DEVELOPMENT AND EVALUATION OF A NURSE PRACTITIONER-DIRECTED FALL PREVENTION INITIATIVE FOR OLDER ADULTS IN A LEVEL ONE TRAUMA CENTER

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Title: Development and Evaluation of a Nurse Practitioner-Directed Fall Prevention Initiative for Older Adults in a Level One Trauma Center

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Falls are one of the top 20 most expensive medical conditions in the United States, making them the primary cause of morbidity and mortality. The cost of treating and managing falls is estimated to be around $31 billion per year. Every year, 2.8 million adults in the United States are treated in emergency departments (EDs) due to falling. The health facility in this project has experienced a significant number of falls despite management taking initiatives to address this health challenge. This project aimed to implement the stop elderly accidents, deaths, and injuries (STEADI) assessment tool as an intervention to prevent falls in older adults at a hospital in southern New York City. Quantitative methodology was applied to determine the effect of the intervention where descriptive and inferential data analysis were conducted. The findings show a reduction in patient falls from 363 to 199, and implementation of the STEADI toolkit leads to an increase in nurses' knowledge and improvement in attitude toward patient falls.

Keywords: patient falls, emergency department, risk assessment tool, STEADI

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ABBREVIATIONS

AGS – American Geriatric Society

AHRQ – Agency for Healthcare Research and Quality

AONL – American Organization of Nursing Leadership

EBP – Evidence-based practice

ED – Emergency Department

CDC – Centers for Disease Control and Prevention

CGA – Comprehensive Geriatric Assessment

DNP – Doctor of Nursing Practice

HBM – Health Belief Model

HSRC – Human Subjects Review Committee

NIH – National Institute of Health

PICOT – Population, Intervention, Comparison, Outcome, and Time

STEADI – Stop Elderly Accidents, Deaths, and Injuries

CHAPTER ONE

INTRODUCTION

Problem Description

According to the Centers for Disease Control and Prevention (CDC) (2020), the full year before the COVID-19 pandemic, there were three million patient falls for adults aged 65 and older leading to 34,000 deaths. This makes patient falls one of the leading causes of injury and mortality. This cost $50 billion in annual medical costs where 75% was paid by Medicaid (Lee, 2017). One in every five falls causes significant injury, such as a hip or knee fracture (Lee, 2017). More than 800,000 of the three million patients are hospitalized, with the rest treated as outpatients (Lee, 2017). Equally, the Emergency Department (ED) is faced with care-dependent elderly patients who are at increased risk of falls (Sharif et al., 2018). Implementing evidence-based practices is crucial to reducing falls and fall-related injuries, yet there remain critical knowledge gaps in fall prevention strategies (Frieson et al., 2018).

The health facility where this project was implemented has experienced a significant number of falls despite management taking initiatives to address this health challenge. For instance, between January 2019 and December 2019, there were 856 falls. On average, there were at least two falls per day. In 2020, there was a reduction in admissions due to the Covid-19 pandemic, where few patients sought medical attention. However, in 2020 the health facility recorded 566 falls. The health facility has implemented safety bed alarms, bedside handover tools, and other measures to prevent and minimize falls. However, there is still a significant number of falls. In this regard, at the ED, there is a need to implement interventions to screen patients at risk of falling to prevent falls.

Fall prevention is relevant to nursing because it enhances patient safety (Jung et al., 2016). Nurses play a significant role in preventing falls. Notably, nurses should have

comprehensive information on the causes of falls to implement prevention measures. Even though nurses play an indispensable role in the prevention of falls, they lack adequate knowledge on causes, assessment, and implementation of effective fall prevention initiatives (Shala et al., 2019; Stoeckle et al., 2019). This project will bridge this gap by increasing nurse preparedness in incorporating fall risk assessment and prevention into clinical practice. Further, older people are expected to form a larger proportion of the general population hence the prediction that falls will increase in the future (Shala et al., 2019). Also, there is an increased need for nurses to be adequately prepared and well informed to prevent falls. The purpose of this project was to implement the STEADI assessment tool as an intervention to prevent falls in older adults.

Rationale

This project used the Health Belief Model (HBM) as the framework. The model was developed in the 1950s by several social psychologists from the United States, including Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels (Suleiman, 2019). The HBM is among the earliest behavior change models developed to provide insights into human health decision-making and subsequent behavior. The HBM focuses on people's perceptions towards a threat of a health problem and the arising evaluation of the recommended behavior for preventing or managing the problem (Guilford et al., 2017). The model is based on six fundamental principles: perceived susceptibility, severity, benefits and barriers, cues for action, and self-efficacy (Guilford et al., 2017).

Perceived susceptibility denotes the likelihood of developing a health problem. Individuals are more likely to adopt behaviors that prevent or reduce the susceptibility to an illness when the perceived susceptibility is high (Suleiman, 2019). Perceived severity infers an individual's feelings on the seriousness of the health problem. Individuals are more likely to take

action if they perceive the problem as serious. Additionally, perceived benefit is the perception of the effectiveness of the interventions for reducing the threat posed by the health problem (Suleiman, 2019). Perceived barriers are the obstacles to implementing recommended health behaviors, whereas cues to action are the stimulus required to promote the decision-making process to implement the recommended health action. The stimulus can be either internal or external. Self-efficacy is the level of individuals' confidence in their ability to implement the recommended behaviors or actions (Sulat et al., 2018; Suleiman, 2019). People adopt the proposed behaviors where the perceived threat and benefits accrued from the actions outweigh the barriers to action.

The HBM model is suitable given its principles seek to comprehend the failure of people to adopt disease prevention strategies and screening tests for the early detection of disease (Sulat et al., 2018). The model has been applied in designing patient education interventions and projects to improve health literacy (Suleiman, 2019). The model was applied to promote fall risk screening and prevention among elderly patients. The project goal was to improve health outcomes by implementing assessment and short and long-term interventions to improve health outcomes. Once the patients are identified and assessed, the assumptions are that active measures will prevent fall and fall-related injuries. In addition, it is assumed that the intervention will lead to behavioral change for patients and healthcare providers. The participating nurses were made aware of the susceptibility of elderly patients to falls. Local data on falls were used to emphasize the need for interventions to address the problem. The benefits of screening for fall risk factors were also outlined. Barriers, such as lack of knowledge on the risk factors to look out for and the intervention measures for preventing falls were addressed through nurse education on the stop elderly accidents, deaths, and injuries (STEADI) toolkit. Improving this type of knowledge was

expected to enhance the nurses' ability to screen patients for fall risks and implement evidence-based measures to address the risks.

The dependent variable for the project was patient falls. This project adopted the Agency for Healthcare Research and Quality's (AHRQ) (2020) definition of a fall defined as an unplanned descent to the floor with or without injury to the patient. The second variable was the STEADI toolkit which is defined as a coordinated approach to implementing the clinical practice guidelines guided by three elements: (a) screening patients for fall risk, (b) assessing risk factors, and (c) intervening to reduce the risk of falling by implementing evidence-based measures (Johnston et al., 2019).

One assumption for the project was that implementing the STEADI tool at the facility would lead to a reduction in patient falls. Another assumption was that the health facility has required infrastructure to implement the STEADI tool effectively. A third assumption was that there are no significant barriers to hinder implementation of the STEADI tool.

Specific Aims

This project aimed to implement the STEADI assessment tool as an intervention to prevent falls in older adults at a hospital in southern New York City. The specific aims of this DNP project included evaluating the effects of integrating active fall prevention strategies in emergency care of elderly patients and investigating the efficacy of the STEADI tool in preventing falls in the older population. In line with this, the PICOT question was as follows: Among older adult emergency patients (P), does the use of the STEADI assessment tool (I) compared to usual practice (C) reduce falls (O) within one year (T)?

Definition of Terms

The project entailed the use of common terms which may have varied meanings depending on the context in which they are used. This section presents the meanings of the common terms used within the context of the project.

- Emergency is defined as a patient condition requiring immediate intervention failure to which there may be inadvertent consequences (Lee, 2017).
- Falls are defined as descending to the floor unintentionally, with or without injury (AHRQ, 2020)
- Older adult/elderly patient refers to a patient over the age of 65 (Bull et al., 2020).
- Stopping elderly accidents, deaths, and injuries (STEADI) toolkit is a coordinated approach to implementing the clinical practice guidelines based on three elements: (a) screening patients for fall risk, (b) assessing risk factors, and (c) intervening to reduce the risk of falling by implementing evidence-based measures (Burns et al., 2019).

Chapter Summary

Chapter one introduced the problem the project sought to address which is occurrence of patient falls despite measures taken by stakeholders. Also, chapter one introduced the rationale for undertaking the project where specific aims were outlined. The HBM (Suleiman, 2019) model was also presented in chapter one to guide this evidence-based DNP project. The chapter concluded with definition of terms as used in the context of the project. Chapter two provides a detailed analysis and synthesis of the available knowledge on patient falls and the STEADI toolkit.

CHAPTER TWO

LITERATURE REVIEW

Search Strategy

The analytic search strategy comprised a literature review on falls in the elderly population in the adult ED. Key areas addressed included prevalence and incidence of falls, etiology, risk factor, and pathophysiology of falls, effects of falls, and preventive interventions. Several databases, including CINAHL, Cochrane Library Scopus, PubMed, and MEDLINE, were used to search the records, and additional records regarding falls in the ED were identified through Google Scholar. Studies published before 2017, those that had confirmation bias, and those that assessed falls outside of the hospital were excluded. Key terms employed included the following: falls, fall prevention, falls in adults, and older adults. Only studies published within the last five years were included in the review. The search yielded 246 studies related to fall prevention. Twenty-five articles that had relevant content published after 2017 were included in the final review of related literature (Appendix A).

Evidence-Based Practice Model

Evidence-based practice (EBP) has been well instituted in the Ohio State University (Gallagher-Ford et al., 2020). EBP is comprised of visible achievements, such as combining the best available evidence, nursing knowledge, and the values and preferences of the people served in the institution (Gallagher-Ford et al., 2020). The institution uses case studies, scientific concepts, and expert opinion when delivering services to their patients through EBP (Gallagher-Ford et al., 2020). The practice is guided by research evidence, clinical competence, and patient values to provide services in the institution (Gallagher-Ford et al., 2020). The following are steps used in an EBP model at the Ohio State University (Gallagher-Ford et al., 2020):

- Pose a specific clinical question.
- To address the question, gather proof.
- Examine the evidence for rigor and quality.
- Apply evidence-based practices to healthcare.
- Examine the outcome impacts this has on the patient.

The advancing research and clinical practice through close collaboration (ARCC) model is the most used model in hospitals and healthcare institutions (Gallagher-Ford et al., 2020). The model entails examining organizational culture and preparation for EBP and forming a critical mass of EBP mentors collaborating with point-of-care physicians to make evidence-based care easier to execute (Gallagher-Ford et al., 2020).

The EBP model was applicable in this project because nurses have access to current research and expertise that can help them make better decisions about their patients' healthcare. Patient falls are among the most common causes of injury and death among those over 65 (Gallagher-Ford et al., 2020). In addition, falls endanger the life of senior citizens. Nurses have devised several tools to address this issue, one of which is the STEADI toolkit. Effective fall prevention in a clinical setting requires assessing and managing an individual's fall risk factors. A fall on an adult can be fatal, produce a catastrophic injury, and result in issues that can last the rest of the patient's life (Johnston et al., 2019). The STEADI toolkit is a comprehensive, evidence-based resource that assists healthcare practitioners in integrating fall risk assessment (Johnston et al., 2019). The STEADI toolkit translates the risk assessment for falls into specific tasks (Johnston et al., 2019). The STEADI toolkit algorithm may be used to assess and treat people at all fall risk levels. The toolkit includes several tools that can assist a wide range of fall

prevention (Johnston et al., 2019), incorporating steps composed of an evidence-based practice model used in the Ohio State University.

The EBP model was suitable for this project given that it outlined chronological steps that were applied in formulating a research problem, implementing an intervention, and evaluating the results. With an EBP model, a researcher should formulate a specific medical question based on existing clinical challenges (Gallagher-Ford et al., 2020). In this project, the challenge was the prevalence of falls. Also, a part of the model requires collecting evidence to provide a solution to the clinical problem besides examining its quality and rigor. Evidence shows that the implementation of assessment tools is an effective approach to prevent and minimize falls (Gallagher-Ford et al., 2020). The model also holds that one should apply EBP to solve a clinical problem and evaluate its effect on patients. In this project, evidence on the effectiveness of implementing the STEADI assessment tool will be collected. Data analysis was conducted to determine the effect of the intervention.

Available Knowledge

Risk Factors for Patient Falls

The occurrence of falls within healthcare facilities can be attributed to several risk factors. Using a systematic review, Odenigbo (2020) sought to explore the prevalence and effect of falls among older patients within long-term care sites while exploring initiatives that can be implemented to prevent falls. Odenigbo's (2020) study was guided by the suppositions of the personality theory framework. After extracting relevant publications, 12 articles were included in the final review. The findings showed that environmental factors such as medication, past fall history, and having comorbidities were significant fall risk factors irrespective of the setting (Odenigbo, 2020). Multifactorial interventions such as assistive devices and exercise therapy

were effective strategies in preventing falls (Odenigbo, 2020). The findings supported the need for social change by offering information to improve patient safety practices and enhance patient outcomes for older individuals in healthcare settings (Odenigbo, 2020).

Using mixed methods, Lopez-Soto et al. (2021) evaluated the effect of implementing intervention on patterns of the risk factors on hospital falls. Lopez-Soto et al.'s (2020) study was conducted in three phases: a longitudinal prospective study, retrospective analysis of falls registered in institutional databases, and a qualitative study using focus groups involving nursing assistants, physicians, and nurses. Findings showed that the time of day, the day of the week, and the month of the year affected the chances of falls (Lopez-Soto et al., 2020). Time of falls was shown to be a significant factor in Lopez-Soto et al.'s (2020) study; hence, it should be considered when deciding prevention measures.

Using a quantitative methodology and a retrospective approach, Ranasinghe et al. (2017) examined the effect of moving a patient from one bed to another on the chances of falling among older patients. The researchers matched 300 patients of the same age and gender who had agreed to take part in an evaluation program (Ranasinghe et al., 2017). Findings showed that older patients had more bed moves and more falls, concluding that bed moves are a risk factor for patient falls (Ranasinghe et al., 2017). Ranasinghe et al. (2017) recommended that nurses and patients minimize bed moves as a strategy to prevent or reduce the number of falls.

Nurse's Knowledge on Prevention of Falls

The level of knowledge among nurses is a determining factor in how they implement clinical guidelines. For example, Laing et al. (2018) assessed medical practitioners' knowledge, attitude, and provision of recommended fall prevention practices, as well as at-risk elders' participation in fall preventative practices. Only 38% of medical practitioners were

knowledgeable about fall prevention, and most of the healthcare organizations provided fall preventative services (Laing et al., 2018). Almost half (48%) of patients had a fall in the previous year; however, 33% considered falling one of their least important health concerns, and most had little working knowledge of proven fall prevention practices (Laing et al., 2018).

Davenport et al. (2020) evaluated knowledge on ED guidelines, current practices, and wiliness to comply with fall-prevention guidelines of ED medical practitioners. Data were collected from 136 participants (Davenport et al., 2020). Findings showed that 84% medical practitioners believed that geriatric patients should be screened for fall risk factors (Davenport et al., 2020). However, 80% and 72% of the nurses said they could not devote more than five minutes to screen patients and lacked adequate knowledge of which patients to screen, respectively (Davenport et al., 2020).

Using a descriptive cross-sectional approach, Mamani et al. (2019) conducted a study to explore practices, knowledge, and attitudes of elderly caregivers about falls and their prevention. Mamani et al. (2019) surveyed 97 practitioners. Findings showed that 67% of the practitioners were aware and identified falls as a health challenge (Mamani et al., 2019). Further, staff in Mamani et al.'s (2019) study were able to identify the fall risk factors and prevention measures. On the other hand, 56% of the participants did not have positive attitudes on preventing falls (Mamani et al., 2019). Mamani et al. (2019) concluded that practitioners for elderly patients have a superficial knowledge of falls, which influences practices and attitudes on prevention.

Gutta et al. (2018) conducted a cross-sectional study to evaluate the practices, knowledge, and attitudes on preventing recurrent falls among patients with a history of falls and medical practitioners. Findings showed that 45% of the patients aged at least 60 years had recurrent falls attributed to poor vision, anemia, and the use of at least three chronic medications

(Gutta et al., 2018). Medical practitioners and elderly patients were found to have insufficient knowledge of preventing falls (Gutta et al., 2018). With an odds ratio of 0.418 and 0.088, increased compliance and health education were found to reduce falls in six months, respectively (Gutta et al., 2018). Gutta et al. (2018) recommended that patients be educated to know that falls are preventable, while medical practitioners should identify risk factors, inform patients and their families, and implement effective interventions. Gutta et al.'s (2018) findings affirm that health education, which focuses on the compliance of falls prevention interventions, is effective in preventing falls.

Training Nurses on Fall Prevention

Using a quasi-experimental research design, Montejano-Lozoya et al. (2020) evaluated the effect of an educational intervention offered to nurses in reducing inpatient falls. Montejano-Lozoya et al. (2020) used a sample size of 581 patients. The intervention consisting of a formative activity was offered to 303 nurses in the treatment group and 278 nurses in the and control groups (Montejano-Lozoya et al., 2020). Data were analyzed using Bayesian logistic regression model (Montejano-Lozoya et al., 2020). The general prevalence of falls was 1.2% and 2.2% treatment and control groups, respectively (Montejano-Lozoya et al., 2020). As evident from 85%, most of the falls were among patients aged at least 65 years; the treatment had a lower likelihood of falling at 0.127 (Montejano-Lozoya et al., 2020). Further, length of hospital and age did not have a significant effect on the chances of falling (Montejano-Lozoya et al., 2020). Montejano-Lozoya et al. (2020) concluded that methodical assessment of the risk of a patient falling is an effective prevention strategy.

Karahan et al. (2020) conducted a retrospective study of 103 patients to explore the effectiveness of a fall prevention intervention in a university hospital. After implementing the

fall prevention program, the findings showed a reduction in falls from 0.16% to 0.12% but an increase in fall risk from 25.3% to 67.6%, which was caused by intrinsic factors (Karahan et al., 2020). In addition, applying the screening tool enhanced the identification of risk factors such as age, fatigue, balance problem, risky medications, confusion, dizziness, and failure to seek help when moving, which increased the classification of patients at risk of falling (Karahan et al., 2020). Karahan et al. (2020) recommended that implementing fall prevention programs increases the chances of correctly identifying all risk factors.

Effectiveness of the STEADI Toolkit

Falls are the leading cause of nonfatal and fatal injuries, and this is projected to increase with an increased aging population (Lee, 2017). Mark's (2017) study sought to evaluate the efficiency of implementing the STEADI toolkit among primary care providers. Mark (2017) trained the medical practitioners and collected pre- and post-intervention data on attitude, knowledge, implementation of the toolkit, and possible barriers preventing effective implementation. Findings showed an increase in knowledge of fall prevention after completing training (Mark, 2017). Further, the practitioners were more confident and were likely to comply with the guidelines while using the STEADI toolkit (Mark, 2017). Mark (2017) concluded that implementing the STEADI toolkit is a practical approach to increase the knowledge and confidence of medical practitioners in assessing and preventing falls.

In a similar study, Crane (2020) assessed the implementation of the STEADI toolkit in a community-dwelling setup. Crane (2020) collected data from 116 patients using convenience sampling whose data was compared with standard practice. Findings indicated that 51.7% of patients were correctly screened by nurses as having a risk factor for falling, which increased from 45% before the intervention was implemented (Crane, 2020). Crane's (2020) study showed

that applying the STEADI toolkit increases correct identification of older patients at risk of falling compared to standard practices.

The effect of the STEADI toolkit had been observed in varied healthcare settings. For instance, in a long-term care facility, Aguwa (2019) evaluated the efficacy of the STEADI toolkit in preventing falls in a long-term care facility. The clinical question for Aguwa's (2019) study was if education on screening and prevention of falls increases the confidence of primary caregivers in reducing falls in long-term care residents. Findings showed an increase in knowledge and confidence among nurses where there were higher scores after the education program was implemented (Aguwa, 2019). Similarly, using a quasi-experiment design, Fisher (2019) assessed the efficiency of training medical staff on applying the STEADI toolkit. Fisher's (2019) researched if there is an improvement in fall prevention after the implementation of the education based on the STEADI toolkit. Pre-test and post-test data were collected from 26 nurses to determine their levels of knowledge (Fisher, 2019). Findings showed that nurses' knowledge on assessing and preventing falls increased by 67% (Fisher, 2019). Fisher (2019) concluded that implementing the STEADI toolkit in the practice setting improves patient screening, which reduces falls and associated injuries.

Neser (2020) showed that the STEADI toolkit is also effective in general hospital settings. Neser (2020) implemented and evaluated the efficiency of the STEADI toolkit in screening older patients in a general hospital over 12 weeks. The nurses in Neser's (2020) study assessed patients for low, moderate, or high risk of falling-those with a high and moderate risk of falling received a fall plan of care. Neser (2020) found that there was a significant increase in the screening of patients and implementing prevention plans. Notably, moderate-risk patients were challenging to identify correctly (Neser, 2020). The highest overall protocol adherence was for

low-risk patients (97%), least for high-risk patients (80%) equated to moderate-risk (81%) (Neser, 2020). Lack of protocol reimbursement and time to complete the protocol were the barriers to implementation (Neser, 2020). Neser (2020) recommended that there should be continued implementation of the STEADI toolkit.

Kannoth et al.'s (2021) study showed that the STEADI toolkit is also effective among adult patients. Kannoth et al. (2021) followed 2,900 drivers, aged 65 to 79 years old from 2015 to 2017. Data were analyzed using adjusted logistic regression to model the association between use of the STEADI toolkit and future falls (Kannoth et al., 2021). Implementing the STEADI toolkit had an area under the curve of 0.65 in determining any fall over two years (Kannoth et al., 2021). Furthermore, the model showed that baseline risk for falls was 2.37 times higher odds of any fall, while it was 3.60 times higher odds of multiple falls after two years (Kannoth et al., 2021). The STEADI toolkit was a significant and effective predictor of future falls (Kannoth et al., 2021). In this regard, the toolkit can be applied to strengthen screening and prevention of falls. Similarly, Johnston et al. (2019) sought to determine the effect of the STEADI toolkit on medically treated falls. Johnston et al.'s (2019) patients were classified as not-at-risk, at-risk, and no fall plan of care and at-risk with fall plan of care. Data from 12,346 adults, aged 65 or older were analyzed using Poisson regression (Johnston et al., 2019). Findings showed an increase of 26.7%, 17.8%, and 34. % of being classified as not-at-risk, at-risk, and no fall plan of care and at-risk with fall plan of care (Johnston et al., 2019).

The literature demonstrates that given particular risk factors, different patients have varied likelihoods of falling. The probability of falling can be reduced by implementing the STEADI toolkit (Aguwa, 2019; Johnston et al., 2019; Kannoth et al., 2021). Furthermore, Neser (2020) recommended that there should be continued implementation of the STEADI toolkit.

Fisher (2019) concluded that implementing the STEADI toolkit in the practice setting improves patient screening, which reduces falls and associated injuries. This aligns with the specific aim of implementing the STEADI assessment tool as an intervention to prevent falls in older adults at a hospital in southern New York. The following PICOT question: Among older adult emergency patients (P), does the use of the STEADI assessment tool (I) compared to usual practice (C) reduce falls (O) within one-year (T) advances recommendations from past studies.

Chapter Summary

Chapter two presented synthesized literature followed by presentation of the theoretical framework. The literature showed that patient falls are either practitioner, patient, or hospital based. Some of the fall risk factors include medication, past fall history, presence of comorbidities, and bed moves that affect the likelihood of falling. The literature has shown that implementation of the STEADI toolkit reduces patient falls (Aguwa, 2019; Johnston et al., 2019; Kannoth et al., 2021). The next chapter presents the project's methodology, data collection and analysis process.

CHAPTER THREE

METHODOLOGY

This chapter presents the methodology that was used to collect and analyze data according to the project's purpose and PICOT question. The section presents details of the project site and the intervention that was implemented. The chapter also presents how the variables were measured and how the data were analyzed. The section also includes ethical considerations that guided the project.

Context

The project was executed at a hospital located in Southern Bronx, New York. The hospital has a bed capacity of 347, with more than 144,000 ED visits annually. Lincoln Hospital is an Adult Level I Trauma Center and a Pediatric Level II Trauma Center, with the busiest single-site ED in New York City.

The hospital is known for innovative programs addressing the specific needs of the community it serves, aggressively tackling such issues as asthma, obesity, cancer, diabetes, and tuberculosis. Leaders at the hospital and community organizations were committed to improving the community's health, defining a shared mission, vision, and strategic objectives, making difficult decisions, and dedicating the necessary resources for successful implementation.

The board of directors of the hospital develops the policies. The hierarchical organization structure begins with the chief executive officer and department heads. The chief medical officer is in charge of daily operations. The hospital's vision is to provide communities with the highest quality and value to optimize wellness and restore health, which leads to a culture of exceptional service delivery. The hospital has also undertaken clinical research to advance its current knowledge and embrace new developments.

The hospital has implemented several measures to prevent and reduce the number of falls. For instance, the facility has adopted portable nursing stations, interprofessional team collaboration, person-centered care of older people, and the design of beds and floors in a way that minimizes falls. The ED uses the Epic fall risk assessment to identify fall risk patients. During triage, a nurse works with the patient or their family to complete the evaluation in Epic that identifies the patient's risk factors for having a fall in the home, based on information such as the patient's history of falls. If a patient is categorized as a moderate or high fall risk, they will be given a fall risk band, nonskid yellow socks, and a falling star sign placed on their stretcher. Fall incident report forms are used to document post-fall.

It was possible that implementation of the project could encounter some hindering factors as well as facilitators. The barriers expected were a resistance to change in culture. Some medical practitioners were reluctant to embrace new ways of delivering healthcare. Organization culture that embraces implementation of clinical protocols, having qualified nurses, and supporting infrastructure are some of the facilitators. The main stakeholders for the project were patients, nurses, physicians, employers, insurance companies, and pharmaceutical firms. Patients could benefit directly from implementing an assessment tool that reduces the chances of falling. The nurses implemented the STEADI assessment tool by identifying patients at risk and implementing requisite measures. The insurance companies were stakeholders, given that they received premiums and paid medical expenses, including those related to falls.

Interventions

The evidence-based project was implemented using a quasi-experiment research design. The design entailed implementation of an intervention, then collection of data to determine its effect on a specified outcome. The data was collected before and after implementation. In this

project, data were collected pre- and post-implementation of the STEADI toolkit in a southern New York hospital's ED.

The intervention was implemented for patients who met the inclusion-exclusion criteria. The inclusion criteria for the project were male or female patients who were 65 years or older and able to communicate in English. Patients brought in systole or code were excluded from the intervention. Also, patients with terminal illnesses, such as severe stroke and other illnesses that significantly affect mobility and neural functioning were excluded from the project. Using the power of 0.8, an alpha of 0.05, and an effect size of 0.146, a sample size of 50 patients were used in this project.

The intervention for the project is the STEADI toolkit which was developed by Scientists at Center for Disease Control and Prevention Injury Center (CDC, 2020).
The toolkit was founded on empirical evidence and included input from several healthcare practitioners (CDC, 2020). The main objective was to offer healthcare practitioners a comprehensive tool that enabled them to integrate fall risk assessment, treatment, and referral into clinical practice and to facilitate patient referrals to community-based fall prevention programs (CDC, 2020). The STEADI toolkit translates the fall risk assessment and treatment process into procedures that are incorporated into different clinical settings (Burns et al., 2016). The STEADI risk assessment tool can be used to assess and treat patients with varied probabilities of falling. The STEADI risk assessment tool can be used by nurses, occupational therapists', physicians, physical therapists, and physician assistants, among other practitioners. In this project, the STEADI risk assessment tool was applied by nurses.

As the project leader, my role was to implement the intervention and to take part in data collection and analysis. The ED providers discussed project development with adult ED providers, clinical, and non-clinical staff. I captured the data on risk assessment and categorization.

The project team was made up of an ED physician and nurses who were in charge of older patients. In implementing the intervention, the ED physician distributed the STEADI risk assessment tool to nurses who were supposed to screen and score responses fall screening questionnaire for the patient or family member to complete (Appendix B). Fall risk screening enables providers to identify individuals with fall risks and categorization according to fall risk stages such as high, moderate, and low fall risk (Burns et al., 2016). Also, providers implemented individualized fall prevention programs tailored to an individual patient based on the fall risk assessment. Upon project implementation, progress was monitored once or twice a week.

Study of the Interventions

The impact of the intervention was assessed by comparing screening pre- and post-implementation of the STEADI tool. In this project, data on the number of patients were screened and referred and the number of patient falls were collected pre- and post-implementation of the STEADI risk assessment tool to determine its effect. This approach to assess impact is suitable given that it aligns with the project's aim and purpose. The project's purpose was to implement and determine the efficiency of the STEADI risk assessment tool in preventing falls. The approach enabled evaluation of the STEADI tool on patient falls.

I collected data and placed it in a sealed envelope after each patient's STEADI assessment. The DNP student addressed any questions or concerns from providers, clinical, and non-clinical staff in the ED, or hospital in general during the project. I evaluated the progress of data collection and validity of the data collection method and maintained data integrity by monitoring data collected by the other provider, utilizing the Fall Prevention Self-Assessment tool (Appendix B). Once project implementation was completed, the health practitioner and I completed the Follow-Up Survey (Appendix G). The post-implementation survey consisted of questions that evaluated the results of the education provided to the patients regarding the evidence-based fall risk screening tools. Utilization of the CDC's STEADI Fall Prevention Educational Pamphlet (Appendix E) offered to the patients, the effectiveness of the evidence based STEADI fall risk prevention, and utilization of fall prevention strategies were elements of the project addressed in the post-implementation survey. Data were entered into an Excel spreadsheet in an encoded format.

To determine if the observed outcomes were due to the intervention, the data on number of falls were analyzed and comparisons were made. Pre- and post-implementation data of the STEADI toolkit were compared. An increase in number of patient falls would have shown that the intervention was not effective. A reduction in patient falls would have shown that STEADI is effective. To determine if the effect was significant, inferential statistics which compares the means of patient falls was conducted.

Measures

Patient data were collected pre- and post-implementation of the STEADI risk assessment tool. In particular, data were collected six weeks prior to the implementation date. The

intervention was implemented for six weeks. In this regard, post-implementation data were collected six weeks after the implementation of the STEADI risk assessment tool.

The project entailed implementation of the STEADI risk assessment tool, which is free to use given it was developed by the CDC (CDC, 2020) and CDC recommended to be applied by health facilities (CDC, 2020). Several studies have shown that the STEADI risk assessment tool is reliable and valid. For instance, after evaluation efficiency of implementing the STEADI toolkit among primary care providers, Mark (2017) concluded that the instrument was valid in risk assessment of patient falls and implementation of requisites measures. Similarly, Karahan et al. (2020), who conducted a retrospective study to explore the effectiveness of a fall prevention intervention in a university hospital, noted that the STEADI toolkit is reliable and valid in the prevention of patient falls. This was similar to the conclusions of Crane (2020) and Aguwa (2019) who also evaluated the efficacy of the STEADI toolkit in preventing falls in a long-term care facility and established that it was a valid and reliable instrument.

Eckstrom et al. (2017) examined the validity and efficiency of the STEADI toolkit in helping medical practitioners identify patients at risk of falling and managing them. The researchers methodically implemented STEADI into routine patient care by training relevant practitioners (Eckstrom et al., 2017). Retrospective data were collected (Eckstrom et al., 2017). Findings showed that 64% of the practitioners consistently screened patients over six months, of which 22% were high-risk (Eckstrom et al., 2017). Furthermore, 64% of the patients at high risk received interventions such as orthostatic blood pressure measurement, gait, vision, and feet assessment (Eckstrom et al., 2017). This showed that implementing the STEADI toolkit decreased the screening burden but increased the number of high-risk patients. Eckstrom et al.

(2017) recommended that the methodical implementation of STEADI could help clinical teams reduce older patient fall risks.

The patient's medical records, demographic data, and reason for the visit were captured from the ED. The project incorporated fall risk screening and assessment intervention, using the STEADI algorithm, a step-by-step framework for the providers and me to evaluate and implement a fall risk prevention treatment plan for older adult patients in the ED. The Fall Prevention Self-Assessment tool was utilized as an inventory for the data collection method of the project; the providers' and my initial assessment were used to evaluate the patient's current physical condition regarding fall risk. The Fall Prevention Self-Assessment tool enabled the providers and me to classify the level of fall risks such as low, medium, and high fall risk. Once the fall risk level was established, the providers and I utilized the CDC's STEADI screening tool and the fall risk checklist for medium and high fall risk. Data collected from all the tools were transcribed onto the fall risk tracking sheet (Appendix L), which incorporated information regarding the number of older adults screened and the gender of patients.

After deliberations with the chief medical officer and nursing leadership, the benchmark for patient falls was set at five per 100 admissions into the health facility. The completeness and accuracy of data were assessed using a structured query language. The first step was to ensure there was no missing data where data on demographics and fall-related details were filled. The second step was to ensure that there were no errors of commission, for instance, exchange of age and gender entries.

Analysis

Data were analyzed to determine the effectiveness of the project's intervention. Data on gender were nominal, while age and patient falls were interval. The data were analyzed using

descriptive and inferential statistics. Measures of central tendency were used to summarize the data. Demographics data were summarized using frequencies to show trends. The descriptive statistics comparing the pre- and post-test scores were generated using Microsoft Excel. Descriptive statistics determined the mean score percentages by comparing the pre- and post-test results. The results were compared to see if the educational intervention increased nurses' understanding of falls and how to utilize the STEADI toolkit to prevent them. Pre- and post-implementation fall rates were compared to determine if the intervention had an effect.

Data were analyzed using an independent *t*-test to determine if the STEADI screening tool had a significant effect on patient falls. This statistical test is used to determine if there is a significant difference in the mean of an outcome whose data were collected from related groups (Pandis, 2015). This statistical test is suitable because it aligns with the research design and the PICOT question. The independent *t*-test enables analysis of patients from the pre- and post-implementation groups, which were related given that they were of the same nurses.

Budget

The project totaled $657.87, which catered to printing brochures, the questionnaire, and the algorithm ($71.50). The amount also included internet access and my travel expenses. The internet expenses were approximately $80, whereas travel expenses were $200. The statistician was compensated at a rate of $20 per hour for 15 hours, making the total remuneration $300. Appendix H presents the project's budget.

Ethical Considerations

Prior to implementation, the Wilmington University's Human Subjects Review Committee (HSRC) reviewed this project for approval on July 18, 2021 (Appendix I). A summary of the project's details and how the project would be conducted was shared with the

hospital management for organizational permission. The project was approved as indicated in the organization's approval letter on September 4, 2021 (Appendix J). In addition, I completed a web-based training course, Protecting Human Research Participants, from the National Institute of Health (NIH) (Appendix K). The project did not create any danger or ethical concerns for staff or patients.

The project was conducted according to Belmont Report guidelines when data are collected from human participants (Zucker, 2007). Only participants who offered consent were recruited to take part in the project. Also, the participants were informed of the project, its purpose, and their role. Participants were notified that there were no monetary or non-monetary benefits for participating in the project. Only those who signed the consent form were recruited to take part.

Confidentiality was achieved by not collecting personally identifiable details of the patients (Zucker, 2007). Patients were assigned codes, beginning with 001, to provide anonymity. Data were stored in a password-protected file only accessible to me. Data were only used for project purposes. The data will be permanently destroyed after three years. There is no conflict of interest.

Chapter Summary

Chapter three presented the measures implemented to prevent and reduce the number of falls. The data collected from a sample size of 50 patients were analyzed using descriptive and inferential statistics. Measures of central tendency were used to summarize the data. The project was conducted in line with Belmont Report's ethical guidelines (Zucker, 2007). Chapter four will present the results from data analysis.

CHAPTER FOUR

Results

This chapter presents the results of analyzed data that were collected. The chapter begins by presenting demographic characteristics of the patients whose data were extracted from the electronic medical records. This is followed by a presentation of the summary of data using measures of central tendency. There is a comparison of pre- and post-implementation of the STEADI risk assessment tool. Inferential statistics to determine if there was a significant change in also presented in the chapter.

Sample Characteristics

Table 1 shows that most of the patients were male in the pre-implementation phase. Also, in the post-implementation phase, a majority of the patients were male.

Table 1

Demographics

	Pre-implementation			Post-implementation		
Gender	Female	Male	Total	Female	Male	Total
	342	373	715	321	327	648

Table 2 shows that in the pre-implementation phase, the average age was 69.87 with a standard deviation of 3.12. During the pre-implementation phase the average age was 72.32 with a corresponding standard deviation of 4.23.

Table 2

Summary of Age

	Pre-implementation	Post-implementation
	M(SD)	*M(SD)*
Age	69.87 (3.12)	72.32(4.23)

Results

The findings show that in July, August, and September, the patient falls were 132, 126, and 105, respectively. In total, there were 363 patient falls. During post-implementation in October, November, and December there were 117, 72, and 10 patient falls totaling 199 falls for the period. This shows that there was a reduction in patient falls.

Table 3

Patient Falls

	Month	Number of Falls	Did not fall	Total
Pre-implementation	Jul-2021	132	114	246
	Aug-2021	126	131	257
	Sep-2021	105	107	212
Post-implementation	Oct- 2021	117	121	238
	Nov -2021	72	142	214
	Dec -2021	10	186	196

The descriptive statistics show that there was a reduction in the number of patient falls. To determine if the change is statistically significant, independent *t*-test was conducted at 5% alpha. The findings in Table 4 show that $P < 0.005$, which indicates that there was a statistically significant reduction in number of patient falls.

Table 4

Independent t-Test Results

	t-test for Equality of Means			
	t	df	Sig. (2-tailed)	
Patient falls	1.9617	1361		0.000

Chapter Summary

The descriptive statistics show that there was a reduction in the number of patient falls. In particular, patient falls reduced from 363 pre-implementation to 199 post-implementation of the STEADI toolkit. To determine if the change is significant, an independent *t*-test was conducted at 5% alpha. Table 4 shows that $P < 0.005$, which indicates that there was a significant reduction in number of patient falls. The next chapter presents the interpretation of the results, limitations of the project, implications for advanced nursing practice, and a plan for sustainability.

CHAPTER FIVE

Discussion and Implications

Chapter five presents a discussion, implications of the findings, and how the findings are related to the literature. This chapter also presents limitations of the project, its implications, and possibilities for sustainability. The chapter ends with application of the DNP Essentials and to American Organization of Nursing Leadership (AONL) nurse executive competencies are also part of the chapter.

Interpretation

The findings showed that implementation of the STEADI toolkit led to a significant reduction in the number of patient falls. The decrease in falls is aligned with past evidence which has shown that STEADI reduced number of patient falls. For instance, Neser (2020), who implemented and evaluated the efficiency of the STEADI toolkit in screening older patients, found that it led to a significant reduction in number of patients' falls in a general hospital over 12 weeks.

The effect of the STEADI toolkit in the reduction of patient falls can be attributed to an increase in knowledge among nurses. This is inferred from Mark (2017), who evaluated the effectiveness of STEADI and established that implementation of the toolkit had a significant improvement on attitude and knowledge. This aligns with findings that there is inadequate fall related knowledge among nurses. Laing et al. (2018) found that only 38% of medical practitioners were knowledgeable about fall prevention, and most of the healthcare organizations provided fall preventative services. In particular, nurses are not adequately knowledgeable on fall prevention risk factors, prevention strategies, and their role in preventing falls (Laing et al., 2018).

Implementing the tool entailed training nurses on possible fall risk factors. The risk factors are either practitioner, patient, or hospital based (Laing et al., 2018). Some of the fall risk factors include medication, past fall history, presence of comorbidities, and bed moves that affect the likelihood of falling (Laing et al., 2018). The nurses were trained on the risk factors, how to identify them and how they affect probability of falls. With this information, the nurses were equipped to implement outlined prevention measures. Based on the risk factors, the nurses could even implement customized prevention measures that addresses the varied risk factors in each patient.

Effectiveness of the STEADI toolkit can also be attributed to an increase in confidence and a change of attitude towards fall prevention. This is in line with Mark's (2017) findings. Mark (2017) concluded that implementing the STEADI toolkit is a practical approach to increase the knowledge and confidence of medical practitioners in assessing and preventing falls. Aguwa (2019) evaluated the efficacy of the STEADI toolkit in preventing falls in a long-term care facility. Aguwa's (2019) findings showed an increase in knowledge and confidence among nurses where there were higher scores after the education program was implemented. The lack of confidence can be a hindrance to effective fall prevention (Aguwa, 2019). In this project, after completion of the STEADI toolkit training, nurses had adequate information, which made them confident on identification of risk factors and implementation of requisite fall prevention strategies. Practitioners who are knowledgeable are more confident and likely to comply with the guidelines while using STEADI.

The significant effect on prevention of falls can be attributed to an increase in the accurate screening of patients. This is in line with Crane's (2020) findings. Crane (2020) noted that after implementation of the STEADI toolkit, there was a significant increase in correct

screening and categorization of patient falls. Similarly, Neser (2020) noted that there was an increase in classification of patient falls into low-risk patients (97%), least for high-risk patients (80%) equated to moderate-risk (81%). Johnston et al. (2019) found that there was a 26.7%, 17.8%, and 34% increase of correctly being classified as not-at-risk, at-risk, and no fall plan of care and at-risk with fall plan of care.

The findings can be explained by the fact that there was an improvement in general screening after implementation of the STEADI toolkit. Findings from this project are aligned with Fisher (2019), who found that implementing the STEADI toolkit in the practice setting improves patient screening, which reduces falls and associated injuries. Lack of effective screening can be attributed to inadequate knowledge among nurses (Fisher, 2019). Also, lack of confidence and poor attitude lead to reduced screening (Fisher, 2019). In this project, after implementation of the STEADI toolkit, there was an increase in knowledge and confidence as well as a change to a positive attitude. These combined effects lead to an increase in number of patients who are screened. Screening is essential to identify patients who are at risk of falling for effective prevention measures to be implemented.

The classification of patients into categories indicating likelihood of falls is based on risk factors, in particular, the number of risk factors and their extent and possible combination. Nurses who lack adequate knowledge on possible risk factors and how they combine will inaccurately classify a patient into the wrong categories. It is possible that a patient with higher risk may be categorized to have low risk, hence no preventing measures will be taken. However, after implementation of the STEADI toolkit, the nurses were trained on accurate classification. In this regard, once a patient has been accurately classified, requisite prevention measures are implemented, which reduces the chances of falling.

The STEADI toolkit addresses barriers to fall prevention, hence its significant effect. Some of the barriers are lack of adequate knowledge, caregiver support, stigma of old people who are vulnerable, and poor communication between caregivers. Implementation of the STEADI toolkit addresses these barriers by increasing knowledge among caregivers. Also, because nurses better understand their roles, they are likely to improve communication with each other, as well as with the patient and the caregivers. Nurses can also inform caregivers and patients on their role in preventing falls. With regard to stigma, nurses were informed that some of the reasons of patient falls were driven by healthcare settings. A reduction in these barriers increase effective implementation of fall prevention measures, thus reducing chances of falling.

Attitude influences implementation of clinical procedures. Montejano-Lozoya et al. (2020) and Karahan et al. (2020) noted that there was an improvement in attitude towards prevention of falls after practitioners had completed education interventions. A positive or negative attitude can partly be influenced by the level of knowledge among practitioners as well as possible solutions (Fisher, 2019). Some practitioners think that falls cannot be prevented among elderly patients (Fisher, 2019). After implementation of the STEADI toolkit, an improvement in attitude can be attributed to informing nurses of their role and effectiveness of measures to prevent falls.

Limitations

One limitation for this project is that it was carried out in one hospital, demonstrating systematic traits that are unique to the facility. Each facility has its organization, culture, and traits, which affect implementation of clinical interventions. Another limitation is that some of the risk factors were self-reported, which could result in biases.

Implications for Advanced Nursing Practice

Healthcare managers should ensure the STEADI toolkit is implemented within their facilities. This is because the toolkit leads to a significant reduction in patient falls. This can be achieved by including the STEADI toolkit into organization standard procedures. Also, the healthcare manager should ensure there are supporting factors to enable effective implementation of the toolkit, such as providing necessary resources, for example, collecting data and having competent practitioners who can implement the toolkit. There should be resources to train nurses and those who will be recruited in future. Also, healthcare managers should seek feedback from nurses on the effects of implementing the STEADI toolkit, including barriers and how patient outcomes can be improved.

Nurses should ensure that they are duly knowledgeable of the STEADI toolkit requirements. Constant education is required, because even after training, one cannot grasp all content; therefore, there is a need for personal initiative to ensure that there is constant updating. Also, nurses should provide feedback to the management on the efficiency of implementing the STEADI toolkit and how it can be improved.

The implementation of clinical interventions is influenced by a number of factors, which can be facilitating or enabling. In this regard, there should be future research to determining critical success factors for the implementation of the STEADI toolkit. Also, there should be further research that determine factors that hinder the effective implementation of the STEADI toolkit. Finally, there should be factors to determine possible confounding factors on the prevention of patient falls.

Plan for Sustainability

Given the health challenge posed by patient falls and associated negative effects, I plan to present the findings of this project to the healthcare facility managers with the intent to persuade them to implement the STEADI toolkit as part of sustainability. There will be a provision of requisite resources to support the implementation. Nurses will also be informed to take personal initiatives and read about the STEADI toolkit to ensure they fully comprehend it. Implementation of the STEADI toolkit is to be included in organization standard procedures when treating elderly patients.

Application of the AACN DNP Essentials

Essential I: Scientific Underpinnings for Practice

In particular, this project entailed implementation of an intervention that was developed using scientific methods. Completing the project has shown that the intervention can be implemented and analyzed using scientific principles.

Essential II: Organizational Leadership for Quality Improvement and Systems Thinking

Completion of this project has met this essential by enhancing organizational procedure which sought to prevent patient falls. Also, the project has shown that STEADI, the clinical practice guideline, which was implemented and its outcomes, evaluated an effective evidence-based intervention that can be adopted by other healthcare facilities.

Essential III: Clinical Scholarship and Analytical Methods for EBP

This essential seeks to ensure preparation in organizational leadership and systems level thinking, which enables DNP clinicians to create unique approaches to the complex issues facing modern healthcare. I worked with the healthcare facility to identify gaps in patient outcomes and implemented a requisite intervention.

Essential IV: Information Systems/Technology and Patient Care Technology

This essential seeks to ensure there is effective use of technology to facilitate delivery of quality healthcare. The data for patient falls was captured in electronic medical records. Also, the demographic data and other patient details were stored in electronic medical records. The data was essential in prevention of patient falls. As such, this project shows that information technology can effectively be used in prevention of patient falls.

Essential V: Healthcare Policy for Advocacy in Healthcare

This outlines that a DNP student should be capable of identifying healthcare challenges and taking part in the formulation of requisite policies. Completion of the project has shown the capability in identifying a healthcare challenge. Consequently, there can be polices to advocate for the use of the STEADI toolkit and other comparable interventions in preventing patient falls.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

This essential holds that team-based care is necessary to deliver quality healthcare. Also, DNP students should be prepared to collaborate and lead inter-professional teams. Completing this project entailed discussions with different practitioners to identify the gap and how best it could be solved. During implementation, there was also a need for collaboration between nurses, physicians, and health record managers to implement and collect relevant patient data. This type of collaboration has shown that staff working together is indispensable in delivery of healthcare.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

In this essential, a DNP student should be prepared to evaluate and interpret epidemiological, biostatistical, and environmental information imperative to improving the

health of both individuals and communities. This essential was demonstrated by interpreting national data on the prevalence of patient falls and its adverse effects to show that there was a need to implement an intervention. Subsequently, the facility data was interpreted to show that the hospital was facing a challenge of patient falls and an evidence-based practice would be a solution.

Essential VIII: Advanced Nursing Practice

This essential holds that there should be general improvement in the healthcare that is delivered. Completing this project advances nursing practice by showing the role of nurses in the prevention of patient falls. This project also shows that implementation of evidence-based practice can address relevant healthcare challenges.

Conclusion

This project aimed to implement the STEADI assessment tool as an intervention to prevent falls in older adults at a hospital in southern New York. The specific aim of this DNP project included evaluating the effects of integrating active fall prevention strategies in the emergency care of elderly patients and investigating the efficacy of the STEADI toolkit in preventing falls in the older population. As a result, the PICOT question was: Among older adult emergency patients (P), does the use of STEADI assessment tool (I) compared to usual practice (C) reduce falls (O) within one year (T)?

The project was implemented using quantitative methodology, and in particular, quasi-experimental research design. To determine if the observed outcomes were due to the intervention, the data on number of falls were analyzed and comparisons were made. Pre- and post-implementation data of the STEADI toolkit was compared. The findings showed that there was a reduction in the number of patients' falls post-implementation of the STEADI risk

assessment tool. Further independent *t*-test showed that there was a significant reduction in number of patients falls $P < 0.05$.

The findings are similar to conclusions of past studies (Aguwa, 2019; Johnston et al., 2019; Kannoth et al., 2021). The significant effect can be explained by the fact that implementation of the STEADI toolkit leads to an increase in knowledge of nurses, improvement in attitude toward patient falls, an increase in confidence, and an increase in screening and accuracy in classification of patient's risk of falling. In this regard, healthcare managers and nurses should implement the STEADI toolkit.

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APPENDICES

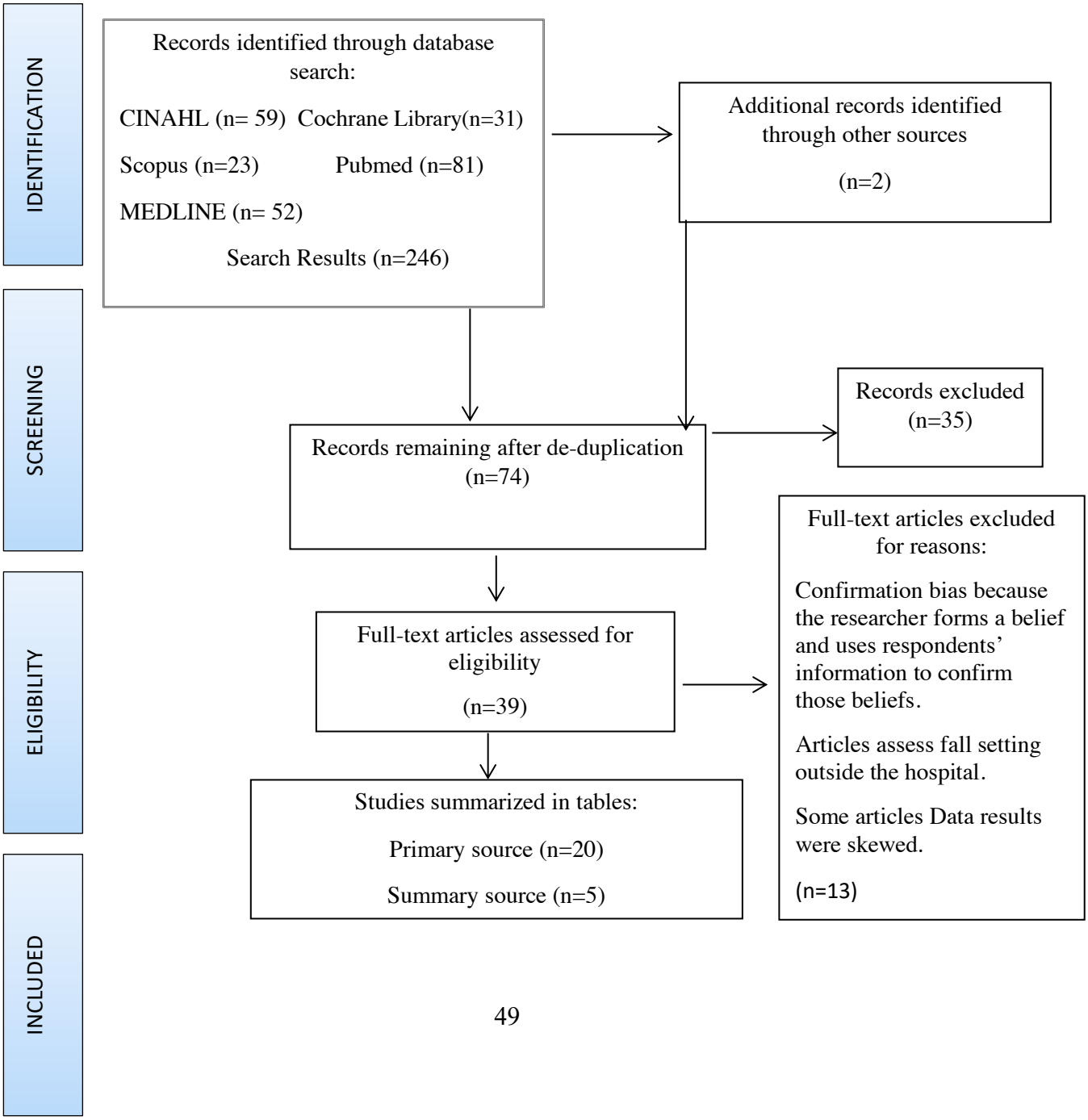
Appendix A

Literature Search Strategy

EBP question: In older adult emergency patients, how does the implementation of STEADI toolkit assess falls, compared to the current state affect fall rate within three months?

Keywords: Fall, Injury, ED, Adult, fall prevention, Fall risk.

Years: 2016-2021; (limiters) Peer reviewed, Full text, English



Appendix B

Fall Prevention Self-Assessment

	YES	NO
Answer the following questions for an indication of your relative risk of falling.		
		
1. Have you fallen in the past year? Individuals who have fallen are likely to fall again.	☐	☐
2. Has your fear of falling impacted your daily activities? The fear of falling can contribute to depression and a spiral of declining healthand independence.	☐	☐
3. Have you lost some feeling in your feet? Foot numbness can lead to stumbles and falls.	☐	☐
4. Do you have difficulty rising from a chair without use of your arms orstepping up on to a curb? Reduced leg strength reduces our ability to recover from a near fall.	☐	☐
5. Has it been more than one year since your last eye exam? A proper eye glass prescription is essential to minimizing your fall risk.	☐	☐
6. Do you occasionally support yourself by grabbing onto furniture andfixtures? Doing so is an indicator of reduced balance (a precursor to falling).	☐	☐
7. Do you frequently rush to go to the bathroom? Rushing to the bathroom, particularly at night, increases your risk of falling.	☐	☐

8. Do you exercise less than three times per week? ☐ ☐
Physical activity maintains leg strength and greatly reduces the risk of falling.

9. Are you reluctant to ask for assistance with challenging activities? ☐ ☐
Asking for help is a sign of intelligence not a sign of weakness.

10. Are you taking four or more medications each day? ☐ ☐
The interactions of medications often increase dizziness and decrease muscle strength.

NOTE: The more questions to which you answer "Yes", the greater your risk of falling.

Appendix C

The CDC's STEADI Self-Reported Fall Prevention Safety Education Assessment Brochure

Check Your Risk for Falling

Circle "Yes" or "No" for each statement below			Why it matters
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total _____		Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.	

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011: 42(6)493-499). Adapted with permission of the authors.

Appendix D

Fall Risk Checklist

Fall Risk Checklist

Patient: Date: Time: AM/PM

Fall Risk Factor Identified	Factor Present?	Notes
Falls History		
Any falls in past year?	☐ Yes ☐ No	
Worries about falling or feels unsteady when standing or walking?	☐ Yes ☐ No	
Medical Conditions		
Problems with heart rate and/or rhythm	☐ Yes ☐ No	
Cognitive impairment	☐ Yes ☐ No	
Incontinence	☐ Yes ☐ No	
Depression	☐ Yes ☐ No	
Foot problems	☐ Yes ☐ No	
Other medical conditions (Specify)	☐ Yes ☐ No	
Medications (Prescriptions, OTCs, supplements)		
CNS or psychoactive medications	☐ Yes ☐ No	
Medications that can cause sedation or confusion	☐ Yes ☐ No	
Medications that can cause hypotension	☐ Yes ☐ No	
Gait, Strength & Balance		
Timed Up and Go (TUG) Test ≥12 seconds	☐ Yes ☐ No	
30-Second Chair Stand Test Below average score based on age and gender	☐ Yes ☐ No	
4-Stage Balance Test Full tandem stance <10 seconds	☐ Yes ☐ No	
Vision		
Acuity <20/40 OR no eye exam in >1 year	☐ Yes ☐ No	
Postural Hypotension		
A decrease in systolic BP ≥20 mm Hg or a diastolic bp of ≥10 mm Hg or lightheadedness or dizziness from lying to standing?	☐ Yes ☐ No	
Other Risk Factors (Specify)		
	☐ Yes ☐ No	
	☐ Yes ☐ No	

CDC Centers for Disease Control and Prevention National Center for Injury Prevention and Control 2015 STEADI Stopping Elderly Accidents, Deaths & Injuries

CS259944J

Appendix E

The CDC's STEADI Fall Prevention Educational Pamphlet

Many falls can be prevented.

By making some changes, you can lower your chances of falling.

Four things YOU can do to prevent falls:

- Have your healthcare provider review your medicines.
- Exercise to improve your balance and strength.
- Have your eyes and feet checked.
- Make your home safer.

For more information, contact Centers for Disease Control and Prevention 1-(800)-CDC-INFO (232-4636) or visit www.cdc.gov/steadi

For information about fall prevention, visit go.usa.gov/xN9XA

For more information about hypotension, visit www.mayoclinic.com www.webmd.com

CDC Centers for Disease Control and Prevention National Center for Injury Prevention and Control

2017

What YOU Can Do to Prevent Falls

STEADI
Stopping Elderly Accidents, Deaths & Injuries

Four things YOU can do to prevent falls:

① Talk openly with your healthcare provider about fall risks & prevention.

Tell a provider right away if you fall, worry about falling, or feel unsteady. Have your doctor or pharmacist review all the medicines you take, even over-the-counter medicines. As you get older, the way medicines work in your body can change. Some medicines, or combinations of medicines, can make you sleepy or dizzy and can cause you to fall. Ask your provider about taking vitamin D supplements to improve bone, muscle, and nerve health.

② Exercise to improve your balance and strength.

Exercises that improve balance and make your legs stronger, lower your chances of falling. It also helps you feel better and more confident. An example of this kind of exercise is Tai Chi.

Lack of exercise leads to weakness and increases your chances of falling.

Ask your doctor or healthcare provider about the best type of exercise program for you.

Talk to your doctor about fall prevention.

③ Have your eyes and feet checked.

Once a year, check with your eye doctor, and update your eyeglasses, if needed. You may have a condition like glaucoma or cataracts that limits your vision. Poor vision can increase your chances of falling. Also, have your healthcare provider check your feet once a year. Discuss proper footwear, and ask whether seeing a foot specialist is advised.

④ Make your home safer.

- Remove things you can trip over (like papers, books, clothes, and shoes) from stairs and places where you walk.
- Remove small throw rugs or use double-sided tape to keep the rugs from slipping.
- Keep items you use often in cabinets you can reach easily without using a step stool.
- Have grab bars put in next to and inside the tub, and next to the toilet.
- Use non-slip mats in the bathtub and on shower floors.
- Improve the lighting in your home. As you get older, you need brighter lights to see well. Hang light-weight curtains or shades to reduce glare.
- Have handrails and lights installed on all staircases.
- Wear well-fitting shoes with good support inside and outside the house.

Appendix F

Pre-Project Questionnaire

Implementation of a Fall Prevention Toolkit (STEADI) for Older Adult Emergency Patients

Today's Date: Month ☐☐ / Day ☐☐ / Year ☐☐☐☐

Your Name: First ☐☐☐☐☐☐☐☐☐☐ Last ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

The following questions will provide us with background information.

1. What is your date of birth? Month ☐☐ / Day ☐☐ / Year ☐☐☐☐

2. What is your zip code? ☐☐☐☐☐

3. Today, how many people live in your household (including yourself)? ☐

4. Are you: ○ Female ○ Male ?

5. Are you of Hispanic, Latino, or Spanish origin?
   - ○ Yes
   - ○ No
   - ○ Unknown

6. What is your race? (Mark all that apply.)
   - ○ American Indian or Alaska Native
   - ○ Asian or Asian-American
   - ○ Black or African-American
   - ○ Hawaiian Native or Pacific Islander
   - ○ White or Caucasian
   - ○ Other _____

Please turn this paper over and fill out the other side.

Please mark the circle that tells us how sure you are that you can do the following activities.

How sure are you that:	Very sure	Sure	Somewhat sure	Not at all sure
1. I can find a way to get up if I fall	O	O	O	O
2. I can find a way to reduce falls	O	O	O	O
3. I can protect myself if I fall	O	O	O	O
4. I can increase my physical strength	O	O	O	O
5. I can become more steady on my feet	O	O	O	O

During the last 4 weeks, to what extent has your concern about falling interfered with your normal social activities with family, friends, neighbors or groups?

O Extremely O Quite a bit O Moderately O Slightly O Not at all

Mark ONLY ONE CIRCLE to tell us how much you are walking or exercising now.

O I do not exercise or walk regularly now, and I do not intend to start.

O I do not exercise or walk regularly, but I have been thinking of starting.

O I am trying to start to exercise or walk.

O I have exercised or walked infrequently for over a month.

O I am doing moderate exercise less than 3 times per week.

O I have been doing moderate exercise 3 or more times per week.

Appendix G

Follow-Up Survey

Implementation of a Fall Prevention Toolkit (STEADI) for Older Adult Emergency Patients

DNP (NURSING) PROJECT FOLLOW-UP SURVEY

Questions that will be asked of participants during follow-up communication

1. Have you had a fall since the last time we spoke (baseline assessment and education)?
2. What fall prevention changes have you made since we last spoke?
3. Do you feel the fall prevention education was helpful? If so, how?
4. Would you change anything about the delivery of information?
5. Is there anything else you would like me to know?

Appendix H

Project Budget

Item	**Quantity**	**Cost per item ($)**	**Cost ($)**
Printing fall risk assessment, education independent brochure, and Pre-project questionnaire, plus an additional	550	0.13	71.50
Printing provider algorithm	7	0.91	6.37
Internet access	8 months	10	80
Travel expenses	1	-	200
Statistician's Remuneration	15 hours	20 per hour	300
Total			657.87

Appendix I

HSRC Approval from Wilmington University

WILMINGTON UNIVERSITY

July 20, 2021

Lilian Ojilere

Dear Lilian,

Wilmington University's Human Subjects Review Committee (HSRC) is pleased to inform you that your ***Doctor of Nursing Practice project proposal Implementation of a Fall Prevention Toolkit (STEADI) for Older Adult Emergency Patients*** was reviewed on ***July 18, 2021***. The project was categorized as ***Exempt*** and meeting the requirements of a quality improvement intervention. Your signed HSRC form is attached. Now that your DNP project has been approved by the HSRC, there are multiple elements with which you must comply. Wilmington University adheres strictly to these regulations:

1. You must conduct your DNP project exactly as it was approved by the HSRC.
2. Any additions or changes in procedures must be approved by the HSRC before they are implemented.
3. You must notify the HSRC promptly of any events that affect the safety or well-being of subjects.
4. You must notify the HSRC promptly of any modifications to your DNP project or other responses that are necessitated by any events reported in items 2 or 3.
5. Your approval is provisional if you require Institutional Review Board approval from your organization. Once organizational approval has been obtained, please submit your signed approval and completed IRB application to DNP Administrative Assistant via email.

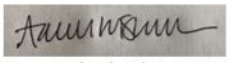
The HSRC may review or audit your project at random or for cause. In accordance with Wilmington University policy, the HSRC may suspend or terminate your DNP project if your project has not been conducted as approved and/or if other difficulties are detected.

While not under the purview of the HSRC, DNP students are responsible for adhering to US copyright law when using existing scales, survey items, and other works in the conduct of research/DNP projects.

In conclusion, you have developed an interesting evidence-based practice project aligned with the AACN DNP Essentials (2006). This is an important project for healthcare practices now and in the future. Best wishes for continued success.

Sincerely,

Angela Herman, DNP, RN
HSRC Committee Representative
Chair, Health Sciences Program
Assistant Professor
College of Health Professions



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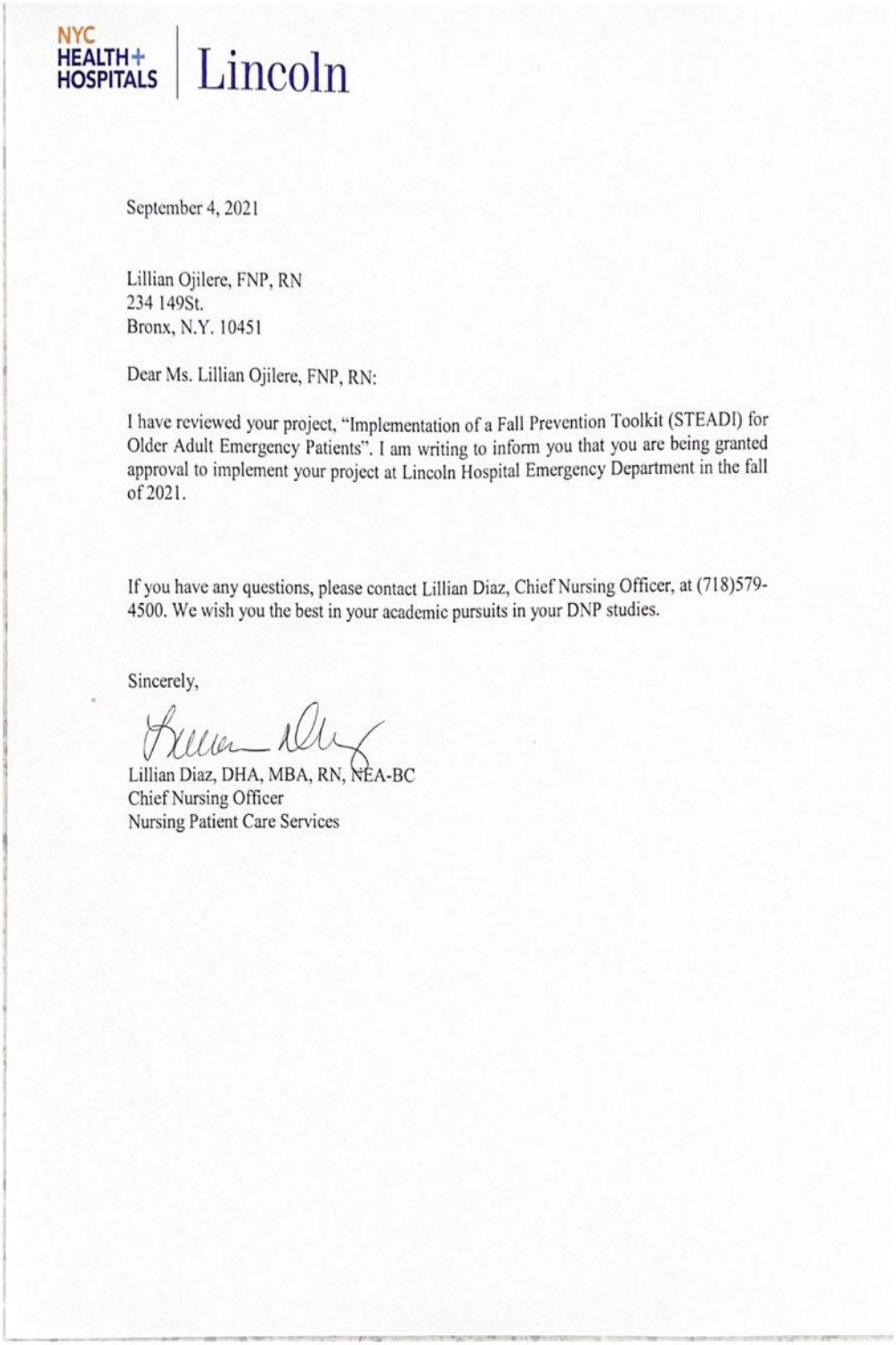
Appendix J

Organization Letter



NYC HEALTH+ HOSPITALS | Lincoln

September 4, 2021

Lillian Ojilere, FNP, RN
234 149St.
Bronx, N.Y. 10451

Dear Ms. Lillian Ojilere, FNP, RN:

I have reviewed your project, "Implementation of a Fall Prevention Toolkit (STEADI) for Older Adult Emergency Patients". I am writing to inform you that you are being granted approval to implement your project at Lincoln Hospital Emergency Department in the fall of 2021.

If you have any questions, please contact Lillian Diaz, Chief Nursing Officer, at (718)579-4500. We wish you the best in your academic pursuits in your DNP studies.

Sincerely,

Lillian Diaz, DHA, MBA, RN, NEA-BC
Chief Nursing Officer
Nursing Patient Care Services

Appendix K

CITI Training Certificate

CITI PROGRAM

Completion Date 15-May-2021
Expiration Date 14-May-2024
Record ID 42516299

This is to certify that:

Lilian Ojilere

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Subjects Research
(Curriculum Group)
Health Professions - Human Subjects Research
(Course Learner Group)
1 - Basic
(Stage)

Under requirements set by:

Wilmington University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w4c80f48a-5908-4614-8761-41649f225a37-42516299