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Empowering Nurses through Knowledge and Technology to Decrease Fall Rates

Ngozi Doreen Nwaise
Walden University

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Dr. Donna Bailey, Committee Member, Nursing Faculty
Dr. Geri Schmotzer, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Falls are nurse-sensitive outcome which reflect the quality of nursing care. Nurses, therefore, have a major role to play in efforts to decrease fall rates. The objective of this project is to increase nurses' knowledge on the proper use of the CVVM as an attempt to effectively decrease fall rates. Pretest, posttest, and course evaluation data were collected from 30 nurses. A descriptive analysis of the data was performed. Overall, the pretest evaluation showed that nurses had an average score of 43% in the combined assessment of their knowledge on fall prevention strategies, their use of the CVVM, and their knowledge about the hospital's policy on patient monitoring. The nurses' posttest average score in the combined assessment of these measures increased to 89% after the educational training which included presentations, hands-on-training, and provision of reference materials and cheat cards on fall prevention strategies and the use of the CVVM surveillance system. Inadequate training, lack of knowledge on the utilization of CVVM surveillance, inadequate use of system resources, and noncompliance with hospital policies were the primary drivers of fall rates in this hospital. Main recommendations include training and periodic retraining of staff on fall prevention strategies; leadership involvement to ensure nurses' compliance with the use of CVVM technology and hospital policy on patient monitoring; provision of CVVM reference materials; and nursing responsibilities in patient monitoring. Social change implications of this project include that nurses are better equipped through training to prevent falls, therefore, lowering patient morbidity and mortality rates.

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by

Ngozi Nwaise

MSN, Walden University, 2014

BSN, Chamberlain College of Nursing, 2012

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Dedication

I dedicate this work to my mother, Mrs. Victoria Monyei, for her undying love and care. Maami, I am most grateful for all that you did to make this possible; and to the blessed memory of my father, Papa Justin Okolie Monyei. Adieu great father, keeping thy banner flying, till we meet to part no more.

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Section 1: Nature of the Project

Introduction

The definition of fall differs based on the various health care systems, thus

creating a lack of agreement on a standard definition of falls. This lack of consensus

contributes to inconsistencies regarding the definition, the true risk factors for falls, and

subsequently, finding measures to prevent falls among patients in acute care settings. The

Kellogg International Work Group on Prevention of Falls by the Elderly said that any

event which leads to a patient or part of the body of the patient resting inadvertently on

the ground or on a surface that is lower than that of the patient should be considered a fall

(Zecevic, Salmoni, & Speechley, 2006). Although this definition was endorsed by the

World Health Organization (WHO) at the time, there have been various reviews and

suggestions on this definition. It was later reworded by the Prevention of Falls Network

Europe Consensus (ProFANE) Group as "an unexpected event that results in the patient

or a body part of the patient coming to rest inadvertently on the ground, floor, or lower

level" (Nitz & Johnston, 2014, p. 2). Other studies have suggested that slips and trips that

do not result in a fall are considered near falls, but Nitz and Johnston (2014) maintained

that the ProFANE group's description of a fall provides the uniformity in falls definition

that is needed for better fall documentation and for proffering better prevention strategies.

The impact of differing definitions of fall outcomes may influence the results of research

(Nitz & Johnston, 2014). It is therefore important to have a standard or uniform definition

of falls to ensure accurate understanding of the scope of the problem, proper and accurate

reporting of the problem, and devising a better approach towards prevention (Nitz &

Johnston, 2014). There are several strategies in place for fall prevention in this project

hospital but the introduction of the Care View Video Monitor (CVVM) helped to decrease fall rates.

This project seeks to increase staff knowledge regarding fall prevention strategies through presentations on fall prevention, hands on teaching regarding the proper use of the CVVM, provision of cheat cards, and a binder that contain hospital policies on patient monitoring, references regarding the use of the CVVM, and the necessary forms to be completed before and during the time a patient is monitored. The expected change will be the nurses' effective use of the CVVM system that will aid in not only identifying risk for falls but also impact fall rates. A decrease in fall rates will reduce morbidity, mortality, and costs (Centers for Disease Control and Prevention [CDC], 2015).

Problem Statement

The problem is the high incidence of falls in the unit which can be improved. In 2015, this project unit recorded a total of 17 falls. These units are intermediate nursing care units, and simply identified as 5J, 5BCV, and 12A. The three units together contain 30 patient beds. As of June 2016, 13 falls have already been reported. Educating the nurses and providing easier access to information on fall prevention strategies, the proper use of the CVVM and hospital protocol regarding patient monitoring will decrease the incidence of falls in this unit and the hospital.

The purpose of this pilot program is to promote effective use of the CVVM (in addition to standard fall prevention strategies) by educating all the 25 nurses in an intermediate care unit and subsequently decrease the fall rates in this unit. The reduction of falls in this unit will result in desired patient outcomes that are not disrupted by the morbidity that is associated with hospital falls.

A year ago, in an effort to address the fall rates, the hospital invested in the CVVM system to better monitor patients with high fall risks to decrease fall rates. Upon admission to the hospital, all patients give their consent to be monitored using the CVVM system. The particular unit for this project has recorded high fall rates within the last year. Falls prevention is very important because falls result in unintended patient injuries and fall prevention is one of the nursing quality indicators. As a measure of the quality of nursing care, and to maintain the nursing standard for optimum care, it becomes paramount for nurses to ensure that patients are protected from the pain and injuries that could result from falls. Also, ignoring this problem may cause the hospital to lose Joint Commission accreditation, reimbursement from the Centers for Medicare and Medicaid Services (CMS), and lose revenue through legal actions and loss of business.

One out of three adults fall every year but less than half of those who fall talk about it with their health care providers (CDC, 2015). Falls are the leading cause of both fatal and nonfatal injuries. In 2013, about 2.5 million older adults were treated in the emergency room, of which 734,000 were hospitalized (CDC, 2015). Falls are the most common cause of traumatic brain injuries and fractures. The most common types of fractures sustained include spine, hips, ankle, pelvis, hand, and upper arm fractures (CDC, 2015). People who have fallen also have a fear of falling which hinders them from being active and physically fit. This in turn increases their risk of falling (CDC, 2015). The treatment of the injuries sustained from falls creates a big financial burden on the individual, the hospital or health care facility, and the nation. According to the CDC (2015), the direct cost of falls in 2013 was estimated to be over $34 million.

The intended outcome of this project is to educate nursing staff about the proper use of the CVVM and increase their knowledge regarding falls prevention strategies, thus aiding in the identification of and, ultimately, reduction in fall rates through reeducation of the nurses that will enhance both understanding and compliance regarding the use of the CVVM. According to Quigley, Neily, Watson, Wright, and Strobel (2007), patient falls are among the top five sentinel events in hospitals and long term care and home care agencies. Falls can extend a patient's length of hospital stay by up to 6 days (Quigley et al., 2007). Nurse-sensitive outcomes are indicators or a means of demonstrating the quality of nursing care provided (Burston, Chaboyer & Gillespie, 2014). According to the American Nursing Association (ANA, 1996), nurse-sensitive indicators are those indicators that capture outcomes most affected by nursing care. Nurses have some degree of control and autonomy over processes of nursing care delivery (Aiken et al., 2009). This means, to some degree, that nurses should be able to effectively decrease the negative outcomes reflected in these indicators through their care. Nurses therefore have a major role to play in the prevention of falls. Based on the social and economic consequences of falls, prevention of falls is critical. It is estimated that by 2020, the cost of falls injuries for adults (65 years and above) will be $43.8 billion (CDC, 2006). The incidence of fall-related injuries is also said to continue to increase (CDC, 2005). Another serious injury that results from falls is hip fractures and it has been estimated to rise from 350,000 to over 500,000 by the year 2040 (CDC, 2006). According to the CDC (2005) report, there are higher fall-related deaths in men than women.

Falls are one of those outcomes that have been linked to the quality of nursing services. Nurses are critical to the delivery of high-quality and efficient care. Evidence

from Magnet Program hospitals and hospitals that have implemented frontline nurse–

driven performance improvement programs have demonstrated how nurses and staff,

with support from leadership, can greatly improve both the quality and the efficiency of

hospital care. Nurses can improve the quality of care through measures that decrease fall

rates by properly assessing a patient's risks for fall, designing and implementing care

plans that are aimed at reducing the patients' risks for falls, and evaluating the

effectiveness of the interventions (Quigley et al., 2007). Nurses are also charged with

maintaining consistency in how data are reported, measured, and analyzed, as a means of

eventually creating standardized fall preventive protocols for nursing practice (Quigley et

al., 2007). According to the CMS, (2008), healthcare institutions will no longer be

reimbursed for patient outcomes that could have been prevented by implementing

evidence-based guidelines. This payment for performance approach could have serious

economic and social implications for healthcare institutions and professionals; hence the

need to solve the issue of patient falls.

Purpose

The Grady Health System (GHS) invested in the purchase of the CVVM in 2015

in an attempt to further decrease fall rates in the hospital. When a patient is admitted to

the hospital, upon assessment of fall risk, if the individual is deemed at risk for fall,

measures such as application of the blue socks and blue arm band (blue is the hospital's

color code for fall) are applied. The hospital beds have exit alarms that are activated

when a patient attempts to get out of bed. The CVVM is a video monitor that allows for

visualization of the patient in the room. All hospitalized patients give their consent to be

monitored on admission. The CVVM uses an infrared camera installed in the patient's

room in the delivery of real-time visual monitoring (CareView Communications, n.d.). It allows for visualization of patients in their rooms for more effective fall management. According to CareView Communications (n.d.), the CVVM is HIPAA compliant, secure, and does not involve recording. A patient who is assessed to be at risk for falling is activated on the CVVM. This means that the patient can be seen on the monitor. Depending on the patient's activity, for example, if restless, agitated, or impulsive, a virtual bed rail can be activated on the monitor. This means if the patient attempts to get out of bed, the monitor system emits both visual and aural alarms to alert everyone around to rescue the patient. The nurse assigned to the patient is also alerted on her hospital's Ascom wireless handsets.

The institution has also employed and trained individuals as CVVM technicians. These CVVM technicians are able to view and monitor patients who are at risk for falling. When a nurse determines that a patient is at risk for falling, the nurse places an order for the patient to be monitored. The orders are written on paper and faxed to the technicians. On receiving the faxed order, the patients are activated and monitored by the CVVM technicians. The monitoring includes documenting patients' activities every 15 minutes for as long as they are at risk for falling. This monitoring is only terminated when the patient's nurse writes and faxes another order requesting a discontinuation.

The monitoring by CVVM technicians gives added protection against falling as nurses are also alerted by the technicians if a patient attempts to leave the bed. One of the benefits of the CVVM is the visual access to the patient that it provides and the opportunity for continuous monitoring and protection from falls. This makes the system efficient at preventing falls. In the project unit, the CVVM is not used as recommended.

The numbers of patients in the unit activated on the CVVM are very few compared to the number of patients assessed as being at high risks for falls who may need to be monitored. The CVVM at the nurses' station are often not being monitored by a staff member. The only education the staff had was a one-time in-service training on the use of the CVVM. Although the company representatives were onsite for assistance as needed, the initial training lacked the consistency and reinforcement that is sometimes needed to facilitate learning and proficiency in the use of a new system. Nurses need to know how to assess the patients for risks for falls, activate the patients on the CVVM, apply special functions (for example, the virtual bed rails) based on patient needs, and complete the necessary documentation to be faxed to the CVVM monitor technicians at initiation of the monitoring, at the beginning of every shift, and when the monitoring is discontinued.

The guiding practice focused question for this project is: Will education regarding the use of the Care View Video Monitor (CVVM) improve nurses' understanding of the proper use of the CVVM? A better understanding of the use of the CVVM will enhance compliance with the policy regarding the use of the CVVM for patients with high risk for falling. This project has the potential to address this gap in practice because it seeks to educate the nurses on the significance of falls and help them to better utilize the technology they have to more effectively prevent patient falls. If the CVVM is used as it was intended, with every patient assessed as being at high risk for falling properly activated on the system and monitored as recommended, the expectation is there will be a decrease in fall rates. The continuous view of patients and the prompt notification of and intervention by staff will decrease the chances of falls and falls with injuries. Educating nurses through presentations and hands-on in-services on the use of the CVVM are

expected to cause a positive change in falls prevention behavior. Johnson et al. (2014) showed that increasing nurses' knowledge on prevention can cause a change in behavior towards falls prevention. Abou, El Enein, Abd El Ghany, and Zaghloul (2012) assessed the effects of fall prevention training programs and noted an increase in the nurses' knowledge and performance regarding prevention of falls. The study also showed that the nurses had an improved post-test performance after the fall prevention training. Abu AlRub and Abu Alhijaa (2014 demonstrated that educational interventions can decrease fall rates. This study has the potential to increase nurses' understanding of the use of a system that has a high potential to significantly decrease fall rates. The education and the constant reminder that this project (through presentation, hands-on teaching, and provision of cheat sheets for easier reference) will provide is expected to increase understanding and compliance with the use of the CVVM.

Nature of the Doctoral Project

Every fall that occurs in the organization is documented in the form of an incidence report. The organization's fall committee reviews and tracks this information. Data on every unit's performance on falls is available through this committee. With all other fall prevention strategies in place, the CVVM has been relatively effective in most of the other units in the organization.

This project is a quality improvement strategy to help nurses to better prevent falls while utilizing the CVVM. This project will entail educating nursing staff on fall preventive strategies and the proper use of the CVVM. The educational training will be held during the day and night shifts over a period of 2 weeks to ensure that all participants have the opportunity to fully participate given the different shifts and days of

work. It is important to note that the consistency with which the teachings will be presented to the staff during the presentations, creation of cheat cards, binders for the nurses and the unit, and the extended time spent with the staff during the hands-on teaching can both increase the nurses' knowledge and also cause a change in the nurses' behavior. The outcome of this education will be assessed through a paper-based course evaluation (CE). The information collected from the nurses' evaluation of this teaching method will be analyzed using a descriptive analysis and correlation analysis.

David Kolb's stages of experiential learning will be used as a guide for the learning process. This theory includes a standardized assessment tool that measures the strengths and weaknesses of individual learners (McLeod, 2013). David Kolb's stages of experiential learning are appropriate because it acknowledges that individuals learn differently and explore various learning styles. It describes the stages of learning, and acknowledges experience as an essential element of the learning process. Nursing staff will be reeducated regarding the proper use of the CVVM. The reeducation is an opportunity to reinstate what is previously known in a way that will meet the learning needs of the individual nurses.

Significance

Stakeholders are individuals, groups, or organizations who are involved with the operation or outcome of a program, are affected by its activities directly or indirectly, and are able to influence the program, benefit from the results of the program, or are able to assist with funding (World Heart Federation, 2015). The stakeholders are the patients, the clinicians, caregivers, healthcare institution, vendors, and payers. Although the program centers on fall prevention, the focus is on the use of the CVVM in fall prevention.

Cost is a factor that may impact stakeholders. The CVVM requires that patients activated on the system are constantly being viewed from the central monitor which is usually situated at the nurses' station. The CVVMs have already been bought and installed, and therefore at this stage, the financial burden is not from buying and installing the CVVMs but from paying staff members to sit at the nurses' station to keep an eye on the patients via the monitor. The hospital is a large organization with a lot of patient units. Employing and training personnel to keep an eye on the monitor in every unit will be capital intensive.

For the nurses using the CVVM system, time is a factor that can impact the effectiveness of the process. It is challenging to have multiple patients and still be able to monitor the patients from the nursing station effectively. The time needed to actually activate a patient on the monitor and do the necessary paper work which must be faxed to the CVVM monitor technicians may also be a factor that can discourage nurses from regularly and efficiently using the CVVM system. Another factor is the nurses' skill in properly assessing patients to determine who should be monitored via the CVVM. Identifying patients who are at risk for falling is one of the initial steps to effective fall prevention in the units. This ensures that appropriate general and individualized measures are in place or are taken to prevent the patient from falling. At this time, fall prevention is yet to be part of mandatory annual education in the organization. The inclusion of a fall prevention program to annual staff education will keep staff up to date and enhance compliance with the organization's fall prevention policy.

This project will highlight the various learning styles in educating staff for better comprehension of fall prevention strategies and the use of the CVVM. The pattern of

learning differs for individuals. The teaching strategy will include presentations, hands-on in-services, a binder with materials for reference (hospital policies and CVVM manual) in the unit, and cheat cards that the staff can attach to their identity badges for quick reference regarding the steps to activate a patient on the CVVM and the nursing responsibilities in monitoring a patient. Nursing practice strives to provide safe and quality care to patients. Falls prevention is a highly significant nursing quality indicator. Effective falls prevention is part of the goals of nursing which is ensuring safe and optimum care. Ridenour and Trautman (2009) stated that health care should focus on the core need to be safe, effective, efficient, and patient-centered.

On a long term basis, this project is expected to eventually decrease falls in this unit and in the organization as a whole as this educational project can be replicated in other nursing units to decrease fall rates. The same presentation on fall prevention, in-services regarding the use of the CVVM, educational binders, and cheat cards for references can be made available to the staff in the other units to increase knowledge on fall prevention and use of CVVM to consequently decrease falls rates. This project will utilize David Kolb's stages of experiential learning model to increase the nurses' understanding of the use of the CVVM. The different styles of learning as emphasized by the model can be applied in any setting that seeks to increase knowledge such as the educational sector. On a long term basis, the increase in understanding of the use of the CVVM with subsequent decreases in falls can imply that the addition of the technology to fall prevention strategies can further decrease falls rate and falls with injuries. The CVVM can be used in other clinical areas in the hospital such as critical care areas,

medical-surgical nursing units, neurology units, and the hospital's Nurses Improving Care to the Hospitalized Elderly (NICHE) or gerontology units.

The implication of this project for positive social change is ultimately the prevention of falls and the decrease of fall injuries that can incapacitate patients, especially the elderly who were otherwise able to function independently prior to the fall. This loss of independence will hasten their decline towards end of life. If the CVVM can be used effectively to decrease falls rates, this means that there will be a decrease in morbidity and mortality rates. Money will also be saved from injuries and litigations incurred from falls. Patients will feel safer and this will increase patients' trust in the caregivers and care facilities. Staff will experience increased satisfaction with their work because their efforts are always towards patient safety, quality care, and a satisfactory hospital experience.

Summary

The practice problem has been described, including the benefit of addressing the problem. The introduction of technology as a falls prevention strategy and its potential for effective falls prevention has been analyzed. This paper so far has also identified the theories that will guide the learning process and implementation of the change process. These theories will now be further discussed in the next section.

Section 2: Background and Context

Concepts, Models, and Theories

The Learning Styles Inventory (LSI) reflects the stages of experiential earning model conceptualized by David Kolb. Kolb (1984) stated that "learning is the process whereby knowledge is created through the transformation of experience (p. 38). David Kolb's LSI is a standardized, validated, self-administered test that measures the strengths and weaknesses of individual learners.

The LSI describes learning as a continuous process where knowledge is created when experience is transformed into existing cognitive frameworks. This, in turn, changes how a person thinks and behaves (Lisko & O'Dell, 2010). The LSI explains that experiences are acquired through apprehension, which is a participation in the actual experience, or through comprehension, which happens outside of the actual experience (that is, through abstract conceptualization). Learning occurs when experiences are transformed (Lisko & O'Dell, 2010). Experience is acquired and transformed into new ways of thinking and behavior through four learning styles or modes:

Accommodating: This describes learning through apprehension and active hands-on experimentation.

Diverging: This means learning through apprehension.

Converging: Learning is through comprehension with more emphasis on abstract ideas compared to actual experience.

Assimilating: Learning is also through comprehension but the learning is internalized (Lisko & O'Dell, 2010, p. 107).

This is illustrated in Figure 1 to show approaches to learning that are considered in implementing this project. In the diverging style, the learners are sensitive, tend to watch rather than do, are imaginative and emotional, and prefer to work in groups. Assimilating learners prefer good and clear explanations rather than practical values. Converging learners prefer technical tasks while accommodating learners prefer hands-on learning and intuition rather than logic (Kolb & Funk, 2002).

The outcome of learning can be influenced by incorporating these learning styles into teaching the methods. These learning styles are based on a four-stage learning cycle: concrete experience, reflection, abstract conceptualization, and active experimentation (Fredette, O'Brien, Poople & Nomura, 2015). The concrete experience (CE) is the feeling and direct practical experience. The reflective observation (RO) describes reflection and watching, and concentrates on the meaning of an experience. Abstract conceptualization (AC) is abstractness and thinking. Active experimentation (AC) is the action and doing (Kolb & Funk, 2002).

Kolb's model explains two learning continuums between which learners must choose. These two learning continuums are opposite, that is, AC to CE on one continuum and AE to RO on the other continuum. Kolb (1984), therefore, posited that a person's learning style is a combination of choices between abilities that identify a preference for one ability over the other, and a preference for one construct or combination of abilities. This simply means that a learner must experience the stages of this cycle for learning to be effective, although most learners will show preference for one or two of the stages (Lisko & O'Dell, 2010). An individual's style of learning can be based on certain factors

such as the social environment, educational experiences, or his or her basic cognitive structure (Kolb, 1984).

Learner diversity can result from generational and cultural differences (Coburn & Hall, 2014). The nursing workforce currently has four generations: Veterans born between 1922 and 1943, Baby Boomers born between 1944 and 1960, Generation X, born between 1961 and 1980, and the Millennials, born between 1981 and 2000 (Coburn & Hall, 2014). These groups vary regarding certain aspects of the workplace that can impact the quality of nursing care including job satisfaction, quality of work life, and psychological empowerment (Coburn & Hall, 2014).

Learning styles and technological abilities differ among these age groups. This may contribute to the nurses' inability to use or inefficient use of technological equipment that has the potential to improve patient outcomes. These factors are important to consider because they affect learning and acceptance of change. Implementing Kolb's experiential learning styles in the reeducation of nurses will give the participants the opportunity to learn in a way that is most suitable to them through presentations, hands-on in-services, and provision of easily portable cheat cards that can be attached to the nurses' work identity badge as a quick and convenient reference.
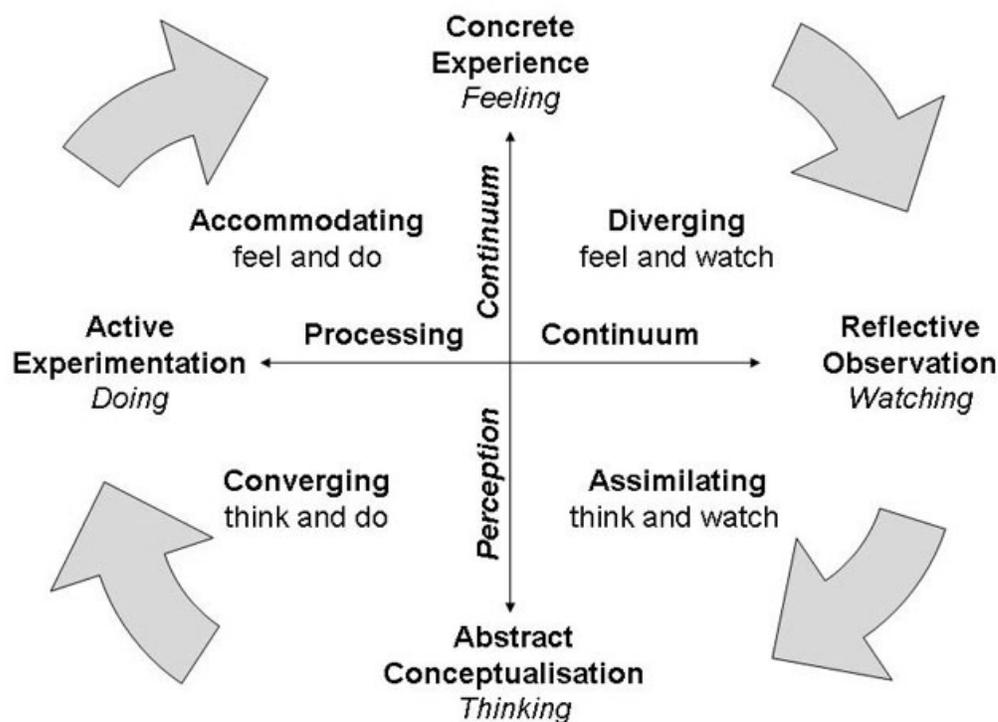
Figure 1. Approach to Learning Styles. (Simply Psychology, 2013)

Relevance to Nursing Practice

The incidence of falls is a nurse-sensitive outcome. It is both a quality issue and a

cost issue. High fall rates impacts nursing practice in that it reflects the quality of nursing

care. A high incidence of falls suggests less than optimum nursing care. Appropriate

nursing interventions towards falls are expected to decrease the incidence of falls. Every

fall may not be preventable, but the right combination of technology, care process, and

focus can significantly decrease the incidence of falls and the injuries that result from

falls (Butcher, 2013). The nurses in this unit agree that the organization has processes

that can decrease fall rates but better understanding regarding the use of the CVVM can

further help to decrease fall rates. The organization's processes include color-coding, for which the organization has adopted the color blue as the official color for falls. Blue signs are placed on the door of patients determined to be at risk for fall, blue arm bands are placed on patients' wrists to alert everyone that a patient is at risk for fall, and blue grip socks are used to prevent slips. Hourly rounding on the patients and the no passing zone are other processes that ensure that patients' needs are regularly and promptly attended to. Post fall debriefing is another process whereby staff meets together after a fall occurs to discuss the situations that led to the fall and devise means of preventing falls from occurring in such situations.

Nurses are guided by ethical standards, one of which is to prevent harm to the patient. Nurses should be encouraged to engage in studies to discover best practices in fall prevention. Falls have been responsible for injuries to patients and even death. Falls are also a never event. Never events are adverse events which are identifiable and measurable and often lead to serious disability or death, and they are usually preventable (Patient Safety Primer [PSP], 2014).

Hospitals and practitioners may not be reimbursed by the CMS for treating injuries resulting from falls. Apart from the injuries, death and financial implications of falls, an institution's accreditation may be jeopardized.

The newest guidelines for fall risk assessment put into consideration certain factors such as age, chronic diseases/comorbidities, and polypharmacy. CDC (2015a), falls are the leading cause of injury among adults who are 65 years and older. Falls can cause hip fractures and head traumas.

Patients with chronic diseases may also have other comorbidities that require them to take a lot of medications (polypharmacy). Some of these medications can increase the risks for fall as they have orthostatic hypotensive effects, sedative effects, blurred vision or dizziness as shown in Table 1. Some illnesses may also cause joint or muscle weakness, or shortness of breath, all increasing the patient's risk for fall.

The latest technology in the organization to assist with fall prevention is the CVVM. All patients admitted into the hospital give their consent to be monitored. The cameras are installed in every room and there is a monitor at the nurses' station. The institution also hired and trained some individuals as CVVM technicians who are in another location within the hospital and have a big monitor where patients who have been evaluated as at risk for fall are additionally monitored.

Table 1

Potential Adverse Effects of Medications Contributing to Falls in the Elderly

Adverse drug effect	Medication(s)*
Agitation	Antidepressants, caffeine, neuroleptics, stimulants
Arrhythmias	Antiarrhythmics
Cognitive impairment, confusion	Benzodiazepines, narcotics, neuroleptics, any drug with anticholinergic effects
Dizziness, orthostatic hypotension	Anticonvulsants, antidepressants, antihypertensives, benzodiazepines, narcotics, neuroleptics
Gait abnormalities, extrapyramidal reactions	Antidepressants, metoclopramide, neuroleptics
Increased ambulation	Diuretics
Postural disturbances (e.g., problems with balance)	Anticonvulsants, benzodiazepines, neuroleptics
Sedation, drowsiness	Anticonvulsants, antidepressants, benzodiazepines, narcotics, neuroleptics
Syncope	Beta-blockers, nitrates, vasodilators (e.g., alpha-adrenergic blockers such as doxazosin)
Visual disturbances (e.g., blurred vision)	Neuroleptics, any drug with anticholinergic effects

Note. *Not an exhaustive list; many other agents may cause adverse effects specified. Adapted from "Medications and falls in the elderly," by Ruddock, B., 2004.

Drug Information and Research Centre. Retrieved from

http://sandiego.networkofcare.org/content/client/4/Medication%20and%20falls%20elderly.pdf

The rationale for this monitoring by nurses and monitor technicians is that patients attempting to get out of bed can be seen and immediately rescued. The nurses' responsibility is to properly identify patients with risk for fall, activate them on the CVVM, and apply the virtual side rail to alert the nurses when a patient attempts to get out of bed. The nurse also notifies the CVVM technicians of patients at risk for fall to ensure that such patients are added to their monitor screen and are being monitored. All these interventions, in addition to the regular fall prevention measures, should significantly decrease the fall rate in this unit. This process of intense monitoring has decreased falls in other areas of hospital who have implemented the CVVM.

Presentations and hands-on trainings will then be done to teach the proper use of the care view monitor including how to determine if a patient needs to be activated on the care view monitor, how to activate the patient on the monitor, how to apply the virtual guard rails and other nurses' responsibilities while the patient is activated on the care view monitor. The hospital's policies regarding monitoring patients on the CVVM and employee's responsibilities while monitoring patients will be made available in the units. The rationale for addressing the issue of fall with this EBP project is to increase nurses' knowledge on general fall prevention measures and in the proper use of the care view monitors to ensure an effective and efficient use of the CVVM in the effort to decrease fall rates.

There are new guidelines for the assessment of a patient's risk for fall. Once a patient is identified as being at risk for fall, adequate measures can then be taken to prevent fall. Patients are assessed for fall risk using assessment tools such as the Morse Fall Risk Tool. The major changes in the guideline for assessing a patient's risk for fall

was developed in 2013 by the Center for Clinical Practice at the National Institute for Health and Care Excellence. The guideline discourages the use of fall risk prediction tools in inpatients who are 65 years and above for assessing risk for fall (AHRQ, n.d.). This new guideline has recommended that all patients who are 65 years or older, and patients who are 50 to 64 years and judged by a clinician to be at higher risk for fall because of an underlying condition to be regarded as at risk for fall (AHRQ, n.d.). These patients are now automatically considered as at high risk for fall and managed accordingly. Consent to monitor patients, who are at high risk for fall, is obtained upon admission into the hospital.

While implementing this guideline in determining patients' risk for fall, it is important to note that the individual risk factors for hospitalized patients must also be identified, and the underlying causative factors must treated, improved, or managed during their hospital stay (AHRQ, n.d.). This new guideline will ensure that older people at risk for fall receive appropriate management. This will prevent falls, improve outcome and minimize recurrence of injuries due to falls (AHRQ, n.d.). It is not specified at this time how this guideline was formulated, but it was developed by the Center for Clinical Practice at the National Institute for Health and Care Excellence.

Local Background and Context

Falls prevention has been a priority for the organization. In addition to standard falls prevention strategies, the hospital invested in the computerized beds, also known as the "talking bed". The alarms go off when a patient attempts to get out of bed. The bed also talks to the patients asking them to "Stay in bed, your nurse is coming," when the patient attempts to get out of bed. The latest technology added to the falls prevention

strategies is the Care View Video Monitor (CVVM). The CVVM provides the opportunity to continuously visualize the patient and offer assistance in a timely manner. The CVVM is expected to aid better falls prevention but this unit still records high falls rates. It appears that the CVVM is not being used properly as not all patients assessed as being at high risk for falls are activated on the CVVM. The CVVM monitor technicians are employed to constantly monitor patients on activated on the CVVM. Two CVVM technicians are usually on staff every shift to monitor all the patients in the activated patients monitor in the hospital. This may not be enough; therefore, the responsibility of manning the central CVVM monitor at the nurses' station still rests on the nurses. This project will be done on in an intermediate care unit. The average patient to nurse staffing ration is four to one. It is recommended that a staff on the individual units is stationed at the nurses' station at any given time.

This project was implemented in a unit in an organization whose vision is to become the leading public academic healthcare system in the United States. It has a mission to improve the health of the community by providing quality, comprehensive healthcare in a compassionate, culturally competent, ethical and fiscally responsible manner. The hospital maintains its commitment to the underserved of two counties, while also providing care for residents of the city and state. The organization is a teaching hospital and leads through its clinical excellence, innovative research and progressive medical education and training (Grady Health System, 2015).

Role of the DNP

This writer, as a practicing family nurse practitioner, who has also worked as a registered nurse in various nursing units and in various capacities for fifteen years; was

privileged to navigate the healthcare system, observed the gaps in practice, and has always worked towards providing optimum care for the patients and their families. The practicum experience in this organization provided the opportunity to take a closer look at some of the gaps in practice. It also helped to devise means of correcting some of those gaps for better quality of care, and as a way of advancing the profession. These were the motivation for the choosing this topic. Falls was selected for this project given its impact on patient's morbidity and mortality, and, because it is a nurse-sensitive outcome, can depict the quality of nursing care a patient receives.

The role of the DNP was to assess for and identify a healthcare problem, proffer evidence-based solutions to the problem, implement the solution, and evaluate the outcome. Specifically, one was responsible for delivering the presentations, putting together the binder containing the hospital's policies on patient monitoring, the manual on the use of the CVVM, and the necessary paper works required when a patient is activated on the CVVM. One was also responsible for the hands-on training (in collaboration with the CVVM vendors), and the creation of cheat cards for quick reference for the nurses. Assistance was requested from the CVVM vendors to provide the nurses with the hands-on training.

Summary

This section described David Kolb's learning model, which guided the educational part of this project. The relevance of this project to the nursing profession, and the role of the DNP student in this project have been discussed. Section 3 will elaborate on the program design.

Section 3: Collection and Analysis of Evidence

Introduction

This project evaluated the effectiveness of presentations, hands-on training regarding the use of the CVVM technology, provision of the CVVM technology manual in the project units, and cheat cards for the nurses and clerks. The nurses' understanding of and commitment to the proper use of the CVVM will cause a change in practice that is expected to eventually decrease the fall rates in the nursing units. This section highlighted the sources of evidence and described the procedures and the participants that were involved in the project.

Practice Focused Question

The gap in practice was the nurses' inefficient use of the CVVM. Resources relating to the use of the CVVM and the hospital's policies regarding monitoring patients are not easily available. The CVVM has great potential to decrease falls rates. For a more efficient use of the CVVM, this project will utilize an educational model (David Kolb's stages of experiential learning) to guide the presentations and hands-on training in an attempt to increase knowledge and skills for a more efficient use of the CVVM.

Sources of Evidence

The sources of evidence for this project were obtained from the nurses and unit clerks in the intermediate care units, and from the organization's policies on falls prevention and CVVM monitoring. Other evidence was obtained from health organizations. The CDC is a government agency founded in 1946 and is the leading national public health institute of the United States; the National Center for Biotechnology Information (NCBI), which is a part of the United States National Library

of Medicine, a branch of the National Institutes of Health; the National Council on Aging (NCOA), founded in 1950, and seeks to provide a national voice and advocate for the elderly in America. It currently has a vision to improve the health and economic security of ten million older adults by 2020, and The Agency for Healthcare Research and Quality (AHRQ) whose Fall Knowledge Toolkit will be used for this project.

These sources provide rich and credible data regarding the incidences, cost, statistics, and previous research studies on the problem. Some of the government agencies and professional organizations have engaged in research studies on this practice problem; therefore, they are good sources for best research evidences. The source of evidence for this project is project hospital's fall prevention committee. The committee provided the organization's up to date fall incidence report. The nurses in the intermediate care unit where the project will be carried out are the major sources of evidence for this project. Search engines such as CINAHL, MEDLINE, Proquest Nursing and Allied Health Sources, and PubMed were used. Words and phrases used for the search include *falls*, *falls prevention*, *nursing education*, *evidence-based practice*, and *learning theories*.

Participants

The participants were the nurses in a particular intermediate care unit. They were selected for this quality improvement project because the unit has high fall rates in the hospital despite the use of the CVVM. The participants included nurses working in various shifts, with wide ranges of nursing experience and educational backgrounds. The number of participants (*n*) in this study was 30 nurses, which was the number of nurses in this unit. These participants were relevant to this project because they were the end-users

of the CVVM. The presentations, hands-on training, and availability of reference materials were expected to increase the nurses' knowledge, ease of use, and overall satisfaction with the CVVM and implementation of other fall prevention strategies.

Procedures

The staffs were reeducated on fall preventive measures and the proper use of the CVVM in the prevention of falls. Cheat cards and manuals that contain policies on patient monitoring and manuals with directions on the use of the CVVM were provided to the staff and unit respectively. Information on fall prevention from the AHRQ fall knowledge test was included in the teaching. The availability of resources for quick references will increase knowledge, ease of use of the CVVM, and better prevention of falls. A CE was conducted to evaluate the project. This was done using a Likert scale to determine how well the nurses understood the teachings, how comfortably they believe they could use the CVVM, and how much they believe that the CVVM could help to decrease fall rates. This project is intended to equip nurses to properly assess fall risk, become more comfortable with the use of the CVVM, and use it more efficiently.

This writer worked in collaboration with the CVVM vendor specialists for the hands-on part of this project. Staffs were provided with cheat cards on fall evaluation strategies, hospital policies on patient monitoring, and the proper use of the CVVM to ensure that staffs have the most important information needed to ensure patient safety.

<div align="center">

Analysis and Synthesis

</div>

The systems used in this project for recording, tracking, and organizing the information collected from the nurses included paper-based course evaluation and

Microsoft Excel. Microsoft Excel was used to organize and tabulate charts. Excel was also used to conduct a descriptive analysis of the data collected from the nurses.

The procedures used to assure the integrity of the evidence include asking participants to assess the CE independently (see Appendix C). The participants were encouraged to be truthful and respond to all questions in the course evaluation according to their individual observations. Any missing information in the course evaluation from the nurse was omitted from the study analysis. No outliers are expected to be observed in this study.

To address the practice-focused questions in this project, this study used a descriptive analysis. The descriptive analysis was used to assess the distribution of the study population, which is 100% of registered nurses who work in the Critical Care Unit of the hospital. The study population is $N = 30$ nurses. The mean, median, and mode of the study variables will be generated using descriptive analysis. The variables (see Appendix C) are partitioned in two classes: the effectiveness of utilizing the David Kolb experiential learning model as a learning tool, and the nurses' understanding of fall preventive measures, including the use of the CVVM device in reducing fall incidences in the hospital. The dependent variable is the overall nurses' knowledge of fall prevention. The independent variables are nurses' satisfaction with the teaching experience, nurses' use of reference materials including the cheat cards, nurses increased knowledge on the use of CVVM, the likelihood of always using CVVM and using it effectively, increased confidence among nurses regarding using CVVM, and increased knowledge of CVVM and other fall prevention strategies.

The variables that address the use of David Kolb's educational learning tool include nurses' satisfaction with the teaching experience, the use of cheat cards, and nurses' use of reference materials. The variables that address the nurses' understanding of use of CVVM include knowledge of nurses' use of CVVM, the likelihood of the nurses always using CVVM, confidence among nurses about using CVVM, and the nurses' knowledge about other fall prevention strategies.

Summary

This section has highlighted ways of ensuring the confidentiality of the participants and the patients. Maintaining confidentiality could promote participation. The course evaluation that will be conducted after the interventions can generate inferences that could be used to improve teaching methods to positively impact nursing practice. A dependent variable in this study is nurses' overall knowledge of fall prevention. There are seven independent variables that either addresses the use of the David Kolb educational tool or the nurses' understanding of their use of the CVVM as a fall prevention strategy. A descriptive analysis was conducted to summarize and test for strength and association between the dependent and independent variables.

Section 4: Findings and Recommendation

Introduction

Falls are a nurse-sensitive outcome that reflects the quality of nursing care. It is therefore important to continue to improve nurses' knowledge of fall prevention strategies. This project will increase the nurses' knowledge regarding general fall prevention strategies and increase their commitment to the use of the CVVM to decrease fall rates.

The project site invested in the CVVM, which is a virtual monitoring technology that provides for continuous viewing of the patient. It also allows for activation of the virtual bedrails which alarm to alert the staff when a patient attempts to leave the bed. The CVVM also provides for remote monitoring of patients by the CVVM technicians for additional protection of the patients from fall.

The gap in practice is that nurses are not utilizing the great potential of this technology to decrease fall rates. The staffs were only given an initial one time in-service training on how to use the CVVM. Over time, the staff became less proficient in the use of this technology and fall rates have continued to increase.

This project will include educating nurses and unit clerks on fall prevention strategies, the use of the CVVM, the hospital's policy on monitoring patients, providing a CVVM manual with the hospital's policy on patient monitoring, including nursing responsibilities in monitoring patients, provision of cheat cards that contain information on monitoring criteria for passive and remote monitoring, documenting patient fall risks, and drawing of virtual bedrails. The cheat cards are attached to the staff's work identity

badge for quick reference. The purpose of this project is to equip the staff with all the information needed to prevent falls and use the CVVM more efficiently.

The nurses were given a paper-based pretest on fall prevention, use of the CVVM, and the hospital's policy on monitoring patients. The nurses gave their consent for the project. The pretest was completed anonymously by 30 nurses in the intermediate care units. The presentations, teachings, and demonstrations on the use of the CVVM, review of the hospital policies, and other fall prevention measures were done over two weeks in the intermediate care units. This was followed by the posttest and course evaluation completed by the staff. The pre and posttest data and CE data were analyzed using a descriptive analysis.

Findings and Implications

Demographics

There were 30 nurses in this study. The majority of the nurses were Black and female with a wide range of employment years (6-15 years). They were between the ages of 41 and 50 years old and had prior training on falls prevention. Women accounted for 95% of the population. Those aged 41-50 years old accounted for 40% of the population, while 94% of nurses had prior training in fall prevention and management.

Results

The 30 nurses were assessed for their knowledge of fall prevention strategies, hospital policy, and criteria for monitoring a patient using the CVVM. Overall, the pretest evaluation showed that nurses had an average score of 43% and a range of pretest scores (from 0% to 71%). The overall posttest evaluation of nurses showed an average score of 89% and a range of posttest scores from 29% to 100%.

Figure 2 shows a detailed comparison of the pretest and the posttest results. Assessment of nurses' knowledge of fall prevention strategies includes knowledge of intervention program in hospital settings, knowledge of exercise programs for ambulatory older adults, and knowledge of fall prevention. The nurses' pretest scores were 18% for knowledge of intervention program in hospital settings, 31.3% for knowledge of exercise programs for ambulatory older adults, and 65.6% for knowledge of fall prevention. The nurses' posttest scores were 68.4% for knowledge of intervention program in hospital settings, 90.6% for knowledge of exercise programs for ambulatory older adults, and 93.8% for knowledge of fall prevention. After the training, nurses observed improvements in their knowledge of exercise programs for ambulatory older adults by 59.3%. Their knowledge of intervention programs in hospital settings improved by 50%, and their knowledge of fall prevention improved by 28.2%.

For knowledge of hospital policy as shown in Figure 3, the nurses were assessed regarding their knowledge of remote video monitoring using the CVVM, and their knowledge of how to identify patients with history of falls or higher risk of fall. The nurses' pretest scores were 3.1% for knowledge of remote video monitoring using the CVVM and 34.4% for knowledge of how to identify patients with history of falls or higher risk of fall. The posttest scores of nurses were 65.6% for knowledge of remote video monitoring using the CVVM and 78.1% for knowledge of how to identify patients with history of falls or higher risk of fall. After the hands-on training, the nurses observed improvements in their knowledge of remote video monitoring using the CVVM by 62.5% and their knowledge of identifying patients with history of falls or higher risk of fall by 43.7% (Figure 2).

In the third category, knowledge of criteria for monitoring a patient using CVVM, the pretest score showed that 34.4% of nurses were knowledgeable about the criteria for monitoring a patient. The posttest score showed that 90.6% of nurses had more knowledge about the criteria for monitoring a patient. After the in-service training, an improvement of 66.2% was observed among nurses. Additionally, the pretest score showed that 13.2% of nurses compared with a posttest score of 71.1% for nurses had knowledge about surveillance information regarding the tent card placed on the patient. After the training, an improvement of 57.9% was observed among the nurses. Figure 2 shows that nurses performed well in the pretest score showing knowledge of fall prevention strategies (65.6%). Nurses did very poorly in the pretest scores that assess their knowledge on hospital policy on remote video monitoring of qualifying patients using CVVM (3.1%). Nurses come to organizations with previous nursing experiences and knowledge on fall prevention. Previous knowledge and experiences are valuable, but it is of optimum importance that nurses learn the policies and procedures of the current organizations where they practice.
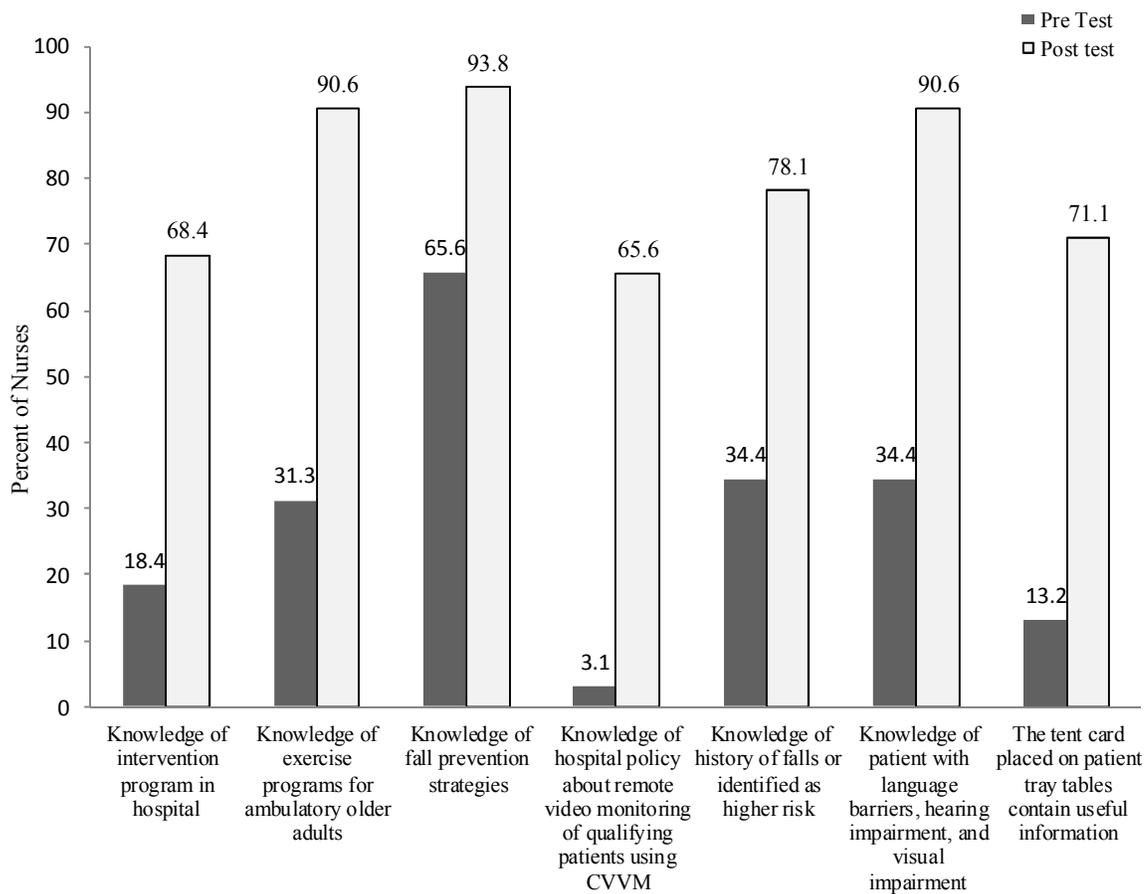
Figure 2. Pretest and Posttest Evaluation in Percentage of Nurses' Knowledge of Fall

Prevention Strategies and Use of CVVM
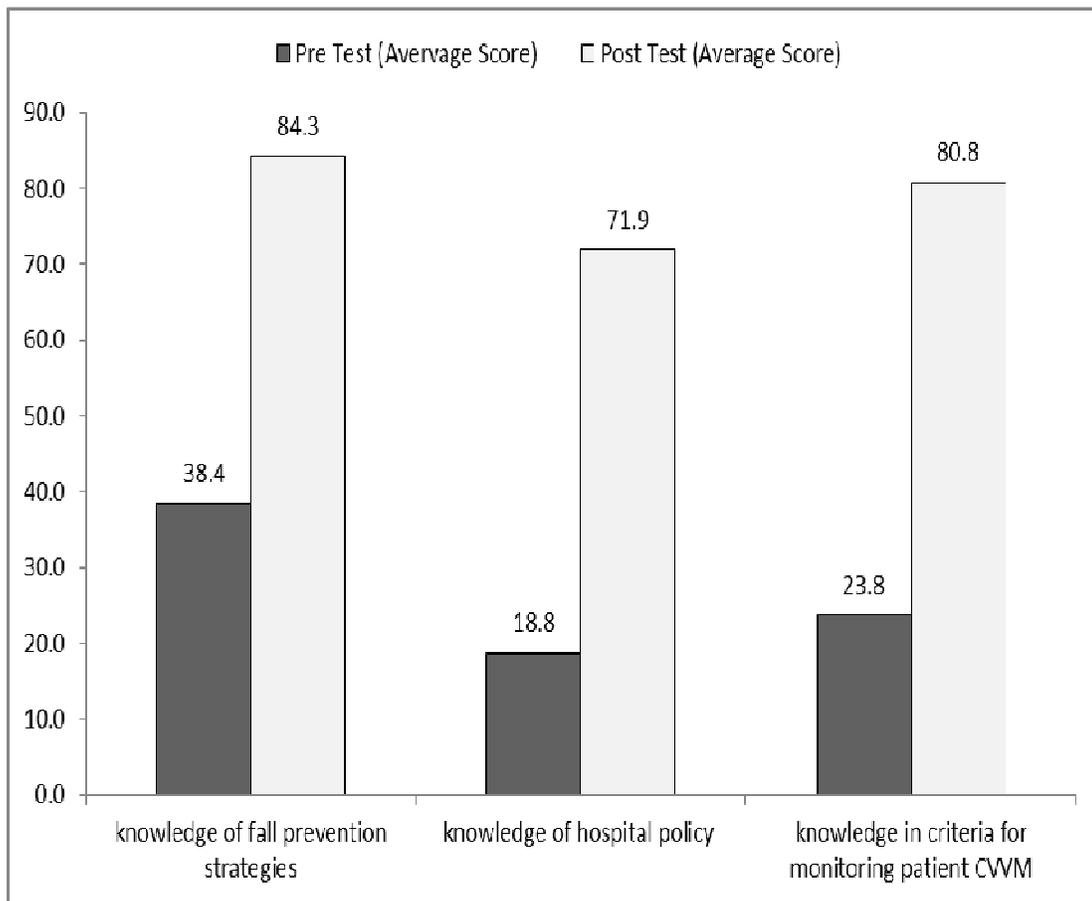
Figure 3. Pretest and Posttest Evaluation in the nurses' three major categories of

improvement
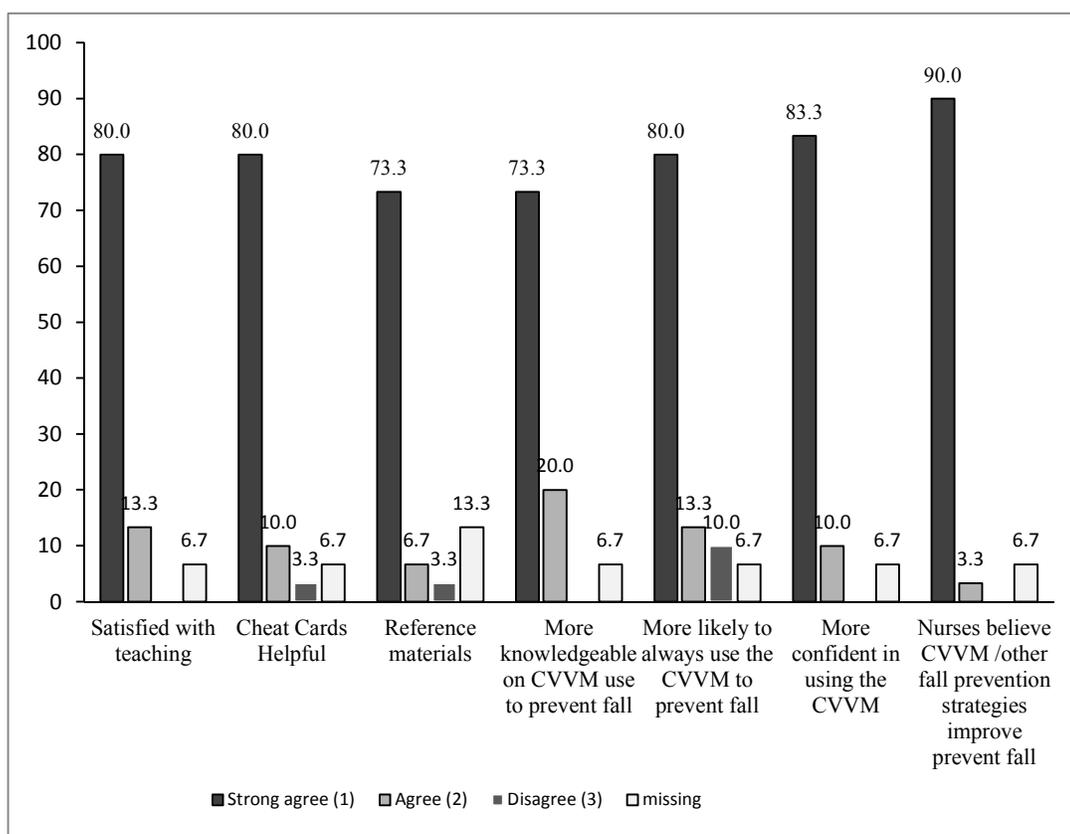
Figure 4. Evaluation in Percentage of Nurses who Had CareView Monitor Training

Unanticipated Limitations of the Project

The unanticipated limitation of this project is that the nurses' demographics did not show exclusively the nurses who were employed after the CVVM was installed. The nurse demographics should have stratified nurses who were employed within the last two years. This would have helped to determine the actual knowledge level of these new nurses employed after installation of the CVVM, who had no formal training on the CVVM. Although during the presentations and trainings, these relatively new nurses demonstrated great interest in learning about the CVVM.

Implications

The implications resulting from the findings are characterized in terms of individuals, communities, institutions, and systems. Findings from the analyses of the pretest and posttest data showed that awareness about fall prevention strategies increased. The individual nurses learned about fall prevention strategies, how to identify patients with high risk of falls, and about increasing awareness of fall prevention among team leaders in the individual unit of the hospital.

The communities might benefit in the increased knowledge of the nurses in this study. When the patient community observed about the fall prevention strategies, including using CVVM surveillance in the hospital, referrals to the hospital might surge as well as patient satisfactions. The hospital as an institution might benefit from the findings of this study. Nurses in this study acquired substantial knowledge about fall prevention, the hospital policy and responsibilities, and the effective use of CVVM. If the 30 nurses apply the strategies learned from this project and their units experience decreased fall rates, other units in the hospital might be re-trained to use the CVVM, adopting the tools from this project. System wide benefit could include the positive impact of the findings and generate a social change in the fall occurrence and incidence in the hospitals.

Social Changes

Findings from this study, through the interaction with 30 nurses, have armed the nurses with knowledge to prevent falls in the hospital. These nurses have agreed to use materials from the training to generate positive impact in their hospital units. Findings from this study may influence nurse managers and other leaders in the hospital to

increase enforcements of fall prevention policies and guideline; therefore, reversing the failing pattern of fall rate in hospital units. Hospitals currently using the CVVM surveillance system may use findings from this study to implement fall prevention policies in their hospital.

Recommendations

This writer will recommend re-teaching the staff on the use of the CVVM. This re-education should not only be a one-time hands-on training, but incorporate presentations on fall prevention, interactive sessions on fall prevention where the nurses can discuss their challenges and offer suggestions based on what they are currently experiencing at the bedside; make the cheat cards and the CVVM manual developed for this project available to all the nurses and the nursing units the hospital, respectively, for quicker references.

Nurses complained that the process of initiating the CVVM technology is cumbersome. The paper work to be completed makes it difficult to initiate the CVVM technology. Currently, three forms need to be faxed to the Video Monitor Technicians (VMTs) to initiate patient monitoring via CVVM. One of the forms to be completed is the "24 Hour Video Monitor Observation Record". This form is used by the VMTs to document the patient's activity and behavior codes, and action taken. The "24-hour Video Monitor Observation Record" form should be left in the custody of the VMTs to decrease the nurses' paper work. This writer will recommend that the "Initial Request and Discontinuation Form" be simplified and added in epic to be completed with "a few clicks" on the computer to activate the patient monitoring.

1. Adding more camera rooms to enable more patients who meet the criteria for video monitoring to be monitored.

2. At the beginning of this project, three units were visited and the following were found:

> In the first unit, the CVVM was turned off, even though there were patients that met the criteria for video monitoring. The nurses reported that the CVVM had been non-functional for over three weeks. Customer service never notified.
>
> No bedrails were activated in any of the project units this year as shown in Appendix D.
>
> The third unit had the CVVM but the nurses and unit clerks were unaware of its existence.

This writer recommends that leadership/management take a lead in ensuring that all units comply with hospital policies regarding patient monitoring. The clinical managers need to conduct daily rounds to ensure that all technological equipment are functioning as they should. New nursing staffs were never trained on the use of the CVVM technology.

This writer recommends that all new nurses and unit clerks employed into the hospital be trained on the use of the CVVM, preferably at the time they are being trained to use other medical technologies such as the EPIC system.

Most remote controls for the CVVM were missing, and in many cases the mouses for the CVVMs were not functioning properly. This writer recommends periodic maintenance of the CVVM technology.

Strengths and Limitations of the Project

The strength of this project is that the analysis conducted using the pretest and posttest datasets that were unbiased. The data were obtained directly from the nurses who use the CVVM surveillance. The participants were under no pressure to participate and they gave their consent to participate in the project. The strength of this project included that the project remained a quality control task aimed at improving the use of the CVVM technology by nurses to eventually prevent falls. It is now aiding the hospital's nursing education, practice and research department in addressing the gap in knowledge and the commitment to effectively using the CVVM.

The limitation of this project is that the questionnaire did not identify nurses who have worked in unit for less than two years only. Identifying the nurses who have worked in the intermediate care units for less than two years would have specifically captured the nurses who were employed after the CVVMs were installed. The nurses who were employed after the installation of the monitors never received any formal training on the use of the CVVM until this project was done.

Summary

This section provided findings of the pre-and posttest data and Course Evaluation data that were analyzed using a descriptive analysis. The number of participants (*n*) in this project was 30 nurses, which was the number of nurses employed in the hospital's critical care units. Findings supported an increase in knowledge among the nurses in the use of the CVVM technology.

Section 5: Dissemination Plan

The dissemination plan for this project involved sharing a copy of findings from this project with the major hospital research council, committee chair and committee member of the Walden University, and Proquest UMI institution database.

Analysis of Self

This writer has learned tremendously from this project. The analysis of self is in alignment with overall learning objectives of this project. The learning objective include using information technology to collect accurate data on best research evidence, evaluating research evidence and developing practice guidelines and implementation processes that will cause an effective practice change with the goal of improving patients' outcomes, and evaluating practice patterns and outcomes within the organization, determining variances as compared to national benchmarks, and proffering solutions that will be effective, efficient, and patient-centered for better patient outcomes and nurse satisfaction.

This writer's overarching goal is in line with the objective outlined for DNP essentials in the use of science (best research evidences) to improve practice and patient outcomes. Additionally, this writer's goal was to review hospital policies, especially regarding patient monitoring, and creating cheat cards for easy references to these policies. This writer also equipped nurses through education and provision of appropriate materials to encourage the use of the CVVM system, which will in turn help to decrease falls. High fall rates and advance the nursing profession. In summary, this writer's learning objectives are to effectively use technological advances to decrease fall rates.

Summary

This study highlighted that a major hospital unit had a high incidence of falls and the hospital wanted to improve its fall rate. Despite the fact that the hospital obtained the CVVM surveillance monitor, the fall rate remained high. This writer hypothesized that educating the nurses, providing easier access to information on fall prevention strategies and the proper use of the CVVM and hospital protocol in patient monitoring would decrease the incidence of falls in the hospital units.

This writer used presentations, hands-on training, and provision of CVVM manuals also containing hospital monitoring policies and nurses' responsibilities, as well as creation of cheat cards for easy references, after a pretest data from nurses in the intermediate care units in the hospital. This writer collected pretest and posttest data from nurses ($N = 30$). This writer used descriptive analyses on both datasets. Results showed that the nurses primarily scored low marks in the pretest data but showed substantially higher scores after training and in the posttest data. The overall pretest evaluation showed that nurses had an average score of 43%, while the overall posttest evaluation showed that nurses' knowledge improved to an average score of 89%. Substantial increases in the nurses' knowledge were observed in all categories of the test. CEs showed the nurses were satisfied and would use training materials to improve fall rates in their hospital unit. Project findings were consistent with this writer's goal and other studies on fall prevention.

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Appendix A: Permission Letter

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Healthcare
Research and Quality

5600 Fishers Lane
Rockville, MD 20857
www.ahrq.gov

April 19, 2016

Ngozi Nwaise
Walden University DNP Student
780 McConnell Run Crossing
Grayson, Georgia, 30017

Dear Ms. Nwaise:

Based on what you said in the email and telephone conversation preceding this response, you have AHRQ's permission to reprint and use the "Fall Knowledge Test" (Tool 2E in Preventing Falls in Hospitals: A Toolkit for Improving Quality of Care; AHRQ Publication No. 13-0015-EF) I am acting on behalf of Ms. Randie Siegel, Associate Director, Office of Communications, Publishing and Electronic Dissemination.

I have concluded that you can use it for your DNP research, as long as you note in your capstone paper (and any subsequent professional publications) that the "Fall Knowledge Test" was used with permission of the Agency for Healthcare Research and Quality, and was adapted from a test developed by the Singapore Ministry of Health." Since you are using it for research/improvement of the quality of patient care and not reprinting the test for sale commercially, giving the citations should be adequate. The suggested source citation for the tool is:

> *Preventing Falls in Hospitals: A Toolkit for Improving Quality of Care.* (Tool 2E. "Fall Knowledge Test," in: Chapter 7-Tools and Resources.) Agency for Healthcare Research and Quality; Rockville, MD. January 2013. (http://www.ahrq.gov/professionals/systems/hospital/fallpxtoolkit/fallpxtk-tool2e.html)

If you wish to reprint the test in any professional publications that derive from your DNP paper, please contact me or Ms. Siegel for permission.

Sincerely,

David I. Lewin, M.Phil.
Health Communications Specialist/Manager of Copyrights & Permissions
Office of Communications Agency for Healthcare Research and Quality
5600 Fishers Lane
Room # 07N58D / Mail Stop # 07N94A
Rockville, MD 20857 USA
Email: David.Lewin@ahrq.hhs.gov
Phone: +1 301-427-1895
Fax: +1 301-427-1783

Appendix B: Fall Knowledge Test

Each question may have more than one option as the correct answer. Please circle the letters that correspond to the correct answers.

1. Which of the following statements is *correct*?
    a. Falls have multifactorial etiology, so fall prevention programs should comprise multifaceted interventions.
    b. Regular review of medication can help to prevent patient falls.
    c. The risk of falling will be lessened when a patient's toileting needs are met.
    d. The use of antipsychotic medications is associated with an increased risk of falls in older adults.

2. A multifaceted intervention program should include:
    a. Individually-tailored fall prevention strategies.
    b. Education to patient/family and health care workers.
    c. Environmental safety.
    d. Safe patient handling.

3. Risk factors for falls in the acute hospital include all of the following *except*:
    a. Dizziness/vertigo.
    b. Previous fall history.
    c. Antibiotic usage.
    d. Impaired mobility from stroke disease.

4. Which of the following statements is *true*?
    a. The cause of a fall is often an interaction between patient's risk, the environment, and patient risk behavior.
    b. Increase in hazardous environments increases the risk of falls.
    c. The use of a patient identifier (e.g., identification bracelet) helps to highlight to staff those patients at risk for falls.
    d. A fall risk assessment should include review of history of falls, mobility problems, medications, mental status, continence, and other patient risks.

5. Patients with impaired mobility should be:
    a. Confined to bed.
    b. Encouraged to mobilize with assistance.
    c. Assisted with transfers.
    d. Referred for exercise program or prescription of walking aids as appropriate.

6. The management of the acutely confused patient should include all of the following *except*:
    a. Moving patients away from the nursing station.
    b. Involving family members to sit with the patient.
    c. Orienting patients to the hospital environment.
    d. Reinforcing activity limits to patients and their families.

7. Which of the following statements is *false*?
    a. Fall prevention efforts are solely the nurses' responsibility.
    b. A patient who is taking four or more oral medications is at risk for falling.
    c. A patient who is taking psychotropic medication is at higher risk for falling.
    d. Testing or treatment for osteoporosis should be considered in patients who are at high risk for falls and fractures.

8. In hospital settings, intervention programs should include:
    a. Staff education on fall precautions.
    b. Provision and maintenance of mobility aids.
    c. Post fall analysis and problem-solving strategy.
    d. Bed alarms for all patients, regardless of risk.

9. When assessing patients, which of the following statements is *false*?
    a. All patients should be assessed for fall risk factors at admission, at a change in status, after a fall, and at regular intervals.
    b. Medication review should be included in the assessment.
    c. All patients should have their activities of daily living and mobility assessed.
    d. Environmental assessment is not important in the hospital as it is all standardized.

10. Risk factors for falls include:
    a. Parkinson's disease.
    b. Incontinence.
    c. Previous history of falls.
    d. Delirium.

11. Exercise programs for ambulatory older adults should:
    a. Be very aggressive.
    b. Be unsupervised.
    c. Be ongoing.
    d. Include individualized strength and balance training.

12. Which of the following statements on education in fall prevention is *false*?
    a. Education programs should target primarily health care providers, patients, and caregivers.
    b. Education programs for staff should include the importance of fall prevention, risk factors for falls, strategies to reduce falls, and transfer techniques.
    c. Instruction on safe mobility, with emphasis on high-risk patients, should be provided to both patients and families.
    d. Education should only be given at the start of the fall prevention program.

13. Which of the following is recommended to improve patient safety?
    a. Locking wheeled furniture when it is stationary.
    b. Having nonslip flooring.

    c. Placing frequently used items (including call bell, telephone, and remote control) within reach of the patient.

    d. Rounding hourly to address patient needs.

The following questions contain answer choices (a), (b), (c), & (d).
Circle the most appropriate answer to the question

14. According to the Grady memorial hospital policy, passive monitoring of qualifying patients using the CareView secure video surveillance system is primarily the responsibility of the

    a. Video monitor technicians

    b. The patient's assigned nurse

    c. The video monitor technicians and the assigned nurse.

    d. The assigned nurse and the physician

15. According to the Grady memorial hospital policy, the remote video monitoring of qualifying patients using the CareView secure video surveillance system is primarily the responsibility of

    a. Video monitor technicians

    b. The patient's assigned nurse

    c. The video monitor technicians and the assigned nurse.

    d. The assigned nurse and the physician

16. A patient has a history of falls or is identified as higher risk for falls due to medications and impaired mobility; the followings are the responsibilities of the registered nurse *except*

    a. Complete the patient's safety observation initial request and discontinuation form

    b. Activate camera via Nurse view and enter patient fall risk

    c. Notify the unit clerk that video monitoring and virtual bed rail has been activated for the patient.

    d. Reassess the patient every 6 hours for the need to continue monitoring.

17. Which of the following is/are criteria for monitoring a patient via the CareView video surveillance system?
1. Patient is uncooperative and unable to follow commands.
2. Continuous EEG monitoring for patients with seizure induction
3. Elopement risk in patient without decision-making capacity
4. Patient with language barriers, hearing impairment, and visual impairment.

    a. 1, 2, & 4

    b. 1, 2, 3, & 4

    c. 1, 2, & 3

    d. 1, 3,& 4

18. Which of the following information about CareView video motoring is *incorrect?*
    a. To access patient education on video monitoring, turn the TV to channel 3.
    b. The recording capability of the CareView video monitoring is kept off for all patients
    c. (c) Virtual bed rails should not be drawn on top of the bed or the physical bed rails   attached to the bed
    d. When bed rails are drawn but not activated, the room image will be framed and the bed rails will be yellow.

19. The tent card placed on patient tray tables contain which of the following information
    a. Information regarding the purpose and benefits of the video monitoring system
    b. Instruction on how patients can request for privacy if needed
    c. Patient's consent for video monitoring
    d. b and c

20. Activation of CareView monitoring at the direction of patient/surrogate decision maker, revoking initial declination of activation is known as
    a. Passive monitoring
    b. Activation
    c. Reconsideration
    d. Revocation

Appendix C: Nurses Demographics and Workshop Evaluation

Nurses Demographics

Age Range:	( ) 20-30	( ) 31-40	( ) 41-50	( ) 51 and above
Race/ethnicity:	( ) Black	( )White	( ) Hispanics	( ) Other
Work Shift:	( ) 7am-7pm	( ) 7pm-7am,	( )7am-3pm	( ) 3pm-11pm
Years of Nursing experience:	( ) 0-5	( ) 6-10	( ) 11-15	( ) 16 and above
Gender:	( ) Male	( ) Female		
Highest level of education:	( ) ADN	( ) BSN	( ) MSN	( ) DNP/PhD
Duration in current unit (years):	( ) 0-5	( ) 6-10	( ) 11-15	( ) 16 and above
Previously trained in falls management:	( ) Yes	( ) No		

Workshop Evaluation

	Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4
1) I am satisfied with the teaching				
2) The Cheat Cards made it easier to remember nurses' responsibilities in monitoring a patient on CVVM.				
3) The reference materials are easy to understand.				
4) I am more knowledgeable on the use of the CVVM to prevent falls.				
5) I am more likely to always use the CVVM to prevent falls.				
6) I am more confident in using the CVVM				
7) I believe that the CVVM in addition to other fall prevention strategies will better prevent falls.				

Appendix D: Utilization Report, 2017

Utilization Report
Hospital: 2017

Room	Patient Days Video Used	Patient Days VBR Used
12X011	4	0
12X012	2	0
12X021	3	0
12X022	2	0
12X06	0	0
12X071	0	0
12X072	0	0
12X081	0	0
12X082	0	0
12X09	0	0
12X101	0	0
12X102	0	0
12X181	0	0
12X182	0	0
12X19	0	0
12X20	0	0
12X21	0	0
12X22	0	0
12X231	0	0
12X232	0	0
12X26	1	0
12X27	1	0
5X491	17	0
5X492	13	0
5X501	1	0
5X502	4	0
5X511	17	0
5X512	27	0

Appendix E: Clinical Performance Report Hospital Summary

CAREVIEW
COMMUNICATIONS

SEE THE POSSIBILITIES

Clinical Performance Report

_____ Hospital: Summary

	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017
Total Careview Beds	196	196	196	196	196	196	196
Total Patients	1214	1116	1274	1158	1255	1208	307
Fall Risk Documentation							
Total Patients Assessed	10	10	5	6	10	2	1
% Patients Assessed	0.82	0.89	0.39	0.51	0.80	0.17	0.13
Fall Risk Management							
Total Patients Evaluated At Risk	7	10	3	5	7	1	1
% At Risk Patients With VER Used	100.00	70.00	33.37	40.00	71.43	0.00	0.00
% Time At Risk Patients Had VER Active	87.03	22.58	8.00	2.63	8.87	0.00	0.00
Alarms							
Average Reactive Time (seconds)	5	6	13	5	6	10	3
Average Score (see scoring matrix)	4.99	4.98	4.91	4.33	4.98	4.31	6.00
Outcome							
Recorded Falls	0	0	0	0	1	0	0
Recorded Prevented Falls	16	12	16	1	13	10	5

Reactive Time	0 - 30 Sec	31 - 60 Sec	61 - 90 Sec	91 - 180 Sec	181 - 300 Sec	> 300 Sec
Score	5	4	3	2	1	0