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Improving Fall Prevention Strategies in an Acute-Care Setting

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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MSN, University of Akron, 2009

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Falls with or without injuries among the elderly have become a public health concern, with falls among adults age 65 years and older increasing every year. Nurses play a role in ensuring patient safety by following fall prevention guidelines. The purpose of this evidence-based study was to implement the RE-AIM evaluation tool to determine the impact of the Safe Five program on staff compliance with the program; patients' awareness of the need for falls prevention; and falls among older adults, ages 65 years and older, admitted to an acute care nursing unit. The literature supports implementing a falls prevention program with multifactorial and interdisciplinary components, and an evaluation plan to help decrease falls in acute care settings. The Safe Five falls prevention program was implemented on the acute care nursing unit in an effort to decrease the inpatient falls rate on the unit. The inpatient falls data were collected retrospectively, 2 years pre implementation of the Safe Five program, and 8 to 10 months post implementation. Data were collected from the Safe Five checklists, recorded inpatient fall rates, and high fall risk chart audits provided by staff and nurse manager; they were then analyzed using the RE-AIM evaluation tool. The long-term effects of the Safe Five program include an 18% increase in patients' awareness of the importance of preventing falls, an 18% increase in staff compliance with the program, and a 14% decrease in inpatient fall rate on the unit. It is projected that the decrease in inpatient falls will result in decreased healthcare costs and improved patient satisfaction with the healthcare system, communication among the interdisciplinary team, and health outcomes for the patients.

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Dedication

I dedicate this project to all my patients who I have the honor and pleasure of caring for day in and day out. Every encounter has been a blessing and a learning experience for me even as I share my clinical knowledge and expertise.

To my mother Elizabeth, a deep and sincere gratitude for your prayers and unwavering faith in me to make it to the finish line, and your endless support and encouragement to persevere through tough times. I am truly blessed to have you as a mother and confidante. To my sisters Irene, Rosemary, and Constance, I thank you for your prayers, patience, support and encouragement throughout this journey. I am truly blessed to have a great support system in my life. To my niece and nephew Naa Deede and Buertey, I thank you for your love, patience and understanding when I say I have school work to do and cannot have fun with you. I love you very much.

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Section 1: Overview of the Evidence-Based Project

In addition to decreased mobility and in some cases, loss of independence, the increasing rate of falls among the elderly has resulted in increased mortality in this population and increased healthcare costs associated with falls related injuries. Falls with or without injuries among the elderly have become a public health concern, with one in every three adults age 65 and older falling every year (Centers for Disease Control and Prevention [CDC], 2013). One out of five falls causes a serious injury for an elderly patient, such as fractures or head injuries, with more than 95% of hip fractures caused by a fall (CDC 2015). According to the CDC (2013), falls are the leading cause of both fatal and nonfatal injuries among older adults. In 2010, 2.3 million nonfatal fall injuries resulting in emergency room treatments were reported, with 662,000 of those patients needing hospitalization and a total direct medical cost of $30 billion (CDC, 2013). The annual direct and indirect costs of falls are estimated to reach $54.9 billion by 2020 (CDC, 2015). These findings reveal that despite multiple falls prevention programs implemented by healthcare professionals in a variety of settings, the problem persists. This is a cause for concern and creates a sense of urgency for healthcare professionals to strive to implement more effective falls prevention programs to decrease falls among the elderly.

Multiple research studies have been conducted to address fall risk assessments, risk reduction, and fall prevention strategies; however, the rate of falls in acute care facilities continues to be a safety issue and quality of care problem for health care providers (Hempel et al., 2013). In acute care facilities, patients develop new risk factors for falls due to their disease process (e.g., seizures, stroke, hip fractures), effects of medical therapy, unfamiliar surroundings, and weakness secondary to prolonged immobility (Cameron et al., 2010). All patients, 65 years and older, need to be screened for dementia or delirium regardless of admitting diagnosis as

these patients have a higher risk for falling (Agency for Healthcare Research and Quality [AHRQ], 2013). Fall rates in acute care facilities range from 1.3 to 8.9 falls per 1,000 patient days, with higher rates occurring in eldercare, neurology, and rehabilitation units (Oliver, Healey, & Haines, 2010). Although implementing falls prevention programs is common practice in acute care settings, failing to evaluate the effectiveness of these programs make it difficult for leaders to identify and address factors contributing to increasing patient falls (Dykes et al., 2010). Ongoing evaluation of falls prevention programs is imperative in determining their effectiveness in decreasing falls. Thus, there was a need for this evidence-based practice (EBP) project to evaluate the effectiveness of a new falls prevention program at University of Cincinnati Medical Center (UCMC).

Problem Statement

The rate of falls continued to rise across nursing units at UCMC despite the numerous attempts of organizational leaders to incorporate EBPs into the care of their patients. The leaders at UCMC review their falls prevention program annually and modify it based on their findings to improve patient outcomes. At UCMC, some units have patient fall rates three times higher than the National Database of Nursing Quality Indicators (NDNQI) and The Joint Commission (TJC) benchmark, which is less than three falls per 1,000 patient days (AHRQ, 2013). The increased rate of falls, including falls with injuries, in the past 2 years (2013-2015) negatively impacted the organization's financial results and patient satisfaction ratings due to longer hospital stays and unintended hospital costs. The consequences of falls among the older adults included moderate to severe injuries such as lacerations, fractures (hip, spine, hip, forearm, leg, ankle, pelvis, upper arm, and hand), and head traumas (CDC, 2013; Healthy People 2020, 2014). These consequences result in patient fear of falling, decreased mobility, muscle weakness, increased

risk of falling, loss of independence, depression, poor quality of life, and increased risk of premature death (CDC, 2013; Healthy People 2020, 2014). The Centers for Medicare and Medicaid Services (CMS, 2008) announced their decision not to reimburse health care organizations for never events, such as falls leading to unnecessary hospitalizations, increased costs, morbidity and mortality, due to their preventable nature (Department of Health and Human Services [HHS], 2008). It was estimated that it would cost acute care facilities about $54.9 billion to treat the 30 % of falls that result in serious injuries in 2020 (Pearson & Coburn, 2011). A Safe Five falls prevention program was implemented at UCMC in July, 2015 to help decrease the rate of patient falls.

Purpose Statement

The purpose of this EBP project at UCMC was to implement an evaluation tool to evaluate the impact of the Safe Five falls prevention program on staff compliance with the program, patients' awareness of the need for falls prevention, and falls in older adults (ages 65 years and older) admitted to an acute care nursing unit. An impact evaluation was conducted to determine the short-term changes that program had produced on staff compliance, patient awareness, and falls. The anticipated outcomes of the new falls prevention program were improvement in staff compliance with the program, patients' awareness of falls prevention, and a decrease in patient falls on the pilot unit. If successful, this program will be implemented throughout the hospital. These outcomes were compared to the outcomes obtained while using the previous falls prevention program.

Project Question

In the EBP project, sought to answer the question: In older adults, ages 65 years and older, admitted to an acute care nursing unit, how does implementing a Safe Five falls prevention

program, compared to routine falls prevention strategies, affect staff compliance with the program, patient awareness of falls prevention, and rate of inpatient falls?

Nature of the Doctoral Project

The first goal of this EBP project was to improve patient safety and quality of nursing care to patients throughout their stay in the acute care setting by implementing an evaluation tool for the Safe Five falls prevention program. The new fall prevention program, Safe Five (see Figure A), that was implemented at UCMC in July, 2015 was being piloted on 8NW. The second goal of this EBP project was to search research and assist the nursing leaders in this organization determine if the implemented falls prevention program was effective in increasing staff compliance, patients' awareness, and decreasing inpatient falls by implementing an evaluation tool for the program. The goals of this EBP project were consistent with the organizational priorities and mission to increase health care quality and patient safety, help individuals live healthier lives, increase patient satisfaction with care, and improve outcomes. These goals were accomplished through a review of the literature to identify evidence-based fall prevention protocols and evaluation frameworks that are reliable and have been successful in preventing falls in patients. The perspectives and concerns of patients, families, staff, and other stakeholders were taken into consideration throughout the planning, development, and evaluation of the new program.

The long-term goal of UCMC was to meet the benchmark for TJC and the NDNQI, which is less than three falls per 1,000 patient days, with zero patients sustaining Level III or Level IV trauma per 1,000 patient days for acute care facilities (AHRQ, 2013; M. Campbell, personal communication, June 19, 2015). According to Oliver et al., (2010), most successful evidence-based fall prevention protocols incorporate multifactorial and interdisciplinary

components and an evaluation plan. In reviewing the literature for this project, the evaluation of outcomes of programs with these components were reviewed and analyzed.

Significance

Preventing falls in older adults (ages 65 years and older) is a focus for health care organizations, payers, and regulatory institutions in the United States as this is indicative of quality care (Currie, 2008; Pearson & Coburn, 2011; Quigley & White, 2013). Falls is one of the nursing quality indicators monitored by the NDNQI, the National Quality Forum (NQI), and the Collaborative Alliance for Nursing Outcome (CANO; Trepanier & Hilsenbeck, 2014). The Joint Commission standards view falls prevention in the context of an organizational patient safety culture, and they include a regulatory requirement for both acute and long-term care facilities to assess and routinely reassess patients for fall risk throughout their stay (Trepanier & Hilsenbeck, 2014). These regulations and consequences make it imperative to prevent patient falls by improving quality of care in acute care facilities.

The initiative to decrease falls among older adults cannot be successful without the joint effort of the public, communities, health care professionals and organizations, and regulatory agencies. Among the goals of the Healthy People 2020 is the goal to improve the health, function, and quality of life of older adults by decreasing their risk of chronic illnesses and preventing injuries (Healthy People 2020, 2014). The objectives of Healthy People 2020 are to increase the proportion of older adults (ages 65 years and older) who use the Welcome to Medicare benefit, clinical preventative services and interventions, and decrease the rate of emergency department visits due to falls (Healthy People 2020, 2014). Although falls are among the most preventable health problems in the United States, less than half of individuals at risk for falls discuss this problem with their health care provider, in part due to barriers to the

implementation of fall prevention protocols or lack of health care providers' awareness of these protocols (CDC, 2013; Koh, Manias, Hutchinson, Donath, & Johnston, 2008). Ongoing evaluation of falls prevention programs is vital in determining the effectiveness of the program in achieving desired goals and offers opportunities for future improvements (Quigley & White, 2013).

EBP involves health care professionals use their advanced knowledge and skills taking into consideration patient needs, values, and beliefs to appraise and synthesize best available research evidence in providing quality, cost-effective care to improve practice and patient outcomes (Grove, Burns, & Gray, 2013). EBP begins with nurses questioning the rationale behind their interventions and seeking alternative ways to improve quality of care to achieve best outcomes. Advanced-practice nurses (APNs), with their knowledge and skills on research and EBP, can play a role in raising awareness and educating other members of the interdisciplinary team on how to integrate best available evidence to address practice problems, such falls prevention in older adults, thereby increasing quality of care, saving costs, and improving outcomes. Researching available evidence to address clinical problems, such as preventing falls, gives health care practitioners the opportunity to find and use EBP interventions that have being developed, tested in a variety of healthcare settings on a variety of patient population, and found to improve patient outcomes (Groveet al., 2013). Program evaluation must begin during the earlier stages of program planning and development to avoid making costly errors and ensuring success (CDC, 2008). Program evaluation enables leaders to explain and demonstrate to stakeholders how the program has benefitted the target population and success in achieving its expected outcomes (CDC, 2008). The purpose of this EBP project was to determine if implementing the Safe Five falls prevention program would improve staff compliance, increase

patients' and family members' awareness of the need for falls prevention, and decrease falls among older adults, ages 65 years and older, admitted to an acute care nursing unit.

Implications for Social Change in Practice

The goal of nursing is to provide efficient, cost-effective, evidence-based care to patients across healthcare settings. According to Small and Small (2011), nurses play a role in impacting patients' perceptions, in terms of the quality of care they receive, getting their needs and health outcomes met, by taking a patient-centered approach to care. Decreased patient falls as a result of this EBP project would result in a decrease in health care costs, improved patient satisfaction with the healthcare system, improved communication among the interdisciplinary team, and improved health outcomes and quality of life in the long-run. APNs are responsible for staying up to date on their knowledge and skills in order to provide the best quality, evidence-based care their patients/clients have come to expect and deserve, while improving practice and health outcomes.

Definitions of Terms

Compliance: The act or process of doing what one has been asked or ordered to do; the act or process of complying with orders or something.

Education: Deliberate act with a goal to acquire knowledge, develop understanding and judgment, and enable action (Smith, 2015).

Evaluation: The act of determining the significance, value or condition of something (project or program) through a systematic method.

Fall: The NDNQI defined a fall as "a sudden, unintentional descent, with or without injury to the patient that results in the patient coming to rest on the floor, on or against some other surface, on another person, or on an object" (as cited in AHRQ, 2013, p. 70).

Morse Fall Scale (MFS): A rapid and simple method of assessing a patient's likelihood of falling (Morse, Morse, & Tylko, 1989). There are six assessment components of the MFS, which are: history of falling, secondary diagnosis, ambulatory aids, intravenous therapy/heparin lock, gait, and mental status (Morse, Morse, & Tylko, 1989). Patients' risk factors are identified based on *yes* or *no* responses to three assessment components, and the other three are scored based on descriptors. The fall risk levels range from 0-24 (low risk) to 45-125 (high risk; Morse, et al., 1989).

Safe Five Checklist: A simple method to ensure patients' safety and assess risk for falls. This intervention was termed Safe Five due to its five safety components that need to be verified and checked off by two registered nurses (RNs) at the beginning of each shift (P. Leisure, personal communication, August 21, 2015). The five safety components of the tool are fall risk score, fall band, bed alarm armed, intravenous/heparin lock site checked and infusion rates verified, and call light within reach (P. Leisure, personal communication, August 21, 2015).

Safe Five Program: The object or effort being evaluated.

Summary

As health care organizations, practitioners, and payers and strife to increase patient safety and satisfaction, decrease health care costs, and improve health outcomes, the continuous rise in the rate of patients' falls has become a concern worldwide (CDC, 2015). UCMC, with its rising patient fall rates, is among the organizations striving to develop a quality improvement initiative to decrease inpatient falls. All patients admitted to the hospital are at risk for fall, and it is the responsibility of all staff to ensure the safety of patients throughout their hospital stay (AHRQ, 2013). Therefore, universal fall prevention precautions must be put in place for all patients upon admission, and individualized fall prevention protocol should be initiated for patients at low,

moderate or higher risk for falls (AHRQ, 2013). While health care professionals cannot prevent all falls from occurring, staff need to be consistent with hourly patient rounds and compliance with the fall prevention protocol to decrease the rate of falls and to improve health outcomes. A routine program evaluation helps nursing leaders identify challenges and provide opportunities for improvements. The next section will address the background, context, and theoretical framework for this EBP project.

Section 2: Background and Context

Although numerous research studies have been conducted to raise awareness of and address patient falls, falls prevention strategies, and patient safety concerns in acute care settings, the number of falls continues to increase even as the current health care system becomes more complex. The increased rate of patient falls at UCMC over the past 2 years (2013-2015), especially among the elderly, has prompted the nursing leaders to ensure staff compliance with and effectiveness of the current fall prevention protocol (M. Campbell, personal communication, July 17, 2015). In this section, I will elaborate on the theoretical framework used to guide this EBP project, relevance to nursing practice, local background and context, my role as the researcher, and the project team.

Theoretical Framework

The use of theoretical frameworks in EBP projects help guide the process, explain project findings, and help health care professionals translate project findings into clinical practice. The purpose of EBP models is to help decrease the complexity of the challenges involved in translating research evidence into clinical practice by providing a framework to guide the process (Schaffer, Sandau, & Diedrick, 2013). In order to ensure the effectiveness of EBP models and to avoid poor outcomes or failure, it is vital to choose models that are appropriate for the organization and the clinical problem (Schaffer et al., 2013). Health experts conclude that the effects of some fall prevention interventions may be lost in the process of translating clinical trials into the real world situations (Hempel et al., 2013). EBP models help nurses bridge the gap between research findings and clinical practice as they help explain phenomena and rationale behind nursing interventions.

EBP models used in EBP projects are linked to the interventions that would be implemented in the projects, as well as the anticipated outcomes; therefore, strategic planning is required in selecting the appropriate EBP model for every EBP project. The criteria for selecting an EBP model includes "the ability to guide and complete the EBP project, educate nurses on critiquing and appraising best evidence, guide the process of implementing changes in practice, and implement changes across specialty settings" (Schaffer et al., 2013, p. 1200). The need for a change in practice approaches or transition to EBP begins by clinicians questioning their daily practices and health outcomes, patient preferences and dissatisfaction, quality improvement data, practitioner queries, evaluation data, or new research data (Doody & Doody, 2011). The findings of EBP projects add new knowledge to existing nursing practices and interventions, and help nurses translate findings into clinical practice to improve health outcomes.

In order to develop new knowledge that adds value and meaning to nursing practice and profession, an EBP project should be grounded within a theoretical framework to aid in the analysis and interpretation of the results (Stevens, 2013). The IOWA EBP model was used as the theoretical framework to guide this EBP project. The IOWA EBP model can be used to guide nurses in using knowledge and problem-focused triggers to question current nursing practices and seek evidence-based interventions to improve outcomes (Doody & Doody, 2011). The steps in this model includes the following: asking a research question/selection of a topic, forming a team, conducting a literature review, critically appraising evidence, developing an EBP standard, implementing practice change, and evaluating outcomes (Doody & Doody, 2011). The first step includes selecting a topic of clinical with goals of improving quality of care and health outcomes, which in this EBP project is the prevention of falls in older adults, ages 65 and older (Doody & Doody, 2011). The second step in the model is forming a team that will be responsible for the

development, implementation, and evaluation of the project (Doody & Doody, 2011). The stakeholders selected for this team must have interest in the topic and expertise in the area to provide input and support for the project (Doody & Doody, 2011). The third step is conducting a literature review to search for available evidence on the selected topic, which includes brainstorming and identifying key terms to guide search in electronic databases such as Cinahl, Ebsco, and Medline (Doody & Doody, 2011). The fourth step in the process involves the critical appraisal of the research evidence (Doody & Doody, 2011). The fifth step is developing an EBP standard based on patient needs and the team members' recommendation for practice, which is selecting an evaluation tool for this project (Doody & Doody, 2011). Step 6 in the process involves implementing the EBP project, such as healthcare policies, based on the available evidence, which for this project was evaluating the Safe Five falls prevention program with the selected evaluation tool; Step 7 involves the evaluation of the project to determine its effect on practice (Doody & Doody, 2011).

Safe Five, the new fall prevention program that was implemented at UCMC in July, 2015 is being piloted on 8NW. This intervention was termed Safe Five due to its five safety components that need to be verified and checked off by two RNs at the beginning of each shift (P. Leisure, personal communication, August 21, 2015). The five safety components include Morse fall risk score, fall band, bed alarm armed, heparin lock and intravenous site checked and infusion rates verified, and call light within reach (P. Leisure, personal communication, August 21, 2015). The RNs are expected to physically verify these components in patients' rooms in order to ensure compliance and involve patients and family members in this activity.

I used the RE-AIM model (see Appendix B) to evaluate this falls prevention program, which was suggested by Planas (2008) to improve public health through the translation of

evidence-based knowledge into clinical practice and health care decision making. The RE-AIM model was used to evaluate the Safe Five program. This model was originally developed by Glasgow, Boles, and Vogt (1999) to evaluate public health interventions that promote population health by assessing five dimensions: reach, efficacy, adoption, implementation, and maintenance. Programs must be evaluated on all the five dimensions of the model to determine their impact on the target population (Glasgow et al., 1999).

The letter R for reach in the model addresses the participation rate and the representativeness of the participants to the target population (Planas, 2008). Reach in this project represented the number of RNs who participated in the Safe Five falls prevention program and the number of patients, ages 65 years and older, who were involved in the program. The letter E for effectiveness addresses the effects on primary and multiple (negative and positive) outcomes of interests (Planas, 2008). Effectiveness in this project represented the level of impact of the Safe Five program in terms of increasing staff compliance with the program, increasing patient awareness, and decreasing falls. The letter A for adoption addresses the participation rate and the representativeness of the settings (Planas, 2008). Adoption in this project represented the number of nursing units that expressed interest in adopting the Safe Five program. The Safe Five program will be implemented hospital-wide post evaluation if found to be successful and feasible for improving patient safety and decreasing falls. The letter I for implementation addresses whether the intervention was implemented as originally intended (Planas, 2008). Implementation in this project represented the degree to which the nursing leaders implemented the Safe Five program as originally intended, which included staff completing the Safe Five check list and initiating the appropriate high fall risk precautions. Finally, the letter M for maintenance addresses the long-term effects and use of the intervention

(Planas, 2008). Maintenance in this project was the level of continued adoption of the Safe Five program by staff on the nursing unit, 3 months, 6 months, and 9 months post implementation. This was determined by performing high fall risk chart audits every shift.

Using the IOWA EBP model as a theoretical framework for this project helped me to guide the project down a systematic path, while enhancing understanding of the complex steps and processes involved with quality improvement projects. Using the RE-AIM model as an evaluation tool for the Safe Five falls prevention program provided a framework to help interpret findings of the evaluation, while adding value and meaning to nursing practice.

Relevance to Nursing Practice

Nurses play a role in ensuring the safety of patients by routinely performing fall risk assessments and developing patient-specific fall prevention education and interventions to reduce risks and prevent falls or fall-related injuries (Quigley, Neily, Watson, Wright, & Strobel, 2007). Without conducting a fall risk assessment, nurses would not be aware of clients' risk for fall and would not provide the necessary fall prevention education (TJC, 2007). In acute care settings, staff members encounter challenges with balancing the goals of managing complex patient health conditions, ensuring their safety (such as preventing falls), and helping patients transition to a functional physical and mental health status (AHRQ, 2013). When planning a falls prevention program in an acute care setting, it is vital to take into consideration the physical design of the hospital, the environment, and patients' needs and fall risk factors as these factors play a role in the success of the protocol in achieving its purpose (AHRQ, 2013). Evaluating the program's outcomes against the objectives will help determine the program's success in fulfilling its purpose.

Local Background and Context

The site for this EBP project was the UCMC, an acute care hospital located in Cincinnati, Ohio. In an effort to improve the quality of care and health outcomes, an assessment of the rate of inpatient falls was performed at UCMC, which included a review of current falls risk assessment tools, current falls prevention protocol at the organization, a chart review for hospital-acquired falls, an analysis of the organizational falls data using the NDNQI, and a review of literature to review best practices in relation to the current program. According to the findings, the inpatient fall rate at UCMC was 3.24 per 1,000 patient days (see Appendix C), with an average of 0.68 patients incurring injuries. According to the data, patient falls were due to staff lack of knowledge or awareness of updated falls prevention protocols on their units, staff lack of consistency in checking the functionality of installed bed alarms, lack of efficiency in answering patients' call lights, lack of consistency in patients' and families' adherence to hospital fall prevention protocol, and staff less than optimal compliance with rounding on high risk patients per protocol. The majority of patient falls were noted to be in their rooms or the bathrooms. While a few units within the organization had fall rates below the NDNQI and TJC benchmarks, other units had fall rates that were two to three times higher. For example, the oncology nursing unit (8NW) had a fall rate of 12.66 per 1,000 patient days (see Appendix D); thus, there was a need to develop a quality improvement initiative to decrease patient fall rates.

The current falls prevention protocol used at UCMC includes using the Morse fall scale (MFS; Appendix E), a fall risk screening tool, in their electronic medical record to calculate the fall risk score of each new patient on admission (M. Campbell, personal communication, June 19, 2015). Patients are evaluated based on six components that are history of falling, secondary diagnosis, ambulatory aids, intravenous therapy, gait, and mental status (M. Campbell, personal communication, June 19, 2015). Patients are categorized as either at low, moderate, or high risk

for falls based on their Morse score, and the appropriate interventions are implemented per protocol. The Morse fall risk score is then calculated at the beginning of each shift to assess any changes to patients' condition and fall risk. The MFS has been tested and proven to be a reliable and valid tool for assessing patients' fall risk in fall prevention programs (Baek, Piao, Jin, & Lee, 2014). Additional falls prevention interventions within the current protocol include hourly rounding, sitters, and patient fall risk identifiers such as yellow wristband, non skid socks, yellow (moderate) or red (high) fall risk signs outside patient doors and on white board in patients' rooms, bed alarms, video monitoring, and gait belts for transfer. Patients and family members are also given handouts with tips on preventing falls. The falls prevention protocol at UCMC is reviewed and revised annually based on staff input and patient outcomes.

In 2008, the CMS announced their decision not to reimburse health care organizations for falls leading to unnecessary hospitalizations, increased costs, morbidity and mortality, included in the list of the never events, due to their preventable nature (HHS, 2008). The JC viewed falls prevention in the context of an organizational patient safety culture and included a regulatory requirement for both acute and long-term care facilities to assess and routinely reassess patients for fall risk throughout their stay (Trepanier & Hilsenbeck, 2014).

In an effort to improve patient safety, decrease the rate of falls, and increase staff education and compliance, the leaders at UCMC modified the current fall prevention protocol/program by developing the Safe Five falls prevention program, and piloting it on the 30-bed oncology nursing unit (8NW) in July, 2015. The pilot project was implemented on 8NW due to its consistent high rate of patient falls over the past 2 years to evaluate its feasibility for roll out to other units in the organization. The pilot project of the Safe Five falls prevention program is still in progress on 8NW. Since the implementation of the program, the number of

patient falls is recorded each month based on staff reports, documentation of the post fall huddles and Midas incident reports, and compared to previous data from the existing falls prevention protocol to monitor its progress. The purpose of this EBP project was to implement an evaluation tool (RE-AIM) to evaluate the impact of the Safe Five falls prevention program on staff compliance with the program, patients' awareness of the need for falls prevention, and falls in older adults (ages 65 years and older) admitted to an acute care nursing unit. Improvements will be made on the Safe Five program based on the outcomes of the evaluation process.

Role of the DNP Student

The doctorate of nursing practice (DNP)-prepared nurse is equipped with the knowledge and skills needed to apply new scientific research knowledge while providing direct patient care (EBP). The DNP nurse is also able to provide feedback on further research needed or other gaps in practice. In my care of primarily older adult patients in the clinical setting, conducting high falls risk assessment plays a role in ensuring my patients' safety. I questioned why the rate of falls among older adults in acute care settings continued to increase despite multiple research studies providing strategies to decrease inpatient falls and implementation of falls prevention programs in these settings. My role in this EBP project was to search research evidence and assist the nursing leaders in this organization determine if the implemented falls prevention program was effective in increasing staff compliance, patient awareness, and decreasing inpatient falls by implementing an evaluation tool for the program. Guidelines and protocols such as a falls prevention program must be based on research evidence in order to give meaning to the how and why interventions are carried out and to support clinical decisions (Grove et al., 2013). Without research evidence and an appropriate evaluation tool, it is difficult to conclude that a fall prevention protocol implemented in a facility would help decrease patient falls.

Role of the Project Team

The project team is comprised of leaders of the falls prevention committee (nursing director of medicine, unit managers, nurse educators, director of patient safety operations, and manager of physical and occupational therapy departments), stakeholders (patients, family members, and nursing staff representatives), and me. The roles of the nursing staff include: providing patient and family education, conducting fall risk assessments on older adult patients, completing Safe Five checklists and post fall huddles, and entering information into electronic database (Midas incident reports). The roles of the leaders of the fall prevention committee include educating staff and providing the organization's inpatient fall rate data from the past 2 years to be compared to the current falls data during the program evaluation process.

In preparation for evaluating the Safe Five program, high falls risk chart audits will be performed every shift by nurse educators or charge nurses to assess staff compliance and patients' awareness of falls prevention. The objectives of this EBP project were discussed during the monthly fall prevention committee meetings and weekly fall follow-up meetings with staff and patient representatives, as well as leaders of the interdisciplinary team. Engaging nursing staff, patients, family members, and other members of the interdisciplinary team throughout the planning, development, implementation, and evaluation of this fall prevention program would promote their buy-in and support for the program. Involving individuals with different perspectives who would be directly or indirectly be affected by the program also brings objectivity to the evaluation process, improves communication, and ensures accurate and complete data collection (Hodges & Videto, 2011, p. 109; United States Environmental Protection Agency [EPA], 2013). The timeline of the project was communicated each week to ensure each team member is well informed.

Summary

The purpose of this EBP project was to determine the impact of incorporating Safe Five into the current falls prevention protocol on staff compliance and falls among older adults (ages 65 years and older) in the acute care setting. The IOWA EBP model included the steps involved in the theoretical model that guided the development of the new practice approach to improve health outcomes. The development of fall prevention protocols must be based on best available evidence, and assessment tools must be externally validated across multiple clinical settings to ensure effectiveness (Hill & Fauerbach, 2014). Therefore, the results of research studies on practice problems provide information to aid health care organizations and practitioners in implementing uniform policies and standards to improve patient and health outcomes. The RE-AIM model included the five dimensions that were used in evaluating the Safe Five program. It is important to engage stakeholders in program planning, implementation, and evaluation as they provide input towards the success of the program. The RE-AIM model helped incorporate all stakeholders in the evaluation process to help evaluate the short and long-term outcomes of the program. In the next section, I will address the development of the EBP project.

Section 3: Collection and Analysis of Evidence

The increased rate of falls among older adult patients at UCMC over the past 2 years and poor outcomes have prompted nursing leaders at this organization to review and revise their falls prevention program to decrease inpatient falls. The purpose of this EBP project was to provide an evaluation tool for the newly implemented Safe Five falls prevention program to help determine its impact on staff education and compliance with the program, the awareness of falls prevention among patients and their family members, and patient falls among older adults (ages 65 years and older) admitted to an acute care setting. Although numerous research studies have been conducted to raise awareness of and address patient falls, falls prevention strategies, and patient safety concerns in acute care settings, the falls continue to occur. In this section, I address the practice-focused question, review of literature regarding patient falls, falls prevention, types of falls in the acute care settings, effective strategies to prevent falls, regulatory recommendations for falls prevention programs, project evaluation plan, methodology, data collection, and analysis of the stages of project development.

Project Question

This EBP project included the following question: In older adults, ages 65 years and older, admitted to an acute care nursing unit, how does implementing a Safe Five falls prevention program, compared to routine falls prevention strategies, affect staff compliance with the program, patient awareness of falls prevention, and rate of inpatient falls?

Assumptions and Limitations

It was assumed that all nursing staff members had been participating in the falls prevention program as it is a standard protocol for the hospital. It was also assumed that patients and families understood the importance for preventing falls and had been adhering to the policy.

The involvement of representatives from the target population and other stakeholders is not only vital during the needs assessment for program planning, but also throughout the program development and evaluation processes to help them claim a sense of ownership and acceptance of the program (Hodges & Videto, 2011, p. 109).

A limitation of this project was the length of time. A longer time frame for this project could help me to observe trends in patient falls as they relate to circumstances leading to the fall, environment, interdisciplinary collaboration, and staff compliance to new protocol. Future researchers could conduct studies similar to this one over a longer period of time to address this possibility.

Literature Search Strategy

In an effort to identify and analyze the current literature on effective falls prevention and evaluation strategies in acute care settings, the following databases were searched: CINAHL, EBSCO, MEDLINE, Ovid Nursing Journals, PubMed, and the Cochrane database through the Walden University library. Forty peer-reviewed articles were identified within the years of 2005 and 2015. However, 10 articles were excluded because the studies were based on community- or home-based falls prevention strategies. The keys words or terms used for the review of literature included the following: *falls, falls prevention, falls prevention protocols, EBP, falls prevention tools, older adults, Morse fall scale, falls prevention in acute care, falls prevention programs, falls education, program evaluation, program evaluation tools, NDNQI, TJC, and AHRQ*. The Boolean search of "plus" and "and" were used between the a few words to narrow down the number of articles. The literature supported the common themes regarding falls prevention programs, strategies, evaluation methods.

Prevalence and Incidence

Falls with or without injuries among the elderly has become a public health concern, with one in every three adults age 65 and older falling every year (CDC, 2013). Falls are one of the most reported safety incidents in hospitals in the United States. (CDC, 2015). One out of fives falls causes a serious injury, such as fractures or a head injury, with more than 95% of hip fractures caused by a fall (CDC 2015). According to the CDC (2013), falls are the leading cause of both fatal and nonfatal injuries among older adults. In 2010, 2.3 million nonfatal fall injuries resulting in emergency room treatments were reported, with 662,000 of those patients needing hospitalization, and a total direct medical cost of $30 billion (CDC, 2013). The consequences of falls among the older adults include moderate to severe injuries such as lacerations, fractures (hip, spine, hip, forearm, leg, ankle, pelvis, upper arm, and hand), and head traumas, which result in fear of falling, decreased mobility, muscle weakness, increased risk of falling, loss of independence, depression, poor quality of life, and increased risk of premature death (CDC, 2013; Healthy People 2020, 2014). Other consequences include increased length of hospital stay, additional unexpected medical costs, and poor patient satisfaction ratings (Tzeng, Hu, & Yin, 2011). According to Wu et al. (2010), the additional hospital costs of one patient fall without serious injury, adjusted to 2010 dollars, is $3,500, and this amount increases to $16,500 for patients who incur two falls without serious injury. Additional hospital costs for patient falls with serious injury are estimated at $27,000 (Wu et al., 2010). The direct medical costs for falls in 2013 totaled $34 billion (CDC, 2015). Over 700,000 patients are hospitalized each year as a result of a fall injury, with most being a broken hip or head injury (CDC, 2015). The annual direct and indirect costs of falls are estimated to reach $54.9 billion by 2020 (CDC, 2015). These statistics are a cause for concern for the public and health care organizational leaders, and creates

a sense of urgency among health care professionals to develop effective falls prevention programs to help decrease falls and falls with injuries among older adults.

Review of Literature

The Institute for Health Improvement (IHI), AHRQ, NQF, CMS, and the TJC have identified hospital-acquired falls as a preventable health problem and have taken steps to prevent them, reduce health-related injuries, and increase quality of care in hospitals (AHRQ, 2013; Trepanier & Hilsenbeck, 2014). In an effort to increase patient safety and improve quality of care, health care organizations have implemented patient-centered fall prevention programs that focus on promoting a positive patient safety culture, educating nursing and other members of the interdisciplinary team on tools and strategies to prevent falls and injuries (Currie, 2008; Pearson & Coburn, 2011). It is also common practice for hospitals to use measuring patient falls rates and risk management data to identify opportunities for quality improvement (Currie, 2008). The American Nurses Association (ANA, 2009) recommended consistency in the reporting, measurement, and analysis of data because it is through these measures that hospitals participating in the National Database for Nursing Quality Indicators (NDNQI) can evaluate the efficiency and effectiveness of their falls prevention strategies, such as the validity and reliability of their fall risk screening tools. Conducting a falls prevention program evaluation using stakeholder approach helps leaders investigate the impact the program had on key stakeholders, such as older adults and their family members, while incorporating their inputs in the continuous improvement of the program (National Council on Aging [NCOA], 2012).

In the evaluation of their EBP project titled No Fall Zone, Cangany, Back, Hamilton-Kelly, Altman, and Lacey (2015) noted a significant decrease in the total number of falls among patients admitted in a progressive care unit by improving staff education on the falls prevention

protocol, using a falls contract, and posting fall prevention signs above patient beds. The total number of falls prior to the beginning of the project was 37 in 2011, and the total number of falls recorded at the end of the project was 11 in 2013 (Cangany et al., 2015). Successful fall prevention protocols have the following components in common: effective communication among interdisciplinary team, patients, and families; leadership support; engagement of front line staff in program design; guidance of the prevention program by a multidisciplinary committee; pilot testing interventions; use of information technology systems to provide data about falls, staff education, and training; and changes in nihilistic attitudes about fall prevention (Hill & Fauerbach, 2014; Miake-Lye, Hempel, Ganz, & Shekelle, 2013; Pearson & Coburn, 2011).

Fall prevention programs implemented in acute care settings over the years have failed to produce optimal results due in part to patients' complex medical conditions and healthcare providers failing to identify patients' risk factors or their tendency to overstep their physical limitations (Tzeng et al., 2011). Although falls are among the most preventable health problems in the United States, less than half of individuals at risk discuss this problem with their health care provider, in part due to barriers to the implementation of fall prevention protocols or a lack of health care providers' awareness of these protocols (CDC, 2013; Koh et al., 2008). The evaluation of a falls prevention program is necessary to help leaders measure the impact of the program on stakeholders against desired program outcomes and organizational goals (NCOA, 2012).

The use of EBP in health care requires clinicians to evaluate effectiveness of current practices and conduct research and innovative projects to generate new knowledge to be applied to practice (Hyrkas & Harvey, 2010). Despite the availability of research to provide solutions for

most clinical problems, such as patient falls, clinicians continue to have difficulties applying new knowledge to practice due to barriers to the change process (Hyrkas & Harvey, 2010). Barriers to consider when planning to implement a change process includes external environmental barriers, such as cultural division among researchers, nurses, and nursing educators, and internal environmental barriers such as increased work load, a lack of leadership support, a lack of integration with existing system, and disturbance to current work-flow (Hyrkas & Harvey, 2010; White & Dudley-Brown, 2012, p. 49). Staff-perceived lack of time to complete fall risk assessment may also pose a challenge for the program as it may decrease compliance (Child et al., 2012). At the community and client levels, some forces that may pose challenges to the program include patients' and families' lack of knowledge or awareness of the importance of preventing falls and non-adherence to the hospital's fall prevention policy. Another challenge is some patients' non-adherence to following hospital's fall prevention program for fear of losing their independence and disruption to their daily routine.

At the organizational level, facilitators to the fall prevention program include the active involvement and support of the leadership team in improving quality of care and health outcomes as patient falls is one of the nursing quality indicators monitored by the NDNQI and TJC to assess and routinely reassess patients for fall risk throughout their stay (Trepanier & Hilsenbeck, (2014). Environmental forces that may facilitate the program include incorporating staff input into program planning and design, creating a supportive atmosphere during the fall follow-up meetings to help staff and leaders identify and address common barriers to preventing patient falls, and encouraging staff to provide input regarding compliance with current falls prevention protocol.

Recommended strategies to address the barriers to change include a clear explanation of the practice problem and the need for change; providing evidence through research findings to support expected outcomes; encouraging and rewarding stakeholders who provide input and actively participate in the change process; providing additional support, education, and training for stakeholders who need them; developing user-friendly information technology systems; and ensuring effective communication among stakeholders and change agents (Grant, Colello, Riehle, & Dende, 2010; White & Dudley-Brown, 2012). Beginning the evaluation process during the initial stages of a quality improvement project helps leaders identify and address barriers to ensure a smooth evaluation process.

Fall Prevention Methods

Fall prevention strategies begin by identifying patients at risk for falls. Nurses play a role in ensuring the safety of patients by routinely performing fall risk assessments and developing patient-specific fall prevention education and interventions to reduce risks and prevent falls or fall-related injuries (Quigley et al., 2007). Without conducting a fall risk assessment, nurses will not be aware of patients' risk for fall and will not provide the necessary fall prevention education (TJC, 2007). The JC (2007) implemented policies that mandate nurses to perform fall risk assessments on high risk clients, as well as to reassess them periodically to decrease the rate of falls in this population.

The MFS has been tested and widely used across a variety of healthcare settings and on diverse patient populations; the MFS has been used to help health care professionals identify patients at high risk for falls (Tang et al., 2014). The MFS is a fall risk assessment tool used in both acute care and long-term care settings due to its ease and efficiency; however, poor outcomes are obtained as a result of the inconsistent use of the tool by staff and lack of

understanding of assessment items on the scale (Hill & Fauerbach, 2014). Other falls prevention interventions include scheduled rounding, the use of bed alarms, video monitoring, sitters, positioning patients close to nurses' station, post fall review, patient and staff education, footwear advice, scheduled and supervised toileting, and medication review (AHRQ, 2013; Degelau et al., 2012; Quigley & White, 2013).

The effectiveness of some fall prevention protocols are less than optimal due to a lack of clarity for the definition of falls, a lack of communication among health care professionals regarding protocol, patients' perception, and a lack of organizational culture to promote accountability and compliance (Degelau et al., 2012). Health experts conclude that the effects of some falls prevention interventions may be lost in the process of translating clinical trials into the real world situations (Hempel et al., 2013). According to Oliver et al., (2010), most successful evidence-based fall prevention protocols incorporate multifactorial and interdisciplinary components. Quigley and White (2013) also noted that because most fall prevention programs have multifactorial components, it is vital to review and describe evaluated interventions used in the programs to identify best practices. Therefore, it is vital to use a multifactorial approach in evaluating a falls prevention program in to order to address the multiple components that might impact the short and long-term success of the program.

Impact of Patient Falls

The impact of falls can result in patient injury and death, as well as increased economic and social burden on the health care organization, community, nation, and patient population (CDC, 2013; Currie, 2008). The Centers for Medicare & Medicaid Services (CMS, 2008) announced their decision not to reimburse health care organizations for falls leading to unnecessary hospitalizations, increased costs, and morbidity and mortality due to their

preventable nature (HHS, 2008; Tzeng et al., 2011). The ANA's quality indicators link nursing care to patient and health outcomes; therefore, poor health outcomes as a result of falls reflect poor quality of nursing care (ANA, 2009). Therefore, implementing an effective falls prevention program to improve patient safety and quality of nursing care needs to be at the forefront of quality improvement initiatives in healthcare organizations.

Risk Factors for Falls

Risk factors for falls are categorized as intrinsic (physiological and medical) and extrinsic (environmental) in nature (Pearson & Coburn, 2011). Intrinsic risk factors include advancing age, previous falls, muscle weakness, especially in the lower extremities, impaired gait or balance, orthostatic hypotension, impaired reflexes, chronic lower extremity pain or wearing unsafe footwear, neuropathy, visual impairment, polypharmacy, adverse effects of medical therapy, urinary frequency, incontinence, confusion secondary to delirium or dementia, and fear of falling (Pearson & Coburn, 2011). Extrinsic risk factors include being in unfamiliar environments, poorly lit surroundings, not having grab bars in the bathroom, lack of side rails, poor condition of floor surfaces, loose rugs, and improper use of or not utilizing assistive walking devices (Pearson & Coburn, 2011). Implementing appropriate falls prevention strategies is dependent on healthcare professionals' understanding of these risk factors (Pearson & Coburn, 2011). Fall prevention strategies must include staff education on reviewing patients' past medical history and obtaining appropriate physician orders for safety precautions such as patients with history of falls, stroke, seizures, and alcohol abuse. Patients with history of one or more of these diagnoses may have an increased risk of falling while in the hospital (Degelau et al., 2012).

Experts recommend falls to be classified into four categories: accidental, anticipated physiological, unanticipated physiological, and behavioral or intentional falls, with the first two

considered preventable (Butcher, 2013). Accidental falls occur when low fall risk patients trip over an object, slip, or fall out of bed while reaching for something (Butcher, 2013). Anticipated physiological falls are the most common type, accounting for 78% of all falls, and occur in patients with identified risk factors such as abnormal gait, high-risk medications, urinary frequency or dementia (Butcher, 2013). Unanticipated physiological falls occur in patients identified as having low risk for falls, but suffer an unexpected event such a seizure, stroke or fainting episode, that results in an unpredicted fall, and behavioral or intentional falls occurs when a patient acts out in attention seeking behaviors (Butcher, 2013; Pearson & Coburn, 2011).

Falls prevention strategies highlighted in the review of literature to address the physiologic fall risk factors include a toileting regimen for older adults who may be cognitively impaired or incontinent, regular and weight bearing exercises for lower extremity strengthening and balance improvement, such as those offered in Tai Chi programs, take adequate calcium and vitamin D supplements, routine screening for osteoporosis as needed, and a medication review for patients identified as having high risk for falls (CDC, 2013; Pearson & Coburn, 2011). Falls prevention strategies recommended to address the environmental fall risk factors include the use of bed and chair alarms, limiting the use of restraints, lowering bedrails, especially for patients who are visually impaired or confused, but mobile enough to climb over bedrails, and utilizing floor mats (CDC, 2013; Pearson & Coburn, 2011). Poor outcomes of some fall prevention strategies are due in part to the use of restraints, sedating drugs, lack of patient mobilization, and lack of compliance (Miake-Lye et al., 2013). It is vital that clinicians consider factors such as some older adults' unwillingness to participate in program due to lack of knowledge, language barrier, the environment, teaching methods, and time commitment, when developing fall prevention protocols to ensure success (Hempel et al., 2013).

This review revealed that there are variations in factors that contribute to patient falls at home and those in acute care settings. Therefore, nurses need to be educated on the intrinsic and extrinsic factors that contribute to patient falls in acute care settings in order to be able to assess and appropriately identify patients at high risk for falls. Staff must also be equipped with the appropriate tools and resources to educate patients and family members on ways to prevent falls. The alarming impact of patient falls should make implementing an effective falls prevention program a priority in acute care settings. It was also noted that the success of a program is not based on successful planning, development, or implementation of the program, but on an ongoing evaluation of the program to determine achievement of outcomes and ensure sustainability of the quality outcomes. Hence, the need to evaluate the impact of the Safe Five falls prevention program with this project.

Approach

The Setting

The Safe Five falls prevention program was developed and piloted on a 30-bed oncology nursing unit (8NW) at UCMC. In July, 2015, the leaders of the falls prevention committee unanimously selected 8NW for the pilot project due to its consistent high rate of patient falls over the past 2 years (2013-2015). The expected time frame for the pilot project was 9 months, with routine high fall risk chart audits and weekly review of Midas incident reports. The expected outcomes of this EBP project were to improve staff compliance with program, increase patient awareness of falls prevention and decrease falls in older adult patients.

Project Evaluation Plan

The evaluation plan for this EBP project began during the planning of the project with input from stakeholders. The focus of the project evaluation was to implement an evaluation tool

(RE-AIM) to evaluate the impact of the Safe Five falls prevention program on staff compliance with the program, patients' awareness of the need for falls prevention, and falls in older adults (ages 65 years and older) admitted to an acute care nursing unit. Outcome evaluation of a quality improvement (QI) project needs to begin during the planning stage and must be guided by an evaluation framework (White & Dudley-Brown, 2012, p. 235). The goal of evaluating programs is to provide feedback on the results and impact of the programs to determine if they have achieved their intended purpose (Kettner, Moroney, & Martin, 2008, p. 231).

Due to the time constraints of this EBP project, it was more appropriate to evaluate the Safe Five falls prevention program based on its short-term effects on staff compliance, patients' awareness, and inpatient falls. The program evaluation was performed after data collection was completed to provide feedback on the impact of the program. The framework that was used in evaluating the Safe Five program was the RE-AIM model. This model was used in conjunction with performing high risk fall audits during every shift to assess staff compliance with program and accuracy in implementing the falls risk precautions, including patient education. The expected outcomes of this EBP project were to increase staff compliance with the Safe Five falls prevention program, increase patients' awareness of falls prevention, and decrease falls among older adults (ages 65 years and older) admitted to an acute care nursing unit.

Upon successful evaluation of the Safe Five fall prevention protocol and the attainment of expected outcomes, the program will be extended to other nursing units in the organization, become a permanent part of the policy and procedure manual for staff on the nursing units, and the electronic medical record in the facility. A new reporting system would be created online to enhance efficiency and accuracy of reporting patient falls. It will be a requirement for both current and new staff to read and acknowledge information on the Safe Five program to ensure

compliance and accountability as the organizational leaders work towards achieving the long-term goals of the project.

Methods

The inpatient fall rate data from the past 2 years' (2013-2015), on 8NW, were used as the baseline data and evaluated against the current fall rate data using the Safe Five program from July, 2015 to April, 2016. This information was obtained from the organizational electronic historical data (Midas incident reports) provided by the leaders of the falls prevention committee. The data that was used for the evaluation of the program include the Safe Five checklist, post-fall huddles for every fall that occurs, and high fall risk chart audits performed every shift. This data provided the information required to answer the questions from the RE-AIM model as it guided the evaluation process.

The data collection method for the Safe Five program consisted of collecting data on current patient falls monthly based on staff documentation of post-fall huddles and Midas incident reports. A line chart was used to track patient fall rates every month throughout the course of the project to determine gaps in care. An impact evaluation was performed on the Safe Five falls prevention program to determine its effects on producing the intended short-term changes in the target population (Hodges & Videto, 2011, p. 209). The timeline for the evaluation of the Safe Five fall prevention protocol was one month following approval of IRB from Walden University.

Population and Sampling

Aggregate data from RNs on 8NW were used in the evaluation of the Safe Five falls prevention program. All staff members employed, full-time, part-time, and as needed, on 8NW were required to participate in the Safe Five program as part of the unit's and organization's falls

prevention and patient safety program. The aggregate data used for the program evaluation included data from older adults (ages 65 years and older) admitted to 8NW at UCMC.

Variables

There were no variables for this EBP project as it was focused on program evaluation.

Data Collection Instrument

The data collection instrument for the evaluation of the Safe Five program was the RE-AIM model. This model was originally developed by Glasgow et al., (1999) to evaluate public health interventions that promote population health by assessing five dimensions: reach, efficacy, adoption, implementation, and maintenance. Programs must be evaluated on all the five dimensions of the model to determine their impact on the target population (Glasgow et al., 1999). This model was used in conjunction with data collected from performing high risk fall audits during every shift to assess staff compliance with and accuracy in implementing falls risk precautions, including patient education.

Data Analysis

Aggregate data collected on current patient falls were obtained from UCMC's Midas incident reports. The falls data from the Safe Five program were compared to the falls data from the past 2 years using the previous falls prevention protocol. The line charts used in tracking patient fall rates every month were analyzed to determine the trend in rate of patient falls throughout the course of the program. In the case of this project, the RE-AIM model was used to determine the impact of the Safe Five program on staff compliance and patients' awareness of falls prevention post implementation.

Protection of Human Subjects

The focus of this EBP project was on evaluating the impact of a falls prevention program, and human subjects were not used. The goal of the falls prevention program was to keep patients safe and prevent falls, and aggregate data were used for the evaluation process. Data collected during high risk fall chart audits as well as information entered into Midas incident report had no patient identifiers. Any other data collected were used solely for its intended purpose and discarded appropriately.

Summary

The success of a program is dependent on a clear and concise program theory that is based on research evidence to produce measureable and attainable outcomes to effect change (Wilder Research, 2009). The involvement of representatives from the target population and other stakeholders is not only vital during the needs assessment, but also throughout the program development and evaluation processes to help them claim a sense of ownership and acceptance of the program (Hodges & Videto, 2011, p. 109). In the case of this fall prevention program, engaging nursing staff, patients, families, and other members of the interdisciplinary team promoted their buy-in and support for the program.

Successful fall prevention protocols have the following components in common: effective communication among interdisciplinary team, patients and families, leadership support, engagement of front-line staff in program design, pilot-testing interventions, and staff education and training (Hill & Fauerbach, 2014; Miake-Lye et al., 2013; Pearson & Coburn, 2011). Actively involving stakeholders will increase their support for the project and compliance with recommendations.

In conducting the literature review for my project, the common trend noted for successful falls prevention programs was evaluating the effectiveness of the programs and modifying the

programs based on the findings and feedback from the evaluations. Therefore, without program evaluation, there is no way of knowing if the program is achieving its intended purpose, and the same mistakes are likely to be repeated multiple times, producing less than optimal results.

The long-term goals or outcomes of this quality improvement initiative were to meet the benchmark for TJC and the NDNQI, which is less than three falls per 1,000 patient days, with zero patients sustaining Level III or Level IV trauma per 1,000 patient days for acute care facilities, improve staff accountability, efficient and accurate reporting of patient falls, decrease health care costs related to falls, and improve patient satisfaction ratings in HCAHPS survey (AHRQ, 2013; M. Campbell, personal communication, June 19, 2015). Preventing falls in acute care settings is challenging; however, organizational leaders are led one step closer towards achieving their goals with every collective multidisciplinary effort made towards preventing a patient from falling. Evaluation of a falls prevention program is another vital step in determining the effectiveness of a program in achieving its desired outcomes, and providing opportunities for improvements. The next section explains the findings, implications, and recommendations for the Safe Five falls prevention program.

Section 4: Findings and Recommendations

The increased rate of falls among older adult patients at UCMC over the past 2 years and poor outcomes prompted nursing leaders at this organization to review and revise their falls prevention program to decrease inpatient falls. The Safe Five falls prevention program was implemented and is currently being piloted on the 30-bed oncology nursing unit (8NW) with the goal of extending the program to other units if successful. However, program success cannot be determined without evaluating its effectiveness. The purpose of this EBP project was to provide an evaluation tool for the newly implemented Safe Five falls prevention program to help determine its impact on staff compliance with the program, patients' awareness of falls prevention strategies, and patient falls among older adults (ages 65 years and older) admitted to an acute care setting.

The evaluation tool used in evaluating the effectiveness of the Safe Five falls prevention program was the RE-AIM model. Responses to the questionnaire in this model by staff members, a nurse manager, and a nurse educator on 8NW helped me to determine the impact of the Safe Five program on staff compliance, patients' awareness of falls prevention strategies, and inpatient fall rates on the unit. The RE-AIM model was used in conjunction with aggregate data collected from performing high risk fall audits every shift to assess staff compliance with the Safe Five program and monthly inpatient fall rates obtained from Midas incident reports. In the following sections, I will address the responses to the RE-AIM questionnaire, findings, implications, and recommendations.

Reponses to RE-AIM Questionnaire and Discussion

Findings and Implications

Using the RE-AIM model, the falls data from 3 months prior to the implementation of the Safe Five falls prevention program were compared to the falls data from the 8th, 9th, and 10th month, post implementation, to determine its impact. A line chart was used in tracking inpatient fall rates every month to determine the trend in rate of inpatient falls throughout the course of the program.

Reach: What percent of potentially eligible participants (a) were excluded, (b) took part, and (c) how representative were they?

The eligible participants for the Safe Five falls prevention program were all older adults (ages 65 years and older) admitted to the acute care nursing unit, 8NW. As a part of the organization's falls prevention protocol, no eligible participants were excluded from the program. Retrospective data were collected from 116 eligible participants, between March and May, 2016, of whom 64 were females and 52 were males. Of the 116 participants, 85 had a MFS of 45 or greater, and 31 had a MFS of less than 45. At the time of this data collection, the eligible participants represented 50% of the total patient population on 8NW.

Efficacy or effectiveness: What impact did the intervention have on (a) all participants who began the program; (b) on process intermediate and primary outcomes; and (c) on both positive and negative (unintended), outcomes including quality of life?

Prior to the implementation of the Safe Five falls prevention program 8NW, it was noted that most patients who were at high risk for falls were not aware of their falls risk status or about the organization's falls prevention program. The staff members were also not consistent in adhering to the organization's falls prevention protocol, which led to the increasing rate of inpatient falls on this unit. After communicating with the staff members, patients, nurse manager, nurse educator, and reviewing data from Midas incident reports, it was noted that the

implementation of the Safe Five falls prevention program had increased patients' awareness of their falls risk status, falls prevention measures, and the falls prevention program implemented. Patients reported that being aware of the reason they must call for assistance prior to getting out of bed or a chair increased their adherence to these instructions. The patients also reported that getting involved in their plan of care preserved their independence and encouraged them to focus on getting well while improving their quality of life. Performing high falls risk precautions audits every shift had also increased staff members' compliance and accountability in adhering to the falls prevention protocol. The interventions of the Safe Five program resulted in a significant decrease in inpatient falls rate one month post implementation (Aug, 2015), from 12.66 to 1.80 per 1,000 patient days (see Appendix F).

Despite these positive outcomes from the Safe Five program, there were some negative outcomes that were noted in the process. Some inpatient falls occurred as a result of patients over estimating their functional abilities, forgetting their limitations, or declining to adhere to the implemented falls prevention strategies. Some staff members also reported not being able to complete the Safe Five checklist or consistently adhere to the Safe Five program interventions due to time constraints, increased workload, emergencies, or a lack of communication with ancillary staff (such as transporters). There was also a high turnover of RNs on 8NW, which resulted in the need to re-educate newly hired RNs on the Safe Five program and ensure their competence in following the program guidelines. These unintended circumstances resulted in an increase in inpatient falls rate from 1.80 to 4.98 per 1,000 patient days, 2 months post implementation (Sept, 2015, see Appendix F). Additional education and support provided to staff members and patients resulted in an improvement in adherence to the Safe Five program and a

decreased inpatient falls rate to 1.78 per 1,000 patient days 4 months post implementation (Nov, 2015, see Appendix F).

Prior to the implementation of the Safe Five program, staff members were not consistent in reporting inpatient falls, resulting in inaccurate inpatient falls rates recorded in the system. The Safe Five program had increased staff members' compliance with the program, and it resulted in more accurate inpatient falls rates recorded in the system.

Adoption: What percent of settings and intervention agents within these settings (e.g., hospitals, schools/educators, medical offices/physicians) (a) were excluded, (b) participated, and (c) how representative were they?

The Safe Five falls prevention program was implemented as a pilot program on 8NW at UCMC with the goal of extending the program to other nursing units in the organization if successful. Therefore, for the purpose of this program and evaluation, no units were excluded. The unit manager and nurse educators on the medical-surgical unit (7NW), on the other hand, expressed interest in implementing the Safe Five program on their unit based on the impact they observed on the inpatient falls rate on 8NW.

Implementation: To what extent were the various intervention components delivered as intended (in the protocol), especially when conducted by different (non research) staff members in applied settings?

This intervention was termed Safe Five due to its five safety components that need to be verified and checked off by two RNs at the beginning of each shift. The five safety components of the checklist are the following: fall risk score, fall band, bed alarm armed, intravenous/heparin lock site checked and infusion rates verified, and call light within reach. The various intervention components of the Safe Five falls prevention program were delivered as intended in the protocol.

Special considerations were taken to ensure that the Safe Five checklist was simple and easy to use effectively and efficiently. In addition to the checklist, the high falls risk precautions audits were performed every shift by the nurse manager, nurse educator, or charge nurse to ensure staff members' compliance with the program. There have been inconsistencies in high falls risk precautions audits performed and recorded prior to the implementation of the Safe Five program, which made it challenging for nursing leaders to determine staff members' compliance with the existing program and cause of increased inpatient falls (see Appendix G). The implementation of the Safe Five program resulted in improved compliance rate in performing high falls risk precautions audits every shift (see Appendix H).

Maintenance (individual level): What were the long-term effects (minimum of 6-12 months following intervention)? What was the attrition rate; were drop-outs representative; and how did attrition impact conclusions about effectiveness?

The long-term effects of the Safe Five falls prevention program include increased patients' and family members' awareness of the importance of preventing falls in high risk patients by 18%, increased staff buy-in and compliance with the Safe Five program by 18%, and a 14% decrease in inpatient falls rate on the unit from 4.84 (FY 15) to 4.15 (FY 16) per 1,000 patient days (see Appendix I). Staff members reported that they have had zero falls during shift change for the past 6 months, which was encouraging for them to keep the momentum going long-term to meet their goal of less than three falls per 1,000 patient days. Midas incident reports revealed the current inpatient fall rate at UCMC to be 3.22 per 1,000 patient days (see Appendix J). However, this rate was reflective of other falls prevention strategies being used by other nursing units within the organization.

The average length of stay for patients on 8NW was 6 weeks due to their disease process and treatment regimen (R. Thomas, personal communication, May 13, 2016). Some patients get discharged, but return within a week or two; therefore, this is did not significantly impact the effectiveness of the Safe Five falls prevention program.

Maintenance (setting level): To what extent were different intervention components continued or institutionalized? How was the original program modified?

The Safe Five falls prevention program was being used on 8NW in its entirety, with pending implementation on 7NW. A decision had not been made yet as to whether the program will be implemented hospital-wide. No modifications have been made on the various components for patient safety and falls prevention.

Implications

This evaluation was performed based on retrospective data collected 8 to 10 months post implementation of the Safe Five falls prevention program. In the responses to the RE-AIM questionnaire, I found that the intended purpose of the Safe Five program was achieved and continues to be a working progress towards achieving the ultimate goal of the organization.

Based on the findings of this evaluation, the Safe Five program was successful in helping the nursing leaders on 8NW achieve their goal of increasing patients' awareness of falls prevention strategies, improving staff members' compliance with the program, and decreasing inpatient falls on the unit. Patients were more willing and likely to cooperate with following directions when they were actively involved in their care. Staff members were more energized and encouraged to comply with the program with increased support from management. The 14% decrease in inpatient falls rate for the unit is a step in the right direction towards achieving the organizational goal of less than three falls per 1,000 patient days with persistence and

determination. The decrease in inpatient fall rates has the potential to result in decreased health care costs and improved patient satisfaction with the health care system. The implementation of the Safe Five program resulted in improved communication among the interdisciplinary team and improved health outcomes in patients as evidenced by patients' and staff members' reports.

Program evaluation is influenced by real-life situations and enables leaders to use findings to inform future decisions about the program and improve its effectiveness (U.S. Department of Health and Human Services [USDHHS] & CDC, 2011). Program evaluation helps leaders provide evidence of the impact and effectiveness of the program to key stakeholders in order to increase their support and further funding. It also decreases organizational costs by helping to identify what is more efficient and effective, and it improves staff performance and quality of care through EBP (USDHHS & CDC, 2011). Periodic evaluation of the Safe Five program using the RE-AIM evaluation tool is recommended to keep staff members and nursing leaders on track in achieving their ultimate goal. The RE-AIM evaluation tool can also be used on other units within the organization to evaluate their falls prevention program or any other program to determine its effectiveness.

The RE-AIM evaluation tool is a universal tool that can be utilized for multiple programs in a variety of settings, such as long-term care, schools, and the community. The RE-AIM evaluation tool can be used in long-term care to determine the impact and effectiveness of programs, such as falls prevention programs, transitional care program, and wound care program. This evaluation tool can be used in schools to determine the impact and effectiveness of programs, such as physical education programs, nutritional programs, and programs for extracurricular activities. The RE-AIM evaluation tool can also be used in community settings to

determine the impact and effectiveness of programs, such as falls prevention programs, weight loss programs, and home schooling programs.

Recommendations

Some recommended strategies to assist staff members in further improving the effectiveness of the Safe Five program and increasing compliance include celebrating little successes with every fall prevented, incorporating the components of the Safe Five checklist into staff members' hourly rounding on patients, and continuing to increase communication among members of the interdisciplinary team regarding falls prevention in high risk patients. Celebrating milestones boosts morale by helping team members feel good about themselves and their colleagues to have achieved their set goals regardless of any challenges they may have encountered throughout the process (Office of the Chief Information Officer, 2016). In order to change behaviors, nursing leaders must set expectations, educate staff, build skills, reinforce, and build accountability while minding the gap (Press Ganey Consultant, personal communication, March 17, 2016). Incorporating the Safe Five checklist into staff members' hourly rounding on patients would help resolve the issue of not knowing when patients return from tests and procedures to reinstate their fall prevention measures. Effective communication helps keep every member of the interdisciplinary team well informed regarding the status and progress of policies and protocols instituted within the organization. Although the use of technology has made communication easier and more efficient, problems still arise due in part to ineffective communication. An ongoing evaluation of operational systems and programs is necessary to determine their effectiveness, and to improve and strengthen their quality.

Contribution of the Doctoral Project Team

The doctoral project team (which consisted of my preceptor, nurse managers and nurse educators on 8NW and 7NW, the leaders of the falls prevention committee, and I) worked collaboratively to devise a plan for evaluating the Safe Five falls prevention program. As I planned to evaluate the impact of the Safe Five program, I sought the input of staff members in terms of their knowledge base and perspectives on accurately completing the Safe Five checklist and implementing the appropriate plan of care for patients. The project team encouraged and supported me throughout the process. They gave me opportunities to work with staff members and provided me with the necessary feedback and data to complete my project. I developed my recommendations based on the responses to the RE-AIM questionnaire.

Strength and Limitations of the Project

Strengths

The first strength of this project was the ability to compare the impact of the previous falls prevention program to the impact of the Safe Five program on patients' awareness of falls prevention strategies, staff members' compliance to program, and inpatient fall rates. The second strength was the ability to use the RE-AIM tool to provide a systematic approach in evaluating the effectiveness of the Safe Five program at different levels. The third strength was providing a universal tool (RE-AIM) for the nursing leaders to use in evaluating future programs or projects in the organization. This tool can be adopted and used by health care professionals in diverse settings; therefore, it can be used to further evaluate the Safe Five program on other nursing units in the near future.

Project Limitations

The first limitation of this project was, although all eligible participants were included in the program, some of the participants declined to follow the Safe Five program interventions,

which resulted in fluctuations in monthly inpatient fall rates. Another limitation was the high turnover of RNs on the unit during the implementation of the Safe Five program, which resulted in increased inpatient fall rates. In this project, I focused on preventing falls among older adults (ages 65 years and older); however, reported falls included both older and younger adults. There are implications for a future project using the Safe Five program and the RE-AIM evaluation tool in addressing inpatient falls among all age groups and factors contributing to these falls.

Summary

The increasing financial burden and mortality associated with falls related injuries among older adults have become a public concern and creates a sense of urgency among health care professionals to develop effective patient safety initiatives to address the problem. The Safe Five falls prevention program was successful in helping the nursing leaders achieve their intended outcomes. An ongoing evaluation of the Safe Five program is necessary to ensure its effectiveness and sustainability in meeting the organization's long-term goals. The RE-AIM evaluation tool is a universal tool can be used in a variety of settings to evaluate the effectiveness of different QI initiatives and health promotion programs.

Section 5: Dissemination Plan

The purpose of disseminating findings of EBP projects is to expand available knowledge on the associated evidence-based interventions to healthcare professionals across a variety of healthcare settings (AHRQ, 2012). In light of the challenges encountered throughout this process, I am hoping that disseminating findings of my EBP project to the nursing leaders and staff will help the entire team put into perspective the impact of their interventions on patients and health outcomes.

In preparation for the dissemination of my EBP project findings, I obtained suggestions and feedback from my preceptor, nursing leaders, and staff members regarding dissemination approaches. My preceptor and nursing leaders suggested using the oral presentation approach using handouts or power point as visual aids; however, some staff members suggested using a poster so they view it in their own time. I plan to disseminate my EBP project findings using the oral presentation approach with PowerPoint slides as my visual aids. I selected this approach as suggested by my preceptor and the nursing leaders, and due to the time constraints of the scheduled falls prevention committee meeting. Using this approach would help me share the findings of evaluating the impact of the Safe Five falls prevention program with my audience, as well as implications for nursing practice. The PowerPoint slides would be available for all staff members to view in their own time. I also plan on disseminating my EBP project findings at my organization's annual summit post-graduation to share the outcomes and insights I gained throughout the process.

Analysis of Self

Throughout this project experience, I have learned the importance of communication among members of the multidisciplinary team, patients, and family members in

ensuring successful implementation and sustenance of an EBP project. There were instances where I needed to assist staff members by taking the time to explain to patients and their families the importance of falls prevention strategies, which helped them understand the rationale behind nurses' interventions. I have learned throughout this process the importance of having clearly stated objectives and outcomes when planning, implementing and evaluating an EBP project. To avoid project delays, confusion, and increase support, key stakeholders must be actively engaged and well informed throughout the process. I have also learned throughout this project experience that the key to successful program implementation is supporting and empowering end-users, such as nurses, and rewarding excellence. I have seen and learned from my preceptor as she demonstrated using the transformational leadership style in collaborating with staff members and other nursing leaders in her team. I have learned to lead by example, while motivating and encouraging others to follow suit. Post-graduation, I would like to network through professional organizational memberships, discuss my project and outcomes with nursing leaders in long-term and other acute care settings, and seek opportunities to share my project with their staff to improve outcomes. Dissemination of my project findings would enhance my development as a scholar-practitioner and a nurse leader in that it would demonstrate my knowledge, skills, and ability to form and manage a team, and practice in a clinically competent manner to complete an EBP project. Dissemination would also demonstrate my competence in using theory to bridge the practice gap between nursing actions and thoughts on fall prevention strategies.

Summary

Evaluating the Safe Five falls prevention program using the RE-AIM evaluation tool revealed that the Safe Five program was effective in increasing patients' awareness of falls prevention measures, increasing staff members' compliance with the program, and decreasing

inpatient fall rates in older adults (ages 65 years and older). There is implication for a future project to address inpatient falls among all age groups and factors contributing to these falls. The nursing leaders expressed their appreciation for helping them identify gaps in their practice to improve health outcomes, and stated they would continue to perform audits to ensure staff members stay compliant with the Safe Five falls prevention program. Evidence-based practice helps provide some answers to the *why* and *how* of nursing decisions and interventions while improving outcomes. The advantage of the RE-AIM evaluation tool is its ability to be adopted and used by health care professionals and professionals from other disciplines in diverse settings to evaluate a variety of programs. It is yet to be determined if the Safe Five program will be extended to other nursing units within the organization. However, it is recommended that nursing leaders perform periodic program evaluation using the RE-AIM tool to avoid complacency and keep staff on track towards achieving their organizational goal of less than three falls per 1,000 patient days.

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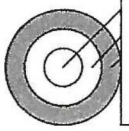
Appendix A: Safe Five Check List



SAFE FIVE

PLACE PATIENT LABEL HERE

DATE:_____

Fall Risk Score: _____ ROOM #: _____

Fall Band:_____

Bed Alarm Armed:_____

IV Site checked and infusion rates verified:_____

Call light in reach:_____

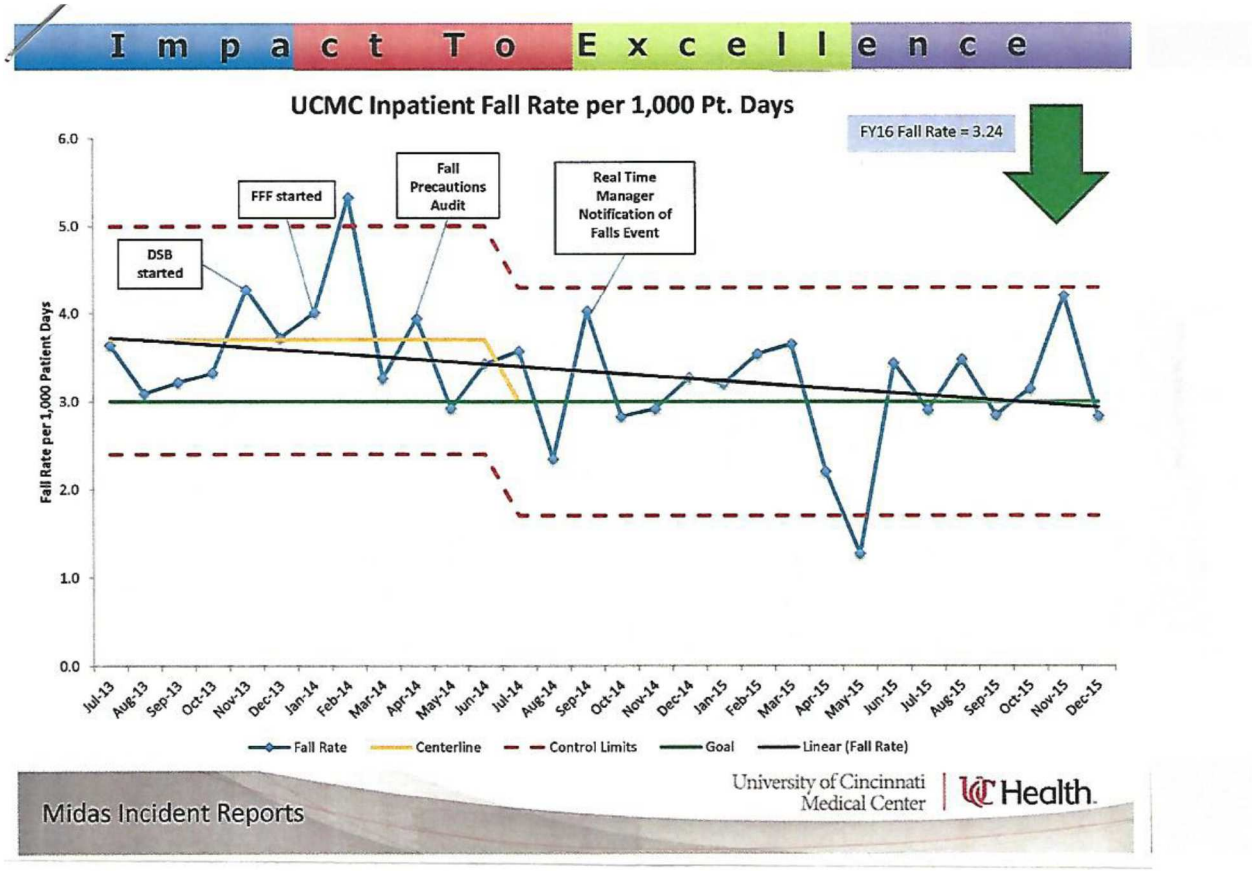
AM Nurse Signature:_____ PM Nurse Signature:_____

Appendix B: Program Evaluation Questions Using the RE-AIM Dimensions

RE-AIM Dimension	Questions
Reach (Individual Level)	What percent of potentially eligible participants a) were excluded, b) took part and c) how representative were they?
Efficacy or Effectiveness (Individual Level)	What impact did the intervention have on a) all participants who began the program; b) on process intermediate, and primary outcomes; and c) on both positive and negative (unintended), outcomes including quality of life?
Adoption (Setting Level)	What percent of settings and intervention agents within these settings (e.g., hospitals, schools/educators, medical offices/physicians) a) were excluded, b) participated and c) how representative were they?
Implementation (Setting/agent Level)	To what extent were the various intervention components delivered as intended (in the protocol), especially when conducted by different (non-research) staff members in applied settings?
Maintenance (Individual Level)	What were the long-term effects (minimum of 6-12 months following intervention)? b) What was the attrition rate; were drop-outs representative; and how did attrition impact conclusions about effectiveness?
Maintenance (Setting Level)	a) To what extent were different intervention components continued or institutionalized? b) How was the original program modified?

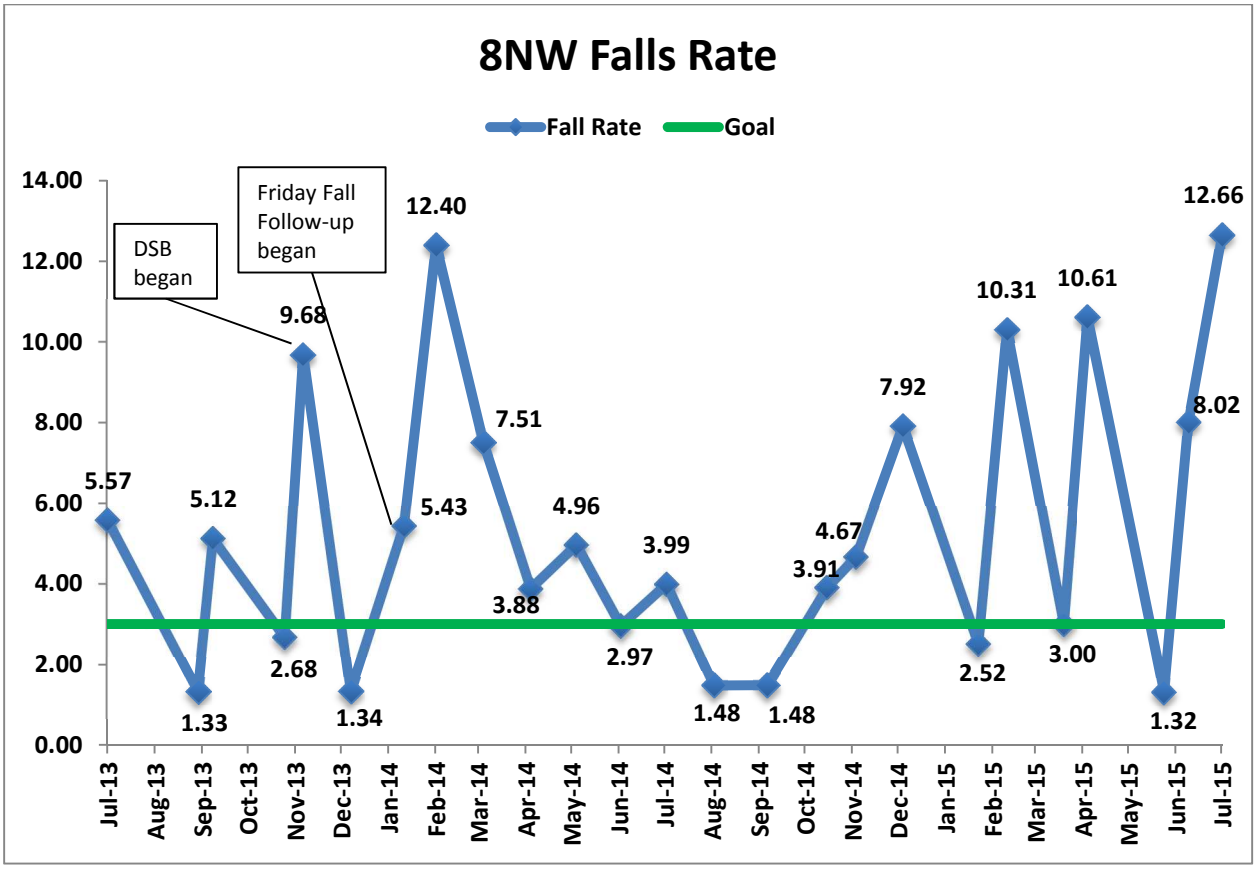
Note. Adapted from Virginia Polytechnic Institute and State University. (2015). Resources and tools: RE-AIM measures and checklists.

Appendix C: UCMC Inpatient Fall Rate per 1,000 Patient Days from July, 2013 – Dec, 2015 by Month



Data Source: UC Medical Center Midas Incident Reports

Appendix D: Inpatient Falls per 1,000 Patient Days from July, 2013 – July, 2015 by Month



Data Source: UC Medical Center Midas Incident Reports

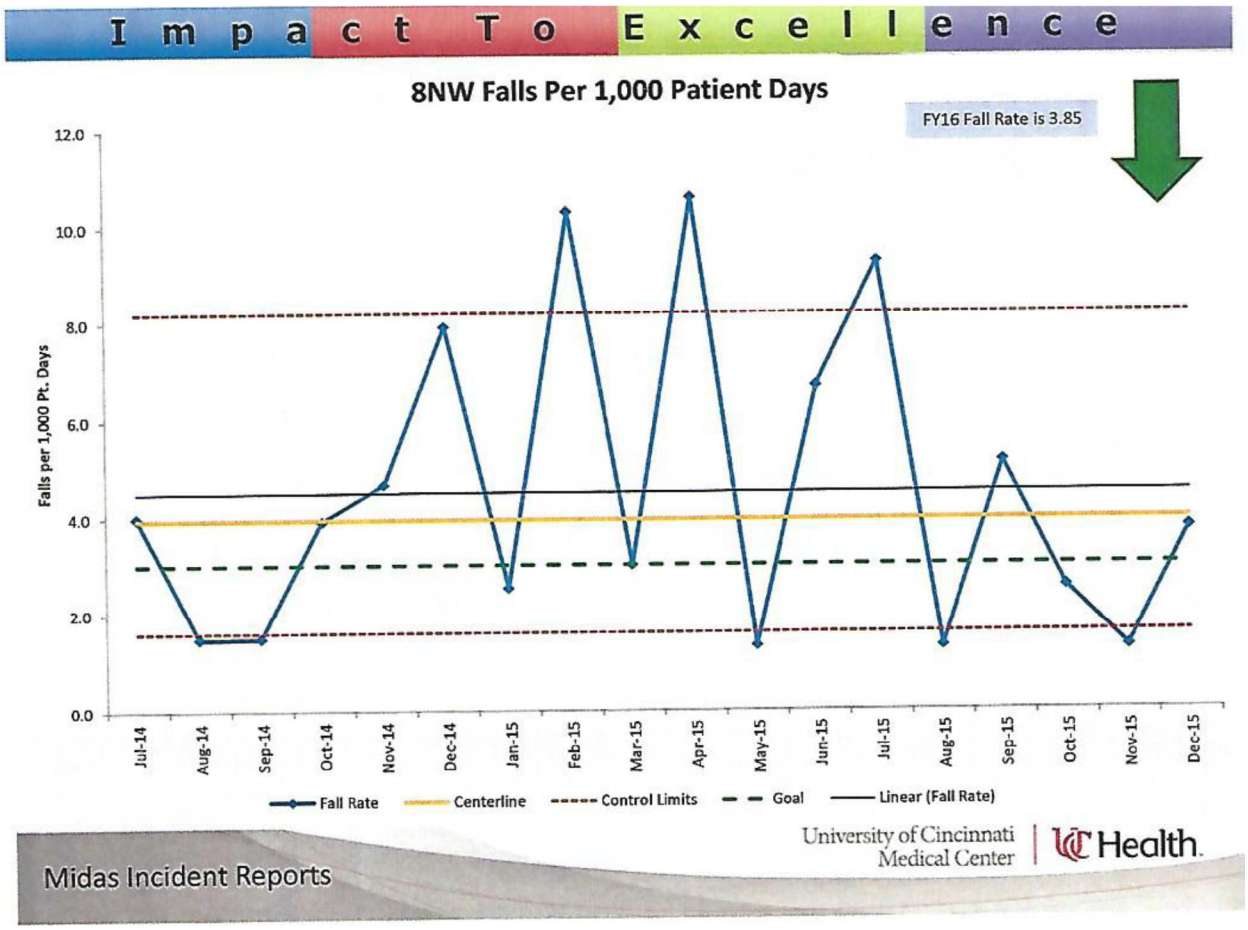
Appendix E: Morse Fall Scale

Morse Fall Risk Assessment		
Risk Factor	**Scale**	**Score**
History of Falls	Yes	25
	No	0
Secondary Diagnosis	Yes	15
	No	0
Ambulatory Aid	Furniture	30
	Crutches / Cane / Walker	15
	None / Bed Rest / Wheel Chair / Nurse	0
IV / Heparin Lock	Yes	20
	No	0
Gait / Transferring	Impaired	20
	Weak	10
	Normal / Bed Rest / Immobile	0
Mental Status	Forgets Limitations	15
	Oriented to Own Ability	0

Morse Fall Score*	
High Risk	45 and higher
Moderate Risk	25 - 44
Low Risk	0 - 24

Source: VHA NCPS Toolkit, 2004

Appendix F: Inpatient Falls per 1,000 Patient Days from July, 2014 – Dec, 2015 by Month



Data Source: UC Medical Center Midas Incident Reports

Appendix G: High Falls Risk Precautions Audits on 8NW - 2015 (Safe Five Program Implemented)

Category	July
Total # of Patients with MFS ≥ 45	14
Total # of Patients with Fall Bracelets	11
Percent of Patients with Fall Bracelets	79
Total # of Red Fall Signs for High Falls Risk Patients	6
Percent of Red Fall Signs for High Falls Risk Patients	43
Total # of Bed or Chair Alarms activated & interfaced with Call Light	6
Percent of Bed or Chair Alarms activated & interfaced with Call Light	43
Total # of Patients Aware of their Fall Risk Status	11
Percent of Patients Aware of their Fall Risk Status	79

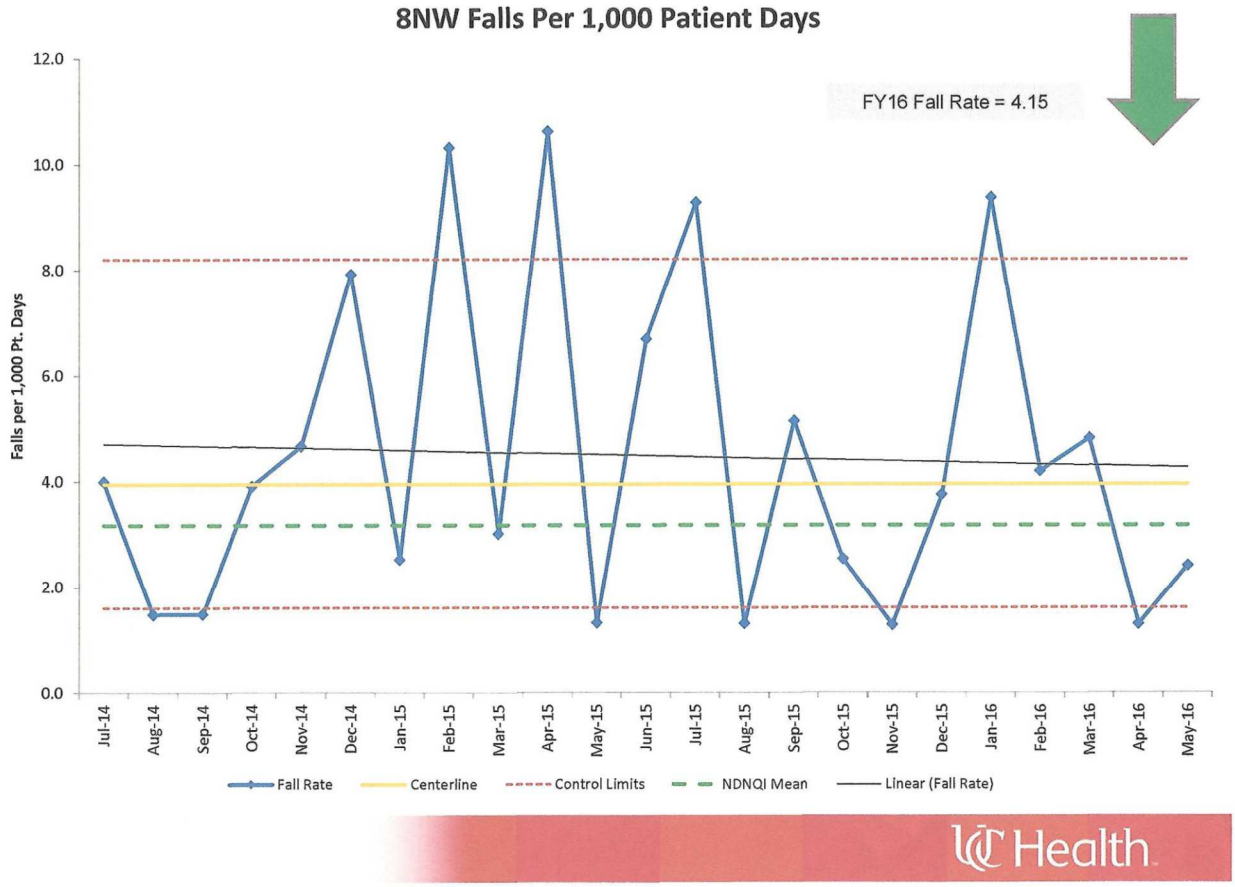
Data Source: UC Medical Center Midas Incident Reports

Appendix H: High Falls Risk Precautions Audits on 8NW – 2016 (Safe Five Program - 8 Months Post-Implementation)

Category	March	April	May
Total # of Patients with MFS ≥ 45	80	114	204
Total # of Patients with Fall Bracelets	80	106	198
Percent of Patients with Fall Bracelets	100	93	97
Total # of Red Fall Signs for High Falls Risk Patients	80	111	198
Percent of Red Fall Signs for High Falls Risk Patients	100	97	97
Total # of Bed or Chair Alarms activated & interfaced with Call Light	66	73	126
Percent of Bed or Chair Alarms activated & interfaced with Call Light	83	64	62
Total # of Patients Aware of their Fall Risk Status	80	106	198
Percent of Patients Aware of their Fall Risk Status	100	93	97

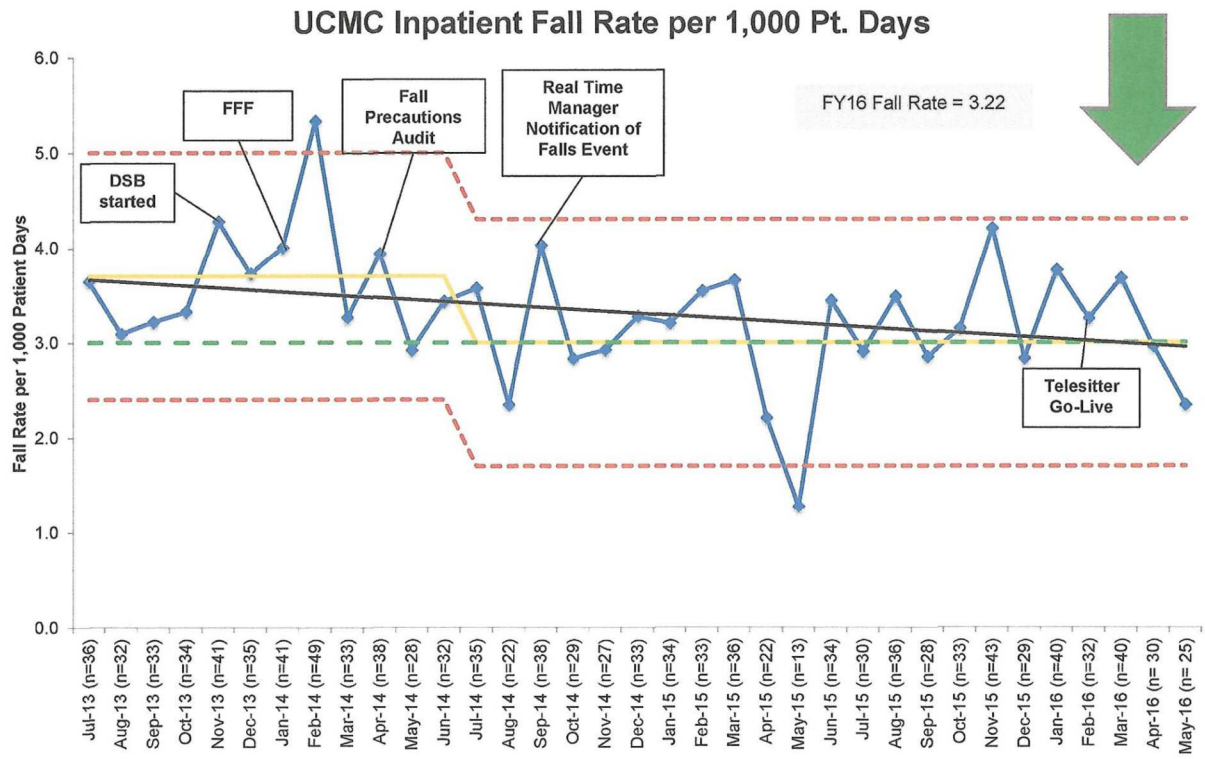
Data Source: UC Medical Center Midas Incident Reports

Appendix I: Inpatient Falls per 1,000 Patient Days from July, 2014 – May, 2016 by Month



Data Source: UC Medical Center Midas Incident Reports

Appendix J: UCMC Inpatient Fall Rate per 1,000 Patient Days from July, 2013 – May, 2016 by Month



Data Source: UC Medical Center Midas Incident Reports