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Fall Prevention: The First Line of Defense. Integration of Innovated Strategies to Decrease Falls for the Hospitalized Patient

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**Fall Prevention: The First Line of Defense. Integration of Innovated Strategies to
Decrease Falls for the Hospitalized Patient**

A DNP Project Submitted to the
Graduate Faculty
of Jacksonville State University
in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Nursing Practice

by

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Jacksonville, Alabama

August 06, 2021

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ABSTRACT

Background: Falling is defined as an accidental encounter with the ground or other surfaces. Individuals with dementia are at a greater risk for falls due to conditions such as neurological impairments in perception or cognition. Presently, 50 million people live with dementia worldwide, which is projected to increase to 152 million by 2050 because of a rise in life expectancy and an aging population. The incidence of falls has rapidly become a major public health problem around the world. Approximately 30% of people older than 65 years of age fall each year, and patients with dementia cost the nation \$236 billion in 2016. However, what is available for patients at risk for falls is limited to standard interventions throughout health care systems, such as the use of safety alarms and hourly rounding. Innovative strategies such as early recognition of the disease process of cognitive impairment can decrease the occurrence of falls. Also, an abundance of the literature states approximately 78% of falls experienced are from patients who are predicted to be more prone to falls and incidents.

Purpose: The purpose of this Doctor of Nursing Practice (DNP) project is to assess the effectiveness of a specific patient-centered quality improvement study in a hospitalized setting as a potential strategy to reduce the number of patient falls.

Design Method: A quasi-experimental design using hospital staff's pre- and post-education test scores along with pre- and post-intervention fall data collection methods.

Conclusion: Fall rates moderately increased overall within the pilot facility between September 2020 to May 2021. However, the fall prevention initiative did increase the staff's knowledge on recognizing early signs of cognitive decline like dementia.

Key Words: falls, dementia, cognitive impairment, fall risk

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Milledge Washington Smalls III

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Fall Prevention: The First Line of Defense. Integration of Innovated Strategies to Decrease Falls for the Hospitalized Patient

Introduction

The World Health Organization (WHO) reported that in developed countries, serious limb trauma requiring hospitalization occurs 50% of the time from falls. In addition, falls in the older adult population represent the greatest threat for sustaining a limb injury. *Falling* is defined as an event that results in a person coming to rest inadvertently on the ground, floor, or other lower levels (World Health Organization [WHO], 2020). Falls have proven to be the leading cause of nonfatal and fatal injuries among older adults. Patients with advanced age-related conditions require extensive physical and occupational therapy to reach the highest possible level of independence while struggling with mobility issues (Centers for Disease Control and Prevention [CDC], 2015). Hospitalized patients on the medical/surgical unit are challenged with multiple impairments secondary to their age. The main focus of this Doctor of Nursing Practice (DNP) project is to help prevent falls in the aging hospitalized patients. Exploring and enhancing the safety and quality care measures for patients who reside within the hospital setting is essential to the goals and mission of this organization.

Background

In the United States, 30% of people older than 65 years fall each year, and in people older than 80 years, falls occur as often as 50% of the time. In the hospital setting, falls continue to be the number one adverse event, with approximately 20% of in-patients fall at least once during their hospitalization. Additionally, 30-50% of hospital falls result

in injury (Quigley & White, 2013). The prevalence of gait and balance disorders increases with age and affects 10% of the older population between 60 and 69 years old. At the age of 80 years, this number increases exponentially to 60%. The incidence of a fall increases to 82% in those older than 85 years of age. Seventy-five percent of deaths, due to falls, occur in 13% of the population older than 65 years.

Gait and complex cognitive functioning are closely related, and walking should no longer be considered a simple motor activity independent of cognition. Walking involves integrating attention, planning, and memory combined with a motor, perceptual, and cognitive process (Ronthal, 2019). Older adults with mild cognitive impairment and early-stage dementia have an increased risk of falling, with risks to their health and quality of life. Improvements that involve fall prevention, in the hospital, are of utmost importance as fall prevention measures are an integral element of professional nursing. Multiple effective fall prevention programs are used in a hospital setting. Nurses play a key role in this component of patient care. By offering a fall prevention program to the aging community, falls can dramatically be reduced and help the older adult population maintain their health and independence (CDC, 2015). A study of 1,839 participants at Queen's Medical Centre in Nottingham, UK, was placed in two random groups that consisted of an intervention (bedside alarms) and a control group. The intervention group received a bed and bedside chair pressure sensor, and the control group received no pressure sensor. The study concluded that bed and bedside chair pressure sensors as a single intervention strategy do not reduce in-patient bedside falls. Of the 1,839 participants, 918 were in the intervention group, and 921 were in the control group. There

were 85 bedside falls in the intervention group compared to 83 bedside falls in the control group (Sahota et al., 2013).

As previously stated, gait and complex cognitive functioning are closely related. Patients with mild to severe cognitive decline, like dementia, are among the highest population to experience injuries due to falls. Dementia or non-normative cognitive decline is described as the loss of cognitive functioning to such an extent that it interferes with individuals' daily lives and activities. This neurological disorder is associated with permanent damage of the cerebral hemispheres or subcortical areas related to memory and learning (National Institute on Aging [NIA], 2017). Dementia is not a specific disease. It is a term used to describe a group of symptoms associated with a decline in memory or a decline in one's thought process severe enough to interfere with the ability to perform everyday activities. The older adult population is among the highest individuals to experience dementia-related illnesses. Also, older Latinos are about one-and-a-half times as likely as older Caucasians to have Alzheimer's and other dementias. Older African Americans are about twice as likely to have dementia than older Caucasians. Researchers believe there is no single cause of non-normative cognitive decline, and the disease likely develops from multiple factors. Risk factors that influence the development of non-normative cognitive decline include a person's age, genetics, family history of the disease, lifestyle/wellness choices, environment, and head injuries due to frequent falls. The stages of dementia range from mild and moderate states of the disease to a more severe stage. Patients diagnosed with dementia often present with signs of short-term memory loss, changes in personality and/or behavior (delusions/hallucinations), inability to carry out activities of daily living (ADL), language

impairment, and the complete inability to respond to their environment due to neurological dysfunction. One of the most common ways to categorize dementia is by using a three-stage model characterized by mild (early stage), moderate (middle stage), and severe (late stage). Alzheimer's disease is the most prevalent form of dementia (60-80% of cases), and the previously mentioned attributed stages are often used to depict the experience of Alzheimer's disease rather than other types of dementia. Mild changes in personality, such as lack of spontaneity, social withdrawal, and loss of a previous sense of humor, occur during the early stages of Alzheimer's. As the disease progresses, the patient with Alzheimer's disease enters the moderate stage. During the moderate stage, there are changes in higher cortical functioning needed for language, spatial awareness, and problem solving. Depression, confusion, disorientation, inability to carry out the activities of daily living are all manifestations in moderate stage Alzheimer's disease. Severe Alzheimer's disease is the last stage of the disease. In severe Alzheimer's disease, patients lose the ability to respond to their environment. Total care is required, and severe Alzheimer's disease patients may spend most of their time bedridden. Death can occur as a result of complications related to chronic debilitation (Grossman & Porth, 2014). Other disorders of dementia include vascular dementia, Lewy body dementia, and other dementias like frontotemporal dementia, Parkinson's dementia, intra-individual variability (IIV) dementia, neurosyphilis, and Korsakoff's dementia. Clinical features that differentiate dementia disorders include gradual cognitive decline (Alzheimer's disease), abrupt onset and a stepwise course of progression (Vascular dementia), visual hallucinations/delusions (Lewy body dementia), and personality changes (Frontotemporal dementia). The diagnosis of dementia must be differentiated from delirium, a disturbance

in cognition that results in the fluctuation of attention which gradually increases in severity. Delirium may be the consequence of an acute medical condition, hospitalization, medication, or substance induced. Delirium typically lasts weeks to months, with gradual improvement in cognition (Cash & Glass, 2017).

Problem Statement

Evidence supports exploring innovative strategies, new policies, and procedures to prevent falls in the hospital setting. Current research and practice show a lack of standardization in fall prevention programs while promoting a multicomponent strategy that is individualized (Wexler & D'Amico, 2015). Organizations have identified decreased falls as indicators of improvement in the quality of nursing care in the hospital setting (Lee, 2018).

The purpose of this Doctor of Nursing Practice (DNP) project is to answer if providing educational material to staff members on early recognition of mild cognitive impairment, like dementia, will reduce the number of patients falls during a hospitalization encounter. Furthermore, this DNP project will incorporate safety interventions such as hourly rounding and bed alarms. The DNP student developed a clinical research question (PICOT question) based upon a needs assessment of the facility and literature review to help bridge the gap between falls in older adults with early-stage dementia. The clinical research question approach includes the DNP student considering the population (P), intervention (I), comparison (C), outcome (O), timeframe (T) for addressing the identified issue. The PICOT question for this DNP project is “would staff (P) that participate in an educational training on recognizing early signs of cognitive impairment in the older adult population (I) experience a decrease in fall rates by at least

20%, after the staff receives preventative strategies (O) over a 12-week time frame (T)?". The DNP project will attempt to bridge the gap between falls in older adults with early-stage dementia. The DNP project will facilitate bridging the gap between falls and older adults with dementia or non-normative cognitive decline by implementing a plan to educate hospital staff on early recognition of cognitive changes, encourage hospital staff to increase rounding on patients, and incorporate bedside alarms to further aid in preventing a fall.

Organizational Description of Project Site

A needs assessment was conducted at this organization, and the DNP project will attempt to bridge the gap between falls in older adults, thus contributing to patient safety. Per the head of the organization's falls committee, this organization has experienced an increase in patient falls from resident's chairs and in the shower or the restroom. The Doctor of Nursing Practice (DNP) student will conduct a quantitative study to identify the effectiveness of patient-centered interventions on fall rates in older adult patients with mild cognitive decline in an acute care setting.

Review of the Literature

A review of the literature on fall prevention indicated that studies on fall prevention in the acute care setting have grown over the years, with a limited number of studies on fall prevention in skill and residential settings. The geriatric population experience many falls. The most significant number of falls occurs in long-term care settings (Majkusova & Jarosova, 2014). As falls can decrease the quality of life for residents, many organizations have created programs and initiatives to reduce falls. Also, initiatives were put into place in response to the 1% payment penalty imposed by the

Centers for Medicare & Medicaid Services (CMS) for health care costs related to preventable incidences such as falls (Centers for Medicare & Medicaid Services [CMS], 2015).

Most fall prevention programs do not ultimately lead to individualized fall care plans for residents. Currently, what is available for residents at risk for falls are interventions that are standard throughout health care systems, such as safety alarms and rounding. However, 78% of the falls are incurred by patients previously predicted to be more prone to falls and incidents. Each organization's fall care plan must be created to meet the individual needs and identified risk for that resident immediately after admission into the facility. This quality improvement pilot attempted to identify residents at risk for falls, their level of fall risk, and contributed to the creation of an individualized plan of care.

A fall is defined as an event which results in a person coming to rest inadvertently on the ground, floor, or other lower levels. Falls may occur with or without injury and often result from a loss of balance (WHO, 2020). People with dementia are at increased risk of falls due to conditions like neurological impairments in perception or cognition, changes in motor function, stance, or gait leading to a progressive loss of physical functioning. Today, millions of individuals worldwide live with Alzheimer's/ dementia, and this number is expected to rise as baby boomers continue to reach senior citizenship (Alzheimer's Association [AA], 2015). Health care providers must empower individuals with dementia to engage in meaningful activities and maintain a fulfilling life, a landscape that also supports loved ones through their journey with dementia (Mauricio et al., 2019).

Alzheimer's disease (AD) and other diseases that can cause dementia are the most significant health and social care challenges health care workers are faced with today. Presently, 50 million people live with dementia worldwide, which is projected to increase to 152 million by 2050 because of a rise in life expectancy and an aging population (Livingston et al., 2020). Current therapies for AD can momentarily improve cognitive symptoms in some patients, but they do not treat the underlying causes of dementia or slow the rate of the disease progression. The success rate for developing disease-modifying drugs for dementia diseases has been disappointing, such as the failure of beta-secretase-1 inhibitors to show efficacy. Therefore, it is important to reconsider what the real barriers to progress in this field are and identify emerging opportunities to narrow the persistent gap between evidence provision and implementation (Mauricio et al., 2019).

In 2020, the Alzheimer's Association cited that both nonpharmacologic and pharmacologic interventions are needed to optimally treat the cognitive, behavioral, and psychological symptoms of Alzheimer's disease and dementia. There is no cure for AD. The chief nonpharmacologic and pharmacologic treatment goals for this patient population are maintaining their quality of life, maximizing function in daily activities, enhancing cognition, and fostering a safe environment to promote social engagement. Patient safety has become a significant focus of global health research over recent decades. As a result, caregivers have gained knowledge of the cause, prevention, and reduction of injuries associated with health care, such as falls. At the same time, in-patient hospital populations are becoming older and frailer, with 70% of in-patients over the age of 65 years, and at least 30% of all in-patients in general hospitals suffering from dementia. It is well recognized that people with dementia, often with multiple co-

morbidities and reduced cognitive reserve, are particularly vulnerable to adverse outcomes of hospitalization. The health care community is beginning to acknowledge that there is a need for improvement and or revisions to current fall prevention guidelines and practices. The National Dementia Strategy, in 2009, set out to improve the care of hospitalized patients with dementia. Their goals were to reduce under-diagnosing, improve management of dementia, and ensure that patients admitted with a diagnosis of dementia received high-quality, safe care for any clinical reason. There is a suggestion that improving acute hospital care for patients with dementia may result in considerable financial cost savings for the organization. Improving safety and quality of care for patients with dementia in acute hospitals will benefit all patients and should be an urgent priority for all health care organizations (George, Long, & Vincent, 2013).

Dementia is primarily associated with increased age, and this can imply that health care providers and health care organizations experience an increase in patients with dementia over time. Dementia is now among the most feared conditions in adults over 55. In 2021, Alzheimer's and other dementias also poses a significant economic burden to individuals and health care systems, with an average annual costing the nation \$355 billion, including \$239 billion in Medicare and Medicaid payments combined. Patients with dementia costed the nation \$236 billion in 2016 (Alzheimer's Association [AA], 2021). With these statistics, it is essential for health care providers and organizations to establish an interdisciplinary team approach to facilitate care to patients who experience reduced cognitive function.

Optimizing health for the U.S. population requires eliminating disparities and addressing social determinants of health. Improving the nation's health can best occur by

focusing on communities at greatest risk and eliminating barriers to quality health care services. Cognitive health should not be excluded from receiving quality health care. Alzheimer's disease and other dementias overwhelmingly disproportionately impact African Americans, Hispanics, and women. Older African Americans are about two times more likely than older Caucasians to have Alzheimer's disease or other dementias. And older Hispanic Americans are about one and one-half times more likely than their Caucasian peers to have dementias.

Furthermore, almost two-thirds of older Americans with Alzheimer's dementia are women. Eliminating disparities is an integral part of public health domain. An important strategy for practitioners would be to concentrate resources on disadvantaged populations, vulnerable populations, or populations who suffer from a disproportionate burden of this disease. Fortunately, public health practitioners are uniquely situated to implement dementia-specific strategies that are culturally, linguistically, and age appropriate for people living with Alzheimer's dementia and their caregivers (AA, 2020).

Falls represent a substantial threat to the aging population and remain a leading cause of morbidity and mortality for older adult patients. Falls can cause significant injury and cause increased anxiety, fear, social isolation, and psychological trauma. In this DNP project, the reported data indicate the importance of creating a fall prevention program within the health care facility to reduce falls and increase resident safety. Through this quality improvement program, each frontline staff member gained an increase in knowledge related to fall prevention in their facility, which, in turn, promoted safer care of older adult patients with dementia or non-normative cognitive decline and helped decrease falls.

Evidence-Based Practice: Verification of Chosen Option

For analysis purposes, a fall-risk assessment score was assigned for each patient by using the Morse Falls Risk Assessment and Tinetti Performance-Oriented Mobility Assessment (excluding medication review) performed by the medical/surgical unit staff over the 12 months after the index fall. Scores ranged from 0 to 45, with higher scores representing more risk factors assessed and, therefore, higher guideline adherence required. To help evaluate the need for the project, the use of a falls and cognitive decline test consisting of 25 multiple choice questions was given to the participating frontline staff. This comprehensive assessment tool was recommended by the Agency for Healthcare Research and Quality (AHRQ, 2013) to help improve staff knowledge on falls in the acute care setting. It was used to analyze the staffs pre and post knowledge on the causes of falls as a comprehensive assessment tool.

Theoretical Framework/Evidence-Based Practice Model

When looking at organizational change, it is common that a planned change is intended to improve the organizational structure or the level of service provided. A researcher or the organization in need of change must identify appropriate theories or models to provide a framework for implementing, managing, and evaluating change (Mitchell, 2013). Conducting a process improvement project requires a change in behavior and mindset of the hospital staff along with all members of the interdisciplinary team. Kurt Lewin's theory of change was developed many years ago and is still well respected as an exceptional framework that acknowledges that change occurs in stages. Schriener et al. (2010) documented how Lewin's change theory helps reconstruct change using three stages: unfreezing, change, and refreezing (see Appendix A, Figures 1 and

1.2). During the unfreezing stage, the equilibrium of the environment needs to be unfrozen before old behaviors can be discarded (unlearned) and new behavior can successfully be adopted (Schriner et al., 2010). The team must perceive the proposed change as necessary, a collaborative effort, and understanding that the key element for finding a resolution is learning. Accepting change enables individuals through fresh understanding to change their views and facilitate resolution.

The second stage of Lewin's theory states entitled change, participants, managers, and researchers identify the plan for change, implementation strategies, driving forces that push toward change, and restraining forces that pull away from change (Schriner et al., 2010). By identifying these forces before implementing change, the goal is to reduce resistance within the team and organization through education and a team effort.

Resistance to change is common and can be the result of psychological, environmental, and societal factors. Lewin believed that change should be implemented gradually, to address all levels of resistance along the way. Change is most likely to be achieved when the organization has specific goals, objectives, and deadlines. Refreezing is the final stage of Lewin's theory. In this stage, implementation along with the integration of change continues. The refreezing stage can only be achieved if the entire team is committed and motivated about the change. To conquer the challenges of change, the entire team must be motivated, committed, and willing to collaborate to make all stages of the change successful (Schriner et al., 2010).

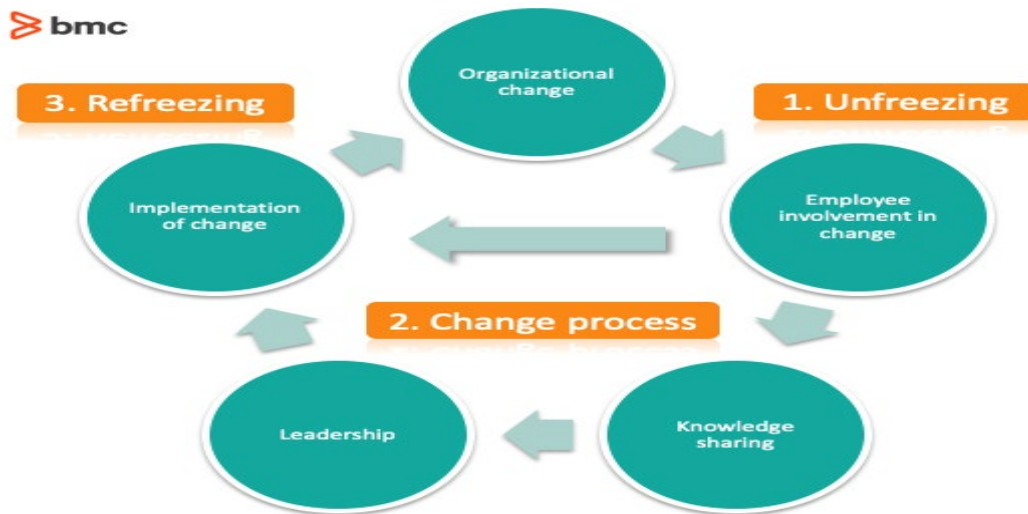
Unfreezing is the initial stage of Lewin's theory of change. In this stage, the health care organization's Quality Improvement Officer, Falls Committee Chair, and the DNP student collaborated with the interdisciplinary team on the suggested quality

improvement pilot, goals, possible barriers, and educational timeline. This collaboration with the health care organization's interdisciplinary team facilitated the unfreezing stage. The interdisciplinary team was informed of current fall data on the medical/surgical unit and given the rationale for why reducing falls within the facility was important. We also discussed how to recognize cognitive decline like dementia and how the Posey Sitter on Cue bedside alarms will be incorporated into the piloted fall prevention program. Staff members were given the opportunity to discuss any concerns regarding the fall prevention program. Facility leaders, along with the DNP student, assessed barriers and resistance to the planned change. During the change stage, the DNP student provided education material on fall prevention to all members of the nursing staff and members of the interdisciplinary team and emphasized the importance of implementing a fall management pilot program.

The DNP student, the organization's fall committee, management team, and the quality improvement team continued to support and provide educational opportunities to staff members on the medical/surgical unit to ensure that Lewin's last stage of refreezing continued. The DNP student conducted periodic monitoring of the pilot program and offered continued education to ensure staff members became more comfortable using the Morse Fall Assessment Scale, the Performance-Oriented Mobility Scale, and the Posey Sitter on Cue bedside alarm.

Figure 1

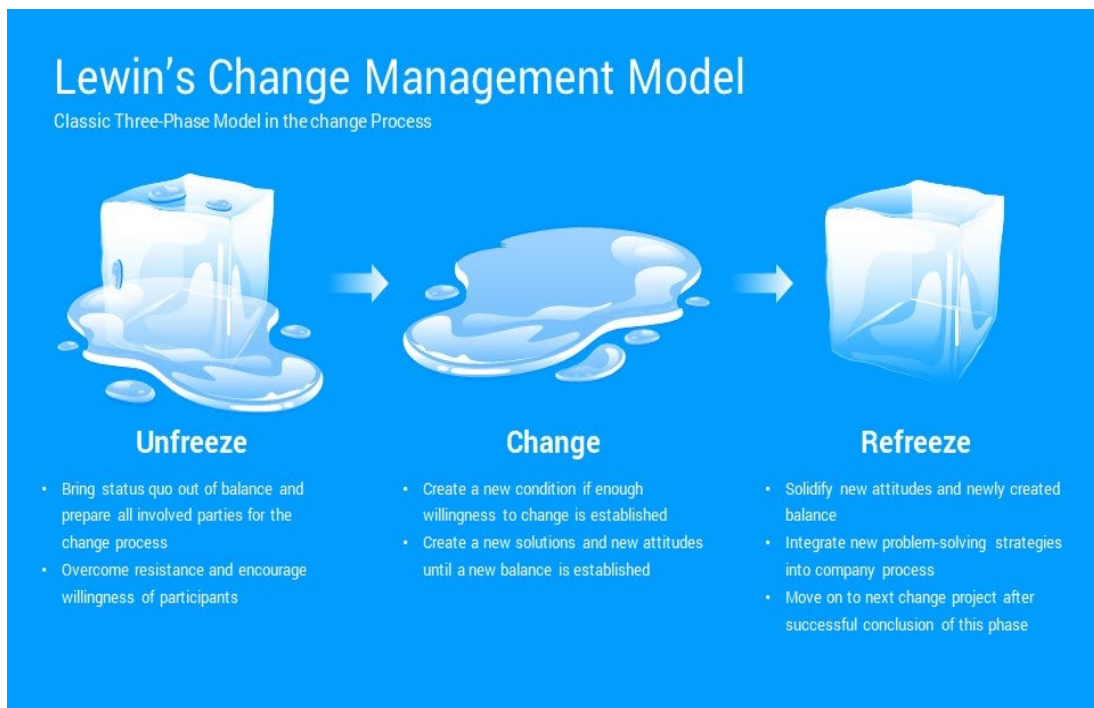
Illustration of Lewin's Theory of Change



(Raza, M. 2020)

Figure 1.2

Illustration of Lewin's Theory of Change



(SlideModel.com, 2020)

Goals, Objectives & Expected Outcomes

Goals

The purpose of this Doctor of Nursing Practice (DNP) project is to answer if providing educational material to staff members on early recognition of mild cognitive impairment, like dementia, in conjunction with incorporating safety interventions will reduce the number of patient's falls during a hospitalization encounter.

Objectives

The methodology chosen for this DNP project is based on implementing a patient-centered quality improvement pilot initiative that targeted patients with dementia in a hospitalized setting which will aid in reducing fall rates. A literature review was conducted on patient falls. The data reviewed were studies based on Safety Cultures utilizing ancillary staff to help prevent falls. This study included data on fall rates in the United States, patients at risk for falling, assessment tools used to prevent a fall, the cost associated with a patient fall in acute care settings, pharmaceuticals as contributing factors, and most importantly, leadership for guidance. A common theme in the literature for fall prevention was the importance of recognizing risk factors that lead to patients falling. The reviewed literature overwhelmingly concluded that multidisciplinary fall prevention programs are successful. The project objectives are to:

1. Monitor this organizations current fall prevention program over a period of twelve weeks.
2. Recruit staff members of registered nurses, licensed practical nurses, and patient care technicians to participate in educational sessions on early recognition of mild

cognitive impairment, participate in a pre-/post-education exam, and help implement the proposed piloted fall prevention project.

3. Identify a patient sample of in-hospital older adult residents (age 60 ± 5 years) with various stages of mild cognitive impairment (dementia or non-normative cognitive decline) and evaluate their risk for a fall and balance by using the Morse Fall Risk Assessment (MFRA) scale and Tinetti Performance-Oriented Mobility Assessment (POMA) scale.

4. Monitor and modify, if needed, the participating staff's current practice of hourly rounding and the use of their recently piloted Posey Sitter on Cue bedside.

Expected Outcomes

The most crucial intervention this project can disseminate is to enhance staff awareness of the increased risk of falls in the older adult population. Raising awareness to the staff at the regional hospital will help translate evidence into practice, which will continue to promote patient safety. This DNP project will align with patient safety practices and implement a patient-centered quality improvement pilot, like fall prevention, to prevent additional harm to patients while they are hospitalized. This project intends to promote the health of older hospitalized adult patients by using patient-centered interventions to prevent the targeted patient population from sustaining a fall or by using these interventions to reduce fall rates by at least 20%.

Project Design

The targeted population for this project will consist of a convenience sample of older adult patients (age 60 ± 5 years) with suspected or identified mild cognitive impairment (dementia or non-normative cognitive decline). Exclusion criteria for this study include diagnosis of a recent acute cardio-cerebrovascular event or diagnosis of single or multiple end organ failure. This cohort study will consist of hospitalized male and female patients of all races, registered nurses, and patient care technicians. The objectives of the quantitative Doctor of Nursing Practice (DNP) project are to bridge the gap between falls and older adults with dementia by implementing a plan to educate hospital staff on early recognition of cognitive changes and encourage hospital staff to increase rounding on patients while incorporating newly piloted patient beside alarms.

Project Site and Population

The DNP proposed project was conducted in a regional health care organization for a five-county service area in Northeast Alabama. With a total of 323 in-patient beds located at its primary campus, 125 in-patient beds at its secondary hospital, and several out-patient facilities, urgent care, and specialty clinics. This organization is the provider of more than 13,500 in-patients, 57,000 outpatients, nearly 1,800 newborn deliveries, and 42,000 emergency room visits each year.

The prospective cohort group pre- and post-study design was conducted in the southeastern region of the United States. The medical unit within the facility is a 22-bed unit with a resident population consisting of individuals with an average age of 55 and older. Residents are admitted to this unit for acute issues such as acute kidney injury, renal failure, congestive heart failure and chronic obstructive pulmonary disease (COPD)

exacerbation, urinary tract infection, and systemic infections. Many of the residents residing within the facility were previously ambulatory and independent or required minimal assistance with their activities of daily living prior to admission. The unit is staffed with registered nurses, licensed practical nurses, patient care technicians, and a unit secretary. Staffing practices consisted of a ratio of 6 patients per one nurse and 11 patients per one patient care tech.

Setting Facilitators and Barriers

The health care organization's Quality Improvement Officer, Falls Committee Chair, and the DNP student collaborated with the interdisciplinary team on the suggested quality improvement pilot, goals, possible barriers, and educational timeline. Best practices related to teaching and learning were implemented during the workshops using PowerPoint presentations, informal discussion sessions, and literature on cognitive decline. One challenge this DNP student can identify is that all stakeholders cannot attend live training sessions due to time constraints, work schedules, and restriction imposed on group assembly due to COVID-19. To ensure accessibility of information to stakeholders was achieved, virtual technology via Zoom and TEAM presentations were utilized.

Implementation Plan and Procedures

The purpose of this Doctor of Nursing Practice (DNP) project is to answer the research question proposed if providing educational material and educational workshops to staff members on early recognition of mild cognitive impairment, like dementia, in conjunction with incorporating safety interventions such as hourly rounding will reduce the number of patient's falls during a hospitalization encounter.

Following the formation of the interdisciplinary team, the quality improvement project was implemented by introducing Lewin's change theory for 30 days from December 1 through December 31, 2020 to allow the interdisciplinary team time to acclimate to the proposed DNP project. There were several educational and training sessions scheduled during a period of every other week that included information on:

- Fall prevention
- Recognition of cognitive impairment
- General fall statistics gathered from the literature review
- The Morse Fall Scale
- The Tennetti Performance-Oriented Mobility Assessment (POMA) scale

The staff was given scenarios to ensure that they were able to complete the tool accurately. The training was mandatory for all members of the staff. The staff was observed during different shifts to assess for continued compliance with the DNP project. All staff members were provided with a contact number after signing consent to participate. Information provided on the consent form ensured adequate support and clarification for staff members involved in the quality improvement project.

The methods chosen for this DNP project assumes that implementing a patient-centered quality improvement initiative, that targeted patients with dementia in a hospitalized setting, would result in reduced fall rates. The clinical focus of this DNP project is fall prevention. The project aims were accomplished by:

1. Reviewing and monitoring the standardized fall prevention program at this facility over a twelve-week period. Older adult patients (age 60 ± 5 years) with varied mild cognitive impairment (dementia or non-normative cognitive decline) were recruited

to the study. The recruited patient sample risk for fall and balance was evaluated by the Morse Fall Scale (MFS), Tinetti Performance-Oriented Mobility Assessment (POMA) scale, and history of a fall in the recent year. The unit's registered nurses and licensed practical nurses aided in systematically assessing targeted patients' risk for falls and helped implement the proposed population-based fall prevention interventions. In addition, the already established use of the MFS will measure each patient at risk for falls and will allow the staff to execute the required protocol for these higher-risk patients. This event would include the use of a yellow pair of non-skid socks, a yellow wristband, lowering the patient bed to the lowest setting, and the use of a bed alarm.

2. Providing educational material to staff members on early recognition of mild cognitive impairment, like dementia (non-normative cognitive decline). Educational tools were readily available for all staff who have frequent encounters with the patients involved in this study. Staff who had access to the provided educational material included registered nurses (RN), licensed practical nurses (LPN), patient care technicians (PCT).

3. Monitoring and modifying current practices of staff hourly rounding and the use of the recent piloted Posey Sitter on Cue bedside alarm to decrease hospital related falls.

Measurement Instruments

The data collection process for the DNP project included collecting quantitative data. The focal area of interest was to decrease falls in the target population through staff education and empowerment. To measure the pre- and post-intervention outcomes of this DNP Project, the following instruments were used:

1. Baseline knowledge of signs and symptoms of mild cognitive impairment in older adults, like dementia (non-normative cognitive decline), was evaluated by administering a 25-question pre-test to staff members involved in the student DNP project. The pre-test quizzed the participating staff on signs and symptoms of mild cognitive impairment and recognizing early signs of the disease process. The staff was reevaluated via a post-test on the knowledge they gained and retained after obtaining educational material and attended educational sessions. The post-test contained the same questions as the pre-test.

2. The patient's risk for a fall was evaluated by the Morse Fall Scale (see Appendix B, Figure 2). This tool can be used to identify risk factors for falls in hospitalized patients. The total score may be used to predict future falls, but it is more important to identify risk factors using the scale and then plan care to address those risk factors (AHRQ, 2013).

Figure 2

Morse Fall Scale

UNDERSTANDING FALL RISK, PREVENTION, & PROTECTION

MORSE FALL RISK ASSESSMENT

Risk Factor	Scale	Points	Patient's Score
History of Falls	Yes	25	
	No	0	
Secondary Diagnosis (Two or more medical diagnoses)	Yes	15	
	No	0	
Ambulatory Aid	Furniture	30	
	Crutches/Cane/Walker	15	
	None/Bedrest/Wheelchair/Nurse	0	
IV/Saline Lock	Yes	20	
	No	0	
Gait/Transferring	Impaired	20	
	Weak	10	
	Normal/Bedrest/Immobile	0	
Mental Status	Forgets Limitations	15	
	Oriented to own ability	0	

TOTAL: _____

High Risk = 45 and higher
Moderate Risk = 25-44
Low Risk = 0-24

Source: Morse, J.M. (1997). Preventing Patient Falls. Thousand Oaks: Sage Brocks. 1999 Safety Operating Instructions.

(AHRQ, 2013)

3. The patient’s balance was evaluated by the Tinetti Performance-Oriented Mobility Assessment (POMA) scale (See Appendix C, Figures 3 and 3.1). This instrument is a valid and reliable tool used to measure balance. POMA assesses the gait and balance in older adults and assesses the perception of balance and stability during activities of daily living and fear of falling. In addition, it is also an excellent assessment tool to identify the fall risk of an individual. It has reliable test/retest, discriminative, and predictive validity related to fall risk than other tests including Timed Up and Go test (Physiopedia, 2020).

Figure 3

Tinetti Performance-Oriented Mobility Assessment

TINETTI BALANCE ASSESSMENT TOOL

Tinetti ME, Williams TF, Mayewski R, Fall Risk Index for elderly patients based on number of chronic disabilities. Am J Med 1986;80:429-434

PATIENTS NAME _____ D.o.b. _____ Ward _____

BALANCE SECTION

Patient is seated in hard, armless chair;

		Date	
Sitting Balance	Leans or slides in chair	= 0	
	Steady, safe	= 1	
Rises from chair	Unable to without help	= 0	
	Able, uses arms to help	= 1	
	Able without use of arms	= 2	
Attempts to rise	Unable to without help	= 0	
	Able, requires > 1 attempt	= 1	
	Able to rise, 1 attempt	= 2	
Immediate standing Balance (first 5 seconds)	Unsteady (staggers, moves feet, trunk sway)	= 0	
	Steady but uses walker or other support	= 1	
	Steady without walker or other support	= 2	
Standing balance	Unsteady	= 0	
	Steady but wide stance and uses support	= 1	
	Narrow stance without support	= 2	
Nudged	Begins to fall	= 0	
	Staggers, grabs, catches self	= 1	
	Steady	= 2	
Eyes closed	Unsteady	= 0	
	Steady	= 1	
Turning 360 degrees	Discontinuous steps	= 0	
	Continuous	= 1	
	Unsteady (grabs, staggers)	= 0	
	Steady	= 1	
Sitting down	Unsafe (misjudged distance, falls into chair)	= 0	
	Uses arms or not a smooth motion	= 1	
	Safe, smooth motion	= 2	
	Balance score		/16 /16

(Physiopedia, 2020)

Figure 3.1

Tinetti Performance-Oriented Mobility Assessment

TINETTI BALANCE ASSESSMENT TOOL

GAIT SECTION

Patient stands with therapist, walks across room (+/- aids), first at usual pace, then at rapid pace.

		Date	
Indication of gait (Immediately after told to 'go'.)	Any hesitancy or multiple attempts	= 0	
	No hesitancy	= 1	
Step length and height	Step to	= 0	
	Step through R	= 1	
	Step through L	= 1	
Foot clearance	Foot drop	= 0	
	L foot clears floor	= 1	
	R foot clears floor	= 1	
Step symmetry	Right and left step length not equal	= 0	
	Right and left step length appear equal	= 1	
Step continuity	Stopping or discontinuity between steps	= 0	
	Steps appear continuous	= 1	
Path	Marked deviation	= 0	
	Mild/moderate deviation or uses w. aid	= 1	
	Straight without w. aid	= 2	
Trunk	Marked sway or uses w. aid	= 0	
	No sway but flex. knees or back or uses arms for stability	= 1	
	No sway, flex., use of arms or w. aid	= 2	
Walking time	Heels apart	= 0	
	Heels almost touching while walking	= 1	
Gait score			/12
Balance score carried forward			/16
Total Score = Balance + Gait score			/28

Risk Indicators:

Tinetti Tool Score	Risk of Falls
≤18	High
19-23	Moderate
≥24	Low

(Physiopedia, 2020)

4. Event reports retrieved from documented hospital software (RL6).

Data Collection Procedures

All participants were informed of piloted DNP project and asked to sign a consent for to participate (see Appendix F). The DNP student conducted a pre-analysis of the organization’s fall rate between March through August 2020. Initial project intervention

and post-project intervention analysis was conducted between September 2020 (initial project implementation) to May 2021 (project completion). This facility patient fall rate was measured by counting the number of falls divided by the number of occupied bed days monthly (patient bed days). The DNP student calculated the patient fall rate per 1000 patient bed days by counting the number of falls per unit divided by the number of beds occupied daily (patient bed days) and multiplied by 1000. The DNP student reviewed six months of the organization's previous falls data and current falls data. The DNP student compared pre-DNP project interventions against post-DNP project interventions to measure its progress and the need for modification of the student's patient-centered quality improvement initiative. Staff pre- and post-education test scores were compared to pre- and post-DNP project interventions to identify any significant correlations between educating staff on recognizing early signs of cognitive decline and the rate of patient falls in the hospitalized setting.

Patients' fall data at this facility is collected daily and retrieved monthly via the organization's secure RL6 software. The RL6 is an internal software system that allows staff members to securely document events reported within the hospital or hospital property. The software provides a mechanism for all health care team members to report events occurring in the hospital environment that harm or have the potential to harm an individual. The collection, aggregation, and analysis of these events are critical to continuously improving the quality of care and safety at this facility. Falls related data collected through this secure software include: patient's demographics (also in-patient, out-patient, or visitor), date and time of fall, location of fall, if the fall involved an injury or not, was the patient in restraints or not in restraints, if a fall was provoked or not

provoked, hospital bed position, bed alarm set or not, if medication contributed to falling, date and time of previous fall risk assessment performed, fall risk assessment score pre- and post-fall, time of the last encounter with a staff member, and name of staff members assigned to the patient at the time of fall. The previously mentioned data collected after a fall is imported into an Excel spreadsheet and projected as graphs or pivot tables.

Data Analysis

The Project Planner hired a professional statistician, who used the IBM SPSS Version 28.0.0 statistical software to assist with interpreting the data collected during the implementation phase of the DNP project and the data collected will help advise on future strategies. Specifically, the usage of paired t tests was used to measure the mean difference from pre- and post-educational data. Patients' fall data at this facility was collected daily and retrieved monthly via documented RL6's completed by staff to calculate fall rates and analyzed for statistical significance via the IBM SPSS Version 28.0.0 software. The purpose of this Doctor of Nursing Practice (DNP) project was to answer if providing educational material to staff members on early recognition of mild cognitive impairment, like dementia, in conjunction with incorporating safety interventions would reduce the number of patient's falls during their in-hospital visit.

In December 2020, staff volunteers were asked to participate in pre- and post-education examinations to evaluate their baseline knowledge of recognizing cognitive decline versus their knowledge of the subject matter post-education. A total of 24 hospital staff participated in the study. The participant pool included registered nurses, license practical nurses, and patient care technicians. See Table 1 and Figure 4 for demographical breakdown.

Table 1

Total Staff Participants

Statistics

Participant Demographic

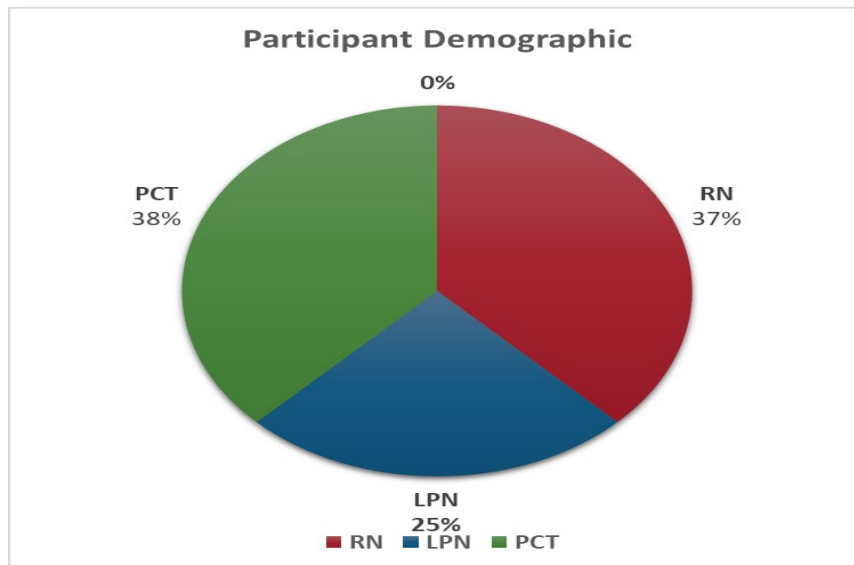
N	Valid	24
	Missing	0

Participant Demographic

	N	%
RN	9	37.5%
LPN	6	25.0%
PCT	9	37.5%

Figure 4

Demographic of Participating Staff



The mean participating staff test score prior to receiving education equaled 70.33%. The mean participating staff test score after receiving education equaled 84.50% (see Tables 2 and 2.1). The p value test results of the pre and post educational test scores was less than .001 (std +/- 7 test points) suggesting the Null hypothesis was rejected and

showed the difference between the mean test scores were statistically highly significant (see Tables 3 & 3.1).

Table 2

Mean Pre- & Post-education Test Scores

		Statistics	
		Pre- Education Test Scores on Recognizing Cognitive Impairment in Older Adults	Post- Education Test Scores on Recognizing Cognitive Impairment in Older Adults
N	Valid	24	24
	Missing	0	0
Mean		70.3333	84.5000
Median		72.0000	84.0000
Mode		60.00 ^a	84.00
Std. Deviation		10.34478	9.60525
Percentiles	25	60.0000	77.0000
	50	72.0000	84.0000
	75	76.0000	92.0000

a. Multiple modes exist. The smallest value is shown

Table 2.1

Raw Pre- & Post-education Test Scores

Pre-Education Test Scores on Recognizing Cognitive Impairment in Older Adults			Post-Education Test Scores on Recognizing Cognitive Impairment in Older Adults		
	N	%		N	%
52.00	1	4.2%	60.00	1	4.2%
56.00	1	4.2%	72.00	2	8.3%
60.00	5	20.8%	76.00	3	12.5%
64.00	2	8.3%	80.00	2	8.3%
68.00	1	4.2%	84.00	6	25.0%
72.00	5	20.8%	88.00	3	12.5%
76.00	5	20.8%	92.00	3	12.5%
80.00	2	8.3%	96.00	2	8.3%
92.00	2	8.3%	100.00	2	8.3%

Table 3*Paired Sample Test Pre- & Post-education Test Scores*

		Paired Differences					Significance			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Pre-Education Test Scores on Recognizing Cognitive Impairment in Older Adults - Post-Education Test Scores on Recognizing Cognitive Impairment in Older Adults	-14.16667	7.17282	1.46414	-17.19548	-11.13785	-9.676	23	<.001	<.001

Table 3.1*Results of Research Hypothesis Test*

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The median of differences between Pre-Education Test Scores on Recognizing Cognitive Impairment in Older Adults and Post-Education Test Scores on Recognizing Cognitive Impairment in Older Adults equals 0.	Related-Samples Wilcoxon Signed Rank Test	<.001	Reject the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

The difference between the pre- and post-education test score Chi-Square values proved that a significant increase and retention of the participating staff's knowledge was achieved during the post-education testing period (see Table 4).

Table 4

Chi-Square Statistic Pre- & Post-education Test Scores

	Pre- Education Test Scores on Recognizing Cognitive Impairment in Older Adults	Post- Education Test Scores on Recognizing Cognitive Impairment in Older Adults
Chi-Square	9.750 ^a	6.000 ^a
df	8	8
Asymp. Sig.	.283	.647

a. 9 cells (100.0%) have expected frequencies less than 5. The minimum expected cell frequency is 2.7.

During the month of March 2020, a pre-interventional analysis concluded that there was an average anticipated physiological fall rate percentage of 33%, in April 54%, May 63%, June 67%, July 35%, and August 50%. An overall percent of hospital falls, in 6 months, suggested that patients with an anticipated physiological condition who reside at project site sustained a fall on average 50.33% of the time per month. One fall is one fall too many and falls that occur within the hospital setting can be preventable.

The line charts suggested that post-intervention fall rates moderately increased overall between September 2020 and May 2021 compared to pre-intervention fall rates (see Figures 5 & 6). The pre-intervention mean score was 1.5 falls per month and a post-intervention mean score was 1.8 falls per month (see Figure 6.1). These statistical findings may have been skewed due to potential unidentified outliers. For example, four staff members who participated in the DNP project withdrew from the project midway through the implementation stage. In addition, the unit the research was conducted on

was converted into a COVID-19 overflow unit twice. Further research using Grubb's Hypothesis Test is needed to determine if outliers contributed to any skewed data.

Figure 5

Total Patient Falls Pre-intervention (Mar 20-Sep 20) & Post-intervention (Sep 20-May 21)

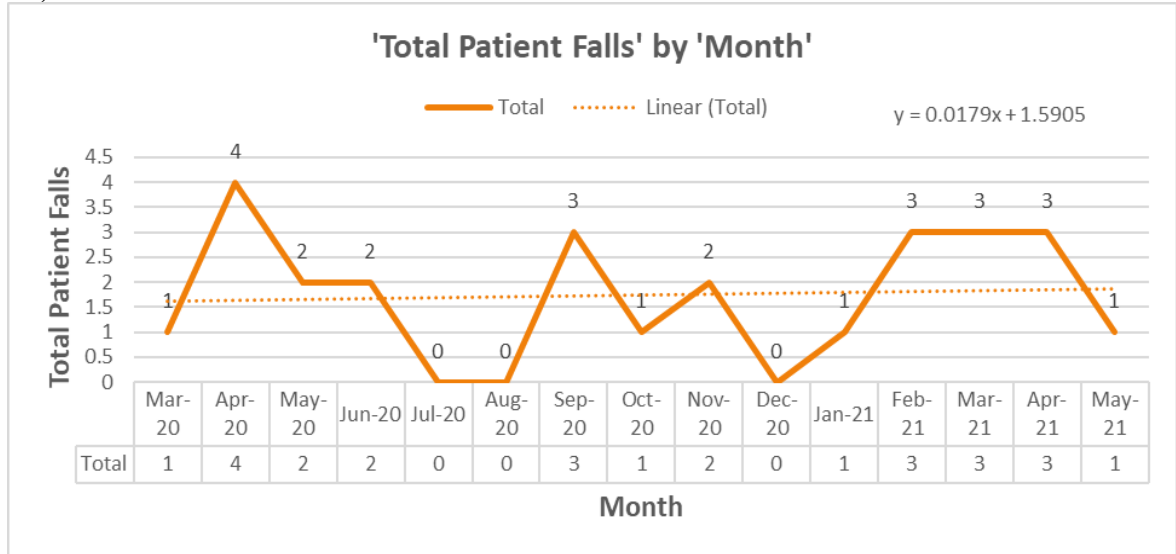


Figure 6

Falls/1000 Pt Days Pre-intervention (Mar 20-Sep 20) & Post-intervention (Sep 20-May 21)

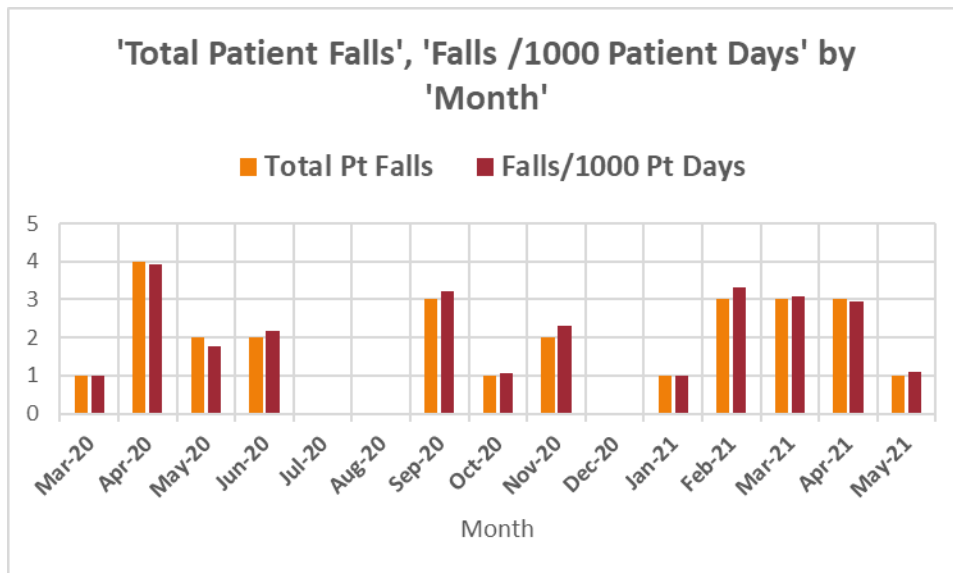
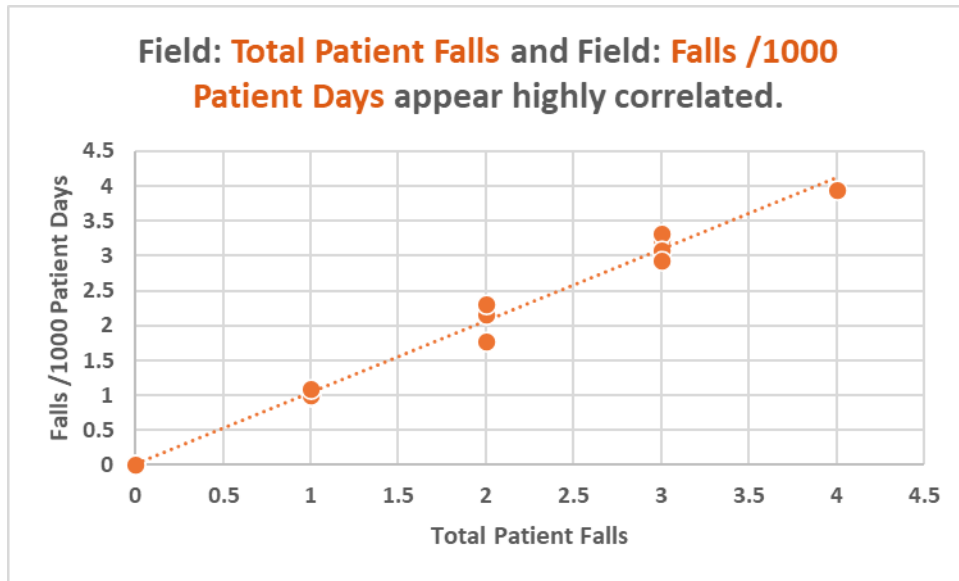


Figure 6.1

Mean Correlation of Total Pt Falls & Falls/1000 Pt Days



Cost-Benefit Analysis/Budget

Falls among older adults can cause morbidity and pose an economic burden on society. Aging is a known risk factor for falls, and age has been shown to influence the effectiveness of fall prevention programs. The DNP student conducted a cost-benefit analysis of the multifocal patient-centered fall prevention pilot. This DNP student cost for implementing a falls prevention initiative was estimated from distributing educational material, supplies, snacks for participants, and data analytics. The estimated cost for this DNP project was between \$200-400 dollars. Implementing a fall prevention pilot program that could help older adult patients improve their overall health and well-being outweighed any expenditures this DNP pilot project incurred.

Timeline

The DNP project is estimated to conclude by June 2021. The DNP student presented his proposal of a multifocal patient-centered fall prevention pilot to the project site Institutional Review Board (IRB) on July 30, 2020. The organization expressed interest in the proposed project. The project site IRB board members reviewed and approved the implementation and data collection for the student Doctor of Nursing Practice (DNP) project *Fall Prevention Strategy: Aligning Staff Education with Hourly Rounding to Decrease Fall Rates for the Hospitalized Patient with Early Dementia* on September 8, 2020 (see Appendix D).

The DNP student implemented the patient-centered fall prevention pilot program in December 2020. The DNP student pilot program was initiated by first reviewing the organization's previous fall data. Patient data related to falls was then evaluated weekly. An analysis of the DNP fall prevention interventions was conducted for progress and need for modification approximately mid-March 2021. The DNP student evaluated the overall fall prevention pilot program for its outcome in May 2021 (see Appendix G).

Ethical Considerations/Protection of Human Subjects

The DNP student obtained approval from the Institutional Review Board (IRB) of Jacksonville State University (JSU) before implementing the pilot program on December 4, 2020 (see Appendix E). Part of the DNP student research involved implementing interventions on patients to help facilitate bridging the gap between older adult patients with mild cognitive decline and falling. One ethical consideration the DNP student contemplated was if the selected sample population of patients thoroughly understood

their involvement in the researchers proposed DNP project and was willing to competently consent to participate in the study.

The German Nuremberg Code states, “The voluntary consent of the human subject is absolutely essential” (U.S. Government Publishing Office [GPO], 1949, p. 181). The Nuremberg Code also suggests the risk of the trials must be proportional to its benefits (The U.S. Department of Health & Human Services [HHS], 2020). Patients that are involved in clinical research must be afforded their basic rights to fully understand all aspects of the research conducted and must be given informed consent. The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research was founded in 1974. In 1979 this organization drafted documents known as the Belmont Report. This report summarizes the rights of the patients and the responsibility of the health care professional (The Belmont Report, 1979).

One rule in the Belmont Report states that a person had informed consent. It is the medical professional’s responsibility to make sure the patient fully understands what benefits or risks may be encountered from the experiment. An essential part of informed consent is that a patient understands it is their choice to participate in an experiment or not to participate (The Belmont Report, 1979).

Ethics in research have improved dramatically throughout history. The Belmont Report gives each researcher a basic guideline on ethically and morally conducting experiments involving humans. As mentioned previously, the primary aim of the DNP project is to help older adult patients improve their overall health and well-being by preventing them from experiencing a fall.

Conclusion

In conclusion, the clinical focus of this Doctor of Nursing Practice (DNP) project was fall prevention. Exploring and enhancing the safety and quality care measures for patients in the hospital setting is one of the essential goals and missions of this organization. Through this quality improvement program, each frontline staff member gained an increase in knowledge related to fall prevention in their facility, which, in turn, promoted safer care of older adult patients with dementia or non-normative cognitive decline and helped decrease falls.

Quigley & White (2013) stated, “In the hospital setting, falls continue to be the number one adverse event with approximately 3-20% of inpatients falling at least once during their hospitalization” (para. 3). Additionally, 30-50% of hospital falls result in injury (Quigley & White, 2013). Hospitalized patients on the medical/surgical unit had challenges with multiple impairments secondary to their age group. Falls represent a significant public health problem around the world. Falls and fall injuries are the most adverse events reported in hospital organizations. Furthermore, falls have proven to be the leading cause of nonfatal and fatal injuries among older adults (CDC, 2015). Most fall prevention programs do not ultimately lead to individualized fall care plans for residents. Currently, what is available for residents at risk for falls are interventions that are standard throughout health care systems, such as safety alarms and rounding. However, 78% of the falls are incurred by patients previously predicted to be more prone to falls and incidents (Baek, S. et al., 2014).

Falls have been identified as a preventable health issue. Falls have significant physical and emotional implications for patients, as well as increased financial costs for

organizations. A patient fall can result in hospital readmission, increase the length of hospital stay, result in unexpected surgeries, and even death. Within the older adult population, the cost of fall-related injuries is estimated at \$30 billion, and by 2021 the direct cost of fall-related injuries is expected to reach an all-time high of \$54.9 billion (Godlock, 2016).

The design of this Doctor of Nursing Practice (DNP) project was to assess the effectiveness of a specific patient-centered quality improvement study in a hospitalized setting as a potential strategy to reduce the number of patient falls. The DNP project attempted to bridge the gap between falls and older adults with dementia by providing educational material to hospital staff on early recognition of cognitive impairment in conjunction with combining hourly rounds and utilizing bedside alarms to further prevent a fall during hospitalization for the older adult patient. Fall rates moderately increased overall within the pilot facility between September 2020 (initial project implementation) to May 2021 (project completion). Pre-intervention mean score = 1.5 falls per month and post-intervention mean score = 1.8 falls per month. However, the fall prevention initiative significantly aided in helping participating staff members gain and retain knowledge regarding recognizing early signs of cognitive decline like dementia. Overall results showed there was a positive correlation between providing educational material and educational seminars to participating staff members on early recognition of mild cognitive impairment, like dementia, and encouraging hourly rounding. This was evident by a mean pre-education test score = 70.33 % compared to a mean post-education test score = 84.50%. The pilot program promoted team collaboration by conducting bi-weekly patient safety team meetings and educational sessions.

The most important intervention this project could disseminate is to enhance staff awareness of the increased risk of falls in the older adult population. Raising awareness to the staff at this facility helped facilitate translating evidence into practice which, in turn, continued to promote patient safety. This DNP project aligned with patient safety practices and implemented a quality improvement pilot program, like fall prevention, to prevent additional harm to patients while they were hospitalized. This project intended to help promote the health of older hospitalized adult patients by using a piloted patient-centered initiative to prevent the targeted patient population from sustaining a fall.

The foundation of this DNP project can be expanded upon and prove to be sustainable within this facility and used as an orientation tool for newly hired staff. Falls within the older adult population are occurring at alarming rates with significant consequences to both residents and facilities. Residential health care facilities must adopt an evidence-based approach to fall prevention and commit to reducing falls within their organization. Fall prevention is the first line of defense for preventing falls. Integration of innovative strategies to decrease falls for the hospitalized patient will yield positive outcomes. One fall is one fall too many!

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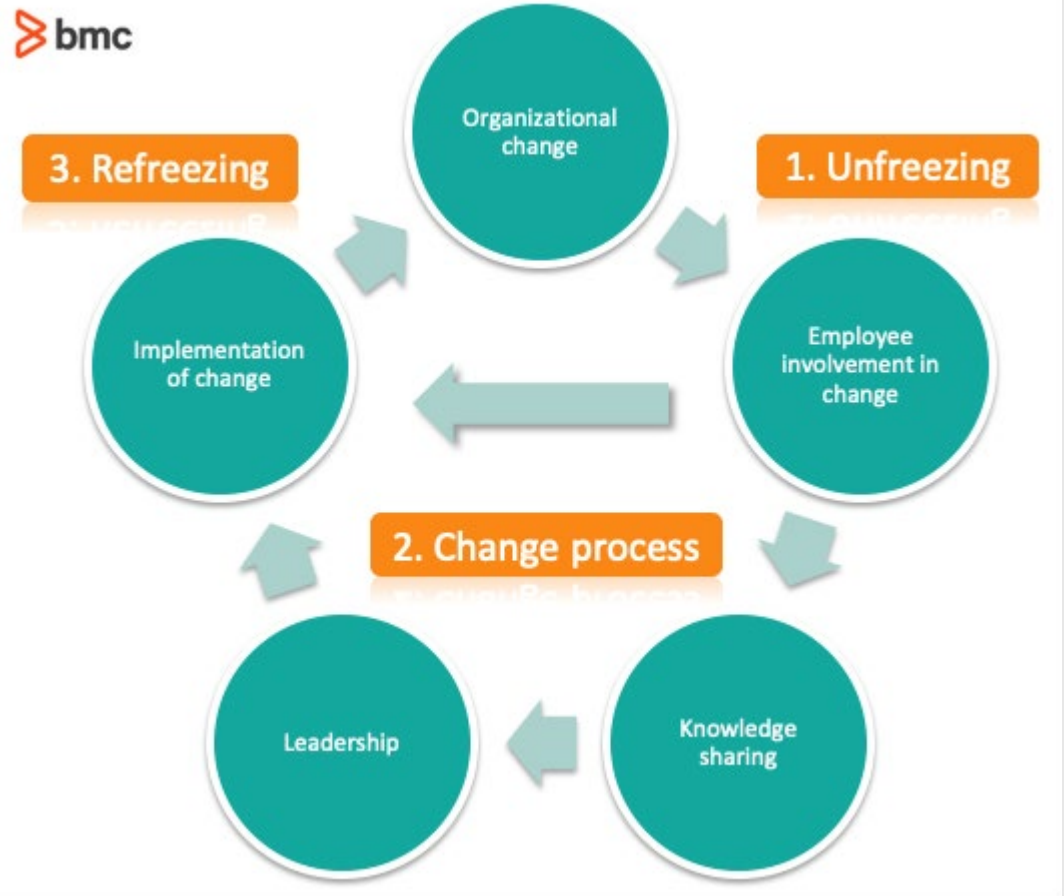
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Appendix A

Illustration Lewin's Theory of Change



(Raza, M. 2020)

Appendix A

Illustration Lewin's Theory of Change



(SlideModel.com, 2020)

Appendix B

Morse Fall Risk Assessment



UNDERSTANDING FALL RISK, PREVENTION, & PROTECTION

MORSE FALL RISK ASSESSMENT

Risk Factor	Scale	Points	Patient's Score
History of Falls	Yes	25	
	No	0	
Secondary Diagnosis (Two or more medical diagnoses)	Yes	15	
	No	0	
Ambulatory Aid	Furniture	30	
	Crutches/Cane/Walker	15	
	None/Bedrest/Wheelchair/Nurse	0	
IV/Saline Lock	Yes	20	
	No	0	
Gait/Transferring	Impaired	20	
	Weak	10	
	Normal/Bedrest/Immobile	0	
Mental Status	Forgets Limitations	15	
	Oriented to own ability	0	

TOTAL: _____

High Risk = 45 and higher

Moderate Risk = 25-44

Low Risk = 0-24

Source: Morse, J.M. (1997). Preventing Patient Falls. Thousand Oaks: Sage Brods. 1999 Safety Operating Instructions.

(AHRQ, 2013)

Appendix C

Tinetti Performance-Oriented Mobility

TINETTI BALANCE ASSESSMENT TOOL

Tinetti ME, Williams TF, Mayewski R, Fall Risk Index for elderly patients based on number of chronic disabilities. Am J Med 1986;80:429-434

PATIENTS NAME _____ D.o.b. _____ Ward _____

BALANCE SECTION

Patient is seated in hard, armless chair;

		Date	
Sitting Balance	Leans or slides in chair	= 0	
	Steady, safe	= 1	
Rises from chair	Unable to without help	= 0	
	Able, uses arms to help	= 1	
	Able without use of arms	= 2	
Attempts to rise	Unable to without help	= 0	
	Able, requires > 1 attempt	= 1	
	Able to rise, 1 attempt	= 2	
Immediate standing Balance (first 5 seconds)	Unsteady (staggers, moves feet, trunk sway)	= 0	
	Steady but uses walker or other support	= 1	
	Steady without walker or other support	= 2	
Standing balance	Unsteady	= 0	
	Steady but wide stance and uses support	= 1	
	Narrow stance without support	= 2	
Nudged	Begins to fall	= 0	
	Staggers, grabs, catches self	= 1	
	Steady	= 2	
Eyes closed	Unsteady	= 0	
	Steady	= 1	
Turning 360 degrees	Discontinuous steps	= 0	
	Continuous	= 1	
	Unsteady (grabs, staggers)	= 0	
	Steady	= 1	
Sitting down	Unsafe (misjudged distance, falls into chair)	= 0	
	Uses arms or not a smooth motion	= 1	
	Safe, smooth motion	= 2	
	Balance score	/16	/16

(Physiopedia, 2020)

Appendix C

Tinetti Performance-Oriented Mobility Assessment

TINETTI BALANCE ASSESSMENT TOOL

GAIT SECTION

Patient stands with therapist, walks across room (+/- aids), first at usual pace, then at rapid pace.

		Date		
Indication of gait <small>(Immediately after told to 'go'.)</small>	Any hesitancy or multiple attempts	= 0		
	No hesitancy	= 1		
Step length and height	Step to	= 0		
	Step through R	= 1		
	Step through L	= 1		
Foot clearance	Foot drop	= 0		
	L foot clears floor	= 1		
	R foot clears floor	= 1		
Step symmetry	Right and left step length not equal	= 0		
	Right and left step length appear equal	= 1		
Step continuity	Stopping or discontinuity between steps	= 0		
	Steps appear continuous	= 1		
Path	Marked deviation	= 0		
	Mild/moderate deviation or uses w. aid	= 1		
	Straight without w. aid	= 2		
Trunk	Marked sway or uses w. aid	= 0		
	No sway but flex. knees or back or uses arms for stability	= 1		
	No sway, flex., use of arms or w. aid	= 2		
Walking time	Heels apart	= 0		
	Heels almost touching while walking	= 1		
Gait score			/12	/12
Balance score carried forward			/16	/16
Total Score = Balance + Gait score			/28	/28

Risk Indicators:

Tinetti Tool Score	Risk of Falls
≤18	High
19-23	Moderate
≥24	Low

(Physiopedia, 2020)

Appendix D

Project Site Letter of Approval to Conduct Research



September 8, 2020

To Whom It May Concern:

The Institutional Review Board (IRB) at Northeast Alabama Regional Medical Center convened on July 30, 2020. The board members reviewed and approved the implementation and data collection for the Doctor of Nursing Practice (DNP) project *Fall Prevention Strategy: Aligning Staff Education with Hourly Rounding to Decrease Fall Rates for the Hospitalized Patient with Early Dementia* conducted by Milledge Washington Smalls III, MSN, BSN, RN and DNP student at Jacksonville State University.

Approval for the protocol is effective from August 18, 2020 to July 30, 2021.

Sincerely,



David Zinn, MD
Vice President of Medical Affairs
Northeast Alabama Regional Medical Center
PO Box 2208
Anniston, AL 36202
(256) 235-5224
dzinn@rmccares.org

Appendix E

JSU Letter of Approval to Conduct Research



December 4, 2020

Dear Milledge Smalls:

Your proposal submitted for review by the Human Participants Review Protocol for the project titled: "Fall Prevention: Aligning Staff Education with Patient-Centered Initiatives to Decrease Fall Rates for the Hospitalized Patient with Cognitive Challenges" has been approved as exempt. If the project is still in process one year from now, you are asked to provide the IRB with a renewal application and a report on the progress of the research project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Joe Walsh', is written over the typed name.

Joe Walsh
Executive Secretary, IRB

JW/dh

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Appendix F

Participant Consent Form

CONSENT FORM TO PARTICIPATE IN A RESEARCH STUDY

Researcher's Name(s): Milledge W. Smalls

Project Number:

Project Title: *Fall Prevention: The First Line of Defense. Integration of Innovated Strategies to Decrease Falls for the Hospitalized Patient*

Research conducted at: Regional health care organization for a five-county service area in Northeast Alabama

INTRODUCTION

This consent may contain words that you do not understand. Please ask the investigator or the study staff to explain any words or information that you do not clearly understand.

You are being asked to participate in a research study. This research is being conducted to help *bridge the gap between falls and older adults with dementia, or nonnormative cognitive decline, by implementing a plan to educate hospital staff on early recognition of cognitive changes, encourage hospital staff to increase rounding on patients, and incorporate a newly piloted bedside alarm to further aid in preventing a fall.* When you are invited to participate in research, you have the right to be informed about the study procedures so that you can decide whether you want to consent to participation. This form may contain words that you do not know. Please ask the researcher to explain any words or information that you do not understand.

You have the right to know what you will be asked to do so that you can decide whether or not to be in the study. Your participation is **voluntary**. You **do not** have to be in the study if you do not want to. You may **refuse** to be in the study without any repercussions. If you **do not** want to continue to be in the study, you may **stop** at any time **without** penalty or loss of benefits to which you are otherwise entitled.

This research is funded by me, Milledge W. Smalls.

The Principal Investigator, Milledge W. Smalls, and his collaborators do not have financial interest in the organization sponsoring this research.

WHY IS THIS STUDY BEING DONE?

The purpose of this Doctor of Nursing Practice (DNP) pilot project is to answer if providing educational material to staff members on early recognition of mild cognitive impairment, like dementia, in conjunction with incorporating safety interventions such as hourly rounding and the use of bed alarms will reduce the number of patient's falls during a hospitalization encounter.

HOW MANY PEOPLE WILL BE IN THE STUDY?

Approximately 24 people will take part in this study at this institution.

WHAT AM I BEING ASKED TO DO?

You will be asked to answer researcher questions in regard to recognizing patient cognitive ability and history of a fall, participate in assessing for risk for fall and balance by using the Morse Fall Risk Assessment (MFRA) scale (This tool can be used to identify risk factors for falls in hospitalized patients), Tinetti Performance-Oriented Mobility Assessment (POMA) scale (This instrument is a valid and reliable tool used to measure balance and risk for falls). The subject will also participant in implementing a newly piloted Posey Sitter on Cue bedside alarm.

HOW LONG WILL I BE IN THE STUDY?

This study will initiate approximately around October 9, 2020. The DNP project is estimated to conclude by July 2021. You can stop participating at any time without penalty.

WHAT ARE THE BENEFITS OF BEING IN THE STUDY?

Your participation will benefit you and the organization by promoting the health of older hospitalized patients as evidenced by the patient will not sustain a fall or the frequency of a fall will be reduced, further contributing to the safe patient care. The primary aim of the DNP project is to help older adult patients improve their overall health and well-being by preventing them from experiencing a fall.

WHAT ARE THE RISKS OF BEING IN THE STUDY?

The participant may sustain a fall while participating in the Tinetti Performance-Oriented Mobility Assessment (POMA).

WHAT ARE THE COSTS OF BEING IN THE STUDY?

There is no cost to you.

WHAT OTHER OPTIONS ARE THERE?

An alternative option is not included in this research study. You also have the option of not participating in this study and will not be penalized for your decision.

CONFIDENTIALITY

Information produced by this study will be stored in the investigator's file and identified by a code number only. The code key connecting your name to specific information about you will be kept in a separate, secure location. Information contained in your records may not be given to anyone unaffiliated with the study without your written consent, except as required by law. Data collected in this study will be archived for two years.

WILL I BE COMPENSATED FOR PARTICIPATING IN THE STUDY?

You will receive no payment for taking part in this study.

WHAT IF I AM INJURED?

[For greater than minimal risk studies only]

It is not the policy of the participating organization or university to compensate human subjects in the event the research results in injury. The researcher, in fulfilling its public responsibility, has provided medical, professional, and general liability insurance coverage for any injury in the event such injury is caused by the negligence of the organization, its faculty, and staff. The participating organization also provides, within the limitations of the laws of the State of Alabama, medical attention to subjects who suffer injuries while participating in the research projects of the organization. In the event you have suffered injury as the result of participation in this research program, you are to contact the Risk Management Officer, Daniel Swindall, at telephone number (256) 235-5121, who can review the matter and provide further information. This statement is not to be construed as an admission of liability.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Participation in this study is **voluntary**. You **do not** have to participate in this study.

You will also be informed of any new information discovered during the course of this study that might influence your health, welfare, or willingness to be in this study. A Data Safety and Monitoring Board, an independent group of experts, will be reviewing the

data from this research throughout the study. We will tell you about the new information from this or other studies that may affect your health, welfare, or willingness to continue participation in this study.

WHO DO I CONTACT IF I HAVE QUESTIONS, CONCERNS, OR COMPLAINTS?

Please contact, Milledge Smalls (researcher) or Dr. Lynnette Lewis Djonret-Hall (researcher’s chair) if you have questions about the research. Additionally, you may ask questions, voice concerns or complaints to the research team.

WHOM DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the facility’s Institutional Review Board (which is a group of people who review the research studies to protect participants’ rights) Donna Black at (256) 235-5224 or (256) 235-8901.

A copy of this Informed Consent form will be given to you before you participate in the research.

SIGNATURES

I have read this consent form and my questions have been answered. My signature below means that I do want to be in the study. I know that I can remove myself from the study at any time without any problems.

_____	_____
Subject	Date
_____	_____
Legal Guardian/Advocate/Witness (if required)*	Date

**The presence and signature of an impartial witness is required during the entire informed consent discussion if the subject or subject’s legally authorized representative is unable to read. .*

“If required” means that the signature line is signed only if it is required as per federal, state, local, sponsor and/or any other entity requirements.

Appendix G

DNP Project Timeline

DNP PROJECT TIMELINE

