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# Implementation of Evidence Based Guidelines to Reduce Fall Risk

Implementation of Evidence Based Guidelines to Reduce Fall Risk in a  
Patient Population Vulnerable to Falling

Susan E Jacquez

Submitted in Fulfillment for the Doctor of Nursing Practice Degree

Regis University

November 17, 2016

# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## **I. Preliminary Pages**

# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## **A. Copyright**

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## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **B. Executive Summary**

In long-term care, older adults with cognitive and physical impairment are at high risk for falling and fall related injuries resulting in social isolation, poor quality of life, increase risk for repeat fall, and an increase in health care costs.

According to the Centers for Disease Control & Prevention (2015), 1.4 million persons' age 65 years and older reside in nursing homes or 18% of older adults in this age group (para.1). An estimated 50-75% of nursing home patients fall each year and often fall more than once (CDC, 2012, para.2). Ten to 20% of nursing home falls cause serious injuries with 2% to 6% resulting in fractures and an average hospital cost of \$35,000 per fall per resident (CDC, 2015, para.1). "Each year a typical nursing home with 100 beds reports 100-200 falls among patients who cannot walk or have impaired mobility" (CDC, 2012, para.2).

The Agency for Healthcare Research and Quality (2012) offers clinicians fall prevention protocols and evidence based guidelines to positively influence fall prevention programs in long-term care (p.1). The AHRQ proposes strategies to gain organizational support and educate nurses to participate in fall prevention programs dedicated to enhanced communication, collaboration, and teamwork to improve safety for the older adult, a population vulnerable to falling (p.2).

Over a three-month period, nurses (N=49) in a for-profit long term care facility serving high fall risk older adults participated in completing a pre-education survey, an educational module (borrowed with permission from the AHRQ), and a post education survey to successfully implement the AHRQ fall prevention guidelines into long term care.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

This Doctor of Nursing Practice (DNP) Project examined the effect of evidence on fall reduction in long term care and aimed to reduce the number of resident falls by a minimum of 20% and exceeded this goal.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **C. Acknowledgements**

Special thanks to American Baptist Homes of the Midwest for agreeing to participate in this DNP Project, as well as, the executive leaders, nurse care coordinators, and nursing staff of Mountain Vista Retirement Community for their dedication to resident safety and service to protect older adults from falling. Special thanks to Robert Priester, RN MBA, Staff Development Coordinator for his commitment to collaborative practice and quality improvement efforts in long-term care.



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## II. Problem Recognition and Definition

### Problem-Intervention-Comparison-Outcome (PICO)

**Population:** Nurses who care for older adults in a specific long term care facility and assess for fall risk

**Intervention:** Implementation of the Agency for Healthcare Research and Quality Fall Prevention Guidelines for Long Term Care

**Comparison:** Standard fall precautions at the site

**Outcome:** Successful implementation of the AHRQ fall prevention guidelines in a specific long term care setting with a 20% reduction in fall events

### Abstract

**Purpose:** This Doctor of Nursing Practice (DNP) Project explored implementation of the Agency for Healthcare Research & Quality (AHRQ) Fall Prevention Guidelines for Long Term Care in clinical practice to examine the effect of applying on fall reduction in a patient population vulnerable to falling.

**Design and Methods:** The study employed a quasi-experimental, pre- and post- education survey design to measure nursing competence to successfully implement the AHRQ fall prevention guidelines in a for-profit 146 bed long term care facility. Over a twelve-week period fall-related data and pre- and post- education scores of forty-nine (N=49) nursing personnel were collected and analyzed. Actual numbers of resident falls prior to education/implementation were collected and used as baseline.

**Findings:** Seventy-seven percent (77%) of nursing personnel at the long term care facility participated in the education and implementation of the AHRQ Fall Prevention Guidelines for

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Long Term Care. A paired *t* test was used to compare pre- and post-education scores to reveal a significant difference between pre- education scores 65.8% (SD=18.00) and post- education scores 84.5% (SD=12.34),  $t(96)=6.34$ ,  $p.= 0.0001$  (lower than the standard .05), CI.: -25.735 to -13.465. These results suggest nursing education devoted to evidence based practice guidelines significantly effects fall reduction in long term care, as well as, demonstrates the successful implementation of the AHRQ fall prevention guidelines can significantly reduce the number of fall in long term care by 41% over a short period of time (90 days).

**Implications for Practice:** Implementation of evidence based fall prevention guidelines in long term care enhances older adult safety, quality of care, and outcomes, as well as, improves nursing communication, collaboration, and teamwork. This DNP Project shows evidence of guideline usage in clinical practice reduces fall reduction in long term care.

Key words: “DNP Capstone Project,” older adult advocacy, fall prevention in long term care, evidence based practice, clinical practice guidelines

**DNP Project Question:** In long-term care, can implementation of evidence based fall prevention guidelines reduce fall risk in a patient population vulnerable to falling?

### Significance of the Problem

According to the Centers for Disease Control & Prevention (2015), 1.4 million persons age 65 years and older reside in nursing homes or 18% of older adults in this age group (para.1). An estimated 50-75% of nursing home patients fall each year and often fall more than once or an average of 2.6 falls per patient per year (CDC, 2012, para.2). About 10% to 20% of nursing home falls cause serious injuries with 2% to 6% resulting in fractures and an average hospital cost of \$35,000 per fall per resident (CDC, 2015, para.1). “Each year a typical nursing

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home with 100 beds reports 100-200 falls among patients who cannot walk or have impaired mobility” (CDC, 2012, para.2).

Mobility in older adults or the ability of a person to move around independently and safely within their environment is fundamental to health and wellbeing. “Mobility refers to movement of all forms, including transferring from bed to chair,” walking unassisted, and the ability to care for oneself through “completion of daily tasks” (CDC, 2013, para.2). Opposite is impaired mobility or the inability to perform activities of daily living independently or without aide. Older adults 65 years or greater with impaired mobility, cognitive decline, and the effects of chronic disease often lead to the “need for long term care services and support” and subsequently, an increase risk for falling in a long term care setting (CDC, 2013, p. 12).

Falls in older adults can result in disability, functional decline, isolation, and poor quality of life. As an advocate for older adult safety, evidence based fall prevention guidelines are introduced and implemented into a 146 bed long term care facility in collaboration with nursing services to determine the effect of applying evidence to reduce falls in older adults residing in long term care.

The not-for-profit long term care facility that was the site for this project serves an older adult patient population with a mean age of 80 years (range 62- 98 years of age. Many of the residents suffer from physical and cognitive decline, multiple co-morbidities, as well as, poly-pharmacy. On average, eighty-five residents fall per month (58% fall rate; national benchmark 1.7 to 5.0), fourteen (14) of the residents fall repeatedly with an average of 5 to 11 times every 90 days.

Seventy-four percent (74%) of the patient population is considered a repeat faller. Each

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

month an average of 85 residents fall primarily in their room (68%) during the day shift between 0600 – 1430 (50%) with females falling more often (64%) than males (36%) and fall more than once during a 30-day period. Forty-five percent (45%) of residents are prescribed anti-psychotics for behavioral problems, thirty-two percent (32%) are prescribed anti-hypertensive medication, twelve percent (12%) are prescribed diuretics to control chronic disease, and seventy-five 75% of the patient population present with a history of chronic disease, impaired cognition, poor physical mobility, and a history of falling; the primary reasons for long term care placement.

The three care units at the site consist of a centralized nurse station, computers on wheels at entry to two of four hallways and high fall risk residents stationed in wheelchairs surrounding the nursing station or in a small common room on the unit in front a large television west of the dining room. Recreational activities are offered daily and musicians entertain the residents four to five times a week. Resident rooms are carpeted, small, and highly cluttered with personal belongings from home, e.g., beds and recliners with one bathroom shared by two residents unless the resident is in a private room (15% of rooms are private rooms).

Licensed Practical Nurses administer medications, Registered Nurses respond to physician requests and patient and family concerns while Nurse Assistant's support residential activities of daily living including feeding, bathing, dressing, transferring, and toileting. Each Nurse Assistant is assigned fifteen (15) residents a piece (day and evening shifts) with minimal to inconsistent support and assistance from licensed nursing personnel to complete these tasks.

### **Literature Review**

For this DNP Project, CINAHL and ProQuest databases were utilized for scholarly literature specific to fall prevention in older adults residing in long term care, as well as,



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evidence of nursing interventions, clinical practice, and efforts successful in protecting older adults from falling. The Centers for Disease Control and Prevention is accessed for information related to the significance of the problem nationally and ultimately, to practice guidelines and the Agency for Healthcare Research and Quality Fall Prevention Guidelines for Long Term Care.

Evidence suggests fall prevention in long-term care requires multi-dimensional and interdisciplinary approaches to effectively control intrinsic factors associated with falls in older adults, e.g., high fall risk medications, physical immobility, cognitive decline, and history of falls plus, extrinsic factors, e.g., unit layout, staffing matrix, line of sight, clutter, available equipment, and supportive devices to protect the older adult from falling (Oliver, Healey, & Haines, 2010, p.679).

Examination of empiric evidence of randomized studies, nonrandomized studies, comparative studies, and clinical trials revealed multidimensional interventions, improved communication and collaboration amongst the healthcare team enhance fall prevention programs. Utilizing a team approach in clinical practice has proven to decrease the number of falls by 18%, “19%, 22%, 30%, and 57%” respectively and decrease fall rates from 4.9 to 2.9, 4.5 to 2.2 and 3.7 to 1.8 bed days of care” (Oliver, Healey, & Haines, 2010, p.679, Polestar, Given, & Given, 2012, p.97). Oliver et al, (2010) concluded, four key components are required for best practice in fall prevention programs including, “a safe environment, identifying specific modifiable fall risk factors, implementing interventions targeting those risk factors, and continual consistent communication” among nurses and the healthcare team (p.681).

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According to Polestar, Given, & Given (2012), improved communication practiced by every healthcare member within a long term care facility must be devoted to the effort to create a culture of safety to experience at least a 25% reduction in fall events and a fifty percent (50%) decrease in fall events after 1 year” (p.103). The long term care facilities who succeeded in reducing fall rates implemented the following elements, 1) building a culture of safety, 2) fall risk assessment, 3) multi-factorial interventions, 4) post fall follow up, 5) electronic medical record, and 6) interdisciplinary communication and collaboration (p.101).

A comparative study completed over fifteen months in five separate clinics addressed fall prevention in patients 65 years and older who had fallen in the last thirty (30) days by using multi-factorial (patient based) and multidisciplinary interventions to control falls. This study revealed a statistically significant reduction in the number of falls by patients three month’s post intervention as compared to pre-intervention values,  $t(252) = 7.475$ ,  $p < 0.001$  (Hart-Hughes, Quigley, Bulat, Palcios, & Scott, 2004, p. 49). Nineteen percent (19%) of patients had no falls three months prior to the intervention (313 participants) compared to 64% who reported no falls three month’s post intervention or “a three-fold reduction in the average number of falls when compared to pre-intervention” (Hughes, et al, 2004, p. 49).

Milisen, Coussement, Arnout, Vanlerberghe, Paepe, Schovaerdt, et al, (2012), conducted a multi-center study, e.g., seventeen (17) geriatric wards with five hundred twelve (512) geriatric patients to evaluate the feasibility of implementing fall prevention practice guidelines to decrease falls in older adults (p.1.). Seventy-eight percent (78%) of healthcare workers judged the guidelines as useful and eighty-one percent (81%) agreed the guidelines increased their attention to fall prevention and provoked them to investigate the problem more thoroughly (Milisen, et al, 2012, p.5). In contrast, only 62.3% of healthcare workers believed

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the guidelines could be successfully integrated into everyday practice (Milsen, et al, 2012, p. 1).

In 2005, a European multi-professional team was tasked to prepare clinical practice guidelines for the assessment and prevention of falls in older adults with the aim to draft recommendations for healthcare workers who care, assess, and protect older adults from falling (McInnis, Gibbson, & Chandler-Oates, 2005, p.33). A Cochrane review of best practices in fall prevention, clinical effectiveness, patient views and preference, evidence based strategies, and multifactorial interventions was used as the source of evidence to outline risk assessment, prevention as intervention, and professional education. McInnis et al (2005) concluded the purpose of fall prevention guidelines produced with the best available evidence challenges healthcare workers to recognize high fall risk individuals early and tailor interventions influenced by knowledge transfer and research utilization drawn on a range of evidence in order to facilitate evidence based practice in real life settings (p.35).

The Agency for Healthcare Research and Quality (2012) offers clinicians fall prevention protocols and evidence based guidelines to positively influence fall prevention in long-term care (p.1). The AHRQ proposes strategies to gain organizational support and educate nurses to actively participate in fall prevention programs dedicated to enhanced communication and collaboration with the interdisciplinary team to improve quality and safety for vulnerable patient populations (p.2).

There is growing attention and support for the development and implementation of clinical practice guidelines for special clinical circumstances including fall prevention in older adults. Clinical practice guidelines are often referred to as systematically developed statements

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of recommendations designed to provide direction to clinicians and to facilitate change in practice (and behaviors) with the implementation of evidence based practice.

### **Nursing Confidence and Competence**

A hierarchy of nursing roles and responsibilities according to position dictates care delivery to older adults in a long-term care setting. Registered nurses (RNs) are responsible for managing the unit and responding to physician orders, family issues, and staff requests, licensed practical nurses (LPNs) administer medications and report patient response, and nurse assistants (CNAs) assume full responsibility for activities of daily living. According to the site's database imbedded into the electronic medical record, Point Click Care™, nearly seventy-four percent (74%) of the patient population presents with a history of chronic disease, impaired cognition, poor safety awareness, poor physical mobility, and a history of falling.

Fall prevention education is delivered upon hire only by the staff development coordinator and a communication tool is offered at orientation to facilitate RN to CNA communication that is rarely used or is used inconsistently. No additional fall prevention education is offered for staff development throughout the calendar year.

With the support of stakeholders at the site, the AHRQ evidence based fall prevention guidelines were introduced into nursing education and staff development to facilitate implementation of the guidelines in clinical practice and reduce resident fall risk in long term care. A total of forty-nine (N=49) nursing personnel agreed to complete the fall prevention guideline education, respond to the pre- and post- education questionnaires and implement the guidelines at the bedside over a ninety (90) day period.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **Nursing Challenges in Long Term Care**

A culture of safety in a long-term care setting can be understood as the values, attitudes, perceptions, competencies, and patterns of behaviors that determine an organization's commitment to health and safety management (Wright, Goldman, Beresin, 2007, p.46). Significant differences exist in safety culture perception between nurse administrators and the nursing personnel who deliver care in the not-for-profit long term care facility. Observation and communication with nurse administrators revealed a positive perception of a culture of safety while nursing personnel perceived a lack of safety culture and an atmosphere of blame and mistrust especially among the nurse assistant population as it relates to resident falls. According to Wright, et al (2007), safety perceptions are generally less positive among participants working in non-management compared with those in management positions especially in for profit long term care facilities (p.47). More than 30% of nurse assistants expressed a less positive perception of safety overall due to a fifteen (15) to one (1) nurse assistant/patient ratio on the day and evening shifts (49% of all falls occur between 0600 and 1430 and 38% of falls occur between 1430 and 2230).

Observation and examination of methods of communication for fall prevention between nursing staff revealed a thorough RN investigation of a resident fall and a well-documented post fall care plan. A minimum of 75% of all post fall interventions were assigned to nurse assistants but rarely do they access the care plan nor receive consistent report of resident falls and interventions to prevent a repeat fall, thus creating silos and a division of responsibilities among long-term care nursing personnel.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **Nursing Educational Modalities**

In support of building a culture of safety on behalf of the older adult in long term care, a fall prevention education module was created with approval of the Agency for Health Care Research and Quality to use the AHRQ recommendations to educate nurses in best practices in fall prevention with the aim to implement the guidelines into clinical practice and reduce fall risk. Case studies taken from real life scenarios are imbedded into the education module to facilitate critical thinking about the bio-psychosocial and spiritual aspects of the older adult that may precipitate a fall, as well as, the necessity to communicate behaviors to appropriate team members to better coordinate care and prevent a fall. The AHRQ Fall Prevention Guidelines for Long Term Care were combined into one document to ease transfer of the evidence into clinical practice and to reflect the participating sample and long term care facility's patient population (Appendix A).

### **Theoretical Foundation**

Betty Neuman's Systems Model was utilized as the theoretical foundation for this DNP Project primarily to offer a comprehensive guide for an open, holistic, multidisciplinary approach to fall prevention in long term care on behalf of the wellbeing and health of both nurses devoted to geriatric care and the patient populations they serve.

Betty Neuman Systems Model is a validated nursing theory that offers a global perspective on interdisciplinary health care concerns including fall prevention in older adults (Neuman, 2012, para.1). According to the Neuman Open Systems Model, the person is considered a holistic being in constant change and interaction with the environment where the person is vulnerable to inter, intra, and extra environmental stressors. Neuman explains the environment as "all factors that affect and are affected by the open evolving system" whereas,

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health is defined as the “condition or degree of system stability and is viewed as a continuum from wellness to illness” (Gonzalo, 2011, para.4). Finally, nursing interventions are envisioned as purposeful actions to help “attain, maintain or retain stability” and begins when a stressor is either suspected or identified, e.g., resident fall or fall risk (Marriner-Tomey, 1994, p.274).

Concepts associated with Neuman’s Systems Model include barriers or lines of defense to control stress or stressful events surrounded by a normal line of defense that represents stability, a flexible line of defense that acts as a buffer, and finally lines of resistance that help the nurse and patient defend against a conceived or actual stressors (Marriner-Tomey, 1994, p272).

Neuman’s proposition of “intervention as prevention” entails primary preventive measures before a stressor occurs and focuses on strengthening the flexible line of defense to reduce the possibility of an encounter with a stressor (a fall); secondary prevention occurs after a stressor (or fall) and focuses on strengthening the internal lines of resistance thus, protecting the basic structure through treatment of symptoms; finally, tertiary prevention occurs after the system has been treated through secondary prevention strategies and focuses on maintenance of wellness and protection of the system through supporting existing strengths and continuing to preserve safety, quality, and wellbeing (Gonzalo, 2011, para.10).

Nurses who care for older adults use intervention as prevention to strengthen older adult defense by reducing internal and external stressors that place the older adult at risk for falling resulting in a dynamic cycle of preventive measures including communication and collaboration to improve older adult outcomes.

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### III. Market Risk Analysis

#### Strengths, Weaknesses, and Opportunities

The site under study boasted a strong leadership team that meets daily to exchange information about patient population census, new admissions, death of residents, external marketing activities, internal entertainment activities, and fall and fall related injuries for the previous twenty-four hours. It is unclear how front-line staff received this information or if this information was consistently disseminated. Only executive leaders and managers attended weekly meetings, which is the norm in long term care settings.

<p>Opportunities</p> <ol style="list-style-type: none"> <li>1. Established interdisciplinary &amp; inter-professional team to facilitate, support, and implement evidence based practice to improve patient safety, quality of care, and patient outcomes</li> <li>2. US nursing homes are now required to develop Quality Assurance Performance Improvement (QAPI) plans to improve safety and quality</li> <li>3. Foundation established by nurse assistants who are the eyes and ears in long term care</li> </ol>	<p>Opportunity-Strength</p> <ol style="list-style-type: none"> <li>1. Care coordinators and Staff Development Coordinator meet every weekly to investigate fall events</li> <li>2. Fall prevention and resident safety opportune approach to QAPI requirements (dependent upon reimbursement)</li> <li>3. Seventy-four percent active participation by nurse assistants in the implementation of evidence based fall prevention guidelines</li> </ol>	<p>Opportunity-Weakness</p> <ol style="list-style-type: none"> <li>1. Direct care nursing staff and physical therapist not consistently included in fall investigation or fall meetings</li> <li>2. Minimal to no empowerment of front line staff, e.g., nurse assistant in planning care or development of care plan</li> <li>3. Nominal commitment to address issues to improve collaboration between licensed staff and nurse assistants to sustain fall prevention program</li> </ol>
<p>Threats</p> <ol style="list-style-type: none"> <li>1. No interest in assuming “champion role” by nurse assistants or other staff to sustain preventive program</li> <li>2. Nursing hierarchy may negatively impact participation in team work, communication, and collaboration</li> </ol>	<p>Threat-Strength</p> <ol style="list-style-type: none"> <li>1. Supportive care coordinator group willing to identify and designate fall champions to sustain program</li> <li>2. Nursing administrator role models behaviors associated with teamwork and collaboration</li> </ol>	<p>Threat-Weakness</p> <ol style="list-style-type: none"> <li>1. Lack of time by nurse assistants to actively engage in champion role and hand off report</li> <li>2. Nurses do not share ADL responsibilities to improve processes</li> </ol>



## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Each Friday at 8:00 am, the Facility Director, the Director of Nursing, Nurse Care Coordinators, and the Staff Development Coordinator meet to evaluate resident fall events over the past week to ensure all required information, follow up care, and care plans are documented in the Electronic Medical Record (EMR). Interestingly, nurse assistants do not have access to the EMR despite the fact that they are assigned 75% of fall interventions.

### **Needs, Resources, and Sustainability**

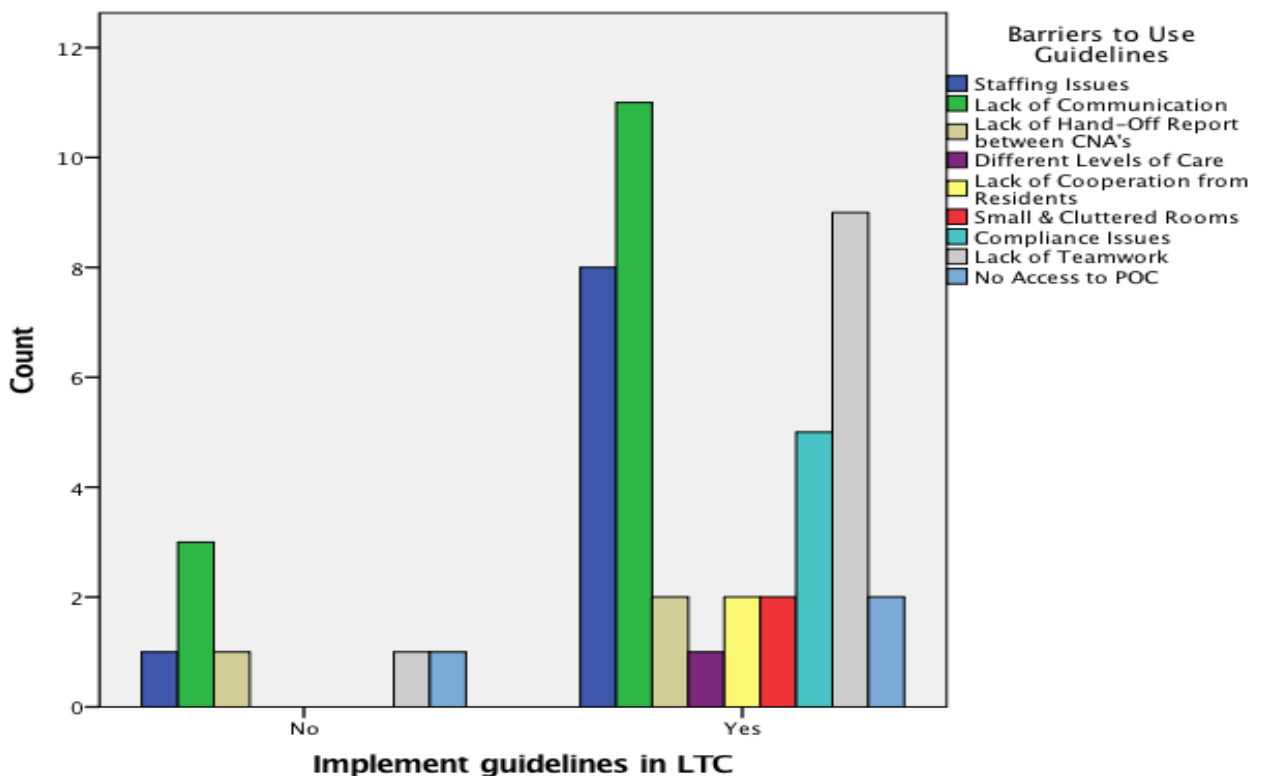
The Centers for Medicare and Medicaid Services (CMS) is now requiring long term care facilities in the United States (US) to develop Quality Assurance Performance Improvement (QAIP) projects to improve the safety and quality of care for older adults residing in long term care. This CMS initiative requires long term care facilities to meet specific requirements to receive points that ultimately impact reimbursement for long term care services (CMS, 2014, p.8).

The QAPI initiative asks that staff, residents, and their families be aware of and are able to have the opportunity to support the QI project, namely the fall prevention program (CMS, 2014, p.8). Each long-term care facility must show evidence of at least one data driven quality improvement project and associated education, and at least three quality improvement cycles through storyboards and other methods of communicating quality improvement projects (CMS, 2014, p.8).

The CMS QAIP initiative for long-term care offers the ideal conduit to staff education and development in long-term care to maintain an environment of safety with a fall prevention program based upon evidence. In turn, improvement in resident outcomes is assured through safety, quality of care, teamwork, communication, and collaboration.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

The Centers for Medicare and Medicaid QAIP initiative is utilized as the primary conduit to apply and sustain the AHRQ fall prevention program in long-term care to reduce fall risk in the vulnerable older adult. As previously mentioned, efforts to support the QAIP initiative in long term care are marred by challenges and barriers despite best efforts. For example, nursing assistants consistently report three specific barriers to sustain compliance and active participation in fall prevention including, poor communication between nursing staff staffing issues (e.g., one nurse assistant to fifteen residents), and a lack of teamwork. An overview of staff concerns related to barriers and challenges is listed below.



In spite of these reported challenges and barriers, 100% of nursing participants believed guideline usage would improve resident safety, 95% were confident that evidence would reduce falls, 84% believed use of guidelines would help with recognizing changes in resident behaviors, and 69% were confident fall prevention guidelines could reduce resident falls.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Recommendations to overcome these barriers and challenges were communicated with executive leaders during a preplanned presentation of the findings.

### **Stakeholders and Project Team**

Primary stakeholders included executive leaders, e.g., Director of Nursing, Staff Development Coordinator, Nurse Managers, Nurse Case Coordinators, Registered Nurses, and Licensed Practical Nurses, as well as, older adult residents, their family members, and medical and community providers. The project team also included the DNP candidate, the DNP Chair, and the DNP Mentor to offer expertise and lay the foundation to translate evidence into clinical practice. Finally, the certified nurse assistants were recognized as the eyes and ears in the long term care setting; they interact with the residents frequently, consistently, and expertly yet, receive minimal recognition for their efforts. Nurse assistants at the site proved to be dedicated, caring, and an attentive group who enjoyed their work and “love” their residents. This group was also likely one of the most unappreciated members of the healthcare team in a long-term care, yet the greatest stakeholder in this environment.

The Staff Development Coordinator is the responsible person for the QAIP project therefore, is an important member of the project team. His support was sought to bridge gaps in care plan accessibility, maintaining hand off communication between staff members, development of mechanisms to sustain teamwork and collaboration at the unit level, as well as, the inclusion of nurse assistants as active participants in care planning to prevent resident falls and reduce risk of falling in long term care.

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### **Cost Benefit Analysis**

According to the Centers for Disease Control and Prevention (2015), a fall sustained by an older adult requiring hospitalization costs about \$35,000 per fall per resident with Medicare paying 78% of the cost (para.1). The participating long-term care facility had only one significant post fall injury (left hip fracture) in 2015. Nonetheless, the “direct costs for fall related injuries in the United States is estimated at \$34 billion annually for hospital and nursing home care, doctors and other professional services, rehabilitation, medical equipment, prescription drugs, and insurance processing” (CDC, 2015, para.1).

Federal funds could better serve older adults in long term care by adopting evidence based fall prevention programs delivered by a devoted health care team of nurses to facilitate best practice in fall prevention, improve older adult outcomes, and reduce Medicare costs. Thirty-four (\$34) billion dollars spent annually on fall related injuries could readily cover the salary of multiple long term care healthcare teams devoted to fall prevention in thousands of long term care facilities nationwide.

Costs to complete this project included hours allocated to the literature review, creating the study tools, purchasing supplies, delivering the guideline education and questionnaires to long term care nursing staff, as well as, travel to and from the participating site and collecting, scoring, and analyzing the data in Statistical Program for the Social Sciences (SPSS).

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<b>DNP Project Budget</b>		
<b>Personnel: DNP Student Hours (\$52.50/Hour)</b>	Amount	Sub-Total
Creating Pre- Post- Education Materials	44 Hours	\$2300
Deliver Education & Questionnaires	86 Hours	\$4515
Coding & Analyzing Data	22 Hours	\$1155
Presentation	16 Hours	\$840
Total Personnel Expenses		\$8810
<b>Total Direct Expenses</b>		
Copying materials, supplies		\$85
<b>Total Travel Expenses</b>		
Domestic Travel to & from LTC facility	80 Miles	\$120
<b>Total Expenses</b>		\$9015

Evidence suggests the appointment of a healthcare team devoted to fall prevention can significantly reduce healthcare costs of falls in long-term care and influence best practice nationwide. In concert with the Institute of Medicine (1999), “Implementing safety systems to assure safe practices at the delivery level” is best facilitated through communication, collaboration, and teamwork that facilitates a culture of safety “such that the workforce and processes are focused on improving the reliability and safety of care for patients” (p.4).

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### Cost Effectiveness Analysis

According to Kruschke (2015), the objective of Cost Effectiveness Analysis is to “find the treatment that has the relatively best effectiveness for the relatively best costs” (NR708\_Week3 Handout). A comparison of the long-term care market in relationship to the US economy is outlined below to reveal similarities and differences between the two in support of best practice for the best cost in fall prevention.

	Long Term Care Market	Economic Market
Similarities		
	Public and private owned facilities offering services to older adults 65 years and greater	American Baptists Homes of the Midwest is one of multiple senior living complexes in the United States
	Driven by return on investment; dependent upon federal reimbursements	Driven by return on investment; privately owned and operated
	Equitable	Equitable
	High demand; aging population	High demand; aging population
	Citizen affordability issues (uninsured/underinsured); LTC safety issues and high fall rates	Citizen affordability issues (low income families/communities)
Differences	Consumer has no say in LTC processes; QAIP efforts	Consumer drives demand for goods or services; prices
	Federal government funding, private insurance, and personal pay	Internal funding, small business loans, corporations
	Resources based upon supply and demand; CMS initiatives	Resources based on supply and demand; CMS initiatives
	People	Commodities
	High cost for services	Fluctuating costs for services
	Poor cost effectiveness/outcomes	Necessity versus luxury
	Right	Privilege

Kruschke, 2014. DNP Finance, Economics of Healthcare, Regis University.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### IV. Project Objectives

#### **Mission**

The mission of the DNP Project was to apply evidence based fall prevention guidelines into long-term care practice to reduce fall risk in a patient population vulnerable to falling and to improve the safety and quality of life of older adults

#### **Vision**

The project vision was to partner with an established organization that serves older adults to enforce the value of team work, communication, and collaboration between nurses using evidence based practice to reduce fall risk, fall related injuries, healthcare costs, and improve older adult outcomes

#### **Goal**

The identified goal of the project was to deliver evidence based practice guidelines through nursing education to examine the effect of evidence on fall reduction.

#### **Objectives**

1. Educate registered nurses (RNs), Licensed Practical Nurses (LPNs), and Certified Nurse Assistants (CNAs) in the application of evidence based fall prevention guidelines
2. Successfully implement the guidelines in a for-profit long term care facility
3. Examine the application of evidence on fall reduction in a patient population vulnerable to falling
4. Reduce fall incidence in long term care by 20%

## **V. Evaluation Plan**

### **Logic Model**

Success in implementing the AHRQ fall prevention guidelines into long term care clinical practice was measured by evaluating pre- and post- education survey questionnaire scores, as well as, reducing falls in long term care by 20%. The number of falls prior to education/implementation are summarized and compared to the number of falls during and after education/implementation to determine whether evidence based practice significantly effects fall prevention in long term care. A Logic Model outlining current resources, inputs, activities, outputs, and expected outcomes is represented in Appendix C.

### **Population and Sampling Parameters**

A convenience sample of registered nurses, licensed practical nurses, and nurse assistants employed at the long term care facility who assess for fall risk and care for older adults at high risk for falling were recruited for the project. General parameters for participants were applied and included employment at the study site, direct care access to residents, responsible for the safety and well-being of residents. Forty-nine (49) nursing personnel or seventy-seven percent (77%) of the total nursing staff participated in completing the education and implmentating of the fall prevention guidelines in long term care thus, exceeding an adequate sample size of 25 participants as determined by a sample size estimate using a power of .08 and alpha of .05 (Polit, 2010, p.412).

### **Setting**

The selected site for the project was a 360-bed facility offering unique senior living options for the many transitions of aging including, independent living cottages, assisted living housing, short stay rehabilitation, long term health care,



## Implementation of Evidence Based Guidelines to Reduce Fall Risk

and memory care. The facility sits on a beautiful 15-acre mesa on the southwest edge of Wheat Ridge, Colorado and has been serving Colorado seniors and their families since 1963 (Senior Living, 2016, p.2). The center is owned and operated by American Baptist of the Midwest (ABHM), a not-for-profit provider of senior living and health care since 1930 (MV Senior Living, 2016, p.2).

For the purpose of this DNP Project, fall data from three individual long term care units with the greatest number of falls in the facility was gathered pre-education/implementation for baseline purposes, as well as, fall data throughout implementation to evaluate the effects of evidence based practice on fall risk reduction. The East, West, and Memory Care units serve one hundred and forty-six (146) older adults with an average of eighty (80) falls per month combined and 74% repeat falls over ninety (90) days.

Between the three long term care units, fourteen (14) residents fall repeatedly at a rate of five to eleven times every 90 days or 74% of the population is considered at risk for a repeat fall (Point Click Care Dataset, 2015). In the past twelve (12) months, only one resident suffered an injury that required hospitalization.

Residents of long-term and memory care fall primarily at the bedside during the day and evening hours every day of the week suffering minor and moderate contusions, abrasions, and skin tears. An estimated 45% of residents are prescribed anti-psychotropic medication for behavioral symptoms, 32% are

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

prescribed anti-hypertensive medication, and 12% diuretics to control symptoms associated with chronic disease (Point Click Care Dataset, 2015). Poor visual and hearing acuity, chronic disease, physical immobility, and cognitive decline makes this older adult patient population vulnerable to falling.

### **Methodology and Measurement**

The project employed a quasi-experimental study design, pre-education/intervention and post-education/ intervention evaluation using a convenience sample (N=49) of registered nurses, licensed practical nurses, and certified nurse assistants employed in a non-for-profit long term care facility serving older adults.

The Agency for Healthcare Research and Quality offers clinicians evidence based education modules and course content to detect changes in older adult condition, communicating changes in a residents condition to the appropriate persons, as well as, fall prevention and management to improve patient safety, quality of care, and resident outcomes in long term care facilities. The modules and course content are combined into one document to streamline the process and educate nurses on utilizing fall prevention guidelines to reduce fall risk. Case studies were created and imbedded into the module using real life scenerios to facilitate critical thinking and sound nursing judgment in nurses employed in long term care.

Based on the level of data collected, the following statistical tests and measurements were used to determine statistical significance of evidence based practice on fall reduction using SPSS:

- Descriptive statistics to describe the sample population and resident characteristics and to obtain a count of how many times each value was observed.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- Measures of central tendency to identify the most common score of a distribution (mode) and the mean (the basis for statistic) to estimate pre- and post education/intervention mean scores of the sample population.
- A *t* test to examine the difference between pre- education/intervention and post- education/intervention scores to measure the significance of evidence based practice guidelines on fall risk reduction.
- Number of resident falls and characteristics pre- education/intervention and post- education/intervention

### **Human Subjects Protection**

Study participants did not put their name on the questionnaires, so answers were anonymous. Every effort was made to protect the privacy and confidentiality of the sample by excluding personal identifiers (e.g., names, social security numbers, etc.). Any other confidential or proprietary records of residents were not included in the project data analysis except for number of falls, fall location, time of falls, gender and age, as well as, occurrence of fall events prior to education and during implementation.

The DNP investigator applied for and received approval from the Regis University Institutional Review Board as an Exempt Study per Categories #1 and #2 (surveys and study instruments). Data were de-identified, no individual patient data was used and only aggregate monthly fall reports were compared

### **Instrument Reliability and Validity**

No tests were run to test validity or reliability of the AHRQ evidenced based fall prevention guidelines or the questionnaires for this quality improvement project. The AHRQ fall

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

prevention guidelines were used with permission to translate evidence into clinical practice and to determine the significance of evidence based practice on fall reduction.

The Morse Fall Scale was adapted from Morse JM, Morse RM, Tylko, SJ. (1989) for its reliability to consistently and discriminantly analyze fall risk correctly 80.5% of the time (p.366). Please refer to Appendix B for a visual of the Morse Scale components and the Morse Fall Score to identify fall risk.

### **VI. Project Findings and Results**

#### **Description of the Sample**

##### **Objective One**

A convenience sample of forty nine (N=49) nursing personnel were recruited and consented to participate in completing the AHRQ guideline education, pre- and post- education questionnaires, and contributed to the implementation of the fall prevention guidelines into long term care clinical practice. An astounding seventy four percent (74%) of the sample population listed their position as nurse assistant, 24% RNs, and a mere 2% LPNs. Characteristics of the sample included 11 male participants (22.4%) and 38 female participants (78%) with an average age of 38 years (SD=12.9); and two individuals were 60 and 61 years of age, respectively. The sample as a whole was older than anticipated (M=37.6, SD=12.9).

Fifty seven (57%) percent of the sample population reported employment with the current employer less than five (5) years, 12.1% report employment fifteen (15) years or greater, and three individuals reported employment for 24 years with a significant variance ( $\sigma = 38.5$ ) in years employed. The majority of the sample population were nurse assistants (74%) who represented a dedicated workforce committed to improving resident safety and quality of care through evidence based fall prevention practice guidelines.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **Objective Two**

Seventy-seven percent (77%) of nursing personnel at the long term care facility participated in the education and implementation of the AHRQ Fall Prevention Guidelines for Long Term care. Aggregate pre- and post- education scores illustrated a 23.4% (SD=15.95) improvement. A paired sample *t* test was used to compare pre- and post- education mean scores revealed a significant difference between the pre- education score of 65.81% (SD=18.00) and the post- education mean score of 85.45% (SD=12.34),  $t(96) = 6.34$ ,  $p < .0001$ , 95% CI: -25.735 to -13.465 or -19.600 points higher post- education than pre- education scores.

### **Objective Three:**

From October 1, 2015 to December 31, 2015 two hundred five (205) falls occurred in the East, West, and Memory Care units combined. From January 1, 2016 to March 31, 2016 fall events decreased to one hundred twenty (120) or a fifty-nine percent (59%) decrease in falls overall. The successful implementation of the AHRQ fall prevention guidelines by the nurses in long term care resulted in a decrease in patient falls by 41% over ninety days. These results suggest nursing education based upon evidence positively effects fall reduction in long term care over a short period of time.

### **Limitations**

A move from one site (federal long term care facility) to another (community based long term care facility) delayed this DNP Project for nearly two years. The greatest challenge wasn't a lack of interest in fall prevention but rather developing trusting relationships with leaders, nursing staff, ancillary staff, and the older adult patient populations. Ultimately, working

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

partnerships were established and collaboration matured to change long term care standards of practice to evidence based practice.

Seventy-seven percent (77%) of nursing staff at the long term care facility participated in the education and implementation of the guidelines over 3 months. Within that timeframe, these competent nurses were able to reduce falls by 41%. If one hundred percent (100%) of nursing personnel participated and contributed to implementing guidelines in long term care, millions of dollars could be saved and project findings could be further validated and replicated in long term care to improve the quality of care, safety, and outcomes for older adults.

As previously noted, the Centers for Disease Control & Prevention estimates one fall related injury experienced by an older adult costs an average of \$35,00 including costs for primary and speciality care, medication, adaptive equipment, and rehabilitation (CDC, 2015, para.1). In contrast, this DNP Project is limited by the lack of dollars allocated to falls and fall related injuries suffered by older adults at the sponsor site to compare overall savings for this particular long term care facility.

Finally, many of the sample population of nurse assistants spoke English as a second language yet, this did not influence their ability to care for the residents nor their ability to interpret the value of guideline usage to reduce fall risk in a patient population vulnerable to falling.

### **Recommendations/Analysis**

Due to the fact, the guidelines and the questionnaires were not externally validated, it is recommended that the DNP candidate work in collaboration with Dr. Cheryl Kruschke and the Colorado Culture Change Coalition to evaluate the validity of the education module (guideline) content and items on the questionnaire and involve content experts in the field in this review.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Once reviewed, a reliability analysis should be conducted on the instrument. Additionally, it is recommended that learning circles be offered to nursing personnel who work in long term care to breakdown silos and improve communication, collaboration, and teamwork with the common goal to sustain the fall prevention program and older adult safety. With the support of the Colorado Culture Change Coalition and Dr. Cheryl Kruschke this project will continue to evolve and improve with validated project tools, a final product to the sponsor site, and the opportunity to build upon the evidence through replication; specifically, facilities owned and operated by the American Baptist Homes of the Midwest and ultimately, present the data at a national conference to demonstrate the application of evidence on fall reduction.

It is recommended every member of the team deserves to be valued, respected, and recognized for their contributions. Consistent communication about new resident fall risk, falls within the past twenty four hours, and the interventions outlined in the care plan must be given to each team member to adequately protect older adult safety and reduce their risk of falling in long term care.

It is recommended every team member should be encouraged to actively participate in the plan of care, serve on a fall committee, and share the responsibility for patient safety and fall prevention. Collaborative practice, building a culture of safety, and developing a patient centered care environment requires leadership to value each nurse in every role as an important member of the health care team.

Also, nurse executives in long term care facilities need to acknowledge nurse assistants are in a prime position to take a leadership role in older adult safety and fall prevention. Efforts to encourage championship roles need to include incentive awards, recognition at staff meetings,

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

and active participation in fall prevention and care planning in recognition of their value to the organization.

Finally, each care provider in every role has a responsibility for patient safety and fall prevention. Team work is essential to avoid and control falls in long term care especially in the current unit layout with centralized nurse stations and poor line of sight. Each nurse must actively participate in nursing rounds to prevent repeat falls and assist in ADL's in collaboration with nurse assistants to sustain a safe environment, reduce fall risk, and prevent falls in long term care.

### **Implication for Practice Change**

Evidence based fall prevention guidelines influence communication between nurses, inspires teamwork across every nursing role, and positively impacts collaboration amongst healthcare team members. This DNP Project has shown guideline usage in clinical practice improves resident safety and fall reduction in long term care. A group of dedicated nurses interested in practice change and evidence based practice readily implemented the AHRQ fall prevention guidelines to improve quality of care, safety, and resident outcomes for older adults and successfully reduced the number of resident falls by 41%.

According to Wright, et al., (2007), there are four required essentials to a successful fall prevention programs in long term care, "communication, transparency, accountability, and teamwork (p.42). Interestingly, the simple acts of teamwork, communicating policy and procedure, and disseminating care plans to coordinate care protected a high fall risk patient population from falling over ninety (90) days.

### **VII. Summary**

This quality improvement DNP Project has shown evidence based fall prevention guidelines positively influenced safety awareness among nurses in a single long term care setting



## Implementation of Evidence Based Guidelines to Reduce Fall Risk

and facilitated recognition of behavioral changes in older adults that could precipitate a fall and recognized that communicating these changes between providers results in meeting the Centers for Medicare and Medicaid Quality Assurance Performance Improvement initiative to implement measures to improve resident safety, quality of care and fall prevention in long term care.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

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**IX: List of Appendices**

**A. Morse Fall Scale**

Morse Scale	
Variables	Score
History of Falls	Yes (Score as 0).....__
	No (Score as 25).....__
Secondary Diagnosis	Yes (Score as 0).....__
	No (Score as 25).....__
Ambulatory Aide	Bed Rest (Score as 0).....__
	Crutches/Cane/Walker (Score as 15).....__
	Furniture (Score as 30).....__
IV or IV Access	Yes (Score as 20).....__
	No (Score as 0).....__
Gait	Normal/Bed Rest/Immobile (Score as 0)....__
	Weak (Score as 10).....__
	Impaired (Score as 20).....__
Mental Status	Knows Own Limits (Score as 0).....__
	Forgets Limits (Score as 15).....__
<b>Total Score</b>	

A Morse Fall Score is generated to guide interventions associated with fall risk. Fall risk assessment tools by themselves do not prevent falls, they only predict them (Morse, et al, 1989, p.266).

Morse Score		
Risk Level	Score	Intervention
No Risk	0-24	Basic Nursing Care
Low to Moderate Risk	25-45	Standard Fall Precautions in CPRS
High Risk	46+	Nursing Rounds, Observation
Extreme Risk	60+	Fall Prevention Guidelines

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### B. Fall Prevention Guidelines

Nurses play a vital role in improving the safety and quality care of their patient's. Fall prevention guidelines offer nurses a process to evaluate and intervene on behalf of the older adult who is assessed as high fall risk. Fall risk assessment is accomplished using the Morse Fall Scale to assess a patient's likelihood of falling based upon five separate fall risk factors.

Morse Scale	
Variables	Score
History of Falls	Yes (Score as 0).....__
	No (Score as 25).....__
Secondary Diagnosis	Yes (Score as 0).....__
	No (Score as 25).....__
Ambulatory Aide	Bed Rest (Score as 0).....__
	Crutches/Cane/Walker (Score as 15).....__
	Furniture (Score as 30).....__
IV or IV Access	Yes (Score as 20).....__
	No (Score as 0).....__
Gait	Normal/Bed Rest/Immobile (Score as 0)....__
	Weak (Score as 10).....__
	Impaired (Score as 20).....__
Mental Status	Knows Own Limits (Score as 0).....__
	Forgets Limits (Score as 15).....__
<b>Total Score</b>	

A Morse Fall Score is generated to guide interventions associated with fall risk. Remember: Fall risk assessment tools by themselves do not prevent falls, they only predict them.

Morse Score		
Risk Level	Score	Intervention
No Risk	0-24	Basic Nursing Care
Low to Moderate Risk	25-45	Standard Fall Precautions in CPRS
High Risk	46+	Nursing Rounds, Observation
Extreme Risk	60+	Fall Prevention Guidelines

**Intrinsic Risk Factors:**

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Physiological factors associated with falling includes lower extremity weakness, poor grip strength, balance disorders, functional, and cognitive impairment, and visual and hearing defects (American Geriatrics Society, 2001, p.664).

### **Extrinsic**

Non-physiological or environmental factors for falling include four or more prescribed medications that increase fall risk (poly-pharmacy), poor lighting, loose carpets or rugs, and lack of safety equipment (American Geriatrics Society, 2001, p.664).

### **Standard Fall Precautions (Morse Score 45-59):**

These interventions (standard fall precautions) should be present for all patients regardless of risk of falling:

- Familiarize the patient to the environment
- Have the patient "teach back" all light use
- Keep the call light within reach at all times
- Keep patient's personal possessions within reach
- Have sturdy handrails in patient bathrooms, room and hallway
- Keep hospital bed in low position with brakes locked
- Provide non-slip, well-fitting footwear for the patient
- Utilize night light or supplemental lighting
- Keep floor surfaces clean and dry. Clean up all spills promptly
- Keep patient care areas uncluttered
- A staff member must remain with the patient when assisted to the bathroom
- Perform intentional nursing rounds at least hourly

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- Transfer belts should be available at the bedside or use overhead lift
- Use chair or bed alarm consistently

The question for all hospital staff assessing a patient is "Will this patient fall?" Staff members include physicians, nurses, nursing assistants, transport aides, and support staff. In answering this question, current available literature suggests falls risk prediction can be condensed to three elemental questions:

- Has the patient fallen in the last year?
- Does the patient look like he/she is going to fall? In other words, does the patient have a clinically detectable abnormality of gait or balance?
- Does the patient have any additional risk factors for an injurious fall?

Regard the following groups of patients below as fall risk:

- Patients aged 65 years or older
- Patients aged 50 to 64 years who are assessed by a clinician to be at higher risk of falling because of an underlying condition

### **Multi-Factorial Falls Risk Assessment**

Older people who present for medical attention because of a fall, or report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should be offered a multi-factorial fall risk assessment. This assessment should be performed by a Registered Nurse with the appropriate skills and experience. This assessment should be part of individualized multi-factorial interventions.

Multi-factorial assessment may include the following:



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- Identification of falls in the last year – most consistent predictor
- Assessment of fall history, including causes and consequences (such as injury and fear of falling)
- Assessment of gait, balance, mobility, and muscle weakness
- Assessment of osteoporosis risk
- Assessment of the older person's perceived functional ability and fear of falling
- Deficits in activities of daily living
- Assessment of visual/hearing impairment
- Assessment of cognitive impairment
- Assessment of urinary urgency, frequency, and incontinence
- Assessment of environmental hazards
- Vital signs and examination, medication review

### **Definitions & Interventions**

All older people with recurrent falls or assessed as being at increased risk of falling should be considered for individualized multi-factorial interventions. Ensure that any multi-factorial assessment identifies the patient's individual risk factors for falling in a long term care setting that can be treated, improved or managed during their residence.

### **Definition of Cognitive Impairment:**

Delirium has many synonyms, including acute confusion, altered mental status, reversible dementia, and organic brain syndrome. All patients over the age of 65 years on admission, regardless of admitting diagnosis, should be assessed for both dementia and delirium. Geriatric patients with acute illnesses are known to be at a higher risk of falling. Recognition of delirium

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

is particularly important as a modifiable risk factor for falls and an interdisciplinary approach is needed to screen patients.

Dementia includes a diagnosis of Alzheimer's disease, vascular dementia, and other associated neurological disorders. Such patients normally have slower reaction times and demonstrate impaired judgment. In addition, these patients often have impaired mobility, have poor baseline functional status, impaired strength, and are at higher risk for significant poly-pharmacy, all of which are known to place patients at higher risks for falls.

### **Intervention for Cognitive Impairment:**

Maintain consistency in procedures, routines and schedules, and staff allocation. Identify possible triggers for agitated, impulsive behavior, such as a particular medication, time of day, infection or loud noise, and minimize them when possible. Encourage residents to participate in physical and recreational therapies to develop a plan to maximize orientation, awareness and function, and to determine whether gait aids are needed and used appropriately, safely, and correctly.

### **Case Study #1:**

Mr. D is a 67-year old male admitted to your long term care facility for traumatic brain injury following a fall at home due to loss of lower extremity strength. Mr. D has a history of substance abuse, is Hepatitis C positive, and presents with wandering, disorganization, behavioral disturbance, and communicates with grunting and hand gestures. He has a history of falling and has been found down in his community at least 2 separate times before his arrival. He has no known family, is divorced from his wife, and is estranged from his three grown children. Medication review has been done; ambulatory and mobility aides evaluated; multiple

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

diagnostic studies completed; inter-professional collaboration initiated yet, Mr. D shows no signs of improvement.

1. Which factors place Mr. D at greatest risk for falling?
2. What facts would you communicate about Mr. D at hand off?
3. What changes would you record and report, and to whom?
4. What fall prevention interventions would be most beneficial to Mr. D? Be creative.

### **Interventions for Continence Problems:**

Intentional timed rounding by nursing staff is best practice utilized in a number of better performing fall prevention protocols. Sometimes known as safety rounding, it is a strategy allowing nurses to monitor for changes in the patient's condition. Studies have shown that 45.2% of all falls were toileting related. By implementing hourly rounding and incorporating toileting assistance, long term care facilities have been able to reduce their falls by 60% in one year. The nursing professional team shares the responsibility of these rounds and finds that shifts are quieter and more organized, allowing time for charting and patient and family education.

Components of the hourly safety and comfort rounds may include:

- Assessment of pain level
- Offering toileting assistance
- Re-positioning and comfort
- Patient belongings, call light, telephone, television remote, urinal, etc. within reach
- Dressing checks
- Water refreshed and offered

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- Lighting and temperature of room
- Checking room for environmental and hazardous concerns
- Asking the final question, "Is there anything else I can do for you?"
- Making arrangements for a time to return
- These measures are often referred to as The P's – position, plan assessment, personal needs, periphery, and placement.

### **Definition of Impaired Mobility:**

Impaired mobility has been identified as being a risk factor for falling. This includes impaired gait, weakness, decreased lower extremity mobility, and decreased coordination and balance.

The literature also suggests that patients who fell were more likely to have been using an assistive device. Physical assessment of the patient's mobility is an important factor in the identification of patients at risk for falling.

### **Intervention for Impaired Mobility:**

Interventions should be interdisciplinary in nature. Exercise reduces the rate of falling in older people. Decreased muscle strength, impaired mobility and gait are some common risk factors that help predict falls. These risk factors can be modified by an exercise program prescribed by an exercise therapist or a restorative nurse. The following interventions have been employed by long term care facilities to reduce falls rates:

- Patients should wear their shoes or non-skid footwear
- Physical and recreational therapy to encourage engagement and exercise
- Instruct the patient to rise slowly
- Regular assistance with ambulation to the dining room or bathroom
- Repeated education of safety measures to the patient and family members

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- Assist high-risk patients with transfers
- Use of patient's regular assistive device such as a walker or cane, or other equipment
- Regularly scheduled assistance with toileting
- Provide supportive chairs with armrests
- Apply hip protectors to patients at high risk for hip fracture
- Adequate day time and night time lighting for ambulation and activities of daily living
- Use of elevated toilet seats
- Use of a gait belt or transfer belt during mobility activities

### **Case Study #2:**

Mr. J is a 64-year-old male who has been a resident of your long term care facility for the past 3 years. He has moderate dementia and his blood pressure falls when he stands up too fast, making him dizzy. Until recently, his wife visited him every other day but suddenly and unexpectedly passed away the previous week. Since his wife's passing he is more depressed and is having trouble sleeping; he fell asleep sitting up in a wheelchair this afternoon for lunch. On admission, Mr. J used a walker for mobility but in the past 10 days he has needed a wheelchair and he is less able to do his own toileting and grooming. His safety awareness is poor and he had a fall yesterday during the night when he tried to get up out of bed looking for his wife. Mr. J is less interactive, sleeps during the day, and prefers to stay in bed.

1. What are Mr. J's risks for falling?
2. How might you protect him from an injurious fall during the night?
3. What support do you think would benefit Mr. J?
4. What will you communicate about Mr. J and to whom?

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **Definition of High Fall Risk Medications:**

Over half of all patients with a serious fall event were taking one or more types of medications known to increase falls risk within 24 hours of their fall. Several drugs are associated with increased risk for falls in patients of all ages. Agents that have been associated with falls are anticonvulsants, antidepressants, antipsychotics, benzodiazepines, Class 1A antiarrhythmic, digoxin, opiates and sedative hypnotics. A subset of patients at risk include the elderly population, who are more prone to adverse effects of medications due to changes in metabolism and slowed clearance from renal and hepatic impairment. In addition, drug interactions leading to adverse effects by additive or synergistic effects may be more prevalent in elderly people as they are often on multiple medications. **Patients on four or more drugs are at greater risk of falls and a pharmacist should be consulted.**

### **Interventions for High Fall Risk Medications:**

#### **Sleep Hygiene**

- Assess patient's need for sleep aid
- Assess patient's past methods of falling asleep and past use of medications and/or non-pharmacological methods to induce sleep
- Assess the nurse assistant and support staff members' knowledge on use of sedatives for patients
- Review standardized order sets for individualized need of any sedative/hypnotic ordered for patient. Consider removal of sedative/hypnotic on order set
- Consider non-pharmacological versus pharmacological interventions to aid in enhancing sleep

#### **Medication Assessment and Adjustments**

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- Complete medication assessment; if greater than 4 high fall risk medications consult the physician and/or pharmacist
- Recognize the medications that will increase patient injury (anticoagulants)
- Discontinue unnecessary medications
- Medications with overlapping side effects that result in confusion and sedation should be reevaluated and altered

### **Case Study #3:**

Mr. P is a 79-year old male in a weakened condition was transferred to your facility after a fall at home that resulted in a hip fracture. Mr. P is 6 weeks post right hip athroplasty and after a short stay in acute rehab, he is still unable to manage unassisted. His family cannot take care of him due to his disability and are inquiring about long term care. Mr. P walks with difficulty using a walker and complains of pain with each step; he needs help with activities of daily living and has recently become incontinent. Mr. P also has several medical conditions such as high blood pressure, diabetes, and congested heart failure and is prescribed multiple medications for his chronic conditions. Mr. P is depressed, declines to participate in unit activities, and repeatedly requests to go home. Today you notice Mr. P is agitated and is trying to get out of bed, his feels warm to the touch and grimaces in pain.

1. What changes are you noticing in Mr. P?
2. How can you protect Mr. P from falling?
3. What intervention will you use?
4. What will you communicate about Mr. P. and to whom?

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### **Definition of Environmental Hazards:**

Physical hazards are often involved in patient falls. An environmental assessment or checklist can often identify modifiable risk factors to falls, such as floor mats, lack of handrails in bathrooms, poorly anchored rugs or clutter.

### **Interventions to Address Environmental Hazards:**

Facility management, nursing and biotech staff should perform environmental rounds to confirm that hallways and patient areas are well lit, uncluttered and free of spills — also that locked doors are kept locked when unattended, handrails are secure, and tables and chairs are sturdy. Biotech staff should inspect assistive devices regularly. Nursing staff should confirm that patient rooms are set up in a way that minimizes the risk of falling. All staff should make sure that unsafe situations are dealt with immediately.

### **Observation, Surveillance, and Watching for Change:**

The key to watching for change is always to be watching and recognizing a change or variation in the patient's baseline. Make every effort to watch your patients at all times. Check in with your patients often, ask how they are, and watch them during their daily living activities. Take special care with patients with dementia to get to know their baseline because changes for these patients can be sudden and they may not be able to tell you what is wrong.

Always talk with your co-workers who provide care for your patients to discuss changes in patient behavior to see if they noticed it too and begin to dig deep into the underlying cause.

Here are some examples how you can watch for the Top 12 changes.

### **Physical Changes:**

- **Walking** – If the patient needs assistance, watch how much assistance is needed for walking. Watch to see if the patient changes mode of transportation (walking to



## Implementation of Evidence Based Guidelines to Reduce Fall Risk

wheelchair) or when they walk the hallway to see if the guardrails are used more than usual.

- **Urination and Bowel Problems** – Notice if your patient is incontinent of urine or stool or if urination is more frequent, smells different or if constipated or change to diarrhea.
- **Skin** – While bathing and dressing the patient, look to see if the patient's skin is discolored or puffy
- **Level of Weakness** – Watch when your patient raises his arms while eating, during activities or while performing personal hygiene to see if it's more difficult than usual.
- **Falls** – Watch the patient when doing something that could result in a fall, e.g., reaching for an object when in wheelchair
- **Vital Signs** – Record and report a patient's blood pressure and heart rate and look for any changes breathing and temperature

### Non-Physical Changes

- **Demeanor** – Observe the patient to see if he/she is socializing less or participates in activities less than usual
- **Appetite** – Observe the patient during meals to look for a lack of interest in meals or food
- **Sleeping** – Observe during the day to see if your patient falls asleep sitting up or in unusual places
- **Speech** – Talk to your patient to see if speech is slurred
- **Confusion or Agitation** – Watch for new fidgeting. When approaching for usual care ask structured questions to see if talking less or more

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

- **Complaints of Pain** – When transferring your patient, look to see if grimacing or wincing

All patients admitted to long term care need to be monitored and reassessed on a regular basis. Due to the likelihood of ongoing changes, patients should be continuously reassessed and observed even though they may not be in a high-risk falls group. Routine reassessment and observation should occur at shift change, with a change in the patient's clinical status, at hand off, and following an inpatient fall.

### **Communication of Fall Risk Factors**

Identify those at risk by placing visual identifiers such as signs on room, bathroom, and shower, posters, electronic medical record, bed management system, charge nurse report form. Members of the health care team, in all departments, should be educated in recognizing these cues. Also all family and visitors should be educated in recognizing and understanding the identifiers and be aware of how to obtain help from appropriate staff.

Patient-specific falls risk status must be identified clearly to alert all staff handling the patient and anyone entering the room. Icons can be very helpful for health care clinicians to identify what a patient's risks may be, but they need to be communicated by all staff and agreed upon to be effective. Optimizing use of visual cues (i.e., assist of two for transfers, needs assistive device, history of falls) by members of the health care teams to clearly alert all staff of a patient's specific falls risk is important for follow-through and to facilitate immediate recognition and interpretation.

### **Case Study #4:**

Mr. T is an 81-year old male who was scheduled for an outpatient cardiac catheterization due to intermittent chest pain for the past two weeks. He is legally blind, fairly independent, walks with

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

a steady gait and a walking stick. Mr. T has a history of hypertension, cardiac disease, arthritis, and prostate cancer that is in remission. Mr. T returns to your long term care facility and you notice bleeding at the puncture site and his blood pressure is lower than his baseline. Throughout the evening and into the night Mr. T reports nausea, dizziness, and his blood pressure continues to fluctuate between 108/68 and 92/60. He informs his wife in the am he had a restless night and wants to go home.

1. What changes should the nurse assistant report to the RN?
2. Who else should have the information?
3. What interventions should the staff implement to avoid Mr. T from falling?
4. What is one of Mr. T's greatest risk factor for fall related injury?

### **Communication to Members of the Health Care Team Who Come in Contact with the Patient**

The goals of communication are seamless transition of patient information from one unit to another and one caregiver to another. **Situation Background Assessment Recommendations (SBAR)** is often adopted to improve communication about a resident's status. SBAR is a standardized approach to hand off communication that consists of specific patient cognitive and physical needs and a mechanism to improve communication and interaction between nurses, long term care facilities, and clinical sites.

A transport procedure checklist using SBAR documents the information for transfer of the patient and responsibility for care from one unit and caregiver to another. The SBAR checklist needs to be completed and signed by a registered nurse before a patient can leave the unit. Such a

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

checklist should include the falls risk status and recommendations such as "Do not leave the patient unattended." If the patient should not be left alone, please send a nurse assistant with the patient to support patient safety.

It is critical that all patients at high risk for falls are known and evident to everyone when the patient is being transported to other units within the facility. It is imperative that someone is assigned the leadership role to enforce accountability of staff and follows through to the next person in contact with the patient.

### **Communication to Patients and Families**

- Notify patient and family of fall risk upon admission and as risk changes
- Describe the organization's fall prevention program and educate the patient and family in recognizing and understanding visual identifiers
- Clarify reasonable expectations of the organization
- Discuss how the patient and family members can assist with fall prevention and when/how to contact staff when necessary
- Document evidence of patient education regarding falls risk and the patient and family members understanding of the risk and preventive measures
- Promptly addresses the patient's identified individual risk factors for falling
- Takes into account whether the risk factors can be treated, improved or managed
- Take into account aspects of the resident environment (including flooring, lighting, furniture and fittings such as hand holds) that could affect a patient's risk of falling
- Do not offer fall prevention interventions that are not tailored to address the resident's individual risk factors for falling

### **Information and Support**

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Provide relevant oral and written information and support for residents and their family members. Take into account the residents ability to understand and retain information.

Information should include:

- Show the patient how to use the nurse call system and encouraging them to use it when they need help
- Inform family members about when and how to raise and lower bed rails
- Provide consistent messages about when a patient should ask for help before getting up or moving about
- Help the patient to engage in any multi-factorial intervention aimed at addressing their individual risk factors
- Ensure that relevant information is shared across nursing services

### **Strength and Balance Training**

Strength and balance training is recommended for most older adults living in the community with a history of recurrent falls and/or balance and gait deficits. A muscle-strengthening and balance program should be offered. This should be individually prescribed and monitored by an appropriately trained professional.

### **Exercise in Long Term Care Settings**

Exercise is recommended for older adults in long term care who are at risk of falling.

Restorative programs, gait training, and recreational therapy can offer stimulation, socialization, and interactive cooperation. Benefits of exercise in older adults in long term care is lacking.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### C. Exemplar of Literature Review

#### Primary Sources:

- Health Management Database (ProQuest)
- Cumulative Index of Nursing and Allied Health Literature (CINAHL)
- Centers for Disease Control & Prevention
- Agency for Healthcare Research & Quality

#### Number of Sources:

- Seven
  - Two federal agencies
  - Five journal articles

#### Critique of Sources:

- Implementation of best practice in fall prevention is a team effort, requires consistency, and active participation in the fall prevention program.
- Recognize high fall risk individuals early
- Tailor interventions influenced by a range of evidence in order to facilitate evidence based practice in real life settings
- Translate evidence and transfer knowledge to the clinical setting

Evidence suggests long-term care fall prevention programs require interdisciplinary, multi-factorial, and multidimensional approaches to effectively address and prevent fall risk in vulnerable populations. Interventions must be planned and implemented consistently to tackle specific fall risks including environmental, physiological, and psychosocial factors and routinely update, disseminate, and report data to sustain older adult safety. Finally, communication,

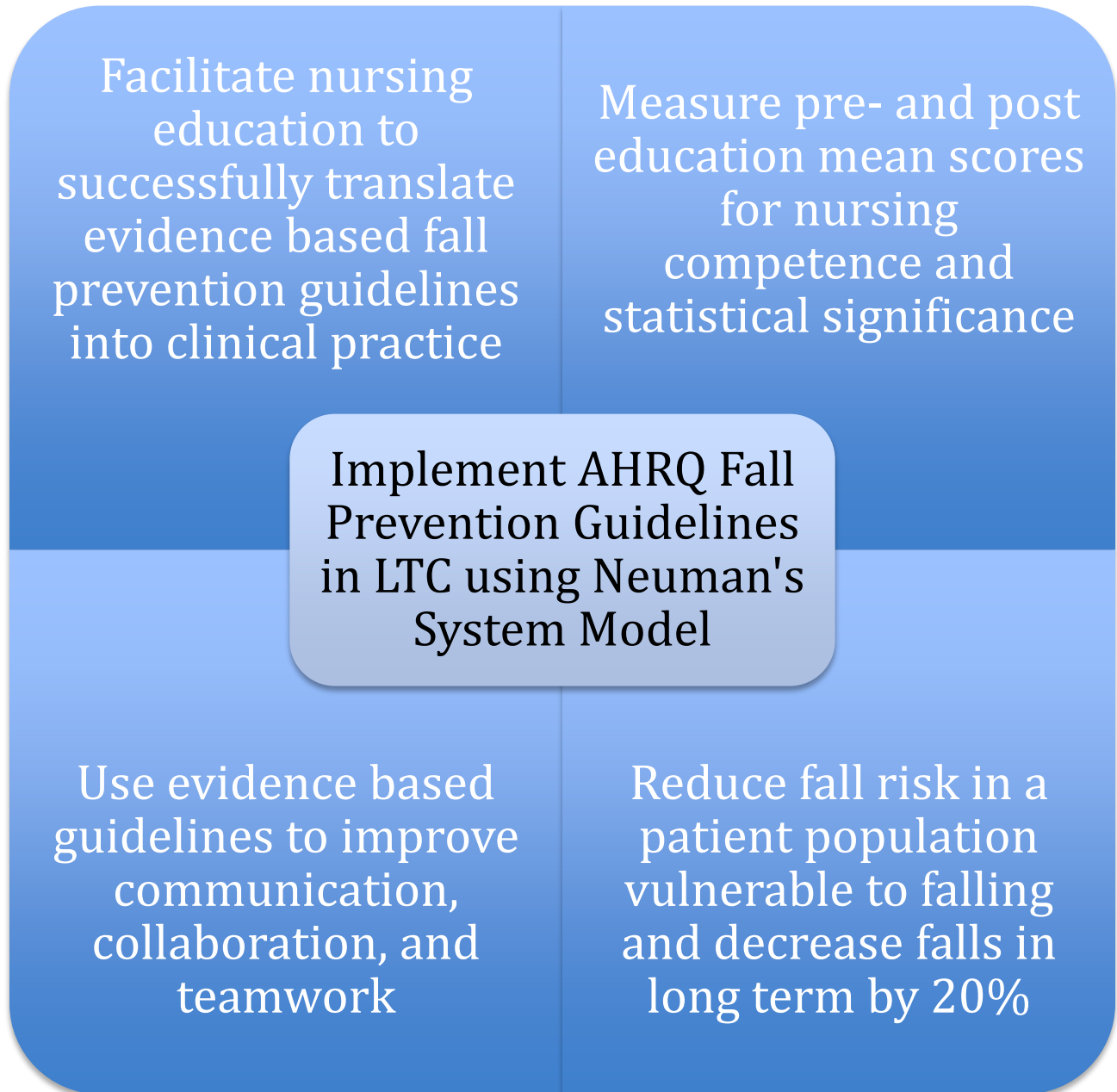
## Implementation of Evidence Based Guidelines to Reduce Fall Risk

collaboration, transparency, and teamwork are essential to building a culture of safety in long-term care.

### D. Logic Model

Resources	Inputs	Activities	Outputs	Outcomes
<b>Executive leadership support</b> <b>Staff Development Coordinator support</b> <b>CMS QAIP initiative</b> <b>Eager nurse assistants interested in safe and quality care</b> <b>Interdisciplinary team approach</b>	<b>Level of evidence supports efficiency of guidelines</b> <b>Nursing collaboration and engagement in evidence based practice</b> <b>Active nursing participation in education and guideline implementation</b> <b>Evidence based guidelines proven to decrease fall risk</b>	<b>Deliver and educate nurses in implementing evidence based guidelines in LTC</b> <b>Facilitate critical thinking to address fall risk and plan of care</b> <b>Develop methods to improve communication and teamwork</b> <b>Develop interdisciplinary fall prevention team to include patient and family members</b>	<b>Nursing competence in translating evidence into daily long term care clinical practice</b> <b>Improvement in communication, coordination of care, and teamwork between staff members</b> <b>Reduce fall risk and fall related injuries</b> <b>Facilitate a safe and supportive working environment</b>	<b>Improve nursing practice</b> <b>Improve resident safety</b> <b>Improve resident outcomes</b> <b>Improve resident and family satisfaction</b> <b>Improve nursing satisfaction</b> <b>Improve quality of care (life) for residents</b> <b>Improve return on Investment (reimbursement)</b>

**E. Conceptual Diagram**





## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### F. Measurement Tools/Instruments

#### Pre-Education Questionnaire

**Please take a few minutes to complete this survey to understand basic characteristics about you, evaluate your baseline knowledge of fall prevention guidelines, as well as, your current fall prevention practice. Thank for your participation and interest in patient safety and fall prevention.**

1. What is gender? Male    Female
2. What is your age?        \_\_\_\_\_
3. What is your job?        \_\_\_\_\_
4. How long have you worked here?        \_\_\_\_\_
5. Are you a permanent employee?        Yes    No
6. Are you paid by a staffing agency?        Yes    No
  
7. Please describe three desired behaviors you can exercise to protect your patient from falling?
8. Name 4 physical changes you should watch for while caring for a patient at risk for falling?
9. Name 4 non-physical changes you should watch for while caring for a patient at risk for falling?
10. What interventions would you implement for your patient taking high fall risk medications?  
  
Name at least 3 interventions and who you'd communicate with regarding high fall risk medication?
11. Define impaired mobility. Identify 4 interventions to protect your patient with impaired mobility from falling.
12. Do you think you can easily incorporate fall prevention guidelines into your current practice?
  - a. Yes, please explain
  - b. No, please explain
13. What barriers do you anticipate to implementing fall prevention guidelines at Mountain Vista?
14. In your opinion, what advantages do you see to using evidence based fall prevention guidelines compared to standard of care/standard fall precautions?
15. Please share any additional information, ideas, or comments. Thank you for your participation.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### Post-Education Questionnaire

**Please take a few minutes to complete this post-education survey to evaluate your knowledge using evidence based fall prevention guidelines. Thank for your participation and interest in patient safety and fall prevention.**

1. Please describe three desired behaviors you can exercise to protect your patient from falling?
2. Name 4 physical changes you should watch for while caring for a patient at risk for falling?
3. Name 4 non-physical changes you should watch for while caring for a patient at risk for falling?
4. What interventions would you implement for your patient taking high fall risk medications?  
Name at least 3 interventions and whom you'd communicate with regarding high fall risk medication?
5. Define impaired mobility. Identify 4 interventions to protect your patient with impaired mobility from falling.
6. Do you think you can easily incorporate fall prevention guidelines into your current practice?
  - c. Yes, please explain
  - d. No, please explain
7. What barriers do you anticipate to implementing fall prevention guidelines at Mountain Vista?
8. In your opinion, what advantages do you see to using evidence based fall prevention guidelines compared to standard of care/standard fall precautions?
9. Please share any additional information, ideas, or comments. Thank you for your participation.

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

### G. Timeframe

- Baseline Data: Number and characteristics of LTC fall events (pre-education/implementation)
- Guideline Education/Pre- and Post- Surveys: January 4, 2016 – January 18, 2016
- Guideline Implementation: January 15, 2016 - March 31, 2016
- Interventional Data: January 1, 2016 – March 31, 2016

### H. Budget and Resources

The cost to complete this project include hours allocated to the literature review, creating the study tools, purchasing supplies, delivering the guideline education and questionnaires to long term care nursing staff, as well as, travel to and from the participating site and collecting, scoring, and analyzing the data in SPSS.

<b>DNP Project Budget</b>		
<b>Personnel: DNP Student Hours (\$52.50/Hour)</b>	Amount	Sub-Total
Creating Pre- Post- Education Materials	44 Hours	\$2300
Deliver Education & Questionnaires	86 Hours	\$4515
Coding & Analyzing Data	22 Hours	\$1155
Presentation	16 Hours	\$840
Total Personnel Expenses		\$8810
<b>Total Direct Expenses</b>		

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

Copying materials, supplies		\$85
<b>Total Travel Expenses</b>		
Domestic Travel to & from LTC facility	80 Miles	\$120
<b>Total Expenses</b>		\$9015

# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## I. IRB Approval Letters:



IRB – REGIS UNIVERSITY

January 4, 2016

Susan Jacquez  
1001 South Tejon Street  
Denver, CO 80223

**RE: IRB # 15-292**

Dear Ms. Jacquez:

Your application to the Regis IRB for your project, "Implementation of Fall Prevention Guidelines to Reduce Fall Risk in Older Adults", was approved as an exempt study on December 25, 2015. This study was approved per exempt study category of research 45CFR46.101.b(#2).

The designation of "exempt" means no further IRB review of this project, as it is currently designed is needed.

If changes are made in the research plan that significantly alter the involvement of human subjects from that which was approved in the named application, the new research plan must be resubmitted to the Regis IRB for approval.

Sincerely,

A handwritten signature in blue ink that reads "Patsy Cullen".

Patsy McGuire Cullen, PhD, CPNP-PC  
Chair, Institutional Review Board  
Professor & Director  
Doctor of Nursing Practice & Nurse Practitioner Programs  
Loretto Heights School of Nursing  
Regis University

3333 Regis Boulevard, H-4, Denver, CO 80221-1099  
REGIS.EDU | O 303-458-4206 | F 303-964-5528 | E [oag@regis.edu](mailto:oag@regis.edu)

# Implementation of Evidence Based Guidelines to Reduce Fall Risk



4800 Tabor Street, Wheat Ridge, Colorado 80033 • 303-421-4161 • Fax: 303-424-6152

Mountain Vista Health Center • Vista Village Assisted Living • Vista Village Independent Living

Date: September 30, 2015

To: Regis University  
3333 Regis Blvd  
Denver, Colorado 80221

From: American Baptist Homes of the Midwest  
c/o Mountain Vista Senior Living Community  
4800 Tabor Street  
Wheat Ridge, Colorado 80033

Re: Susan E Jacquez RN DNPc  
Capstone Project

This letter is written as proof of agreement for Mountain Vista Senior Living Community in Wheatridge, Colorado to actively participate in the Capstone Project of Susan E Jacquez RN DNPc, "Translating Evidence Based Fall Prevention Guidelines into Clinical Practice to Reduce Fall Risk in a Patient Population Vulnerable to Falling."

Mountain Vista Senior Living Community agrees to disclose and grant access to post fall information/ data three (3) months pre-guideline implementation and up to thirty (30) days post implementation to determine the statistical significance of evidence based practice on fall prevention. Mountain Vista Senior Living Community also agrees to grant all available nursing staff time to complete required education, respond to surveys, and implement the guidelines over a 90 day period. It is our understanding no personal identifiers will be used for either residents or staff.

Finally, Mountain Vista Senior Living Community concurs with the prospect of Susan E Jacquez RN DNPc publishing her findings in a nursing journal.

We look forward to working with Susan to translate evidence into clinical practice to improve patient safety, quality of care and outcomes.

Cordially,

Mary Sawyer, RN Director of Nursing

Marge McConnell BSN, NHA, RDO

## J. CITI Training Certification

# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI) HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 11/11/2014

**LEARNER** Susan Jacquez (ID: 4511003)  
1055 Clermont Street  
Denver  
CO 80220  
United States

**DEPARTMENT** Nursing  
**PHONE** 303-399-8020 Ext. 3133  
**EMAIL** susan.jacquez@va.gov  
**INSTITUTION** Regis University  
**EXPIRATION DATE** 11/10/2017

### SOCIAL BEHAVIORAL RESEARCH INVESTIGATORS AND KEY PERSONNEL

**COURSE/STAGE:** Basic Course/1  
**PASSED ON:** 11/11/2014  
**REFERENCE ID:** 14551423

REQUIRED MODULES	DATE COMPLETED
Belmont Report and CITI Course Introduction	11/11/14
History and Ethical Principles - SBE	11/11/14
The Federal Regulations - SBE	11/11/14
Assessing Risk - SBE	11/11/14
Informed Consent - SBE	11/11/14
Privacy and Confidentiality - SBE	11/11/14
Regis University	11/11/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.  
Professor, University of Miami  
Director Office of Research Education  
CITI Program Course Coordinator

# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

### HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 11/15/2014

**LEARNER** Susan Jacquez (ID: 4511003)  
1055 Clermont Street  
Denver  
CO 80220  
United States

**DEPARTMENT** Nursing

**PHONE** 303-399-8020 Ext. 3133

**EMAIL** susan.jacquez@va.gov

**INSTITUTION** Denver, CO-554

**EXPIRATION DATE** 11/14/2016

#### VA HUMAN SUBJECTS PROTECTION AND GOOD CLINICAL PRACTICES

**COURSE/STAGE:** Refresher Course/2

**PASSED ON:** 11/15/2014

**REFERENCE ID:** 14551435

REQUIRED MODULES	DATE COMPLETED
GCP Update Course: Module 1, Good Clinical Practices for VA Staff	11/15/14
GCP Update Course: Module 2, Accountability	11/15/14
GCP Update Course: Module 3, Informed Consent	11/15/14
GCP Update Course: Module 5, Documentation	11/15/14
GCP Update Course: Module 6, Privacy and Confidentiality	11/15/14
GCP Update Course: Module 7, Application of GCP Concepts	11/15/14
ELECTIVE MODULES	DATE COMPLETED
Biomed Refresher 1 – History and Ethical Principles	11/15/14
Biomed Refresher 1 – Regulations and Process	11/15/14
Biomed Refresher 1 – Informed Consent	11/15/14
Biomed Refresher 1 – SBR Methodologies in Biomedical Research	11/15/14
Biomed Refresher 1 – Records-Based Research	11/15/14
Biomed Refresher 1 – Genetics Research	11/15/14
Biomed Refresher 1 - Populations in Research Requiring Additional Considerations and/or Protections	11/15/14
SBE Refresher 1 – History and Ethical Principles	11/15/14

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Paul Braunschweiger Ph.D.  
Professor, University of Miami  
Director Office of Research Education  
CITI Program Course Coordinator



# Implementation of Evidence Based Guidelines to Reduce Fall Risk

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI) THE RCR FOR SOCIAL & BEHAVIORAL CURRICULUM COMPLETION REPORT Printed on 11/15/2014

**LEARNER** Susan Jacquez (ID: 4511003)  
1055 Clermont Street  
Denver  
CO 80220  
United States

**DEPARTMENT** Nursing

**PHONE** 303-399-8020 Ext. 3133

**EMAIL** susan.jacquez@va.gov

**INSTITUTION** Regis University

**EXPIRATION DATE** 11/14/2017

**THE RCR FOR SOCIAL & BEHAVIORAL :** This course is for investigators, staff and students with an interest or focus in **Social and Behavioral** research. This course contains text, embedded case studies AND quizzes.

**COURSE/STAGE:** RCR/1  
**PASSED ON:** 11/15/2014  
**REFERENCE ID:** 14551424

REQUIRED MODULES	DATE COMPLETED
Authorship (RCR-Refresher)	11/12/14
Collaborative Research (RCR-Refresher)	11/12/14
Conflicts of Interest (RCR-Refresher)	11/12/14
Data Management (RCR-Refresher)	11/12/14
Peer Review (RCR-Refresher)	11/12/14
Research Misconduct (RCR-Refresher)	11/15/14
Mentoring (RCR-Refresher)	11/15/14
Research Involving Human Subjects (RCR-Refresher)	11/15/14
Using Animal Subjects in Research (RCR-Refresher)	11/15/14

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Paul Braunschweiger Ph.D.  
Professor, University of Miami  
Director Office of Research Education  
CITI Program Course Coordinator

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)  
CITI CONFLICTS OF INTEREST CURRICULUM COMPLETION REPORT**

Printed on 11/11/2014

**LEARNER** Susan Jacquez (ID: 4511003)  
1055 Clermont Street  
Denver  
CO 80220  
United States

**DEPARTMENT** Nursing

**PHONE** 303-399-8020 Ext. 3133

**EMAIL** susan.jacquez@va.gov

**INSTITUTION** Regis University

**EXPIRATION DATE** 11/10/2018

**CONFLICTS OF INTEREST**

**COURSE/STAGE:** Stage 1/1

**PASSED ON:** 11/11/2014

**REFERENCE ID:** 14551425

REQUIRED MODULES	DATE COMPLETED
CITI Conflict of Interest Course - Introduction	11/11/14
Financial Conflicts of Interest: Overview, Investigator Responsibilities, and COI Rules	11/11/14
Institutional Responsibilities as They Affect Investigators	11/11/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.  
Professor, University of Miami  
Director Office of Research Education  
CITI Program Course Coordinator

Collaborative Institutional  
Training Initiative  
at the University of Miami

Implementation of Evidence Based Guidelines to Reduce Fall Risk

**X: List of Figures**

**I. Difference in the Mean Test Scores in the Pre- and Post- Intervention Period**

**Descriptive Statistics**

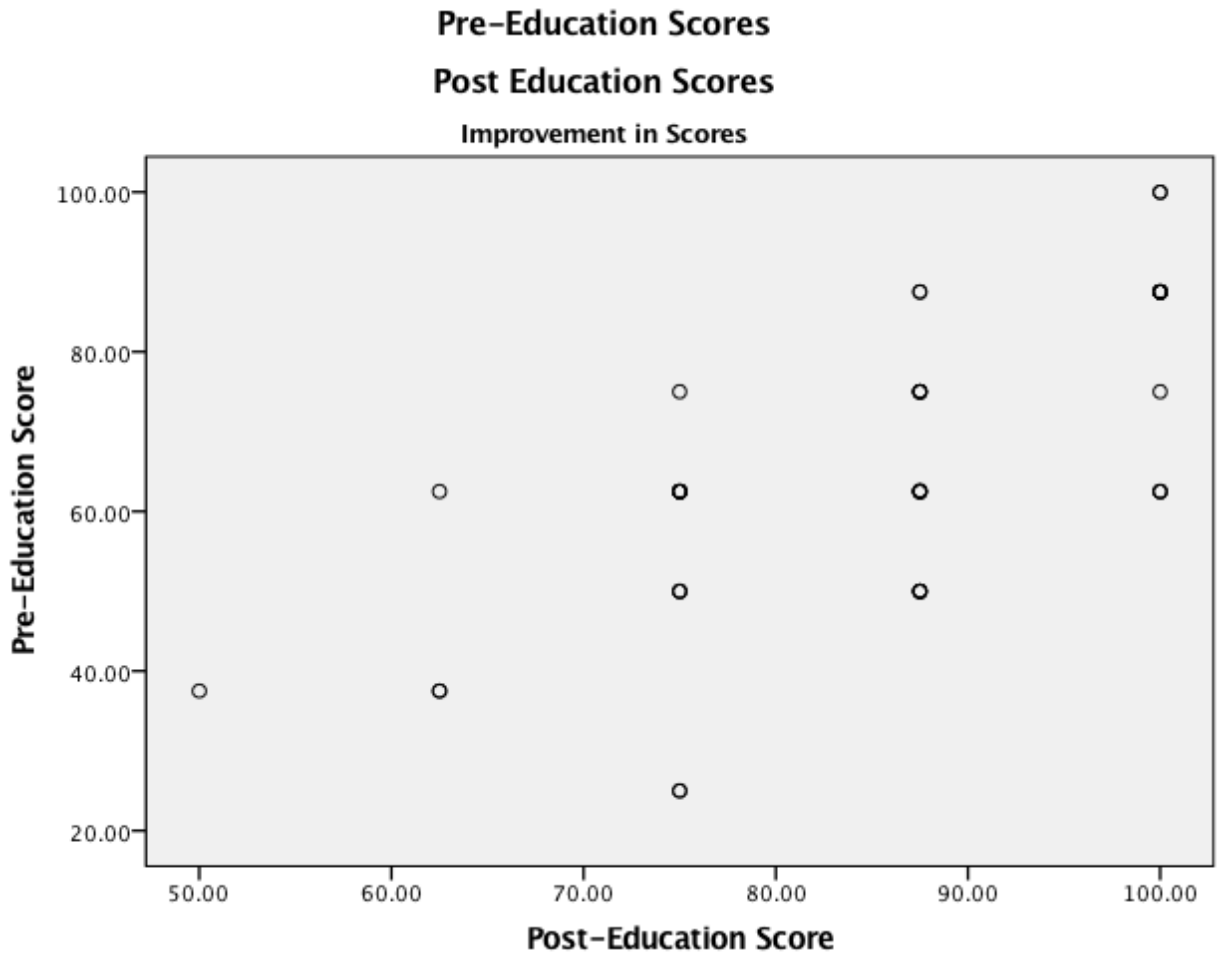
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Pre-Education Score	49	75.00	25.00	100.00	65.8184	18.00127	324.046
Post-Education Score	49	50.00	50.00	100.00	85.4592	12.32876	151.998
Improvement in Score	49	66.66	.00	66.66	23.4592	15.95094	254.432
Valid N (listwise)	49						

**II: Confidence Items Demonstrating Statistical Significant Improvement in Scores**

**Correlations**

		Pre-Education Score	Post-Education Score	Improvement in Score
Pre-Education Score	Pearson Correlation	1	.691**	-.846**
	Sig. (2-tailed)		.000	.000
	N	49	49	49
Post-Education Score	Pearson Correlation	.691**	1	-.212
	Sig. (2-tailed)	.000		.145
	N	49	49	49
Improvement in Score	Pearson Correlation	-.846**	-.212	1
	Sig. (2-tailed)	.000	.145	
	N	49	49	49

\*\* . Correlation is significant at the 0.01 level (2-tailed).



### III. Participant Preferences for Specific Learning Modalities

Nursing education was delivered in a classroom setting to enable discussion, interaction, participation, and to respond to questions timely. Participants admitted to a lack of awareness of resident fall events including number of falls, location and time of falls, repeat fallers, and interventions to protect against falling. The fall related data opened the discussion to evidence based practice and the goals of the Agency for Healthcare Research & Quality to support nurse competence, compliance, and program sustainability.

Nursing staff preferences for specific learning modalities include knowledge of resident fall event data, access to care plans, and collaborative practice to reduce fall risk. These specific learning modalities are presented to the Staff Development Coordinator with the request to

## Implementation of Evidence Based Guidelines to Reduce Fall Risk

exercise transparency to advance nursing knowledge and competence in reducing fall risk.



