and 1.2, ortho and med-surg units respectively.	A falls education video, and staff education on implementation of video, (in combination with already established multifactorial falls prevention bundle) over a 1-year time frame, reduced falls rate.	Falls prevention video can be implemented in addition to already existing falls prevention bundle interventions, with support of staff education and buy-in from unit leadership, to increased patient education of falls and reduce falls rate, in the inpatient hospital setting.
Kuhlenschmidt, M. L., Reeber, C., Wallace, C., Chen, Y., Barnholtz-Sloan, J., & Mazanec, S. R. (2016). Tailoring education to perceived fall risk in hospitalized patients with cancer: A randomized, controlled trial. *Clinical Journal of Oncology Nursing, 20*(1), 84-89. doi:10.1188/16.CJON.84-89	II	Intervention of video and written material based on falls-risk assessment and patient's perception of risk. Patients self-reported perception, confidence, and willingness were measured at time of consent (within 24 hours of admission, and at 24 and 72 hours after consent. About 1/3 of patients perceived they were low risk, when they were high risk based on nursing assessment. At time of consent 15.9% of patients perceived their self as high risk, post intervention this increased to 38.3% post intervention; compared to 14.8% and 25.5%; which was a statistically significant difference.	Education tailored to a patient's perceived fall risk and actual fall risk can help increase patient awareness and perception of their actual fall risk.	Engaging patients and tailoring interventions to each specific patient shows effectiveness in increasing patient's perception of falls risk. Include communication and engagement with patient about their fall risk in intervention.

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Hoke, L. M., & Guarracino, D. (2016). Beyond socks, signs, and alarms: A reflective accountability model for fall prevention. *American Journal of Nursing, 116*(1), 42-47. doi:10.1097/01.NAJ.0000476167.43671.00	VI	Implementation of a multifactorial falls prevention program, which included nursing accountability components (self-reflective post-fall email, post fall huddle); fall signage, nursing assistant handed out written info on falls, reminded patients to watch falls video, patient rooms with bed and chair alarms on were communicated in shift huddle, in-service by manufacturer on bed and chair alarms. Falls rate decreased by 55% and falls with injury by 72%.	A multifactorial falls prevention program on a cardiac intermediate unit that focused on nursing accountability, toileting, nursing assistant involvement, and written and video education significantly decreased falls.	Population is similar to my intervention site, cardiac intermediate unit. Population had high rate of toileting related falls. Use of falls education video as part of multifactorial falls program
Cuttler, S. J., Barr-Walker, J., & Cuttler, L. (2017). Reducing medical-surgical inpatient falls and injuries with videos, icons and alarms. *BMJ Open Quality, 6*(2), e000119. doi:10.1136/bmjoq-2017-000119	VI	Interventions of falls video, falls signage that indicated patient's falls risk factors and falls prevention interventions at bedside, and use of bed alarms for confused high falls risk patients, reduced fall rate by 20% (4.78 to 3.80 per 1,000 patient days) and falls with injury by 40% (1.01 to .61 per 1,000 patient days), over a 7 year period. Tailored patient signage was not consistently implemented.	Implementation of a falls video with prompting from non-nursing personnel to watch the video, combined with the use of bed alarms significantly decreased falls a med-surg unit.	Implementation of a video for patient education on falls will require prompting for patients to watch video.
Zhao, Y., Bott, M., He, J., Kim, H., Park, S. H., & Dunton, N. (2019). Evidence on fall and injurious fall prevention interventions in acute care hospitals. *JONA: The Journal of Nursing Administration, 49*(2), 86-92. doi:10.1097/NNA.0000000000000715	Literature review	Literature review of the causes of falls, types of falls prevention interventions and implementation strategies in the hospital setting.	Many falls studies are of multicomponent programs. Patient education has been shown to decrease falls.	Discussion of causes of falls, multicomponent interventions, and the overall evidence base for falls preventions

Appendix B

Diffusion of Innovations Theory Visual Concept Map

- Implementation of a standardized process for staff to prompt patients to view a falls prevention education video

- Falls prevention education and introduction of new process at staff meetings, charge nurse meetings, and rounding in-services on the unit

Innovation

Communication Channels

Adoption of staff prompting patients to view patient education falls prevention video

Time

Social System

- The process of adopting or rejecting the new process of prompting patients to view the falls video

- System/hospital quality leaders, unit leadership, unit quality council and members, charge nurses, staff nurses, nursing assistants, and patients

(Rogers, 2003).

Appendix C

Organizational Letter of Project Approval
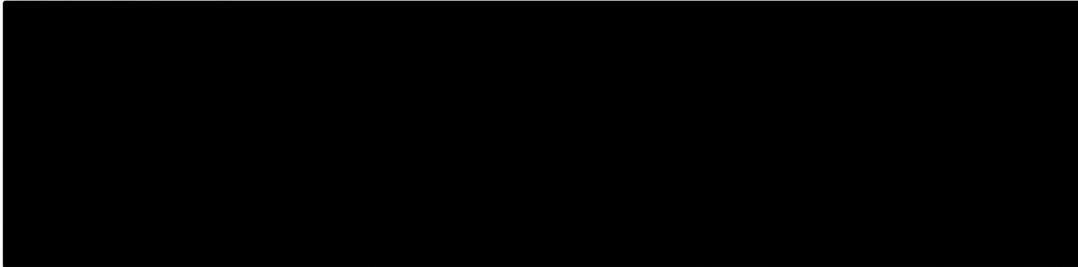
Date: April 17, 2019

To East Carolina University College of Nursing:

 We at ▮▮▮▮▮▮ have reviewed Stephanie Ellis's DNP Project Proposal to increase staff utilization of falls prevention video and enhance patient engagement with fall safety. Ms. Ellis has organizational support and approval to conduct their project within our institution. We understand that the timeframe for this project is from the date of this letter through April 30, 2020. Implementation at the project site will occur August/September through November 30, 2019, unless otherwise negotiated. We understand that for Ms. Ellis to achieve completion of the DNP program, dissemination of the project will be required by the University which will include a public presentation related to the project and a manuscript submission will be encouraged.

Our organization has deemed this project as a quality improvement initiative. Our organization is aware that this project will be processed first through our organizational IRB and then through the University and Medical Center Internal Review Board of East Carolina University (UMCIRB). Our organization does have an Internal Review Board (IRB). (In the absence of an organizational IRB, the project will be only submitted to UMCIRB).

Thank you,
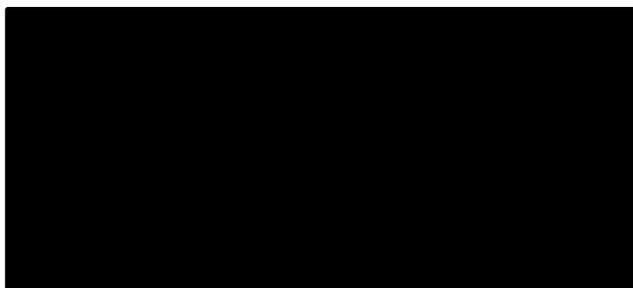
Appendix D

DNP Project Budget

Item	Cost
Administrative: printing	$40
Food for staff	$50
Travel: gas	$182.70
Total:	$272.70

Appendix E

Quality Improvement/Program Evaluation Self-Certification Tool

Quality Improvement/Program Evaluation Self-Certification Tool

Purpose:
Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Instructions:
Please complete the requested project information, as this document may be used for documentation that IRB review is not required. Select the appropriate answers to each question in the order they appear below. Additional questions may appear based on your answers. If you do not receive a STOP HERE message, the form may be printed as certification that the project is "not research", and does not require IRB review. The IRB will not review your responses as part of the self-certification process.

Name of Project Leader: Stephanie Ellis

Project Title: Process Improvement and Staff Education to Increase the Use of a Patient Education Falls Prevention Video on an Inpatient Cardiac Unit

Brief description of Project/Goals: The purpose of this project is to increase the use a falls prevention patient education video through implementation of a standardized unit process and education of nursing staff.

Will the project involve testing an experimental drug, device (including medical software or assays), or biologic?

Yes **No**

Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?

Yes **No**

Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?

Yes **No**

Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g. testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?

Yes **No**

Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?

Yes **No**

Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 7/15/2019

Appendix F

DNP Data Collection Tool			
#	Staff Role (Registered Nurse =RN or Nursing Assistant=NA)	Participation in in-service (Y/N)	Electronic slide-presentation sent to staff member (Y/N)
1			
2			
3			
4			
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9			
10			
11			
12			
*additional rows to be added to accommodate data collection			