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An Evaluation of Fall Prevention Interventions Among Older Adults in a Long Term Care Facility

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AN EVALUATION OF FALL PREVENTION INTERVENTIONS
AMONG OLDER ADULTS IN A LONG TERM CARE FACILITY

by

Courtney Anita Bennett

Abstract of a Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

December 2014
ABSTRACT

AN EVALUATION OF FALL PREVENTION INTERVENTIONS AMONG OLDER ADULTS IN A LONG TERM CARE FACILITY

by Courtney Anita Bennett

December 2014

Falls are serious unwanted events that are a common occurrence among older adults in long term care facilities (LTC). Fall prevention in LTC facilities requires the efforts of an interprofessional team that promotes safety within an organization. The purpose of this capstone project is to implement and evaluate evidence-based fall prevention interventions at a LTC facility. Specific objectives of the project include: (a) providing education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility and (b) replacing the existing fall prevention policy and program with a falls and fall risk clinical guideline.

An evidence-based fall prevention program was implemented over a six week period in a LTC facility to recognize risk factors for falls, conduct a validated fall risk assessment, and develop an individualized care plan for managing fall risk. Educational sessions were provided to all healthcare professionals on factors associated with falls among older adults in LTC facilities, the use of the evidence-based fall risk assessment, and individualized care plan to prevent falls.

All of the participants \( N=120 \) in the educational session rated the trainer as excellent, and the majority of the participants \( n=80; 67\% \) rated the overall training session as excellent. A retrospective chart review of 53 charts was conducted to evaluate the fall prevention program including monitoring of performance measures for evidence of documentation. The majority of the charts reviewed were female \( n=34; 64\% \), had a
diagnosis of cognitive impairment \((n=50; 89\%)\), and were 65 years of age and older \((n=50; 94\%)\). All charts reviewed had a fall risk assessment, fall risk score, and care plan documented. All of the assessments completed identified the resident at risk for falling, and over half of the fall risk assessments completed \((n=29; 55\%)\) had a history of previous falls.

The implementation of the evidence-based fall prevention interventions and educational sessions enhanced the LTC facility staff’s knowledge in recognizing, assessing, and managing falls. This project has provided a foundation for improving communication among interprofessional members and incorporating current evidence-based recommendations into practice.
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# TABLE OF CONTENTS

ABSTRACT .......................................................................................................................... ii

ACKNOWLEDGMENTS ......................................................................................................... iv

LIST OF TABLES .................................................................................................................... vii

LIST OF ABBREVIATIONS ..................................................................................................... viii

CHAPTER

I. INTRODUCTION ................................................................................................................... 1

   Background and Significance
   Needs Assessment
   Review of Literature
   Theoretical Framework
   Meeting the Doctor of Nursing Practice (DNP) Essentials
   Evaluation Plan
   Assumptions
   Purpose

II. METHODS .......................................................................................................................... 43

   Setting
   Population
   Design
   Procedures
   Ethical Protection of Human Subjects
   Data Analysis

III. RESULTS .......................................................................................................................... 52

   Analysis of Data
   Program Evaluation

IV. DISCUSSION ...................................................................................................................... 59

   Limitations
   Implications
   Recommendations for Further Evaluation
   Conclusion
# LIST OF TABLES

Table

1. Demographic Data Summary………………………………………………………………………..52
2. Survey Training Evaluation………………………………………………………………………..54
3. Chart Audit Data Collection Tool………………………………………………………………56
4. Chart Audit Data Collection Tool Fall Risk Scores……………………………………………57
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHRQ</td>
<td>Agency for Healthcare Research and Quality</td>
</tr>
<tr>
<td>A &amp; I</td>
<td>Accident and Incident</td>
</tr>
<tr>
<td>AMDA</td>
<td>American Medical Directors Association</td>
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<td>ANA</td>
<td>American Nurse Association</td>
</tr>
<tr>
<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
</tr>
<tr>
<td>CMS</td>
<td>Center for Medicare and Medicaid</td>
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<tr>
<td>CAN</td>
<td>Certified Nurse Assistant</td>
</tr>
<tr>
<td>DNP</td>
<td>Doctor of Nursing Practice</td>
</tr>
<tr>
<td>ECRI</td>
<td>Emergency Care Research Institute</td>
</tr>
<tr>
<td>FNP</td>
<td>Family Nurse Practitioner</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>LPN</td>
<td>Licensed Practical Nurse</td>
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<tr>
<td>LTC</td>
<td>Long Term Care</td>
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<td>MDS</td>
<td>Minimum Data Set</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Care Excellence</td>
</tr>
<tr>
<td>PICOT</td>
<td>Population, Intervention, Comparison, Outcome, Time</td>
</tr>
<tr>
<td>PMHNP</td>
<td>Psychiatric Mental Health Nurse Practitioner</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse</td>
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<tr>
<td>SCSA</td>
<td>Significant Change Status Assessment</td>
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CHAPTER I

INTRODUCTION

Falls are serious unwanted events that are a common occurrence among older adults in long term care (LTC) facilities. Older adults residing in long term care facilities account for about “20% of deaths” from falls (CDC, 2012, para. 3). Long term care facilities usually report “100 to 200 falls each year” within this age group, and the resulting effects of falls are proven detrimental to overall health (CDC, 2012, para. 4). This constitutes “one out of three older adults age 65 or older falling each year” at a rate significantly higher than those residing in the community (CDC, 2012, para. 2). History of previous falls and the presence of cognitive impairment are also critical risk factors known to double and even triple the risk of falls among older adults in long term care facilities raising the need for fall prevention (Al-Aama, 2011). Falls and fall-related injuries among older adults in long term care facilities can result in the decreased ability to maintain baseline independence, a need for constant assistance or supervision, and a decline in quality of life. With increasing age and a decline in medical condition, older adults are more likely to remain in the hospital longer after sustaining a fall related injury (WHO, 2007). Falls are not only a major contributor to functional decline among older adults but can also lead to increased healthcare cost and increased economic burden.

The social and economic burden of falls and fall related injuries is significant. The total cost of fall-related injuries among older adults aged 65 and older in 2010 was $30 billion; by 2020 it is estimated the cost will be $67.7 billion (CDC, 2013b). According to the National Institute for Health and Care Excellence (2013), “The human cost of falls includes distress, pain, injury, loss of confidence, loss of independence, and mortality” (p.
4). Falls and fall-related injuries can severely impact older adults’ ability to carry out normal activities of daily living costing them loss of self-confidence and the need for continued assistance (Oliver, 2007). Therefore, as the current trend towards aging includes older adults living longer often in LTC facilities, identifying multifactorial factors that may lead to falls and fall related injuries and prevention of falls among older adults in LTC facilities is of significance.

Although nurses and other healthcare professionals contribute to fall prevention in LTC facilities, there is no one discipline completely responsible for fall prevention. Fall prevention in LTC facilities requires the efforts of an interprofessional team that promotes safety within the organization. Capezuti and Micelli (2014) asserted the “commitment to safety must include facility-wide self-evaluation of safety practices, a quality improvement perspective, support for safety oversight committees, and a willingness to implement polices necessary to achieve safety goals” (p. 4). Identification of contributing causes to a fall or fall-related injury by an interprofessional team allows for diverse perspectives to be presented and addressed. Capezuti and Micelli (2014) found that recognizing fall risks, conducting a multidisciplinary risk assessment, management strategies, implementing fall consultation teams, and a fall prevention program are important components to manage fall risks among older adults in LTC facilities.

Therefore, the purpose of this capstone project is to implement and evaluate evidence-based fall prevention interventions at a long term care facility. Components of the American Medical Directors Association Falls and Fall Risk Clinical Guideline (AMDA) will be implemented and evaluated to improve current practice and increase
proactivity in implementing evidence-based strategies to reduce falls before they occur (AMDA, 2011). The AMDA Falls and Fall Risk Clinical Guideline “emphasizes key medical care processes of recognition, assessment (root cause analysis), treatment (based on assessment), and monitoring” of falls in long term care facilities (AMDA, 2014, para. 2). According to AMDA (2011), the guide is designed “to be used in conjunction with facility-specific policies and procedures to guide staff and practitioner practices and performance” (p. i). Specific objectives of the project will include: (a) providing education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility and (b) replacing the existing fall prevention policy and program with the American Medical Directors Association falls and fall risk clinical guideline. The Population, Intervention, Comparison, Outcome, and Time (PICOT) question for this project is: Does the AMDA (2011) Falls and Falls Risk Clinical Guideline improve the recognition, assessment, management, and monitoring of fall risks among older adults in a long term care facility?

Background and Significance

“Patient safety is the cornerstone of high quality healthcare” (Mitchell, 2008, p. 4). To provide safe and efficient high quality healthcare organizations must develop a “culture of safety” that focuses on “improving the reliability and safety of care” (IOM, 1999, p. 4). Healthcare organizations should focus on aspects of culture that include values, beliefs, and norms that are important within the organization (James & Sammer, 2011). Developing a culture of safety within the organization will require the inspection of “attitudes and behaviors” that are related to and promote resident safety (Dyer, Famolaro, Nelson, Smith, & Sorra, 2012, p. 9). Designing and promoting resident safety
within the organization’s healthcare system can assist in improving the overall quality of healthcare and a decline of errors. Residents in LTC facilities must be kept safe by healthcare professionals from injury and attention must be focused on “preventing and mitigating errors” (IOM, 2001, p. 4). Encouraging an environment of identification and reduction of errors, developing safety with the system, and implementing appropriate actions can improve future performances within the organization (Capezuti & Micelli, 2014).

In *Crossing the Quality Chasm*, the IOM (2001) recommended that all healthcare organizations, professional groups, and private and public purchasers adopt as their explicit purpose to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States. (IOM, 2001, p. 39)

For this recommendation to be achieved, the IOM recommended that healthcare organizations adopt six improvement aims: “to be safe, effective, patient-centered, timely, efficient, and equitable” (IOM, 2001, p. 3). Long term care facilities that are able to proactively adopt these six aims and modify resident care goals could significantly improve resident care needs. Residents would experience a fully array of care that is safer, more integrated, more evidence-based, cost effective, responsive to their needs, more available, and beneficial (IOM, 2001). The IOM’s six aims have also been adopted by the Center for Medicare and Medicaid in the Medicare Quality Improvement Organization (QIO) Program (formerly referred to as the Medicare Utilization and Quality Control Peer Review Program) (CMS, 2012b). This program was created and
designed to improve healthcare quality and the efficiency of services delivered to Medicare beneficiaries (CMS, 2012b).

Improving organizational safety and designing safety within the system could also prove beneficial in falls among older adults in long term care facilities. Among older adults age 65 and older, falls are the leading cause of injury including “fatal and nonfatal injuries” (Agency for Healthcare Research and Quality [AHRQ], 2009, para. 1). The AMDA (2011) falls and fall risk clinical guideline also recognizes falls as a “significant cause of injury and death in older persons” (p. 1). The National Safety Council (2000) identified in its Safety Agenda for the Nation falls among older adults as a leading cause of injury. According to the National Safety Council (2014), “fatal falls among older adults aged 65 and older have risen 112% since 1999 with more than 21,600 deaths in 2010…” (para.1). Fall-related injuries among older adults can lead to death. Older adults who survive fall-related injuries often experience reduced quality of life, sustained injuries, loss of independence, increased health care costs, and possible institutionalization.

Fall related injuries among older adults

“Each year one in every three adults age 65 and older falls, sustaining moderate to severe injuries such as hip fractures or head trauma,” possibly death and are hospitalized for fall-related injuries (CDC, 2012, para. 2). According to the CDC (2012), “emergency departments treated 2.4 million nonfatal fall injuries among older adults; more than 722,000 of these patients had to be hospitalized” (CDC, 2012, para. 1). Falls among older adults can also lead to major injuries including head trauma, soft tissue injuries, dislocations, and fractures that require hospitalization. Accounting for a significant
number of injuries among older adults, falls are the leading cause of traumatic brain injury (TBI) (Kagan, McCormick, & Thompson, 2006). Head trauma also increases the risk for subdural bleeds even in cases of less severe injuries (Kagan et al., 2006). Of those older adults who may suffer an injury such as a hip fracture, nearly half never regain their previous level of functioning while others die within a year (Jorgensen, 2011; National Safety Council, 2014).

Women sustain hip fractures at a rate twice that of men (Jorgensen, 2011). According to the CDC (2013), Caucasian women have significantly higher hip fracture rates than African American women. Of all fall-related fractures, hip fractures seems to cause the greatest number of deaths and lead to the most severe health problems and reduced quality of life (CDC, 2013a). Older adults in long term care facility often have a higher rate of incidence of hip fractures leading to higher mortality rates than community dwelling older adults (WHO, 2007).

*Falls among older adults in long term care (LTC) facilities*

Falls are a leading cause of fatal and non-fatal injuries among older adults older in long term care facilities (AHRQ, 2009; AMDA, 2011; National Safety Council, 2000). The CDC (2012) reports that that although “5% of adults 65 and older” live in long term care facility (LTC), “20% of deaths from falls” occur within this age group (CDC, 2012, para. 3). Each year, a typical LTC facility with “100 beds” can report a range of “100 to 200 falls;” with, LTC residents falling more than once (CDC, 2012; Josephson & Rubenstein, 2006). The CDC (2012) reports an average rate of falls among older adults in long term care is “2.6 falls per person per year” (CDC, 2012, para. 6).
Over half of residents in LTC facilities are unable to ambulate or require some form of assistance with ambulation (Dey, Lentzner, Pratt, Robinson, & Sahyoun, 2001). Muscle weakness, that can also precipitate walking or gait problems, is the most common cause of falls among residents who reside in long term care facilities (Beringer, Cran, & O’Halloran, 2004; Josephson & Rubenstein, 2006) and according to the CDC (2012) accounts for about “24%” of all falls (CDC, 2012, para. 6). In LTC settings, the rate of older adults requiring assistance from staff with bathing and eating is much higher due to a decline in physical abilities (Dey et al., 2001). Older adults in long term care facilities are generally physically weaker experiencing more chronic medical conditions, tend to have thought or memory problems, and have difficulty with activities of daily living more so than older adults living in the community (CDC, 2013a; Josephson & Rubenstein, 2006). Additionally, psychotropic medications administered for mental illness with sedating properties can increase fall risks among older adults in a LTC facilities (Berry, Dufour, Echt, Hannon, & Samelson, 2013).

**Falls among older adults with cognitive impairment**

Older adults with cognitive impairment are also at an increased risk of falls. Cognitive impairment and dementia are important and common clinical conditions that increase with age (Close, Delbaere, Lord, & Taylor, 2012). Close et al. (2012) asserts that “cognitive impairment is a term that refers to below expected performance in one or more cognitive domains, and that more commonly does not impact on the individual’s ability to function” (p. 580). The condition of dementia refers to evidence of a decline in memory and learning (American Psychiatric Association [APA], 2013, p. 591). Individuals with mild cognitive impairment are diagnosed with mild neurocognitive disorder having
“modest cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual motor or social cognition)” (APA, 2013, p. 605). Individuals with major neurocognitive disorders have “evidence of significant decline from a previous level of performance” (APA, 2013, p. 602).

Falls occur in older adults with cognitive impairment and dementia more frequently than cognitively intact older adults (Allan, Ballard, Kenny, & Rowan, 2009). The occurrence of multiple falls doubles in the presence of cognitive impairment among older adults compared with cognitively intact older adults (Close et al., 2012). Dementia can also lead to the occurrence of fall-related injuries tripling the likelihood of sustaining hip fractures (Arrighi, Baker, Bullock, & Cook, 2011). Hip fractures among older adults result in poorer health outcomes including institutionalization and lead to future decline of the individual’s physical and mental status (Arrighi et. al, 2011; Close et al., 2012). In addition to cognitive impairment, older adults in LTC facilities have multifactorial risk factors for falls.

**Multifactorial factors associated with falls among older adults**

Determining the cause of a fall is not always initially apparent; and, falls in older adults occur for a number of reasons (Cameron et al., 2010). A fall may warrant the onset of an acute medical problem (infection, dizziness, irregular heart rate) or may warrant a chronic disease (cognitive impairment, parkinson, diabetes), or it may signal progression of “normal” age related changes in muscle strength, balance, and vision (Clase, Goldsmith, Moreland, & Richardson, 2004; Josephson & Rubenstein, 2006). Environmental hazards can also contribute to increasing fall risk among older adults with
concerns such as wet floors, clutter on floors, or poor lighting, or inaccurate bed height can also cause falls. Medications with sedating side effects that affect the central nervous system are also of particular concern in increasing fall risks among older adults. As individuals age, the risk of falling increases due to the likelihood of accumulated medical conditions and associated medication changes. (Al-Aama, 2011).

Other causes of falls can include poor foot care, improper fitting shoes, and improper or incorrect use of walking aids. Gait and balance impairments that may result from muscle weakness or functional decline are associated with a triple increased risk for falling (Josephson & Rubenstein, 2006). Assistive devices such as cane or walkers used to aid in ambulation among older adults can also increase risk for falling (Josephson & Rubenstein, 2006). The risk of falling also increases with visual impairments (Campbell & Robertson, 2007). Vision impairment causes uncertainty of location of objects within the resident’s environment which can lead to unsafe gait adaptations (Buckley & Elliot, 2006). Arthritis also increases the risk of falls among older adults due to loss of peripheral sensation (WHO Europe, 2004). Inability to perform basic activities of daily living (ADL) (e.g., dressing, bathing, feeding self), doubles the risk for falling (Josephson & Rubenstein, 2006) as the residents may attempt to remain as independent as possible not seeking assistance with ADLs. Depression can also double fall risks among older adults in long term care facilities (Chauhan, 2013). Depression may result in inattention to the environment, inability to think clearly, or cause more risk-taking behaviors (Chauhan, 2013).

Most falls occur in older adults who have multifactorial and varying causes requiring a comprehensive assessment to determine contributing factors and specific
targeted interventions (Brooke, 2010; Josephson & Rubenstein, 2006). Targeted interventions include fall prevention programs that include a fall risk assessment and education provided to staff for identifying and managing falls among older adults in long term care facilities (Josephson & Rubenstein, 2006).

Fall prevention

Although long term care facilities may not be able to prevent all falls, efforts should be made in reducing the number of falls among older adults to create a safe environment and promote sufficient quality of care. Fall prevention should be included as part of a healthcare facility’s safety program (CMS, 2012a). Medicare requires long-term care facilities is to provide an environment free of hazards as much as possible, with adequate supervision, provide devices to assist in ambulation, and prevent accidents (CMS, 2012a). The Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations [JCAHO]) in its National Patient Safety Goals advocates for organizations to provide a fall risk assessment and documentation of a fall-prevention program (Joint Commission, 2014a).

Joint Commission requires as one of its National Patient Safety Goals (NPSGs), that long-term care facilities and providers reduce the risk of resident harm resulting from fall-related injuries (Joint Commission, 2014a). Falls involving death or a serious injury is defined by Joint Commission as sentinel events. Falls are the sixth leading and most frequently occurring sentinel event of the 21 categories of events tracked by the Joint Commission sentinel event statistics (Joint Commission, 2014b). The goal of the fall prevention requirement is to ensure that all residents are screened for fall risks. The Joint Commission National Patient Safety Goals requires that organizations implement a fall
reduction program and conduct an evaluation of the effectiveness of the program (Joint Commission, 2014a). This requirement of safety still remains in place. Establishing a fall prevention interventions and multifactorial assessment that address multiple components associated with fall risk factors may aid in fall prevention (National Institute of Health and Clinical Excellence [NICE], 2004). Healthcare professionals and practitioners should frequently ask questions about residents’ fall histories in the past year, frequency of falls, circumstances, and characteristics of the falls. Assessment of the falls and fall risk should be multifactorial and a part of an individualized multifactorial intervention (NICE, 2004).

Identifying an appropriate fall prevention program and interventions for the long term care facility required the conduction of a needs assessment. Conducting a needs assessment at the long term care facility allowed the Doctor of Nursing Practice (DNP) student to assess and identify the staff’s view of change needed within the organization. Conducting the needs assessment early in the planning phase also assisted the DNP student in determining the cause of falls and in developing a solution. Needs assessment is a “process of identifying needs, prioritizing them, making needs-based decisions, allocating resources, and implementing actions in organizations to resolve problems underlying important needs” (Altschuld & Kumar, 2010, p. 19). As a member of the interdisciplinary team and a psychiatric mental health nurse practitioner at the long term care facility, the DNP student was able to act as a change agent within the facility in fall prevention.
Needs Assessment

In conducting a needs assessment at the long term care facility regarding falls among older adults, it was recognized that although the institution utilized a fall prevention program and interprofessional team approach in reducing falls, it lacked evidence-based practice and the organization was not observing a steady reduction in falls. The number of falls and fall-related injuries would greatly fluctuate month to month with no steady decline. The number of falls and fall-related injuries data was obtained in the long term care facility per accident and incident reports and fall trending tools.

Fall Prevention Program

The long term care facility’s fall prevention program outlines procedures to be completed in screening residents for fall risk and after a fall occurs. All residents are screened for fall risk upon admission, quarterly (every three months), and upon significant change status by the nurse utilizing the facility’s fall risk assessment tool to determine if the resident is at risk for falls. The program requires nurses to complete a fall risk assessment tool, analyze the fall risk assessment scores (high fall risk or minimal fall risk), conduct a post-fall evaluation after a fall occurs, and implement strategies necessary to prevent the reoccurrence of future falls. The program describes a fall as a sudden, uncontrolled, untoward event in which the resident comes to rest unintentionally on the floor or another object. Residents who are determined as a risk for fall health record must be marked as to reflect fall risk. After a fall occurs, the resident is to be reviewed by the Accident and Incident (A & I) Committee and the Interprofessional Team and have appropriate interventions developed to prevent future falls. The A & I committee and Interprofessional Team consist of healthcare professionals of different
disciplines who provide specific services to the residents (Safety Deputy, Psychology, Family Nurse Practitioners, Psychiatrist, Mental Health Nurse Practitioners, Medical Director, Director of Nursing, Certified Nursing Assistant, Registered Nurses, Social Workers, Restorative, and Activity Personnel). A healthcare plan guide was designed to reflect the appropriate fall prevention interventions developed by the A & I committee and Interprofessional Team, and the resident placed in the fall prevention program.

Although the long term care facility’s fall prevention program outlines procedures to be completed in screening residents for fall risk and after a fall occurs, it lacks many details and evidence-based approaches for preventing falls before they occur. Residents are only reviewed by the A & I committee and Interprofessional Team, placed in the fall prevention program; and, appropriate fall prevention strategies developed by the A & I committee and Interprofessional Team after sustaining a fall. The fall prevention program lacks details of the role of the Minimum Data Set (MDS) registered nurse, whom also completes a comprehensive fall risk assessment based upon long term care federal regulation guidelines. The long term care facility also lacks evidence of documentation of standard fall prevention education to residents and family and communication of fall risk scores obtained upon assessment to clinicians (Medical Doctors and Family Nurse Practitioners). The facility requires a written order by the clinician of fall prevention strategies prior to implementation.

Admission. In the long term care facility, all residents are assessed upon day of admission for fall risk by the staff registered nurse and within 14 days of admission by the MDS registered nurse. The staff registered nurse differs from the MDS nurse in that the staff registered nurse carries out and assists in the delivery of nursing services to
residents and supervises nonprofessional staff in the daily delivery of resident care. The staff registered nurse also completes treatments and procedures, as ordered by the clinician while observing the resident’s condition and reporting changes to the clinician and resident care manager. The MDS registered nurse conducts federally mandated assessments used for Medicare reimbursement of the residents in the long term care facility, creates applicable care plans and observes and documents the pricing and effectiveness of services provided to each resident. For the purpose of the capstone project, only the fall risk assessments completed by the staff registered nurse and care plans developed by the MDS registered nurse will be evaluated.

The staff registered nurse assesses for fall risk utilizing a fall risk assessment tool that has been compiled and changed by the nursing staff over the years. The fall risk assessment assesses risk factors including the number of falls within the past month, mental status, neurological disease, orthopedic disease problems, other disease problems (e.g. diabetes, osteoporosis, postural hypotension, dizziness/syncope), sensory deficits, incontinence, use of assistive device, transfer difficulties, protective devices, and medications. Each category and subheading is given a score of one to two points each with a total score of zero to eight points equaling minimal fall risk. A score of nine and greater equals high fall risk. Upon completion of the fall risk assessment tool by the staff registered nurse, the tool is placed in the resident’s medical chart. The fall risk assessment tool does not contain measures to take based on scores. Therefore, if the resident scores as a high fall risk with a nine or greater the fall risk assessment tool does not contain a guideline for the registered nurse to follow in implementing fall prevention interventions upon admission to prevent the occurrence of a fall.
Within 14 days of admission a comprehensive fall risk assessment is completed by the facility’s MDS registered nurse. To participate in the Medicare and Medicaid programs, nursing homes must comply with federal requirements for long term care facilities as indicated in the U.S. Code of Federal Regulations (42 CFR Part 483) (Legal Information Institute, 2013). Federal nursing home regulations require long term care facilities to conduct initially a general comprehensive and accurate assessment of each resident’s functional capacity. The comprehensive assessment completed at the long term care facility is the Minimum Data Set (MDS) 3.0. Fall risk assessment, Section J, is a component of the comprehensive MDS 3.0 assessment completed by the facility’s MDS registered nurse. The MDS 3.0 is a federally mandated clinical assessment tool for all long term care residents (CMS, 2012a). It is a collection of basic physical conditions, functional abilities, and psychosocial interests of the resident (CMS, 2013). It is designed to collect the minimum amount of data to guide care plans and monitor residents in the long term care facility. Completion of the MDS 3.0 provides the long term care facility staff with a foundation for a more thorough assessment and the development of an individualized care plan.

Section J of the MDS 3.0 is a fall risk assessment. Section J assesses the resident’s fall history on admission, any falls since admission or prior assessment, and the number of falls since admission or prior assessment that was completed by the MDS registered nurse. Prior assessment is any previous assessments completed by the MDS nurse that reports falls (CMS, 2012a). Section J identifies the number of falls a resident has had in the past six months as well as the severity of any injuries from those falls. Assessment of previous falls or recent falls, recurrent falls, and falls with significant
injury are the most vital indicators of risk for future falls and injurious falls (CMS, 2012a). According to the MDS 3.0, a fall is “an unintentional change in position coming to rest on the ground, floor or onto the next lower surface (e.g., onto a bed, chair, or bedside mat)” (CMS, 2013, p. 29). The fall may be witnessed, reported by the resident or staff, or identified when a resident is found on the floor. Falls include any fall, no matter whether it occurred at home; a fall can occur while shopping, attending activities, or while admitted to a hospital. Falls are not deemed when occurred as a result of another resident pushing or causing another resident to fall. An “intercepted fall occurs when the resident would have fallen if he or she had not caught him/herself or had not been caught by another individual” (CMS, 2013, p. 29).

Upon completion of the comprehensive assessment, including Section J, the MDS nurse must develop a comprehensive individualized care plan. Each resident’s individualized comprehensive care plan is designed to prevent future decline and promote quality of life (Legal Information Institute, 2013). In accordance with 42 CFR 483.20(k), the facility must develop a comprehensive individualized care plan that includes measurable goals and timeframes to meet the resident’s holistic needs that are identified in the comprehensive assessment (CMS, 2013). Holistic needs of the resident includes medical, mental, and psychosocial well-being. The plan of care should include strategies that the facility and healthcare staff will use to maintain the resident’s optimal physical well-being and manage fall risks. However, CMS’s MDS Manual does not mandate any specific tool for the development of strategies to reduce future falls (CMS, 2013). Instead, it instructs long term care facilities to identify and use evidence-based tools that
are current and based on clinical standards of practice in completing the resident’s care plan.

A general listing of known clinical practice guidelines in Appendix C of the MDS Manual reference list includes AMDA clinical practice guidelines as an evidence-based resource (CMS, 2013). The CMS State Operations Manual, also utilized by the long term care facility, references AMDA clinical practice guidelines as a resource to assist in interpreting areas of the comprehensive assessment findings (CMS, 2014). At the long term care facility, however, the individualized care plans lack use of evidence-based strategies to prevent falls and communication of findings. The care plans are reported as developed based upon the MDS nurses’ knowledge. Upon completion of the comprehensive assessment and individualized care plan, findings and developed strategies are placed in a chart separate from the resident’s medical record chart. The care plans and comprehensive assessments also lack documentation of communication of fall risk assessment findings to staff registered nurses and clinicians.

*Quarterly.* Fall risk assessment and revisions to the resident’s individualized plan are also done quarterly. The staff registered nurse and MDS registered nurse conduct a fall risk assessment quarterly utilizing the same fall risk assessment tool used at admission. The staff registered nurse completes the same fall risk assessment tool. The MDS nurse completes the same MDS 3.0 comprehensive assessment and revises the resident’s care plan as needed. The MDS nurse generates a monthly list of all residents due for quarterly assessment that is distributed to the staff registered nurses. The staff registered nurse inserts the completed quarterly fall risk assessment tool in the resident’s medical chart. The MDS inserts completed quarterly fall risk assessment scores and
findings in the resident’s MDS chart. Again, both assessments lack documentation of reported findings to each other and the clinicians. The MDS nurse revises the resident’s care plan based on falls or fall-related injuries that occurred during the quarter along with implemented fall prevention strategies. In the long term care facility, however, the care plans did not consistently reflect all fall prevention strategies implemented over the quarter and their outcome in reducing falls.

Quarterly educational in-services are also provided by the nursing educator to each healthcare discipline in the long term care facility. The fall prevention in-services cover appropriate methods of applying fall prevention devices (tag alarms, pressure alarms, and restraints). The fall prevention educational in-services failed to address measures of preventing falls before they occur and the multifactorial factors that may contribute to falls among older adults in the long term care facility.

*Significant change.* Fall risk assessment is also conducted in the long term care facility upon determination of a significant change status.

A significant change is defined by CMS (2013) in the MDS 3.0 manual, as a decline or improvement in a resident’s status in which: (1) Will not normally resolve itself without intervention by staff or by implementing standard disease-related clinical interventions, is not self-limiting (for declines only); (2) Impacts more than one area of the residents’ health status; and (3) Requires interdisciplinary review and/or revision of the care plan. (p. 40)

A significant change is determined by the facility’s interprofessional team. Upon determination of a significant change status, the staff registered nurse completes a fall risk assessment utilizing the same fall risk assessment tool used upon admission and
quarterly. The MDS nurse at this point, however, utilizes a different assessment known as the Significant Change Comprehensive Assessment (SCSA). The SCSA is performed at any time after the completion of an admission assessment, and its completion dates depend on the date that the interprofessional team’s determinations was made that the resident had a significant change (CMS, 2013). The MDS nurse notifies all members of the interprofessional team and nursing staff of a possible significant change in status. The interprofessional team determines if a significant change exists, and the MDS nurses notify all members of the interprofessional team including nurses via facility email and also send a compiled list of intended completion dates of the SCSA. The SCSA differs from the MDS 3.0 in that it does not provide a detail assessment of fall risk, recent falls, or fall-related injuries. The SCSA provides of a general assessment of the resident’s physical condition. For example, if a resident goes from walking without any assistive devices to requiring more than one nursing staff assistance to walk or is no longer able to walk, the MDS nurses codes the change in physical condition as a significant change. Findings of the SCSA are later reviewed in the care plan conference among the interpersonal team led by the MDS nurse.

Post-Fall Evaluation

The long term care facility’s current fall prevention policy outlines protocols and procedures that nursing staff must complete after a fall: (a) every resident who falls will have a post-fall assessment performed; (b) the nurse is responsible for completing the post-fall assessment and attaching a copy of the assessment to the accident and incident form (the protocol does not specify type of nurse licensure); (c) the assessment is to be completed immediately after the fall once the resident has been assessed and appropriate
care for any injuries are addressed; and (d) the nurse is responsible for implementing any action deemed necessary for the prevention of further falls.

According to the facility’s policy, residents who fall are to be assessed by a nurse utilizing the facility’s Post-Fall Action Plan Form in order to determine the cause of the fall or factors that might have caused the fall, so interventions can be initiated to prevent future falls. The post-fall action plan form consists of the date of the fall, location, time, symptoms proceeding the fall (i.e., dizziness, loss of balance, legs gave away, trip/slip), activity at the time of the fall (i.e., transferring assisted or unassisted, toileting, ambulating, found on floor, staff/family lowered client to floor, client lowered self to floor, other), trauma (i.e., fear of falling, minor injury, major injury, death), fall risk factors (i.e., disease and conditions, medications, other risk factors), environmental evaluation, interdisciplinary referral, laboratory and radiological evaluations ordered, recommended interventions, and immediate interventions. Upon completion of the post-fall action plan form, a copy of the form is submitted to the Safety Deputy for review the following morning in A & I committee, and the original form placed in the resident’s chart. The documented cause of the fall or factors that might have caused the fall are also later reviewed by the MDS nurse upon quarterly assessment and incorporated into the resident’s care plan.

After the completion of the post-fall evaluation form, an accident and incident (A & I) form is completed by the staff registered nurse, a root cause analysis is conducted by the Safety Deputy personnel, and the resident is placed on weekly fall review for ongoing evaluation. The staff registered nurse also reports to the Family Nurse Practitioners or Medical Doctor details of the fall incident. The A & I form is reviewed the following day
by the A & I committee and the interprofessional team. The long term care facility’s A & I committee and the interprofessional team consist of healthcare professionals from different disciplines who provide specific services to the residents (Safety Deputy, Psychology, Family Nurse Practitioners, Psychiatrist, Mental Health Nurse Practitioners, Medical Director, Director of Nursing, Certified Nursing Assistant, Registered Nurses, Social workers, Restorative, and Activity Personnel).

The A & I committee and the interprofessional team meet each morning during hands-off communication. Hands-off communication transfers vital resident information and the responsibility for care of the resident from one nurse to another (Byers, Friesen, & White, 2008). Ineffective hands-off communication can lead to inconsistency in resident care and failure to comply with resident safety guidelines designed to reduce errors and even death (Byers, Friesen, & White, 2008). The A & I committee and the interprofessional team are only involved in the fall prevention process after the occurrence of a fall. The A & I form provides the staff with details concerning the fall, time of fall, location, noted injuries, and recent medication changes. Each member of the team is asked to provide input as to possible causes of the fall and recommendations to prevent further falls and injuries. Recent changes in medications listed on the A & I Form are not reviewed in-depth during daily morning hands-off communication.

Root Cause Analysis. The root cause analysis is conducted after each resident’s fall by the Safety Deputy personnel to determine what happened, why it happened, and what can be done to prevent it from happening again. Internal, external, and systemic factors are reviewed. Internal factors include poor balance, weakness, or orthostatic blood pressure. External factors include clutter in common walking areas, placement of
furniture, walking devices, non-skid socks, appropriate fitting shoes, low bed, fall mats, tag and pressure alarms, restraint, and safety checks. Safety checks include increasing the time of resident rounds made by the nurses to prevent further falls. Safety check times are determined by the Family Nurse Practitioner (FNP) and consist of 15 or 30 minute resident rounds. The most effective methods to reduce the incidence of injuries related to fall in the long term care facility were the low bed and fall mats. Fall trending data were available confirming the effectiveness of low beds in reducing falls or fall mats reducing the severity of falls related injuries. Fall prevention interventions were only implemented after a fall occurred.

The information collected from the root cause analysis is then placed in fall trending tools that consist of bar, graph, and pie charts. The bar, graph, and pie charts data display total falls for the month, day of week, shift with the most falls, location of falls, type of falls, type of injury or non-injury, multiple medication use, and history of behaviors. It was reported the bar, graph, and pie charts were developed by the nursing staff over the years. Within a 12-month time frame, the fall trending tools revealed that the long term care facility had a total of 257 falls, 12 fall-related injuries requiring hospitalization, 2 fall related hip-fractures, and 136 minor fall-related injuries. The fall trending tools also revealed an average of 75% of falls occurring on the day shift with highest rate of falls occurring on Mondays and Thursdays. Most frequent location occurred in residents’ rooms; with, 85% of residents found on floor when a fall occurs and not witnessed, 40% resulted in injury with abrasions, and 60% resulted in no injury with redness. Measured injuries on the fall trending tool consisted of abrasion, bruises, laceration, discomfort/pain, fracture, and dislocation. Measured non-injuries on the fall
trending tool consisted of redness, skin tear, swelling, scratches, bleeding, and hematoma. Average nursing staff ratio data was recorded for only one month of the 12 months on the fall trending tool with an average ratio of 8.09 (calculation for formulation of nursing staff ratio was not included and ratio data was not broken down into licensure type).

Fall Review Committee. The weekly fall review committee meets once a week on Wednesdays. The weekly fall review committee consists of the same interprofessional team members (A& I committee and the Interprofessional Team) led by the Safety Deputy personnel. Weekly fall review consists of ongoing monitoring of fall prevention interventions implemented after the occurrence of a fall. Residents are placed on weekly fall review only after sustaining a fall and remain on fall review for four weeks in which fall prevention interventions are implemented and re-reviewed weekly to determine effectiveness. Residents must remain free of a fall for four weeks before being removed from fall review. Residents who have sustained a fall within the past month are individually reviewed in depth, interventions implemented; and, followed-up after sustaining a fall to determine if the interventions were successful in reducing further falls. Each member of the interprofessional team is asked to provide input and recommendations to prevent further falls and injuries.

The FNPs and Psychiatric Mental Health Nurse Practitioners (PMHNP) function as a member of the interprofessional team. They are present during daily morning hand-off communication and weekly fall review. The FNPs offers insight into the reason falls may occur among the older adults and the interventions (low bed, fall mats, fall alarms) that may help reduce falls. The Psychiatric Mental Health Nurse Practitioners (PMHNP) function as consultants and offer insight into falls that may be occurring related to
psychotropic medication changes, cognitive decline, or behavior disturbances. The FNPs and PMHNPs routinely conduct a medication review every 30 days; however, medications are not reviewed after a fall occurs.

**Summary of Needs Assessment**

To participate in Medicare and Medicaid programs, long term care facilities are required to be in compliance with federal requirements. Federal nursing home regulations require long term care facilities to initially conduct a general comprehensive assessment of each resident’s functional capacity, develop a care plan, prevent deterioration of the resident’s ability to carry out activities of daily living, prevent deterioration of the resident’s ability to transfer and ambulate, and promote quality of life. Although the long term care facility’s has a fall prevention program in place for screening residents for fall risk and after a fall occurs, it lacks many details and evidence-based fall prevention guidelines to prevent falls before they occur. Fall risk assessment is conducted by the registered nurse and MDS registered nurse upon admission, quarterly, and significant change status, yet the assessments lacks documentation of communication of findings among one another and to clinicians. Individualized care plans are developed by the MDS registered nurse without an evidence-based guideline and lack consistency of implemented fall prevention strategies and outcome in reducing falls. Fall prevention strategies are only implemented and reviewed by the A & I committee and interprofessional team after a resident sustains a fall. Therefore, components of the American Medical Directors Association (AMDA) (2011) Falls and Fall Risk Clinical Guideline were proposed to implement a more efficient and evidence-based way to manage fall risk.
Review of Literature

A systematic literature review guided the design and implementation of a multifactorial intervention to prevent falls among older adults with cognitive impairment in a long term care facility. Agency for Healthcare Research and Quality (AHRQ), Cochrane, PubMed, National Guideline Clearing House, Gerontological Society of America, National Gerontological Nursing Association, CINAHL, Hartford Institute of Geriatric Nursing, and John Hopkins University portal of evidence-based literature served as the databases for the evidence-based literature. Key terms for the literature search were falls, fall prevention, accidental falls, evidence-based practice, older adults, geriatrics, cost of falls, patient safety, long term care, residential care, fall risk factors, multifactorial intervention, and cognitive impairment.

Multi-factorial Assessment and Intervention

Chang et al. (2004) conducted a meta-analysis of 40 randomized controlled trials which investigated the effectiveness of multifactorial interventions to prevent falls in older adults, aged 65 years of age and older to either usual care group or control group, that lived in senior centers, nursing homes, or the community. The researchers also investigated various combinations of multiple interventions aimed at preventing falls in older adults. The results demonstrated a significant reduction in the risk of falls (risk ratio, 0.88) in the assessment and intervention groups compared to the control groups which received the facility’s usual care. The monthly rate of falls was significantly lower (incidence rate, 0.80). Interventions to prevent falls significantly reduce the proportion of older people who fall at least once and the monthly rate of falling. Components of the fall interventions included: risk assessment and management, exercise, environmental
modifications, and education. A multifactorial falls risk assessment and management program was defined as a focused post-fall assessment or systematic risk factor screening among individuals at risk tied to intervention recommendations and follow up for risks uncovered. Review of drugs was an important component of nearly all the programs. Among the interventions studied in the systematic review and meta-analysis, a multifactorial falls risk assessment and management program was the most effective component in reducing fall risk (incidence rate ratio, 0.82; number needed to treat 11).

DeWitte et al. (2009) evaluated the effectiveness of a multifactorial intervention on incidence of falls among 12 nursing homes in the Netherlands. The study was a cluster-randomized control 12–month trial. The psychogeriatric wards in the 12 nursing homes were evaluated. The study consisted of a total of 518 participants. Multifactorial intervention consisted of a general medical assessment and risk evaluation tool that was implemented by a multidisciplinary fall prevention team. General and individual fall prevention activities were also implemented which included: anticipating the circumstances and causes of falls, critically reviewing and monitoring medication intake (type, number, dose and time of intake), individually designed exercise programs, carefully (re)assessing the need for assistive and protective aids, and promoting the correct use of these aids. The primary measure of outcome was number of falls. There were 355 falls in 169.5 patients (2.09 falls per patient per year) in the intervention group and 422 falls in 166.3 patients (2.54 falls per patient per year) in the control group. With the implementation of a multifactorial intervention the intervention group revealed a significantly lower mean fall incidence rate than the control group (rate ratio=0.64, 95% CI= 0.43-0.96, P=0.029). The introduction of a structured multifactorial intervention to
prevent falls in the nursing homes significantly reduced the number of falls and fall risks declined on the psychogeriatric ward.

**Multifactorial Intervention**

Gustafson, Janssen, Lundin-Olsson, and Nyberg (2002) evaluated falls and resulting injuries common in older adults living in long term care facilities. The participants were ages 65 and older, disabled by cognitive or physical impairment, and required supervision, functional support, or nursing care. Median age was 83 years (range, 65 to 100 years), and most residents were female (72%). Few residents could walk outdoors without a walking aid (14%) or shower without assistance (18%); few were nonambulatory (19%) or entirely dependent when eating (8%). The authors utilized a cluster randomized, controlled, nonblinded trial in investigating whether a multifactorial intervention program would reduce falls and falls related injuries. Nine residential care facilities in northern Swedish city were examined and 439 residents 65 years of age or older were included in the study. An 11-week multidisciplinary program was implemented that included both general and resident-specific tailored strategies. The strategies comprised of educating staff, modifying the environment, implementing exercise programs, reviewing drug regimens, supplying and repairing aids, providing free hip protectors, guiding staff, and having post-fall problem solving conferences. Primary outcomes were the number of residents sustaining a fall, the number of falls, and the time to occurrence of the first fall. A secondary outcome was the number of injuries resulting from the falls. A 34-week follow-up period was conducted. During the follow-up period 82 residents (44%) in the intervention program sustained a fall compared with 109 residents (56%) in the control group (risk ratio, 0.78 [95% CI, 0.64 to 0.96]). Three
residents in the intervention group and twelve in the control group suffered one femoral fracture (adjusted odds ratio, 0.23 [CI, 0.06 to 0.94]). An interdisciplinary and multifactorial intervention program targeting residents, staff, and the environment was an effective component in reducing falls and femoral fractures.

Cusimano, Kwok, and Spadafora (2008) evaluated the effectiveness of multifaceted fall prevention program in reducing the number of falls, fallers, recurrent fallers, and injurious falls among older adults in residential care. A systematic review of comprehensive searches of Medline, PubMed, and EMBASE, CINAHL up to July 2007; along with internet engines Google Scholar, Yahoo, and Dogpile was performed to identify eligible studies. Eligible studies for the review were randomized, controlled trials with adequate follow-up study components in their design. Studies that included older adults in residential care who participated in multifaceted falls-prevention programs were included. From 21 articles potentially relevant to the topic, five studies met the inclusion criteria. Article review consisted of randomized control trials and participants 60 years of age or older living in long term care facilities. Multifaceted programs included more than one strategy: staff/resident education on fall prevention, medication review, environmental modification, exercise programs, use of hip protectors, and maintenance of mobility aids were included. Studies had at least a 6-month follow-up period for evaluation of residents after implementation of the multifaceted program and measured at least one outcome. Outcomes consisted of the number of residents sustaining a fall, number of injuries resulting from a fall, number of falls, and number of recurrent fallers. Three studies reported significant reductions in the number of recurrent fallers, two reported significant reductions in the number of falls, and one reported significant
reductions in the number of fallers. The review of evidence found that multifaceted fall intervention programs can significantly reduce the number of recurrent fallers and incidence of falls among older adults living in long term care facilities.

Beasley (2009) examined the benefits of implementing an interdisciplinary and multifactorial strategy to falls prevention in a residential age care facility. The aim of the project was to improve the local practice of fall prevention and ensure evidence-based practice was utilized. The Joanna Briggs Institute Practical Application of Clinical Evidence System program was used as a clinical audit tool. The program incorporated phases of evidence-based standards, audit, feedback, getting research into practice, and re-audit as a strategy to improve practice. The program consisted of an interdisciplinary and multifactorial strategy to prevent falls in the residential care facility. The project consisted of 20 residential participants. The sample of 20 residents chosen for the project included all those previously assessed as medium/high falls risk. A 20-week intervention program was implemented utilizing multiple multifactorial interventions, assessment of the resident’s risk of falling, individualized risk factors contributing to fall, and resident specific tailored strategies. The residential care facility’s policies and procedure manual were reviewed to ensure they reflected evidence-based practice. Prior to the implementation of the project the residential care facility had a total of 21 to 23 falls a month. The study revealed 12 weeks of data in which the number of falls dropped to 12 by the third month. The interdisciplinary and multifactorial intervention program of this project had a positive effect on the reduction of falls of residents in a residential age care facility. The number of residents falling and the number of falls occurring were significantly reduced.
Choi and Hector (2012) examined the reported effectiveness of fall-prevention programs for older adults by reviewing ten years of randomized controlled trials from 2000 to 2009. The design of the review consisted of systematic reviews and meta-analysis of randomized controlled trials. A systematic literature search of articles was conducted using electronic databases: PubMed, CINAHL, PsycINFO, Medline, and RefWorks. Articles describing interventions designed to prevent falls were also included. Of the potential 227 studies, 17 randomized controlled trials with duration of intervention of at least 5 months follow-up were identified. Primary outcome measures were number of falls and fall rate. The study analyzed the effectiveness of fall intervention programs in 2 single interventions versus 15 multifactorial intervention trials, 3 nursing homes versus 14 community randomized controlled trials, and 8 initial interventions with subsequent follow up versus 9 ongoing interventions through the follow up. Of the 17 studies, fall prevention programs across the studies were shown to be effective in reducing fall rates by 14%. Multifactorial intervention trial studies included various interventions such as comprehensive medical exam, occupational therapy assessment, activities of daily living, home environmental and behavioral assessment, cognition assessment, gait stability, medication review, staff training, and education for residents. The multifactorial interventions trial studies indicated a significant reduction of falls by 14% with no variation between multifactorial and single intervention groups. A reduction of falls by 55% in the nursing home setting was significant compared to community groups. Across the studies of initial intervention and ongoing intervention follow-up, a reduction of 10% of falls was observed in multifactorial interventions. The analysis of the studies overall indicated that randomized controlled trials of fall prevention programs conducted within
the past 10 years (2000-2009) are effective in overall reduction of fall rates with an overall reduction of 9% in fall rates and 10% in multifactorial intervention.

*Fall Prevention Program*

*Assessment.* Many risk factors are associated with falls and all residents in a long term care facility should be assessed for fall risk. Fall assessment is multifactorial and includes an interprofessional team (AMDA, 2011). To determine whether individuals are at risk for falling, long term care facilities must conduct a falls risk assessment on each resident and evaluate both intrinsic and extrinsic factors. Intrinsic factors will indicate issues with cognitive impairment or muscle strength along with other factors. Extrinsic factors will indicate issues with residing environmental risks that residents encounter, such as medications, slippery floors, clutter, inappropriate footwear, or inadequate staffing. Facilities must also develop and implement interventions that address specific risk intrinsic and extrinsic factors that each resident faces. Along with the development of an assessment and screening protocol, frequency of screening should be determined (e.g., annually, quarterly, monthly) (AMDA, 2011).

Factors associated with falls should also be evaluated. A detailed analysis should be completed, “after an observed or probable fall, or after a fall risk has been identified” (AMDA, 2011, p. 6). According to AMDA (2011), “identification of possible causes should begin within 24 hours of a fall” and should be based on “resident specific evidence” that includes adequate details (AMDA, 2011, p. 7). Patterns and trends in falls incident should also be examined (e.g. same unit or nursing staff, similar time of day, or location). Identifying and correcting the causes of falls can often reduce the risk of falls and reoccurring fall-related injuries. Delivering effective care and implementing fall
prevention strategies based on current evidence-based practice is vital (Kennedy, 2010). Long term care facilities that provide education to health care staff addressing factors that contribute to falls among older adults can improve the staff’s awareness and contribute to the success of falls management (Kennedy, 2010).

**Intervention.** Essential aspects of a fall prevention program should include a multidisciplinary fall team, fall risk assessment, education to all staff, strategies to prevent residents from falling, reporting and analyzing the occurrence of each resident’s falls, and monitoring the effectiveness of the falls prevention program (Emergency Care Research Institute [ECRI], 2009). Falls risk factors are multifactorial, requiring multiple interventions. Developing or revising fall prevention policies and protocols will only succeed in eliminating the risk of falls when multiple interventions are incorporated (ECRI Institute, 2009). A falls reduction program should assess, incorporate, and reassess multiple interventions specifically targeted to the individual. To succeed, fall prevention must aim to maintain the highest degree of functionality possible, utilize an interprofessional team approach, be efficient, data based, ongoing, and supported by the facility’s leadership (AMDA, 2011).

**Review of Literature Summary**

The literature review revealed that multifaceted fall prevention programs and interdisciplinary teams are effective in fall prevention among older adults age 60 and older in long term care facilities. Multifactorial interventions to prevent falls can significantly reduce the proportion of older people who fall at least once and the monthly rate of falling. Multifaceted fall prevention programs including more than one strategy can also reduce the number of falls, fallers, recurrent fallers, and injurious falls. The
studies investigated various combinations of multiple multifactorial interventions, assessment of the residents’ risk of falling, individualized risk factors contributing to fall, interdisciplinary teams, and resident specific tailored strategies aimed at preventing falls in older adults (Beasley, 2009; Choi & Hector, 2014; Cusimano et al., 2008; Gustafson et al., 2002). Outcomes consisted of the number of residents sustaining a fall, number of injuries resulting from a fall, number of falls, and number of recurrent fallers. Components of the multifactorial interventions included: risk assessment and management, exercise, environmental modifications, educating staff, reviewing medication regimens, general medical assessment, supplying and repairing aids, providing free hip protectors, guiding staff, interprofessional team involvement, and having post-fall problem solving conferences.

Many risk factors are associated with falls and all residents in a long term care facility should be assessed for fall risk. Fall risk assessment is both multifactorial and requires an interprofessional team approach. Long term care facilities must develop and implement interventions that address specific intrinsic and extrinsic risk factors that may contribute to falls among older adults. The fall risk assessment should be documented and an individualized care plan should be implemented that addresses the risk factors that are identified in a resident’s multifactorial assessment. After a fall prevention program is implemented, an evaluation of the effectiveness of the program should be conducted. The project leader, a Psychiatric Mental Health Nurse Practitioner employed at the long term care facility, will ensure the implementation of the evidence-based fall clinical guideline. This effort will also require the engagement of key stakeholders, nurses, and other health
care workers involved in resident care of the long term care facility. A table summarizing
the Review of Literature is found in Appendix A.

Significance to Nursing Practice

“Fall prevention programs are universally interdisciplinary, but nursing care plays
the central role” (Huey-Ming, 2011, para. 1). Nurses play a vital role in ensuring patient
safety, including prevention of falls and fall related injuries. “Patient safety is an essential
and vital component of quality nursing care” (Ballard, 2003, para. 2). The IOM defines
safety as “freedom from accidental injury” and further stated that “ensuring patient safety
involves the establishment of operational systems and processes that minimize the
likelihood of errors and maximize the likelihood of intercepting then when they occur”
(IOM, 1999, p. 3). Nurses make a major contribution to resident safety by assessing fall
risk, designing, and implementing resident-specific fall prevention interventions that
reduce risk and prevent falls and fall-related injury (Quigley, Neily, Watson, Wright, &
Strobel, 2007).

The Joint Commission defines a sentinel event as an “unexpected occurrence
involving death or serious injury or the risk thereof” (Joint Commission, 2014b, para. 2).
Nurses are vital to the coordination of reducing and monitoring adverse outcomes
(Hughes, 2008). In 1995, the American Nurses Association (ANA) Board of Directors
developed nursing quality indicators. These indicators were designed to link nursing care
and resident outcomes. Number of falls and fall-related injuries were also included as
nurse sensitive indicators to be measured in resident outcomes (ANA, 1995). Nursing
sensitive indicators are “measures that reflect the structure, process, and outcomes of
nursing care” (ANA, 2013, para. 1); therefore, nurses’ involvement in fall prevention,
assessment of residents’ risk for falls and injury, active participation in risk reduction strategies, monitoring of statistical data, and evaluating effectiveness of fall prevention programs is of significance (ANA, 2013). Knowledge of fall prevention program deployment and evaluation using statistical analysis can also help nurses design and test effectiveness of fall prevention programs (Quigley et al., 2007). Adopting ANA’s recommendations, conducting in-depth analyses, along with providing unit-specific and population-based feedback can improve the effectiveness of fall prevention programs (Quigley et al., 2007).

Theoretical Framework

Kurt Lewin’s theory of change serves as the framework that guides this project’s design. The theory of change assists leaders in identifying potential challenges that may surface in implementing change. The theory of change consists of three phases: unfreezing, moving, and refreezing stage. The unfreezing-change-refreeze theory is based on the concept that “driving forces facilitate change…” (as cited in Kritsonis, 2005, p. 1). This model takes on a holistic approach of understanding change within an organization’s culture. An organization’s culture comprises communication, practices, attitudes, goals, and values.

The unfreezing phase involves solving a problem. The unfreezing phase makes it possible to let go of what has always been done; replacing it with current evidence-based practices. Within the long term care facility, falls and fall-related injuries among older adults were viewed as the focus of change needed within the organization. Although the long term care facility had a fall prevention program in place, the organization was not observing a steady decline in the number of falls and fall-related injuries. The facility’s
current fall prevention program also lacked evidence-based practice; and continued use of outdated practices can potentially cause harm. The project leader created a feeling of urgency regarding the need to raise the standard of practice for fall prevention by communicating with all stakeholders including administrators, nurse managers, and frontline nursing staff. Involving key stakeholders allowed the staff a voice in emphasizing how the change will benefit the residents and the nurses. It also allowed the staff a chance to be invested and engaged in the fall prevention program through interprofessional team collaboration to increase the odds of the overall success of the fall prevention program.

The project leader enlisted the help of all stakeholders to create a clear vision, sense of trust, and open lines of communication that would provide guidance in assisting the facility in the direction of change from their current fall prevention program. Roundtable discussions were held with stakeholders to identify driving forces and barriers to overcome. Driving forces to implementing an evidence-based fall prevention program were determined as a reduction in falls, decrease in cost related to fall injuries, and improvement in quality of life. Some restraining forces to implementing an evidence-based fall prevention program were determined as staff resistance to change, failure to perceive the benefits, and contradictory facility policies. Reducing the amount of resistance present in order to create change is essential for the leader in the unfreezing phase.

The next phase is the moving stage. Within this stage the leader finds a solution to the problem and strategies to implement necessary changes. This stage required the nurses and other staff members of the organization to change the way they think and
behave in regard, to the new proposed change. The project leader prior to sharing the new fall prevention guideline, conducted a literature review to determine the best effective evidence-based guidelines in preventing falls among older adults. Implementing the fall prevention program required the efforts of various teams, some of which include nurses, managers, clinical nurse educators, and administration. Involving various teams allowed the staff to have a sense of ownership in the success of the project. The project leader acted as a change agent in utilizing motivational communication in helping the staff embrace the change to improve healthcare outcomes. Interactive educational in-services were provided to inform all staff of the steps of the project. The project leader within this stage advocated for patient safety, share and translate best evidence-based practices with the clinical staff, evaluate the outcomes of the practice change, and identify new and innovative fall prevention interventions.

The last phase is the refreezing stage. Within this stage, change is evaluated to see if it is accepted by the staff. The goal of this stage is the permanent establishment of change. Without the permanent establishment of change, it will be easy for the nurses and other health care professionals to fall back into previous potentially harmful practices. Once the six week deadline had been reached, the project leader provided an evaluation and summary of problems and challenges encountered throughout the project to the facility administrators. The project leader encouraged continued oversight of the fall prevention program to ensure compliance. Continued oversight will ensure that the freezing phase remains and the old behaviors do not reoccur. All new and current direct care staff will be educated quarterly to promote behavioral change that will lead to fall reductions.
Meeting the Doctor of Nursing Practice Essentials

Design and implementation of an evidence-based program is an essential role of the Advanced Practice Registered Nurse (APRN) with a Doctor of Nursing Practice (DNP) degree (American Association of Colleges of Nursing [AACN], 2006). The DNP Essentials of Doctoral Education for Advanced Practice Nursing (AACN, 2006) are met through development, implementation, and evaluation of new practice based on evidence-based knowledge, organizational and systems leadership, clinical scholarship for evidence-based practice, information systems and technology for the improvement and transformation of health care, advocacy in healthcare, interprofessional collaboration to improve patient outcomes, clinical prevention and population health, and advanced nursing practice (Appendix B).

This project offers the opportunity to implement a multifactorial intervention to reduce falls among older adults in a long term care facility and provide education on evidence-based practices. The information obtained through the evidence-based American Medical Directors Association falls and falls risk guideline will enhance the knowledge of the nursing staff in the recognition, assessment, treatment, and monitoring of falls and fall risks among older adults in a long term care facility. As a member of the interprofessional team, the nurse practitioner and DNP student was able to recognize that falls among older adults within the long term care facility were a concern. The role of the DNP prepared nurse is to view problems at the resident and organizational level in regard to how nurses can intervene and collaborate with interprofessional teams (Ahmed, Andrist, Davis, & Fuller, 2013). The knowledge gained based on the literature review of evidence-based practices and clinical expertise were meshed to provide the most
comprehensive collection of evidence for the nursing staff to improve care. Improving care outcomes requires transforming knowledge and effectively implementing it across the entire healthcare system (Stevens, 2013). “Knowledge is inextricably linked with action,” and when linked appropriately should provide effective outcomes (Mantzoukas, 2007, p. 219). Knowledge for practice should be effectively and efficiently translated into practice to benefit nurses and, most importantly, residents (Porter-O’Grady, 2003). The effectiveness of implemented evidence-based interventions will be evaluated by the project to determine its magnitude of reducing falls among older adults in a long term care facility.

The DNP prepared nurse practitioner, as an effective leader within organizations, should be compassionate, honest, motivating, knowledgeable, and visionary. The Institute of Medicine (IOM) asserts that organizations should foster strong leadership to promote safety (IOM, 1999). The DNP prepared practitioner must be able to lead change initiatives to improve quality of care and outcomes. The DNP graduate’s leadership must be effective enough to engage other healthcare professionals in promoting change, collaboration, and improving care outcomes (AACN, 2006). The DNP student acted as a member of the interprofessional team, engaging in the exchange of ideas, effective communication, and innovate solutions that could benefit the organization in fall prevention among older adults. Effective interprofessional teams are manifested by open communication whereby DNP leaders facilitate each member’s ability to actively participate in improving resident’s care outcomes. The DNP student and project leader facilitated effective communication that engaged interprofessional team members in actively participating in improving care outcomes for older adults in a long term care facility.
facility as it relates to fall risk management. Regular feedback was provided in correcting behaviors that do not promote resident safety. In a culture of safety, organizations must exercise clear communication among all disciplines involved in resident care. Open communication among team members can also promote ongoing learning in and active participation in continuous improvement of processes and performance.

“Change is fundamental to the healthcare environment, and the organization’s systems must have both the will and the way to master such change effectively” (Kaluzny & McLaughlin, 2006, p. 46). Obtaining the necessary expertise to undertake professional tasks of needed change within the organization can promote continuous quality improvement. Continuous quality improvement is a “structured organizational process for involving personnel in planning and executing a continuous flow of improvements to provide quality health care that meets or exceeds expectations” (Kaluzny & McLaughlin, 2006, p. 6). Recognizing and involving others in the redesigning processes of quality improvement can increase dignity and sense of belonging among team members within the organization (Kaluzny & McLaughlin, 2006). The DNP student and preceptor, who is also a Psychiatric and Mental Health Nurse Practitioner (PMHNP), will involve all stakeholders in the implementation process of a multifactorial intervention, make personal adjustments to improve capstone project performance, and involve all interprofessional team members in the data analysis and reporting process to create an environment of improved quality care. The DNP student consistently aimed to motivate the long term care facility to take initiative on an existing problem of reducing falls.

Potential implications of the project’s goal are that healthcare professionals will not only have the knowledge to recognize multifactorial risk factors associated with falls,
but be proactive in implementing evidence-based strategies to reduce falls before they occur. The PMHNP and DNP student assumed the role of leader in this practice change initiative in order to enhance the knowledge of the nursing staff, incorporate accountability for practice, advocate for patient safety, serve as a consultant, and improve residents’ quality of care. The long term care facility director and IRB director were notified of the project and the project leader was given approval to design and implement an evidence-based training module for the facility’s long term care staff. Professional development will be continuous and conducted quarterly with the nursing staff and other professional disciplines caring for residents in the long term care facility.

Evaluation Plan

Educational sessions will be provided by the project leader to all healthcare professionals on intrinsic and extrinsic factors associated with falls among older adults in the long term care facility, the use of the AMDA fall risk assessment, and an individualized care plan to prevent falls. Evaluation of the Fall Prevention Program will include monitoring of performance measures: residents with documented fall risk assessment done within 72 hours of admission, 14 days of significant change status, residents with documented fall risk assessment done that are due for quarterly assessment, percentage of residents with a completed care plan for managing falls and fall risk (Appendix C). The project will be conducted over a 6-week period. A retrospective chart review will be conducted to examine adherence to performance measures.
Assumptions

Major assumptions in this study include:

1. Healthcare professionals will consent to participate in the program.

2. Healthcare professionals will be willing to assist in preventing falls among subjects.

3. Healthcare professionals will honestly report and document an accurate account of falls.

4. Healthcare professionals will consistently utilize the evidence-based fall risk assessment.

Purpose

The capstone project’s goal is to implement and evaluate an evidence-based fall prevention program for older adults within a long term care facility. Specific objectives of the project will be to: (a) provide education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility; (b) replace the existing fall prevention policy and program with the American Medical Directors Association falls and fall risk clinical guideline.
CHAPTER II

METHODS

The purpose of this project is to implement and evaluate a multifactorial fall prevention program for older adults in a long term care facility. The fall prevention program is designed so that nursing staff can implement an integrated and holistic approach that encompasses recognition of multifactorial risk factors for falls. The multifactorial intervention is based on the American Medical Directors Association (2011) guidelines. Components of the AMDA guideline were implemented by the project leader for the long term facility staff. Approval was received from the Institutional Review Board (IRB) at the University of Southern Mississippi to deliver the multifactorial intervention at East Mississippi State Hospital (EMSH) long term care facility (LTC) (Appendix D).

Setting

East Mississippi State Hospital (EMSH) is a 340 bed acute care hospital. It is located in east central Mississippi. East Mississippi State Hospital has seven units: (a) an aggressive observational male; (b) aggressive observational female; (c) vulnerable male; (d) vulnerable female; (e) transitional male; (f) transitional female; and (g) chemical dependency male unit. The LTC facility consists of the vulnerable male and female unit. Vulnerable adults are defined by the facility as any adult regardless of disability, psychiatric diagnosis, disease, developmental or emotional disorder, or physical injury who is unable to independently provide their own basic needs. EMSH provides care to more than 500 patients each year.
East Mississippi State Hospital’s long term care facility is a 120 bed facility that offers all levels of care to individuals who are in need of long-term care. The facility offers medical, psychiatry, and therapy services (occupational, speech, physical) services to vulnerable male and female residents. The long term care facility is divided into two nursing unit. Each unit consists of two halls, one for the females and the other for male residents. There are no specific admission criteria for each unit except each resident must be a Medicare beneficiary in order to qualify for admission. The project was implemented on the vulnerable male and female unit at the LTC facility.

Population

Participants were healthcare professional staff (Safety Deputy, Psychology, Family Nurse Practitioners, Psychiatrist and Mental Health Nurse Practitioners, Medical Director, Director of Nursing, Certified Nursing Assistant, Registered Nurses, Social Workers, Activity Personnel) at the long term care facility. A healthcare professional is an individual who by education, training, or licensure is qualified to engage in providing health care. Eligibility criteria included full time employment as a healthcare professional and nursing staff (Registered Nurse (RN), Licensed Practical Nurse (LPN), and Certified Nursing Assistants (CNAs)) providing direct care for residents in the long term care facility. Healthcare professionals who work the 7:00 am-7:00 pm and 7:00 pm-7:00 am shift were required to participate in the project. The project excluded all healthcare professionals that work on a contract basis. Educational sessions were provided to all healthcare professionals, but only the registered nurses were be able to conduct the fall risk assessment due Mississippi Board of Nursing (MSBN) scope of practice laws that allow only registered nurses to perform assessments (MSBN, 2012).
Design

The design of the project is a descriptive design. The project consists of quality improvement components and evidence-based practice change. The project relied on existing literature to identify the best practice approach in fall prevention among older adults in a long term care facility. All healthcare staff within the long term care facility were provided mandatory educational sessions, feedback, and data collected for the evaluation of this educational project. Evaluation of the fall prevention program included monitoring of performance measures and process indicators.

Procedures

Components of the American Medical Directors Association (AMDA) (2011) Falls and Fall Risk Clinical Guideline Prevention Program utilizing a validated fall risk assessment, clinical guideline, and development of a care plan for managing falls and fall risk was implemented at the long term care facility vulnerable male and female unit. The AMDA Clinical Practice Guideline is designed to guide long term care staff in assessing and managing residents who are at risk for falling and who have a recent history of falls. It is intended to assist the long term care staff in understanding intrinsic and extrinsic risk factors associated with falls and provide guidance for a timely approach in conducting a resident assessment and selection of appropriate fall prevention strategies among older adults (AMDA, 2011). This guideline helps identify risk factors for falls, strategies to prevent falls, and ways to adjust the resident’s environment to minimize the risk of injury due to falls (AMDA, 2011). The fall prevention program guideline provides evidence-based data on recognition, assessment, treatment, and monitoring of falls and fall risk. It also includes an algorithm that summarizes steps included in addressing fall risk and falls
(Appendix E). The project leader provided education on the guideline and monitored the fall prevention program. The nursing staff implemented components of the recognition, assessment, and treatment steps of the guideline in the fall prevention program at the long term care facility.

Recruitment. The long term care facility Administrator, Director of Nursing, and Educational Director were notified by the project leader of the intended education sessions (Appendix F). Letter of approval to conduct the project were obtained from the long term care facility (Appendix G). The facility’s Educational Director scheduled the intended date for the educational program. A flyer (Appendix H) was placed on the facility’s staff communication board prior to delivery of the educational session for all professional healthcare staff. The educational sessions were delivered on three days, two times each day for one week. One of the educational sessions occurred in the morning and one in the afternoon to ensure that all healthcare staff was able to attend at least one session. The educational sessions were scheduled with a time frame of one hour. Attendance was mandatory for all healthcare staff which was listed on the flyer and mandated by the educational director. Although attendance at the educational session was mandatory, participation in the project was voluntary.

Consent. On the date of the educational intervention, the project leader presented a brief oral presentation to the healthcare staff describing the purpose of the project. A copy of the oral presentation was given to all participants (Appendix I). Participants were given the opportunity to ask questions after the oral presentation and prior to obtaining informed written consent to participate in the program. Participants were then given the written informed consent form (Appendix J). Demographic forms were distributed to
ensure participants were over 18 years of age (Appendix K). Once consent and demographic forms were obtained to participate in the project, forms were returned to the project leader and placed in a locked box in the project leader’s office.

**Recognition.** The recognition portion of the fall prevention program included providing education to all healthcare professionals within the long term care facility on intrinsic and extrinsic risk factors associated with falls, documentation of risk factors, and implementing the AMDA Falls and Fall Risk Clinical Guideline. The interactive educational program was delivered by the project leader via PowerPoint presentation. After each educational session the healthcare staff completed an education training evaluation survey (Appendix L)

**Assessment.** For the capstone project, assessment involved Step 1 and 2. Step 1 involved assessing if the resident has a history of falls and Step 2 assessing if the resident is at risk for falling. To complete both steps, all nursing staff was given instructions on completing and scoring the Fall Risk Assessment (Appendix M). The nursing staff was taught how to review the resident’s record for evidence of previous falls and to ask resident or resident’s caregiver for history of falls. The nursing staff was also taught how to document history of falls and risk factors for falls in the resident’s record.

**Treatment.** The treatment portion of the guideline includes Step 6 and Step 8. Step 6 includes developing a plan for managing falls and fall risk. Step 8 is implementing relevant measures to address falling and fall risk. The project leader discussed how to incorporate the resident’s fall risk score in an individualized care plan. Appropriate goals should be included on the resident’s care plan that can assist in reducing the number of falls and risk of injury. Approaches prioritized to manage fall risk and falling. The care
plan should also reflect coordination of the interprofessional team and facility safety committee in addressing falling and fall risk. The care plan will address the status of conditions that predispose the resident to falling and specific fall prevention interventions.

After completion of the educational sessions on recognition, assessment, and treatment, all nursing staff was asked to remain for an interactive session that provided further explanation of utilizing the fall risk assessment and incorporating fall prevention in individualized care planning. Inclusion criteria for utilizing the fall risk assessment included resident status of new admission, quarterly assessment, or significant change.

Upon completion of the educational sessions, nursing staff participants implemented components of the recognition, assessment, and treatment steps of the falls and fall risk guideline over a 6 week period. Nursing staff implemented a validated fall risk assessment and an individualized care plan on older adults in the LTC facility. The MDS nurse notified the Director of Nursing (DON) of residents deemed a significant change and due for quarterly fall risk assessments, and also gave the DON a list. The DON in turn notified the nursing staff and distributed the list created by the MDS nurse. The nursing staff assessed residents on the list within the given time frame and notified the project leader when the assessment was completed.

*Monitoring.* The monitoring portion of the guideline includes Steps 8, 9 and 10. Step 8 is implementing relevant general measures to address falling and fall risk. Step 9 is monitoring falling in residents with a fall risk or fall history. Monitoring information will be included as a handout to all nursing staff in the interactive education sessions for long
term management of falls for the long term care facility; however, only Step 10 was monitored by the capstone project leader.

Step 10 involved establishing quality improvement activities related to fall risk and falling. Step 10 included the evaluation of the facility’s success in fall prevention. The performance measures of fall risk assessment completed and documented were monitored. Process indicators of the fall prevention program were evaluated over six weeks according to performance measures. Process indicators that were evaluated for evidence of completion included: percentage of residents with documented fall risk assessment done within 72 hours of admission and 14 days of significant change status; percentage of residents with documented fall risk assessment done that were due for quarterly assessment; percentage of residents with a completed care plan for managing falls and fall risk; and average fall risk scores. Care plans where to address the status of conditions that predispose the resident to falling and specific fall prevention efforts. The project leader collected this data by conducting a retrospective chart audit and evaluating performance measures utilizing the data collection tool (Appendix N). The fall prevention program evaluation, including documentation of the validated fall risk assessment and individualized care plan, were coded at the time of data collection. Each chart audited was given a numerical number in the order reviewed to maintain confidentiality. No identifying information such as resident case numbers, chart numbers, birth date, or initials were used on the data collection form. Subjects were not asked to provide any information from the resident’s chart. A request for waiver was approved by USM’s IRB in conducting the retrospective chart audit. The staff was given seventy-two hours to implement the performance measures before the chart audit was conducted.
Ethical Protection of Human Subjects

Participants in the project consisted of healthcare professionals. Participation in the project was voluntarily and not influenced by the project leader. Participants were given written informed consent prior to initiation of the project. No participant was penalized for withdrawal from the project and could withdraw at any time without giving an explanation. The risk to participants was minimal in this project. Data was protected using coding, and could not be associated with individual subjects; therefore, loss of privacy and breach of confidentiality was a minimal risk. To ensure confidentiality, participant information was protected through the use of codes assigned by the project investigator on a data collection form. The data entered on the data collection form did not contain any identifying information. Data was recorded and summarized by the project leader so that subjects could not be identified, directly, or through identifiers linked to the subjects. Confidentiality was protected by placing consent forms and all data collected in a locked file box that was kept by the project leader. Access to the collected data was available only to the project leader. To further ensure confidentiality, the data collection forms were placed in a shredded box the day after completion of the project by the project leader.

Participants will benefit directly from participating in the project by making a major contribution to the information known about recognition, assessment, and prevention of falls among older adults in a long term care facility.
Data Analysis

The data from this project included completion of the Falls Risk Assessment form within 72 hours of admission, 14 days of significant change status, and for quarterly assessment. Care plan data included a falls prevention plan as appropriate for the resident and a care plan following current guidelines in terms of frequency of the evaluation, which is upon admission, quarterly, and significant change status. Diagnosis of cognitive impairment and age over 65 years were evaluated. Analysis of the project data included percentages and descriptive statistics. Educational sessions were evaluated using the educational training survey (Appendix L). Program evaluation of implementing of the AMDA Falls and Fall Risk Clinical Guideline, utilizing the validated fall risk assessment, and completed individualized care plan will be analyzed using percentages and descriptive statistics. Once all descriptive results are collected, the results of the project will be analyzed using the Statistical Package for Social Science (SPSS) version 16.0 for Window.
CHAPTER III

RESULTS

The goals of the capstone project were to implement and evaluate evidence-based fall prevention interventions among older adults at a long term care facility. Specific objectives of the project were to: (a) provide education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility; and (b) replace the existing fall prevention policy and program with the American Medical Directors Association falls and fall risk clinical guideline.

Analysis of Data

Health Care Professional Demographics

One-hundred and twenty participants consented to participate in the educational program. Demographic data was analyzed using descriptive statistics. Table 1 shows a summary of demographic data.

Table 1

Demographic Data Summary

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentages/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>95% (n=114)</td>
</tr>
<tr>
<td>Males</td>
<td>5% (n=6)</td>
</tr>
<tr>
<td>2. Age</td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>20% (n=24)</td>
</tr>
<tr>
<td>28-37</td>
<td>35% (n=42)</td>
</tr>
<tr>
<td>38-47</td>
<td>20% (n=24)</td>
</tr>
<tr>
<td>48-57</td>
<td>15% (n=18)</td>
</tr>
<tr>
<td>58 or above</td>
<td>10% (n=12)</td>
</tr>
</tbody>
</table>
Table 1 (continued).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentages/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Race/Ethnic Origin</td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>5% (n=6)</td>
</tr>
<tr>
<td>African American</td>
<td>60% (n=72)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>35% (n=36)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0% (n=0)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>4. Occupation</td>
<td></td>
</tr>
<tr>
<td>Certified Nurse Assistant</td>
<td>38% (n=46)</td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>18% (n=22)</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>23% (n=28)</td>
</tr>
<tr>
<td>Certified Nurse Practitioner</td>
<td>2% (n=2)</td>
</tr>
<tr>
<td>Physician</td>
<td>2% (n=2)</td>
</tr>
<tr>
<td>Psychology</td>
<td>5% (n=6)</td>
</tr>
<tr>
<td>Social Worker</td>
<td>2% (n=2)</td>
</tr>
<tr>
<td>Activity Personnel</td>
<td>4% (n=5)</td>
</tr>
<tr>
<td>Other/Custodial</td>
<td>6% (n=7)</td>
</tr>
<tr>
<td>5. Years experienced in current role</td>
<td></td>
</tr>
<tr>
<td>Less than one year</td>
<td>13% (n=16)</td>
</tr>
<tr>
<td>1-5 years</td>
<td>30% (n=36)</td>
</tr>
<tr>
<td>5-10 years</td>
<td>22% (n=26)</td>
</tr>
<tr>
<td>10-15 years</td>
<td>18% (n=22)</td>
</tr>
<tr>
<td>15 years or above</td>
<td>17% (n=20)</td>
</tr>
</tbody>
</table>

The majority of the staff represented were females (n=114; 95%) and nursing staff (n=83; 69%). The total number of participants (N=120) was comprised of certified nursing assistants (n=46), licensed practical nurses (n=22), registered nurses (n=28), advanced practice nurse practitioners (n=2), physicians (n=2), psychologists (n=2), social workers (n=2), activity personnel (n=5), and other/custodial staff (n=7). 60% (n=72) of
the participants were African Americans. The majority of the participants had greater than 5 years of experience in their current role ($n=68; 57\%$).

*Educational Training Evaluation Survey*

The majority of the participants ($n=80, 67\%$) rated the overall training session as excellent. All participants rated the trainer as excellent on thorough grasp of the subject, preparation for sessions, and professional demeanor. The educational training evaluation survey data was analyzed using descriptive statistics. Table 2 shows data responses from the participants.

Table 2

*Educational Training Evaluation*

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overall rating of training session</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>67% ($n=80$)</td>
<td>33% ($n=40$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Aspects of trainer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thorough grasp of subject</td>
<td>100% ($n=120$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actively invite questions</td>
<td>90% ($n=108$)</td>
<td>10% ($n=12$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answer question posed</td>
<td>95% ($n=114$)</td>
<td>5% ($n=6$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help provided when needed</td>
<td>97% ($n=116$)</td>
<td>3% ($n=4$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepared for sessions</td>
<td>100% ($n=120$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional demeanor</td>
<td>100% ($n=120$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide time for follow-ups</td>
<td>92% ($n=110$)</td>
<td>8% ($n=10$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall skills</td>
<td>97% ($n=116$)</td>
<td>3% ($n=4$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Aspects of Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meet expectations</td>
<td>90% ($n=108$)</td>
<td>10% ($n=12$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Instruction</td>
<td>95% ($n=114$)</td>
<td>5% ($n=6$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length Appropriate</td>
<td>98% ($n=118$)</td>
<td></td>
<td>2% ($n=2$)</td>
<td></td>
</tr>
<tr>
<td>Begin on Time</td>
<td>100% ($n=120$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMDA Guideline</td>
<td>90% ($n=108$)</td>
<td>3% ($n=4$)</td>
<td>7% ($n=8$)</td>
<td></td>
</tr>
</tbody>
</table>
Written comments on the educational project evaluation form were provided by thirty-four participants. Duplicate comments are not included. Thirty-three participants responded to their favorite part of the training and comments included: (1) “All of the information,” (2) “Learning how to prevent falls,” (3) “The length of the training,” (4) “Being educated on fall prevention,” (5) “Knowing how many falls and how to stop them,” (6) “Learning about AMDA fall guideline,” (7) “Discussions,” (8) “The thoroughness of information presented,” (9) “Knowing what to do ahead of time,” (10) “Open ended questions,” (11) “Very interesting,” (12) “The trainer explained everything in a professional manner,” (13) “The trainer’s humor.” Seven participants responded to least favorite part of the training and comments included: (1) “To warm,” (2) “Number of people falling,” (3) “Sighing,” (4) “I don’t have a least favorite part,” (5) “More discussion,” (6) “It was all great,” (7) “Paper work.” Four participants responded to suggestions or comments to help improve future training sessions: (1) “Video on more examples,” (2) “Nothing to improve,” (3) “No suggestions,” (4) “Maybe more on how the documentation should or should not be done.”

After completion of the evidence-based training program and evaluation of the program, the staff registered nurses began utilizing the AMDA (2011) Falls risk assessment tool, and the MDS registered nurses began completing care plans for managing falls and fall risk. The program was evaluated for effectiveness with the goal of enhancing the healthcare professionals’ knowledge of evidence-based practices of recognizing, assessing, and preventing falls among older adults in a long term care facility.
Program Evaluation

**Fall Risk Assessment and Care Plan**

A total of fifty-three chart audits \((n=53; 100\%)\) were completed at the long term care facility during the six week period to determine if performance measures were documented. The majority of the charts audited were female residents \((n=34; 64\%)\), had a diagnosis of cognitive impairment \((n=50; 89\%)\), and were 65 years of age and older \((n=50; 94\%)\). All charts audited at the long term care facility during the six week period had a fall risk assessment, fall risk score, and care plan documented. Data on gender, fall risk assessment, history of previous falls, risk for fall, completed care plan, diagnosis of cognitive impairment, and age was analyzed using descriptive statistics. Table 3 shows a summary of chart audit data.

**Table 3**

*Chart Audit Data Collection Tool*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentages/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>64% ((n=34))</td>
</tr>
<tr>
<td>Males</td>
<td>36% ((n=19))</td>
</tr>
<tr>
<td>2. Fall Risk Assessment</td>
<td></td>
</tr>
<tr>
<td>Done within 72 hours of admission</td>
<td>100% ((n=3))</td>
</tr>
<tr>
<td>Done within 14 days of significant change status</td>
<td>100% ((n=2))</td>
</tr>
<tr>
<td>Done for quarterly assessment</td>
<td>100% ((n=48))</td>
</tr>
<tr>
<td>3. History of Previous Fall</td>
<td>55% ((n=29))</td>
</tr>
<tr>
<td>4. Risk for Fall Score</td>
<td>100% ((n=53))</td>
</tr>
</tbody>
</table>
Table 3 (continued).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentages/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Completed Care Plan</td>
<td>100% (n=53)</td>
</tr>
<tr>
<td>6. Diagnosis of Cognitive Impairment</td>
<td>89% (n=47)</td>
</tr>
<tr>
<td>7. Age over 65 years</td>
<td>94% (n=50)</td>
</tr>
</tbody>
</table>

The documented fall risk assessment was completed within seventy-two hours of admission, within fourteen days of significant change status, and at the time of a quarterly assessment. Over half of the fall risk assessments completed (n=29; 55%) had a history of previous falls. All of the assessments completed identified the resident at risk for falling. The majority (n=45; 85%) were identified as high risk for falls, a score of eleven and above with a mean (average) score of 14. Eight (15%) of the chart audits risk for falls score was six to ten indicating moderate risk for falls with a mean (average) score of 8. The majority of female residents (n=32; 71%) had high risk for falls scores and the majority of males (n=6; 75%) had moderate risk for falls scores. Table 4 shows a summary of chart audit fall risk score data.
Table 4

*Chart Audit Data Collection Tool Fall Risk Scores*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentages/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High Risk Scores 11 and above</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>71% (n=32)</td>
</tr>
<tr>
<td>Males</td>
<td>29% (n=13)</td>
</tr>
<tr>
<td>2. Moderate Risk Scores 6 to 10</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>25% (n=2)</td>
</tr>
<tr>
<td>Males</td>
<td>75% (n=6)</td>
</tr>
</tbody>
</table>

All of the care plans were completed according to current guidelines in terms of frequency of evaluation and addressed the status of conditions predisposing the resident to falling with specific fall prevention efforts. The majority of the care plans showed documentation of coordination of the MDS registered nurse and staff registered nurse fall risk assessment findings with the interprofessional team and facility fall review safety committee.
CHAPTER IV

DISCUSSION

The capstone project implemented and evaluated an evidence-based fall prevention intervention among older adults in a LTC facility. Components of the AMDA (2011) Falls and Fall Risk Clinical Guideline Prevention Program utilizing a validated fall risk assessment and development of a care plan for managing fall risk was implemented at the long term care facility. The fall prevention program guideline provided evidence-based data on recognition, assessment, treatment, and monitoring of fall risk. Interactive mandatory educational sessions were provided to assist the long term care staff in understanding intrinsic and extrinsic risk factors for falls.

After delivery of the educational sessions for this project, the long term care facility staff was able to identify multifactorial factors associated with falls. Specifically, the project increased the staff’s understanding of intrinsic and extrinsic factors associated with falls among older adults. A vital component of risk factor education requires emphasizing the importance of multifactorial factors associated with falls prevention, and the importance of identifying each risk factor so that potentially modifiable factors can be examined (Bonner, 2006). To deliver effective care and implement fall prevention strategies, current evidence-based practice is essential (Kennedy, 2010). Organizations that provide education addressing factors that contribute to falls among older adults in long term care facility can improve awareness and contribute to the success of fall management in practice (Kennedy, 2010).

The capstone project evaluated the compliance of the registered nurses in implementing evidence-based fall prevention interventions among older adults in a LTC
facility. A high level of compliance was noted in implementing the evidence-based fall prevention interventions. The AMDA’s fall risk assessment was completed on all residents and care plans were completed according to current guideline. An individualized care plan was documented by the nurses on residents identified as moderate or high risk for falls and the majority of the care plans showed documentation of coordination of fall risk assessment findings with the interprofessional team and facility fall review safety committee. Therefore, it is noted that the interventions enhanced the knowledge of the nursing staff in recognizing, assessing, and preventing falls before they occur. The practice change initiative project also provided the long term care facility with an evidence-based fall prevention guideline.

Evidence-based literature recommends fall prevention interventions should include: a fall risk assessment evaluating both intrinsic and extrinsic factors, development and implementation of interventions that address specific risk factors, development of an individualized care plan, education provided to all staff, and evaluation of the fall prevention program (AMDA 2011; Beasley 2009; Capezuti & Micelli, 2014; Choi & Hector 2012; ECRI Institute 2009).

Limitations

Objectives of the study may have been achieved due to the effect of the registered nurses being observed by the project leader. Some participants may have worked harder or changed their behavior due to the attention they were receiving from the project leader and organization. This is referred to as the Hawthorne effect. The Hawthorne effect consists of improvements in behaviors of healthcare providers that lead to temporary changes in the process of care administered and resident outcomes (Kazandjian & Lied,
This may have caused over stating of the results which may suggest that normal practice is of poor quality lacking current evidence-based practices.

Components of the AMDA (2011) fall and falls risk clinical guideline were evaluated. Implementing all components of the AMDA guideline could provide further insight into effectiveness of the fall prevention program. The AMDA guideline includes many functions and tasks related to recognizing, clarifying, managing, and monitoring conditions and situations (AMDA, 2011). The guideline; however, does not specify who should complete all tasks and it is the responsibility of the facility to ensure tasks are done correctly and by appropriate interprofessional team members.

Subjects may have provided answers to the educational evaluation survey that they thought the project leader wanted to hear. Answers to the educational evaluation survey may have not been an accurate reflection of the how the participant truly felt. Participants may have also answered questions out of boredom or lack of memory. Questions may have also been interpreted differently by each individual.

Although gender and age were included in the data collection tool, ethnicity was not included. Inclusion of ethnicity on the data collection tool could have assisted in determining if ethnicity was a key factor in fall risk. Caucasian women display significantly higher hip fracture rates than African American women (CDC, 2013a).

Implications

Long term care facilities must conduct a fall risk assessment on each individual evaluating both intrinsic and extrinsic factors. As individuals age, they will become increasingly susceptible to falls and sustaining fall related injuries (WHO, 2004). It is vital that long term care facility clinicians and nursing staff screen residents for fall risk
to prevent injury, associated costs, and possible decline of quality of life. Implementing and translating change into clinical practice can greatly influence fall and fall-related injury outcomes among older adults in long term care facilities (Boddy et al., 2012). Without change, falls and fall related injuries can continue to rise or fluctuate with no steady decline. Therefore incorporating evidence-based fall prevention interventions into practice can assist in recognizing, assessing, and preventing falls among older adults in a long term care facility. Results of this project will be instrumental in revising current policies and incorporating evidence-based fall prevention guidelines at the LTC facility.

By increasing the long term care facility’s staff awareness of multifactorial factors associated with falls residents who are at risk for falls can be targeted for comprehensive care plans and individualized fall prevention interventions. Completion of a comprehensive review of fall risk factors, increased awareness of the importance of identifying individual risk factors, and strategies for the management of falls will lead to more consistent and timely interventions by staff and a change of behaviors that could significantly reduce injurious falls (Bonner, 2006). The educational sessions brought together various disciplines of healthcare professionals and presented an inclusive message about falls prevention to all staff that will be continued quarterly within the long term care facility. Quarterly educational in-services can be provided to improve the health care professional’s knowledge of recognizing, assessing, and preventing fall with regards to intrinsic and extrinsic factors associated with falls among older adults in long term care facilities. Despite ongoing education, not all falls in the long term care facility will be prevented. Residents, at times, may present with complex health issues or no
modifiable risk factors. However, efforts should focus on minimizing fall risk and risk of fall-related injuries (AMDA, 2011).

This project included components of quality improvement and evidence-based practice change. Organizations should incorporate safety practices that promote safety awareness, quality improvement, support for safety oversight committees, and implementation of polices necessary to achieve safety goals (Capezuti & Micelli, 2014). The safety program at the LTC should address falls prevention by conducting fall risk assessments and documenting a fall-prevention program (Joint Commission, 2014). The LTC at the end of the six week period conducted two medical staff meetings discussing incorporating the AMDA (2011) fall and falls risk clinical guideline into current policies and procedures.

Incorporating resident safety within the organization in regard to prevention of falls, assessing fall risk, implementing fall risk reduction strategies, and evaluating fall prevention programs is a key aspect of nursing practice (ANA, 2013). For this project, structure and process of nursing care were measured. The key leader in this project was the PMHNP and DNP student. As a member of the interprofessional team at the LTC facility, the PMHNP assumed the role of leader in the practice change by enhancing the knowledge of the health care professional staff and advocating for patient safety by implementing evidence-based strategies to prevent falls.

Recommendations for Further Evaluation

- Routine quarterly chart audit evaluating implemented fall prevention interventions to ensure current evidence-based practice is exercised.
• Continued monitoring and reinforcement of fall prevention program to ensure compliance.

• Further descriptive studies need to be conducted to substantiate findings.

Conclusion

Residents in LTC facilities with a history of falls, high fall risk scores, diagnosis of cognitive impairment, female gender, and age over 65 should be routinely monitored for fall risk and fall prevention strategies implemented. Multiple factors can contribute to falls and it is vital that long term care facilities screen for fall risk. The implementation of the evidence-based fall prevention interventions and educational sessions enhanced the long term care facility staff’s knowledge in recognizing, assessing, and managing falls. This project has provided a foundation for improving communication among interprofessional members and incorporating current evidence-based recommendations into practice.
### APPENDIX A

#### REVIEW OF LITERATURE TABLE

<table>
<thead>
<tr>
<th>Authors date</th>
<th>Study type</th>
<th>Sample</th>
<th>Data collection</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Medical Directors Association (2011)</td>
<td>Clinical Practice guideline</td>
<td>Older adults age 60 and older</td>
<td><strong>Observation:</strong> Workgroups of practitioners and others involved in resident care in long-term care facilities reviewed pertinent literature related to the guideline subject.</td>
<td>Fall assessment is both multifactorial and interdisciplinary and requires reviewing each resident’s physical ability in light of his or her activity level. All residents should be assessed for fall risk. Some risk factors are modifiable, while others are not in which steps should be taken to reduce the consequences of falls.</td>
</tr>
<tr>
<td>Chang et al., (2004)</td>
<td>Meta-analysis</td>
<td>Older adults age 60 and older</td>
<td><strong>Observation:</strong> JTC and WAM independently reviewed articles and extracted general information on objectives, design, participants' age, and outcomes. 40 trials were identified.). The results demonstrated a significant reduction in the risk of falls (risk ratio, 0.88) in the assessment and intervention groups compared to the control groups which received the Multifactorial falls risk assessment and management program was the most effective component in reducing fall risk (incidence rate ratio, 0.82; number needed to treat 11).</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Setting</td>
<td>Observation</td>
<td>Results</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
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<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>DeWitte, Dijcks, Neyens, Schols, Twisk, VandenHeuvel, &amp; VanHaastregt (2009)</td>
<td>Cluster-randomized control 12-month trial</td>
<td>Psychogeriatric wards in 12 nursing homes in the Netherlands, total of 518 participants</td>
<td><strong>Observation:</strong> Data on falls were collected prospectively by asking all participating wards to keep records of any fall incident on a structured report form.</td>
<td>Monthly rate of falls was also significantly lower (incidence rate, 0.80).</td>
</tr>
<tr>
<td>Gustafson, Lundin-Olsson, Jansen &amp; Nyberg (2002)</td>
<td>Cluster randomized, controlled, nonblinded trial</td>
<td>Participants were 65 years of age or older disabled by cognitive or physical impairment and required supervision, functional support, or</td>
<td><strong>Pilot Project:</strong> Nine residential care facilities in northern Swedish city were examined and 439 residents 65 years of age or older were included in the study. An 11-week multidisciplinary program was</td>
<td>With the implementation of a multifactorial intervention including: anticipating the circumstances and causes of falls, critically reviewing and monitoring medication intake (type, number, dose and time of intake), individually designed exercise programs, carefully (re)assessing the need for assistive and protective aids, and promoting the correct use of these aids. The intervention group showed a significantly lower mean fall incidence rate than the control group (rate ratio=0.64, 95% CI=0.43-0.96, P=0.029).</td>
</tr>
</tbody>
</table>

The strategies comprised of educating staff, modifying the environment, implementing exercise programs, reviewing drug regimens, supplying and repairing aids, providing free hip protectors, guiding staff, and having post-fall problem solving conferences. During the
<table>
<thead>
<tr>
<th>Study</th>
<th>Study Design</th>
<th>Participants</th>
<th>Observation:</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cusimano, Kwok, and Spadafora (2008)</td>
<td>Randomized, controlled trials</td>
<td>Participants 60 years of age or older living in long term care facilities who participated in multifaceted falls-prevention programs.</td>
<td>Multifaceted programs included more than one strategy: staff/resident education on fall prevention, medication review, environmental modification, exercise programs, use of hip protectors, and maintenance of mobility aids were included. The review of evidence found that multifaceted fall intervention programs can significantly reduce the number of recurrent fallers and incidence of falls among older adults living in long term care facilities.</td>
<td>Follow-up period 82 residents (44%) in the intervention program sustained a fall compared with 109 residents (56%) in the control group (risk ratio, 0.78 [95% CI, 0.64 to 0.96]). An interdisciplinary and multifactorial intervention program targeting residents, staff, and the environment was an effective component in reducing falls and femoral fractures.</td>
</tr>
<tr>
<td>Beasley (2009)</td>
<td>Systematic review</td>
<td>20 residential participants assessed as medium/high falls risk.</td>
<td><strong>Pilot Project:</strong> The Joanna Briggs Institute Practical Application of Clinical Evidence System program was the clinical audit tool used. This program utilized a process of audit, feedback, and reaudit as a strategy to improve practice.</td>
<td>The interdisciplinary and multifactorial intervention program of this project had a positive effect on the reduction of falls of residents in a residential age care facility. The number of residents falling and the number of falls occurring were significantly reduced.</td>
</tr>
</tbody>
</table>

| Choi and Hector, (2012) | Systematic reviews and meta-analysis of randomized controlled trials | Older adults 60 years of age and older | **Observation:** A systematic literature search of articles was conducted using electronic databases: PubMed, CINAHL, PsycINFO, Medline, and RefWorks. Articles describing interventions designed to prevent falls were also included. | Of the 17 studies fall prevention programs across the studies were shown to be effective in reducing fall rates by 14%. Multifactorial intervention trial studies indicated a significant reduction of falls by 14% with no variation between multifactorial and single intervention groups. A reduction of falls by 55% in the nursing home setting was significant compared to community groups. |
### APPENDIX B

**MEETING THE DOCTOR OF NURSING PRACTICE (DNP) ESSENTIALS**

<table>
<thead>
<tr>
<th>DNP-Essentials</th>
<th>DNP Essential Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Essential I- Scientific Underpinnings for practice</strong></td>
<td>Utilized scientific evidence and the Theory of Change to implement and evaluate a change in practice by implementing the American Medical Directors Association Falls and Fall Risk (2011) guideline for the long term care nursing staff.</td>
</tr>
<tr>
<td><strong>Essentials II- Organizational and System Leadership for Quality Improvement and Systems Thinking</strong></td>
<td>Acted as a member of the interprofessional team engaging in systematic activities of exchange of ideas, effective communication, identifying outcomes and collecting meaningful data, active participation in disseminating quality reports, engaging in innovate solutions that could benefit the organization in ensuring resident-centered care, quality healthcare outcomes and resident safety, implementation of an evidence-based fall guideline, evaluation of performance measures and documentation of the fall prevention among older adults.</td>
</tr>
<tr>
<td><strong>Essential III- Clinical Scholarship and Analytical Methods for Evidence-Based Practice</strong></td>
<td>Reviewed scientific literature databases and evidence-based fall prevention programs to design, implement, and evaluate an evidence-based intervention using descriptive statistical analysis.</td>
</tr>
<tr>
<td><strong>Essential IV-Information Systems/Technology and Patient Care Technology for the improvement and Transformation Health Care</strong></td>
<td>Collected information based on the target population utilizing a variety of electronic databases and expert consultations with the goal of collecting the best evidence to evaluate practice change.</td>
</tr>
<tr>
<td><strong>Essential V- Health Care Policy for Advocacy in Health Care</strong></td>
<td>Assumed Leadership in implementation of a fall prevention program. Assumed role of leader in educating nursing staff on intrinsic and extrinsic factors associated with falls, and the use of the fall risk assessment, guidelines, and individualized care plan to improve resident outcomes. Influenced and advocated for safe quality</td>
</tr>
<tr>
<td>Essential VI- Interprofessional Collaboration for Improving Patient and Population Health Outcomes</td>
<td>Involved all stakeholders in the implementation process of a fall prevention program, made personal adjustments to improve capstone project performance, and involved all interprofessional team members in the data analysis and reporting process to create an environment of improved quality care and decrease the incidence of falls.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Essential VII- Clinical Prevention and Population Health for Improving the Nation’s Health</td>
<td>Analyzed current data to evaluate a fall prevention program among older adults in a long term care facility. Interventions designed for nursing staff caring for older adults will enable nursing staff to identify intrinsic and extrinsic factors associated with falls to address gaps between knowledge and practice related to individual care.</td>
</tr>
<tr>
<td>Essential VII- Advanced Nursing Practice</td>
<td>Conducted a systematic and comprehensive assessment of system issues to design and implement an evidence-based fall prevention program to enhance nursing staff knowledge in intrinsic and extrinsic factors associated with falls among older adults in a long term care facility. Provided guidance, mentoring, and support in conducting a fall risk assessment and incorporating the risk of further fall in individualized care plan. In role of consultant-liaison and expert mental health provider directed the design, implementation, and evaluation of the evidence-based fall prevention program for nursing staff.</td>
</tr>
</tbody>
</table>
## APPENDIX C
### EVALUATION PLAN

<table>
<thead>
<tr>
<th><strong>Project Objectives</strong></th>
<th><strong>Activities</strong></th>
<th><strong>Evaluation Outcomes</strong></th>
</tr>
</thead>
</table>
| Provide education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility | 1. PowerPoint presentation on falls, intrinsic and extrinsic factors associated with falls among older adults.  
2. Interactive educational sessions on the AMDA fall risk assessment and individualized care plan | Educational sessions were evaluated using an educational training survey  
One-hundred and twenty participants consented to participate in the educational program. The majority of the participants (n=80, 67%) rated the overall training session as excellent. All participants rated the trainer as excellent on thorough grasps of the subject, preparation for sessions, and professional demeanor. |
| Replace the existing fall prevention policy and program with a falls and fall risk clinical guideline. | Retrospective chart review of performance measures  
1. Conduct a fall risk assessment with a documented fall risk score  
2. Implement an individualized care plan | Process indicators: percentage of residents with documented fall risk assessment done within 72 hours of admission, 14 days of significant change status, and quarterly; and percentage of residents with a completed care plan for managing falls and fall risk, and average fall risk scores.  
All charts audited at the long term care facility during the six week period had a fall risk assessment, fall risk score and care plan documented.  
The documented fall risk assessment was completed within seventy-two hours of... |
admission, within fourteen days of significant change status, and at the time of a quarterly assessment.

All of the care plans were completed according to current guidelines in terms of frequency of evaluation and addressed the status of conditions predisposing the resident to falling with specific fall prevention efforts.
APPENDIX D

USM IRB APPROVAL LETTER

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147, Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 14080701
PROJECT TITLE: An Evaluation of Fall Prevention Interventions among Older Adults in a Long Term Care Facility
PROJECT TYPE: New Project
RESEARCHER(S): Courtney Bennett
COLLEGE/DIVISION: College of Nursing
DEPARTMENT: Systems Leadership and Health Outcomes
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 08/07/2014 to 08/06/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board
APPENDIX E
AMERICAN MEDICAL DIRECTORS ASSOCIATION FALLS ALGORITHM

**Recognition**

**Step 1**
Does the patient have a history of falls?

- **Yes**
  - Address the potential for further falling in the patient's care plan. Consider this patient at risk for future falls.

- **No**
  - **Step 2**
    - Is the patient at risk of falling?

- **No**
  - **Step 3**
    - Has the patient just fallen?

- **Yes**
  - **Step 4**
    - Evaluate the factors

- **Step 5**
  - Identify the patient's actual and potential complications of falls

- **Step 6**
  - Develop a plan for managing falls

**Assessment**

**Step 2**
Is the patient at risk of falling?

- **No**
  - See tables 1, 2 and 3

**Treatment**

- **Step 4**
  - Define the nature of the fall. Define the frequency of falls. Identify the likely cause or causes of the fall. Perform a post-fall evaluation.

- **Step 5**
  - Monitor patient for fall risk at periodic assessments and when condition change warrants assessment.
Step 7
Manage the cause(s) of falling.

Step 8
Implement relevant general measures to address falling and fall risks.

Step 9
Monitor falling in patients with a fall risk or fall history.

Step 10
Establish quality improvement activities related to fall risk and falling.

APPENDIX F

REQUEST FOR PERMISSION LETTER

Courtney Bennett
1833 Frank McDaniel Road DeKalb, MS 39328
June 20, 2014

Dr. James Shumate
East MS State Hospital
1818 College Drive
Meridian, MS 39307

Dear Dr. James Shumate (EMSH IRB Director):

I am a student at the University of Southern Mississippi, Hattiesburg, pursuing a degree in the Doctor of Nursing Practice program. Presently, I am doing clinical hours at the long term care facility towards my capstone project and will continue my hours through the summer and fall semester 2014. For my capstone project I would like to design and implement a fall prevention program for the long term care facility staff in July 2014. The fall prevention program will include educational sessions to all healthcare staff on intrinsic and extrinsic factors associated with falls among older adults in the long term care facility, utilizing a fall risk assessment, and individualized care plan for further falls, implementation of a fall prevention program, and evaluation of the fall prevention program.

Therefore, I am requesting your approval to design and implement a fall prevention program for the healthcare staff at the long term care facility with Psychiatric Mental Health Nurse Practitioner, Dr. Brenda Phillips, as preceptor. I am also requesting IRB permission to conduct chart audits at the long term facility in evaluation of the fall prevention program. If you have any questions, please feel free to contact me via email at hamp.court@yahoo.com or cell 601-562-5136.

Sincerely,

Courtney Bennett, MSN, PMHNP-BC
USM Doctor of Nursing Practice Student
6/20/2014

Dr. James Shumate  
East MS State Hospital  
1818 College Drive  
Meridian, MS 39307

Courtney Bennett  
1833 Frank McDaniel Road  
DeKalb, MS 39328

Dear Ms. Courtney Bennett:

We are pleased to inform you that your request to design and implement a fall prevention program has been approved. We believe that your capstone project will benefit not only the staff at the long term care facility but the individuals we serve at our facility. Again, we are elated about the knowledge you will provide and are pleased to be a part of your capstone project.

If I can be of any assistance, please feel free to contact my office at anytime.

Respectfully,

Dr. James Shumate  
Clinical Executive/IRB Director  
East MS State Hospital
APPENDIX H

RECRUITMENT FLYER

An Evaluation of Fall Prevention Interventions among Older Adults in a Long Term Care Facility

All Healthcare Professional Staff Are Required To Attend an Educational Session On An Evidence-Based Fall Prevention Program

For more information and to schedule an appointment to attend the mandatory educational session, please contact Professional Development Coordinator @ ext. 1857
APPENDIX I
ORAL PRESENTATION

ORAL PRESENTATION OF RESEARCH PROCEDURES

The information outlined in this document must be presented orally to all potential research participants before consent is obtained.

- A completed version of this oral presentation (sans signatures) must be submitted to the IRB for approval.
- The participants should be made aware of the IRB overview of the project and be given contact information for various individuals in case they have any questions.
- Copies of the oral presentation should be provided to all participants.
- Witnesses to the oral presentations must be someone other than the Principal Investigator.
- Unless a waiver of documentation of consent is requested from and granted by the IRB, all oral presentations must be accompanied by a short form consent.

July 2nd, 2014

Today’s date: August 11, 2014

PROJECT INFORMATION

| Project Title: An Evaluation of Fall Prevention Interventions among Older Adults in a Long Term Care Facility |
| Principal Investigator: Courtney Anita Bennett | Phone: 6015625136 | Email: courtney.hampton@eagles.usm.edu |
| College: Nursing | Department: Systems Leadership and Health Outcomes |

ORAL PRESENTATION PROCEDURES
1. **Purpose:**

The purpose of this doctoral capstone project is to implement and evaluate an evidence-based fall prevention program for older adults with cognitive impairment in a long term care facility. Specific objectives of the project will include (1) provide education to healthcare professionals on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility; (2) replace the existing fall prevention policy and program with the American Medical Directors Association falls and fall risk clinical guideline.

2. **Description of Study:**

The American Medical Directors Association (AMDA) (2011) Falls and Fall Risk Clinical Guideline Prevention Program utilizing a validated fall risk assessment and individualized care plan will be implemented on the vulnerable male and female unit. Participants will be required to attend an one-hour educational session on evidence-based practices to recognize, assess, and prevent falls among older adults in a long term care facility; and implementation of the guideline. The educational sessions will cover information on factors associated with falls among older adults in LTC facilities, the use of the AMDA fall risk assessment, and individualized care plan to prevent falls. Demographic data will be collected on all participants that attend the educational session. Educational sessions will be evaluated using a survey at the end of each educational session. Subjects names will not be included on the demographic data form and educational training evaluation form.

Upon completion of the educational sessions, nursing staff will complete a validated fall risk assessment and implement an individualized care plan for all residents identified as a fall risk, over a period of six weeks. The fall risk assessment will be conducted on all residents on admission, if there is a change in condition, and if a quarterly fall risk assessment is due. A retrospective chart audit will be conducted by the principal investigator to evaluate the fall prevention program. Demographic data will be collected on all participants that attend the educational session. Educational sessions will be evaluated using a survey at the end of each educational session. Subjects names will not be included on the demographic data form and educational training evaluation form.

3. **Benefits:**

Participants will benefit directly from participating in the project by making a major contribution to the information known about recognition, assessment, and prevention of falls among older adults with cognitive impairment in a long term care facility.

4. **Risks:**

The risk to participants is minimal. Potential participants will be given the opportunity to ask questions after the oral presentation and prior to obtaining informed consent. Participation in the project will be voluntary and not influenced by the project leader. No participant will be penalized for withdrawal from the project and may withdraw at any time without giving an explanation.

5. **Confidentiality:**

Participants will give written informed consent prior to initiation of the project. Data will be recorded and summarized by the PI so that participants cannot be identified, directly, or through identifiers linked to the subjects. Data is anonymous and cannot be associated with
individual subjects; therefore, loss of privacy and breach of confidentiality is not a risk. Consent forms and other data forms will be available only to the principal investigator. Confidentiality and anonymity will be protected by placing consent forms and other data forms in a locked file drawer in the principal investigator’s office.

6. Alternative Procedures:

No alternatives to participation will be presented to participation in the project.

7. Participant’s Assurance:

This project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the Manager of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits.

Any questions about the research should be directed to the Principal Investigator using the contact information provided in Project Information Section above.

**PRINCIPAL INVESTIGATOR AUTHORIZATION**

By signing my name below, I attest that the procedures for oral presentation described above were followed.

____________________________  ________________________
Principal Investigator  Witness to Oral Presentation

____________________________  ________________________

Date  Date
This document must be completed and signed by each potential research participant before consent is obtained.

- All potential research participants must be presented with the information detailed in the Oral Procedures before signing the short form consent.
- The Project Information section should be completed by the Principal Investigator before submitting this form for IRB approval.
- Copies of the signed short form consent should be provided to all participants.
- The witness to consent must be someone other than the Principal Investigator or anyone else on the research team.

Today's date: August 11, 2014

### PROJECT INFORMATION

| Project Title: An Evaluation of Fall Prevention Interventions among Older Adults in a Long Term Care Facility |
| Principal Investigator: Courtney Anita Bennett | Phone: 6015625136 | Email: courtney.hampton@eagles.usm.edu |
| College: The University of Southern Mississippi | Department: Systems Leadership and Health Outcomes |

### CONSENT TO PARTICIPATE IN RESEARCH

Participant's Name: ________
Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator using the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

____________________________  ______________________________
Research Participant             Witness to Consent

____________________________  ______________________________
Date                             Date
APPENDIX K

HEALTHCARE PROFESSIONAL STAFF

DEMOGRAPHIC FORM

Please circle the appropriate letter.

1. Age:
   A. 18-27
   B. 28-37
   C. 38-47
   D. 48-57
   E. 58 or above

2. Gender:
   A. Male
   B. Female

3. Race:
   A. American Indian/Alaskan Native
   B. Asian/Pacific Islander
   C. African American/Non-Hispanic
   D. Caucasian/Non-Hispanic
   E. Hispanic
   F. Other/Specify _________________

4. Occupation:
   A. Certified Nursing Assistant
   B. Licensed Practical Nurse
   C. Registered Nurse
   D. Certified Nurse Practitioner
   E. Physician
   F. Psychology
   G. Social Worker
   H. Activity Personnel
   I. Other/Specify _________________

5. Years of experience in current role
   A. Less than 1 year
   B. 1-5 years
   C. 5-10 years
   D. 10-15 years
   E. 15 years or above
APPENDIX L

EDUCATIONAL TRAINING EVALUATION SURVEY

Thank you for attending the training session on Recognition, Assessment, and Prevention of Falls among Older Adults with Cognitive Impairment in a Long Term Care Facility. I would like to hear your impression of the various aspects of the training, so the facility can continually improve the experience of all attendees. Please answer all questions.

1. Overall how would you rate the training session?
   - Excellent
   - Good
   - Fair
   - Poor

2. Please rate the following aspects of the trainer
   - Excellent
   - Good
   - Fair
   - Poor
   - Did the trainer have a thorough grasp of the subject
   - Did the trainer actively invite questions
   - Did the trainer answer the question posed
   - Was individual help provided when needed
   - Was your trainer prepared for the educational session
   - Did your trainer have a professional demeanor
   - Did the trainer provide time for follow-ups
   - How would you rate the overall skills of the trainer

3. Please rate the following aspects of the training session
   - Excellent
   - Good
   - Fair
   - Poor
   - Did this session meet your expectations
   - Was the level of instruction appropriate
   - Was the length appropriate
   - Did the session begin on time
   - How would your rate the AMDA Falls guideline

4. What was your favorite part of the training?
   __________________________________________________________

5. What was your least favorite part of the training?
   __________________________________________________________

6. Any other suggestions or comments to help improve future training sessions.
   __________________________________________________________
APPENDIX M

AMERICAN MEDICAL DIRECTORS ASSOCIATION
FALLS RISK ASSESSMENT

<table>
<thead>
<tr>
<th>Resident Number</th>
<th>Date</th>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>RISK</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of falling</td>
<td></td>
<td></td>
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<tr>
<td>Cardiac arrhythmia</td>
<td></td>
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<tr>
<td>Transient ischemic attacks</td>
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<tr>
<td>Stroke</td>
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<tr>
<td>Parkinson's Disease</td>
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<tr>
<td>Delirium</td>
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<tr>
<td>Dementia</td>
<td></td>
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<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musculoskeletal problems (DID)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility/gait problems</td>
<td></td>
<td></td>
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<tr>
<td>History of fractures</td>
<td></td>
<td></td>
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<tr>
<td>Orthostatic hypotension</td>
<td></td>
<td></td>
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<tr>
<td>Bowel/bladder incontinence</td>
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<tr>
<td>Visual or auditory impairments</td>
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<tr>
<td>Dizziness</td>
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<tr>
<td>Dehydration</td>
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<tr>
<td>Acute medical illness</td>
<td></td>
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<tr>
<td>Use of restraint</td>
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<tr>
<td>Hypoglycemia</td>
<td></td>
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<tr>
<td>Polypharmacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
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</tbody>
</table>

Score:
0-5 in the yes column is low risk
6-10 in the yes column is moderate risk
11+ in the yes column is high risk
APPENDIX N

FALL RISK ASSESSMENT AND CARE PLAN

DATA COLLECTION TOOL

Number _______ Male______Female___________

1. Fall risk assessment done within 72 hours of admission.
   _____ yes  _____ no  _____ N/A

2. Fall risk assessment done within 14 days of significant change status.
   _____ yes  _____ no  _____ N/A

3. Fall risk assessment done for quarterly assessment.
   _____ yes  _____ no  _____ N/A

4. History of previous fall
   _____ yes  _____ no

5. Fall risk score from fall risk assessment
   Score _____  Risk for fall  _____ yes  _____ no

6. Completed care plan for managing falls and fall risk.
   _____ yes  _____ no

7. Age over 65 years
   _____ yes  _____ no


American Medical Directors Association. (2011). Falls and fall risk clinical practice


controlled trials to evaluate a policy of making hip protectors available to residents of nursing homes. *Age Ageing, 33*(6), 582-8.


Huey-Ming, T. (2011). Nurses’ caring attitude: Fall prevention programs implementation as an example of its importance. *Nursing Forum, 46*(3),


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World Health Organization Europe. (2004). *What are the main risk factors for falls amongst older people and what are the most effective intervention to prevent these falls?* Retrieved from http://www.euro.who.int/_data/assests/pdf_file/0018/74700/E82552.pdf