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# Education of Nurses on the Use of the INTERACT Tool

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This doctoral project, directed and approved by the candidate's committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree

**Doctor of Nursing Practice**

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A doctoral project submitted in partial satisfaction

Of the requirements for the degree of

Doctor of Nursing Practice

By

Daniyele L. Feaster

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## Dedication

This project is dedicated to my mother La Donna Quesinberry-Patton. I am who I am because of you. Although it was too short, I thank God for the time I was given with you. I have had some challenging times throughout this journey, and every step of the way you made your presence known. I know that this is a proud mother moment for you, and I pray that I continue to make you proud. You always said the sky was the limit; I believe that and you prepared me to step into my purpose. Mommy, I am forever grateful for your strength, guidance, and unconditional love.

**Acknowledgments**

I would like to thank my daughter Yshaan Michala Feaster for her continued support and encouragement, and my grandsons Khalil and Khareem for kisses, hugs, and bringing joy to my life at the times when I needed it most. I would like to thank my chair Dr. Tonya McGee for your support and guidance. I would like to thank my friends Natasha James and Elnora Robinson for your active participation in my journey. Last, I would like to thank my husband Michael L. Feaster for his emotional support, mini-vacations to refocus, and believing in me when I had doubts.

This journey through the Doctor of Nursing Practice program at Abilene Christian University has challenged me, encouraged my growth, and expanded my knowledge base beyond my imagination. I am prepared to make a difference.

## Abstract

Research reveals long-term care facilities face challenges with unnecessary transfers to acute care facilities. Use of the INTERACT quality improvement program has been effective in decreasing rehospitalizations in long-term care facilities. The researcher used a 15-question survey regarding the components of the INTERACT tool to assess the knowledge base of licensed nurses in long-term care facilities and develop a one-hour education session to bridge the knowledge gap. After the education session was held, a posttest was administered to test the licensed nurses' knowledge of the INTERACT program. Using a paired-samples *t* test, the researcher found an overall increase in knowledge of the components of the INTERACT tool.


*Keywords:* rehospitalizations, long-term care, INTERACT, licensed nurses, post-acute care, unnecessary hospitalization

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# Chapter 1: Introduction

Reducing rehospitalizations is a significant focus for both acute and long-term care facilities. The Center for Medicare and Medicaid Services (CMS) explained rehospitalizations are often expensive, preventable, and cause additional stress for patients in long-term care facilities (CMS, 2018a). Long-term care facilities are a crucial component in reducing rehospitalization rates. Approximately 25% of patients receiving Medicare discharged from acute care facilities are transferred to a long-term care facility before going home (Clark et al., 2017). Within 30 days of transfer from the acute care facility, 25% of patients discharged will return from the skilled-nursing facility (SNF; Clark et al., 2017). The cause of rehospitalization is often multidimensional. Additionally, the financial impact is also concerning and will be discussed later in this chapter. Using the Interventions to Reduce Acute Care Transfers (INTERACT) tool has effectively decreased the number of transfers to acute care facilities (Ouslander et al., 2014).

Preventable rehospitalizations account for 40% to 68% of transfers to acute care establishments from long-term care/skilled-nursing facilities (LTC/SNFs; Vasilevskis et al., 2017). A lack of communication between interdisciplinary team members, failure to identify changes in condition, inadequate documentation of goals of care, and improper discharge planning during the transition from acute care to long-term care are associated with avoidable rehospitalizations (Clark et al., 2017). Improving communication between the licensed nurses, providers, and external team members will reduce avoidable rehospitalizations and enhance the quality of care provided to patients that experience a change in condition.

The INTERACT program consists of tools in four categories. The categories include communication, quality improvement, decision support, and advanced care planning. This

project will focus on education and use of communication and decision support tools and their impact on SNF quality improvement measures. Each category addresses factors associated with rehospitalizations and encourages dialogue between team members to improve processes.

As mentioned previously, two components of the INTERACT communication tools are *Stop and Watch* early warning and the *SBAR* form. The Stop and Watch early warning tools help communicate changes observed in patients by others to the charge nurse. The Stop and Watch tools are designed for nursing assistants, other direct care staff, and family members to communicate changes immediately. Upon receipt of the Stop and Watch tool, a nurse completes an evaluation of the patient and proceeds accordingly.

The SBAR communication form helps licensed nursing staff gather and organize information before initiating contact with the provider. The SBAR tool includes sections that address the situation at hand, patient background, patient appearance during the evaluation, and the review and notification of the change in condition. The nurse then documents intervention from the provider.

INTERACT quality improvement tools include the acute care transfer log, quality improvement tracking tool, quality improvement tool for review of acute care transfers, and the quality improvement summary. These tools are designed for facility leadership or the quality improvement committee members to be involved in the process. The quality improvement tools also assist in determining the root-cause analysis (RCA) of acute care transfers and identification of trends.

Change in condition file cards and care paths provide decision support to licensed and registered nursing staff. Care paths guide licensed nurses in the evaluation and symptom management of disorders commonly responsible for acute care transfers. Licensed nursing staff

uses the acute change in condition file cards to identify when and how to communicate acute changes to the provider effectively. The goal of the tool components is to improve quality, improve communication, and support decision making and advanced care planning.

Long-term care facilities must take a proactive approach to prevent transfers back to acute care facilities, especially within the 30-day timeframe. The development of relationships and strategies with internal and external partners will aid in successfully managing avoidable rehospitalizations (HC PRO, 2016).

**Statement of the Problem**

Readmissions to acute care hospitals continue to be a significant problem for long-term care facilities. Improved communication, early assessment, and intervention offer the potential for decreasing the number of patients readmitted to acute care facilities. Implementation of components of the INTERACT tools in the electronic health record by long-term care facilities can improve the visibility of patient information and the coordination of care. Decreasing readmissions is obtainable for long-term care facilities to establish consistent tools to manage changes in condition effectively.

**Background**

The patient population in long-term care has drastically changed over the last 20 years. The average length of stay in acute care facilities has decreased. Therefore, patients are discharged to long-term care facilities earlier and sicker. Multiple comorbidities make patients discharged from acute care facilities more vulnerable to readmission (Vasilevskis et al., 2017). During readmission, patients are at risk for hospital-acquired complications, morbidity, mortality, and increased healthcare costs (Ouslander, 2014).

According to Jacobsen et al. (2017), 22% to 25% of long-term care patients will return to acute care facilities within 30 days of discharge. A significant portion of acute care transfers is considered preventable. Vasilevskis et al. (2017) explained that between 23% and 60% of conditions associated with acute care transfers could be managed at long-term care facilities. Medicare reimbursement for long-term care facilities is affected by the facilities' readmission rates (Hovey et al., 2015).

Programs to incentivize healthcare facilities to reduce readmissions resulted from the Patient Protection and Affordable Care Act (ACA) of 2010. The ACA established the Hospital Readmissions Reduction Program, which imposes fines for healthcare establishments with disproportionate numbers of readmissions for designated diagnoses and Bundled Payments for Care Improvement Initiatives, offering a single payment for all services based on episodes of care (Carey & Stefos, 2016). CMS provides guidance for bundled payments and reducing the number of acute care transfers.

CMS utilizes a set of quality measures to evaluate the care provided in long-term care facilities. These quality measures allow healthcare processes, patient outcomes, and patient perceptions to be quantified (CMS, 2018b). In October 2018, CMS added quality measures for rehospitalization and initiated an incentive program based on facility scores. The Skilled Nursing Facility Value-Based Purchasing program evaluates how well a long-term care facility manages unnecessary transfers back to the hospital within 30 days of admission (Hall, 2018).

INTERACT, a quality improvement program supported by CMS, was developed in 2009 to reduce avoidable rehospitalizations from long-term care facilities (Kilgore, 2019). The INTERACT tools are common knowledge in long-term care facilities throughout the United States. CMS has incorporated the components of INTERACT throughout its initiatives to assist

long-term care facilities in managing avoidable transfers (Kilgore, 2019). Research suggests that success in reducing rehospitalizations correlates with the level of implementation of the INTERACT program (Kilgore, 2019).

**Purpose of the Study**

The purpose of this project was to determine whether an education session on the INTERACT tool components discussed in this paper would increase the knowledge of licensed nurses on the proper usage of the tools. Understanding how each component is used to gather and organize pertinent information to communicate changes in condition to the provider can ultimately reduce avoidable acute care transfers. The information obtained will be used to educate nurses across the organization. INTERACT tools are designed to reduce acute care transfers by identifying and managing changes in condition, improved communication, documentation, tracking, and trending (Ouslander et al., 2014). Accurate completion of each form is a necessary step in the process. Focused education sessions for licensed nurses are essential to ensure familiarity of forms, purpose, and usage of the INTERACT tools to ensure precise, systematic assessment, identify changes, and articulate pertinent information to the healthcare provider to prevent avoidable transfers. Research has concluded that when facilities actively implement the INTERACT tools, rehospitalization rates are reduced (Ouslander et al., 2014).

It is proposed that understanding the correlation between evaluation and symptom management will assist the nurse in the discussion of appropriate in-house treatment options, preventing a transfer to an acute care facility. Ensuring frontline staff members are comfortable assessing changes in condition and communicating findings to the provider is imperative to managing an alteration in health status (HC PRO, 2016).

## Problem of Inquiry (POI)

Reducing the rehospitalization rate in long-term care facilities is significant on many levels. According to Hall (2018), 20% of patients discharged from acute care facilities return within 30 days, costing approximately $10,000 per occurrence. Many middle-aged and older adults depend on long-term care facilities for healthcare management. Failure to implement an effective process for identifying and managing changes in condition will cause a facility to lack the competitive edge to survive impending changes. A decrease in the amount paid for a patient's care related to the inability to manage patients in-house will lead to instability and an unsustainable future.

Long-term care facilities may lose the support of key stakeholders if they cannot prevent rehospitalizations (Hovey et al., 2015). Data obtained from the CMS quality measure are utilized by hospitals, insurance companies, and specialty clinics to determine a provider of choice for short-term rehabilitation patients (Hall, 2018). It is imperative for licensed nurses in long-term care to identify changes in conditions early enough to seek intervention and prevent transfers back to acute care facilities. Focused education sessions on the INTERACT tool should empower nurses to communicate accurate information to families and providers, improving the overall quality of care.

## Nature of the Project

The study was designed to assist licensed nurses with understanding the content, purpose, and use of the INTERACT tool. Improved knowledge of the INTERACT tool would help nurses with the early identification of changes in condition.

I administered a pretest before the education program and utilized it as a reference point of knowledge. I composed a calendar of the scheduled training and posted it for licensed nurses

to participate in the education sessions. The education sessions were held on Zoom , and participants were able to participate from any location. The content for each education session was covered in hourly increments, which allowed time for questions.

The initial informational session explained the following:

1. The purpose of the DNP project
2. Program objectives
3. Expectation of attendance and participation
4. Current facility rehospitalization rates
5. All components of the INTERACT program are available at the selected facilities
6. Expected outcomes

There were four subsequent sessions that consisted of participants receiving education on the components of the INTERACT tool, their purposes, and how to complete them accurately. A case study was used as part of the education, and the corresponding section of the INTERACT SBAR tool was reviewed and completed during each session. Once I gathered the information and documented it in the INTERACT SBAR tool, nurses learned how to interpret findings and relay them to the provider.

Upon completing the Zoom session, the participants had a better understanding of the INTERACT tool and all of the components used by the facility. The participants had a better grasp of using the INTERACT tool to communicate changes in condition to the provider. Following the education session, I administered a posttest to all participants to evaluate the effectiveness of the intervention.

## Research Question

A research question establishes the basis for conducting a literature review and serves as the foundation for directing a project. The question is further defined by its population (P), intervention (I), comparison group (C), if any, the outcome of intervention performed (O), and time allotted to complete the project (T). For this project, the research question was the following: In a short-term rehabilitation unit, does an educational program on INTERACT (I) with licensed nurses (P) result in increased knowledge on the use of the INTERACT tool after an education session (O)?

The population was inclusive of licensed nurses employed by long-term care facilities. Participants received education and training on the use of the INTERACT tools in the EHR. The investigation compared the nurses' knowledge of using the INTERACT tool before and after the education intervention. The outcome was measured after the posttest.

## Hypothesis

### *Assumptions*

The assumptions of this scholarly project were that subjects participating in the study were licensed nurses practicing at the long-term care facilities where participants were solicited, subjects had basic computer skills, subjects were familiar with the INTERACT tools, and subjects answered questions on the interview tool honestly.

The hypothesis for this project was that nurses who received education on the use of INTERACT tools in the EHR had a greater understanding of the purpose and usage of the INTERACT tool compared to before the education intervention. This hypothesis was based upon systematic information that training and implementing support strategies for the INTERACT tool would further improve outcomes for reducing rehospitalizations (Huckfeldt et al., 2018).

Therefore, with training on the components of the INTERACT tool in the EHR, the outcome should be similar.

**Definition of Key Terms**

As part of this project, several operational definitions were used to define specific groups and aspects of the project and intervention. Below are the operational definitions that were pertinent to the study.

**INTERACT Tools.** Interventions that are part of a quality improvement program aimed at early identification, evaluation, and communication of changes in condition to reduce acute care transfers (Pathway Health, 2020).

**Licensed vocational nurse/licensed practical nurse.** An individual who is licensed after completing a state-approved educational program, which is typically one year long. LPNs and LVNs provide primary nursing care in various settings (U.S. Bureau of Labor Statistics, 2019).

**Registered nurse.** An individual who is licensed after completing an associate degree or bachelor's degree in nursing or a diploma-approved nursing program. RNs provide coordination of patient care and education concerning health conditions (U.S. Bureau of Labor Statistics, 2020).

**Rehospitalization.** Hospitalizations within 30 days after hospital discharge (Morandi et al., 2013).

**Short-term rehabilitation unit**. A designated part of a nursing home dedicated to providing skilled nursing care (Morandi et al., 2013).

**Skilled nursing care.** Care that must be carried out by a registered nurse, licensed practical nurse, physical therapist, occupational therapist, or speech therapist. Skilled nursing care includes intravenous (IV) therapy, injections, catheter care, physical therapy, and medical

equipment or vital sign monitoring. Skilled care is provided for the short term related to an illness or injury (Lenze et al., 2019).

## Chapter Summary

This research project aimed to impact healthcare delivery in long-term care facilities by providing evidence-based data regarding the usage of INTERACT tools to decrease unplanned rehospitalizations in patients requiring skilled care during short-term rehabilitation stays. Rehospitalizations cause a financial burden on patients, families, and healthcare organizations. According to Patel et al. (2017), the average cost of hospital admission is $11,000.

The usage of INTERACT tools can offer facilities a means to curtail unnecessary transfers of patients to acute care facilities. INTERACT tools serve as an intervention for the early identification of changes in conditions in patients to encourage adequate treatment, preventing the need for rehospitalizations. Licensed nurses are responsible for the care provided to patients receiving short-term rehabilitation services. Receiving education on the proper usage of INTERACT can empower licensed nurses to identify changes in conditions and intervene earlier to reduce unnecessary rehospitalizations.

# Chapter 2: Literature Review

Reducing the number of avoidable rehospitalizations remains a significant focus for long-term care facilities. The literature suggests avoidable readmissions can be reduced by focusing on improved transitions and care coordination between settings and improved discharge planning (Institute for Healthcare Improvement, 2020). The INTERACT quality improvement program has been proven effective in reducing the number of avoidable acute care transfers from nursing homes (Kilgore, 2019). This literature review is designed to provide context to guide the reduction of rehospitalizations.

## Literature Search Methods

The ACU Library Onesearch option was utilized to collect research. Onesearch populates articles from various databases (EBSCOhost, PubMed, Medline, etc.). Multiple independent search phrases were used, with an initial broad search conducted using the terms three-day readmission and long-term care, yielding 203,991 and 53,549 results, respectively. An advanced search that included the term *interventions to reduce acute care transfers* (INTERACT) provided 9,500 articles. A wide array of articles were provided to complete this literature review.

## Theoretical Framework Discussion

The theoretical framework that I utilized was Patricia Benner's theory titled "From Novice to Expert: Excellence and Power in Clinical Nursing Practice." The thesis of Benner's theory states that nurses develop the skills needed to provide care to others from their knowledge and past experiences (Petiprin, 2016). Over time, a nurse develops the skills necessary to care for patients and their families. Benner's theory is derived from the Dreyfus model of skill acquisition, which states that learning is based on experiences and exposure to various situations (Petiprin, 2016).

There are five stages of clinical competence explained in Benner's theory (Benner, 2005). They are the novice, advanced beginner, competent, proficient, and expert. The progression through the stages of clinical competence is very individualized and is based on experiences and the skills learned from them. The novice is the initial stage of learning for a nurse. At this stage, they do not have any experiences to assist with decision making. Therefore, they depend on their academic knowledge (Davis & Maisano, 2016). As a result, it can be difficult for the novice to prioritize tasks or steps to fulfill the care plan. The advanced beginner stage occurs once a nurse has been in their field for some time and can be involved in various situations. The advanced beginner can utilize the skills learned in those situations to provide care or guidance (Davis & Maisano, 2016). After nurses are in practice for more than two years, they begin to enter the third stage of clinical competence.

Competent nurses have worked in a particular area for three years or more and can make calculated decisions related to knowledge expansion and experience. According to Davis and Maisano (2016), competent nurses work efficiently and reach their goals through organized planning. The longer a nurse is exposed to new situations they will advance through the stages of competence.

The fourth stage of Benner's theory is when a nurse becomes proficient in their skills. A nurse can multitask and make decisions based on the whole picture (Davis & Maisano, 2016). Expanding upon already learned skills allows the proficient learner to be flexible in decision making. The expert is the final stage of clinical competence. At this stage, a nurse will have the knowledge base and a plethora of experiences to pull from to influence decision-making.

Many studies have used Benner's theory as the theoretical foundation for their development. For example, Murray et al. (2019) discussed the importance of new graduate

registered nurses (NGRNs) transitioning into clinical practice. Benner's theory has been utilized to explain the path of NGRNs as they progressed through clinical situations. It postulates that learning is based on experiences and how an individual performs is directly related to circumstances surrounding prior events. The authors concluded the use of Benner's theory provides a foundation for building a complete transition of theory into practice by NGRNs (Murray et al., 2019).

The delivery of care is a significant quality indicator for nursing services (Ozdemir, 2019). Benner's theory was used in Ozdemir's study as the conceptual framework to delineate how nurses gain new skills and knowledge. Nurses develop an understanding of individualized nursing care through their experiences, as familiarity is a key factor in positive patient care outcomes. The author determined that nurses are prepared at different levels and require guidance to advance through the steps of skill acquisition. Benner's theory offered the guidance necessary for seamless transitions throughout the delivery of care.

Thomas and Kellgren (2017) used Benner's theory to explain how nurse educators in new situations revert to the beginner stage of skill acquisition. The authors discussed the theory as a situational concept, meaning the level of experience an individual has dictated the stage of skill engagement. Benner's theory provided a sound foundation for the authors to express the evolution of nurse educators preparing to implement simulation in nursing programs.

**Conceptual Framework Discussion**

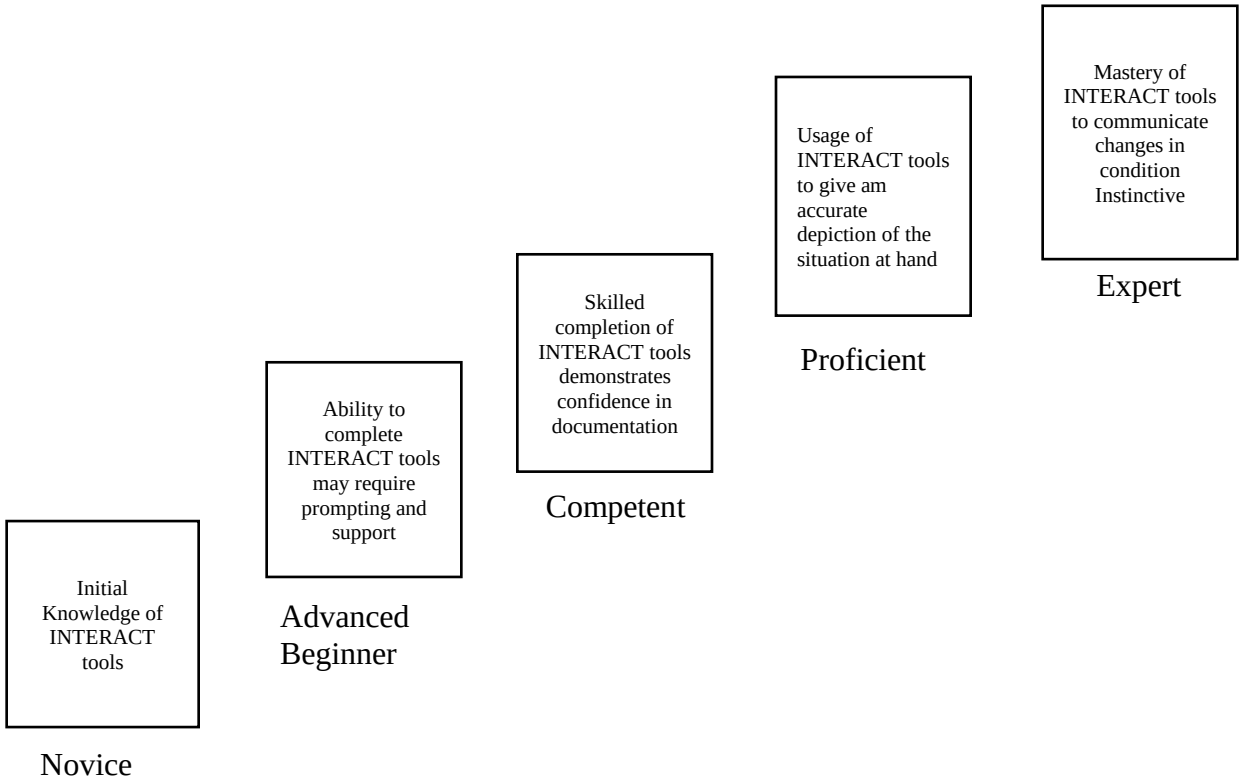
Benner's theory aligns with the premise for this project in several ways. One way in which this theory aligns with the project is experienced nurses who are currently working in the rehabilitation unit will be novices at learning the INTERACT tool to be used in the EHR at the beginning of the project implementation.

The advanced beginner stage nurses who have been utilizing the INTERACT tool for several weeks will become more familiar with the content and use of the tool, thus making them advanced in their use of this modality. The competent stage includes nurses accustomed to the INTERACT tool for more than four weeks and who have acquired the skilled usage of the INTERACT tool but have not mastered the process; therefore, they are competent in the procedure.

In the proficient stage, nurses have had extensive knowledge and usage of the INTERACT tool for more than six weeks; therefore, they perceive the situation as a whole, making them proficient in the process. Finally, in the expert stage, nurses have mastered the INTERACT tools. They have a complete understanding of how each component of the program intermingles, making them an expert in their use of the system. See Figure 1 for the conceptual model related to this project.

**Figure 1**

*The Stages of Skill Acquisition for Licensed Nurses*




## Literature Review

### *Historical Overview: Theoretical Framework*

Several broad theories could be practical for education programs. Benner developed a middle-range theory titled From Novice to Expert that focuses on nurses' stages of skill development. Benner established her theory of skill acquisition in a study about newly graduated nurses and their preceptors (Benner, 2005). One hundred and thirty nurses working in intensive care units and general floors participated in the study to evaluate the nature of skill acquisition experienced by nurses.

The study found that the Dreyfus model of skill acquisition was predictive and descriptive of each distinct stage (Benner, 2005). Qualitatively the results showed a significant

difference between the competent and proficient levels where more concrete understanding and form of action is taken (Benner, 2005). The Dreyfus model of skill acquisition assesses experiential learning in complex, unknown, or new fields over time (Benner, 2005). It foretells the more experience a nurse has, the better equipped they are to handle particular clinical situations considering all possibilities and constraints (Benner, 2005). Benner's theory offers insight into the progression of nurses through the process of learning the components of the INTERACT program.

**Skilled Nursing Facility Readmissions**

A study by Jacobsen et al. (2017) examined preventable hospitalizations from the consumers' perspective. The researchers used a mixed analytical method to evaluate factors that contributed to the rehospitalization of subjects and their perception of the cause (Jacobsen et al., 2017). Interviews were conducted with subjects ($N$ = 156) who were Medicare beneficiaries with unplanned rehospitalizations from 23 SNFs within 60 days of previous hospital discharge (Jacobsen et al., 2017). Researchers administered a six-item interview at the bedside of participants to determine their perspectives on preventing their readmission and their role in it (Jacobsen et al., 2017). The study results revealed that 53 (34%) of participants deemed their rehospitalization as preventable, and 28.3% of those 53 participants attributed it to hospital factors (Jacobsen et al., 2017). SNFs were responsible for the rehospitalization, according to 52.8% of participants (Jacobsen et al., 2017). The belief that both the hospitals and SNFs were responsible for the rehospitalizations was shared by 18.9% of all participants (Jacobsen et al., 2017). Researchers found the main contributing factors to readmissions were premature hospital discharge, poor discharge planning, unresolved clinical issues in the hospital, inadequate SNF interventions, inadequate medication management at the SNF, and poor decision making

regarding the transfer. Limitations of the study included the use of one hospital and completions of the interviews within the hospital setting (Jacobsen et al., 2017). The researchers demonstrated the value of interviewing consumers from the SNF population concerning readmission, including those with cognitive impairment.

**Financial Impact of Rehospitalization**

Rehospitalizations are costly to healthcare systems throughout the United States (Hovey et al., 2015). Rehospitalizations from long-term care facilities cost the United States healthcare system nearly $17 billion annually (Nelson & Pulley, 2015). The average costs of rehospitalization for heart attack, heart failure, and pneumonia in 2011 were $3,432, $2,488, and $2,278, respectively (Carey & Stefos, 2016). Rehospitalizations from long-term care facilities were responsible for increasing Medicare costs to approximately $59 billion in 2013 (Patel et al., 2017). Rehospitalizations result in decreased reimbursement rates to healthcare facilities for Medicare beneficiaries (Hovey et al., 2015). Recouping the costs spent on rehospitalizations takes healthcare organizations extended periods based on direct and indirect costs (Carey & Stefos, 2016).

**Pertinence of INTERACT Training**

Implementation of the INTERACT tool requires education for nursing staff at the long-term care facilities. Effective implementation of this tool has proven to reduce rehospitalizations among long-term care residents (Ouslander et al., 2014). Understanding the quality improvement strategies is beneficial to preventing rehospitalizations (Pathway Health, 2020). INTERACT training helps organizations improve patient outcomes by enhancing the quality of care (Pathway Health, 2020). Training on INTERACT helps nursing staff identify changes in condition and

strengthens communication, aligning with provider reimbursement initiatives (Pathway Health, 2020).

**Usage of INTERACT**

One-quarter of all patients discharged to SNFs from acute care facilities return within 30 days. In a qualitative study conducted by Clark et al. (2017), 28 clinicians from 15 skilled nursing facilities were interviewed about 24 patient readmissions. Data were evaluated every week, and nurses involved in the transfer of the patient were contacted via email and telephone to schedule an interview (Clark et al., 2017). A total of 32 readmissions were identified, but meetings were unable to be scheduled for eight of the transfers due to the inconvenience of times (Clark et al., 2017). The researchers used questions from the Interventions to Reduce Acute Care Transfers (INTERACT) Quality Improvement (QI) tool to conduct the structured interviews with the nurses (Clark et al., 2017). In addition to the 26-item QI-tool questionnaire, they asked two open-ended questions concerning reducing readmissions and four closed-ended questions regarding the admission process to the SNF (Clark et al., 2017). The facilities utilized had a mean of 148 beds and a 2.9-star rating (Clark et al., 2017). The study revealed no significant difference in readmissions from facilities based on size (Clark et al., 2017). The study revealed five main themes:

1. The lack of coordination between emergency departments and SNFs;
2. incomplete addressing of the goal of care;
3. mismatch between patient clinical needs and skilled nursing facility capabilities;
4. important clinical information not effectively communicated by the hospital; and
5. challenges in the SNF processes and culture. (Clark et al., 2017)

Strengths of the study were the inclusion of nurses from multiple SNFs with a range of clinical experience, and the usage of multiple facilities, varying in size, quality ratings, and range of contributing factors to readmission (Clark et al., 2017). The study revealed several weaknesses, including using a convenience sample of patients being readmitted to a single hospital, and all SNFs were located in Connecticut. Direct care staff was not included in the sample, limiting cultural and management practice themes. The researchers emphasized the need for further QI and research to investigate the care coordination of patients discharged to SNFs with resources to address comorbidities.

Ouslander et al. (2014) evaluated the benefit of nursing homes using the INTERACT quality improvement program to prevent unnecessary hospitalizations. INTERACT has been implemented in many nursing homes throughout the United States, Canada, the United Kingdom, and Singapore and is associated with up to a 24% reduction in all-cause hospitalizations of nursing home residents (Ouslander et al., 2014).

The INTERACT program was developed in Georgia and supported by CMS in response to high hospitalization rates (Ouslander et al., 2014). Three nursing homes with high rehospitalization rates were chosen to pilot the program developed by an expert panel (Ouslander et al., 2014). After implementing the INTERACT program, the three facilities documented a 50% decrease in their hospitalization rates (Ouslander et al., 2014). A revision of the INTERACT program was completed following the first pilot and implemented in 30 nursing homes in Florida, New York, and Massachusetts. Twenty-five nursing homes completed the project, and there was a 17% reduction in rehospitalization. Seventeen of the 25 nursing homes were entirely engaged in the process resulting in a 24% reduction in rehospitalizations (Ouslander et al., 2014). In addition to preventing unnecessary hospitalizations, the INTERACT

program helps nursing homes meet federal guidelines for a thorough quality assurance process improvement program. Limitations to the study examined were the lack of randomization, they were not controlled, and facilities probably volunteered because they had a high rehospitalization rate (Ouslander et al., 2014). However, the researchers noted the INTERACT program was a cost-effective program that was easy to implement (Ouslander et al., 2014).

Vasilevskis et al. (2017) evaluated potentially avoidable rehospitalizations of patients from post-acute care facilities from the perspectives of staff from the acute care and SNFs. Participants were Medicare patients from 23 SNFs transferred to one tertiary academic medical center (Vasilevskis et al., 2017). There were 262 hospital readmissions of 1,808 discharges, a 30-day readmission rate of 14.5% (Vasilevskis et al., 2017). An Improving Post-Acute Care Transfers (IMPACT) intervention was implemented (Vasilevskis et al., 2017). The IMPACT program includes nurse practitioners and RNs as transition advocates to assess geriatric conditions and assist with advanced care planning, medication management, and make a nurse telephone call within 24 hours of admission to the SNF (Vasilevskis et al., 2017). The SNF staff were trained to use the INTERACT quality improvement program, which includes tools to improve the management of acute changes in conditions in the SNF (Vasilevskis et al., 2017).

According to the hospital and SNF staff, the percentage of avoidable readmissions was 30% and 13.3%, respectively (Vasilevskis et al., 2017). Readmission factors differed between facilities, but diagnostics issues and management of changes in condition were the most common factors (Vasilevskis et al., 2017). A Root Cause Analysis (RCA) was completed with two tools, one for hospital physicians and the other for SNF staff (Vasilevskis et al., 2017). The HOspital MEdicine Reengineering Network (HOMERun) tool was used for physicians, and the INTERACT QI tools were used for SNF staff (Vasilevskis et al., 2017). An RCA was completed

from the hospital, and the SNF on 120 readmissions and 73% (88 of the 120) were considered potentially avoidable (Vasilevskis et al., 2017).

Based on the data, the investigators suggested hospitals and SNF complete joint RCAs on readmissions, improve access to high-quality clinical care, and discuss the risks and benefits of hospital transfers with patients (Vasilevskis et al., 2017). Limitations of the study included the use of one medical center and 23 SNFs in the area and may not be relatable to other hospitals in the United States. In addition, only readmissions from the SNF were included in the study, which may have skewed the actual number of readmissions, the possibility of different results with the use of additional factors, and possible bias due to the subjective ratings of avoidable transfers (Vasilevskis et al., 2017).

A quasi-controlled study by Patel et al. (2017) evaluated the effects of the Transfer Triage Protocol (TTP) and the INTERACT program on reducing 30-day preventable rehospitalization rates in a 60-bed post-acute care setting. An RCA was conducted through interviews of the staff, observation of workflow, and chart reviews to understand the contributors to readmission rates (Patel et al., 2017). The INTERACT tools were used in the initial analysis and at the end of the six-week time frame (Patel et al., 2017). Interprofessional teams (IPTs) were formed to improve clinical decision making to reduce the 30-day readmission rate (Patel et al., 2017). The IPTs used case studies to conduct multiple one-hour education sessions with direct care staff and administrators on the TTP process (Patel et al., 2017). The TTP flow chart was used to guide nursing staff by determining adequate facility-based interventions versus the need to be transferred to an acute care setting (Patel et al., 2017). The study revealed an overall reduction in 30-day preventable readmissions was 35.2% (Patel et al., 2017). At the end of the

study, 17 employees were debriefed, and the following concepts emerged for what could be done in the facility to reduce readmission rates:

1. additional staff education,
2. improved screenings before admission,
3. improved evaluation before hospital transfer,
4. clear and effective communication and documentation related to transitions of care and across the continuum of care, and
5. IPT on-site availability. (Patel et al., 2017)

The time frame for implementing the study was short, resulting in the inability to infuse the TTP and IPT concept into the facility's culture (Patel et al., 2017). Facility turnove presented a challenge for the investigators, although replacement staff was familiar with long-term care (Patel et al., 2017). The lack of electronic medical record integration diminished the scope of communication (Patel et al., 2017). In addition, the inability of the IPT to be present daily could have contributed to the facility's reluctance to use the team during the project (Patel et al., 2017). The study did show that using INTERACT and the TTP process can effectively reduce the readmission rate from post-acute care facilities.

**Chapter Summary**

The impact of rehospitalizations on patients and post-acute care facilities is multifactorial. Patients and families face additional stress related to unnecessary transfers to acute care facilities. Patients, families, and healthcare facilities also encounter financial burdens related to rehospitalizations. Educating nursing staff on the utilization of INTERACT tools can improve the quality of care provided in the facility and decrease the number of transfers to acute care facilities. Research has been conducted on the efficacy of the INTERACT program and its

ability to improve patient outcomes through early identification of changes in condition and initiation of appropriate treatments with proper training.

Additionally, the literature indicated that an interdisciplinary approach is an effective way to identify and address unnecessary transfers to acute care facilities. This research inquiry has the potential to identify if the implementation of INTERACT tools by the nursing team result in decreased rehospitalization rates in the post-acute care facilities. Understanding the components of the INTERACT program would allow nursing leadership to direct quality improvement initiatives to decrease healthcare costs and increase positive patient outcomes.

# Chapter 3: Research Method

The focus of this project was to educate nursing staff on the INTERACT program and its components. This chapter provides the methodology and discussion of the procedures related to the implementation of the INTERACT tools. Additionally, I describe the procedures related to data analysis and information security.

## Project Design and Purpose

The proposed design was a quasi-experimental research design (Bloomfield & Fisher, 2019). The purpose of this project was to determine whether an education session on the INTERACT tool components increased the knowledge of licensed nurses on the proper usage of the tools. The quasi-experimental research aims to decipher whether an intervention, such as the education on INTERACT, affects one of the variables and determines the effectiveness of the intervention (Bloomfield & Fisher, 2019). I administered a pretest, then provided the education intervention, which was followed by the posttest to evaluate if there was a difference in the scores of the tests (Bloomfield & Fisher, 2019). The criterion of this inquiry fit the parameters of a quasi-experimental research design.

## Measurement Tools

Each participant completed a pretest consisting of six demographic questions and 15 questions pertaining to the INTERACT tool ( Appendix A). Upon completion of the Zoom education session, the participant was given access to the posttest. The posttest consisted of the same 15 questions pertaining to the INTERACT tool (Appendix B). The results from the pretest were compared to the results from the pretest to identify if the education session was effective. The questions used were developed from the INTERACT communication and decision support tools. No specific permission was required for the usage of the INTERACT tools. The

INTERACT tools were readily accessible and free for public domain usage, available at https://pathway-interact.com/tools/.

I utilized the INTERACT Stop and Watch tool (Appendix C), the SBAR (Appendix D), Change of Condition file cards (Appendix E), and Care Paths diagrams (Appendix F) to compose the questions for the pretest and posttest. The pretest and posttest were used to evaluate the effectiveness of the Zoom-based education session. The INTERACT Stop and Watch early warning tool is designed to be used by certified nursing assistants and other direct care staff, such as rehab, environmental services, dietary and resident representatives (Pathway Health, 2021). The SBAR communication tool and Change in Condition progress note are designed to be used by all licensed nursing staff to evaluate and communicate acute changes in condition to the provider (Pathway Health, 2021). The Acute Change in Condition file cards are used to provide guidance for the licensed nurse on when to communicate changes to the provider (Pathway Health, 2021).

## Data Collection, Management, and Analysis Plan

### *Data Collection*

A multidimensional approach was utilized for data collection. Permission to consent and recruit participants from the long-term care facilities was provided by the divisional director of clinical services (DDCS; see Appendix G). This was accomplished by contacting the regional director of clinical services and discussing the project of interest (POI). This project was conducted virtually through Zoom sessions. The details of the process are described in the following paragraph.

Following approval from Abilene Christian University's (ACU's) Institutional Review Board (IRB), participants from the long-term care facilities were recruited. Recruitment was

accomplished by the director of clinical services (DCS) disseminating flyers I designed by posting them on bulletin boards throughout the facility. Inclusion criteria consisted of licensed nurses employed by the long-term care facility, who had completed an accredited nursing program, passed the national certification exam (NCLEX), and had the ability to speak fluent English.

Employees were not excluded based on gender, socioeconomic status, or ethnicity. Survey questions were added to the pretest that was administered to each participant to examine demographics data. Data were collected and presented in tables and/or figures. Informed consent was solicited from each eligible participant. Following the completion of the informed consent process, I aksed participants to complete the pretest, attend an information session on the INTERACT tools and the purpose of each, then complete a posttest. Information sessions were conducted via Zoom.

### *Data Management*

Data collected during this DNP project was stored in a secure university learning management system labeled under my name. Data are owned by the university in case access is needed at a future time. Data storage was provided by the online graduate school to be utilized by doctoral student research data and supported by the university's information technology (IT) department for security purposes. All data obtained during the implementation of this project were maintained on a password-protected computer, and only I have access to the password.

Data will be maintained for at least three years, according to federal regulations for protecting and maintaining human research participants' data (DeMarinis, 2019). After three years, the data will be shredded and destroyed.

### *Data Analysis*

I performed a paired *t* test to analyze whether an education intervention on the INTERACT quality tools improved nurses' knowledge. A paired *t* test is utilized to determine if there is a difference when two datasets are compared (Winters et al., 2010). I compared licensed nurses' pretest responses before the intervention to posttest results postintervention. Descriptive statistics were used to summarize demographic and clinical characteristics. Demographic data collected included age, years in nursing, nursing education level, and years working in long-term care. I conducted data analysis of sample demographics with descriptive statistics, such as mean, median, and mode, and completed a power analysis to determine the appropriate sample size for the study.

## Methodology Appropriateness

I utilized a quasi-experimental research design to determine if education on the INTERACT tools improved nurses' knowledge (Winters et al., 2010). The 15-question pretest was administered before the implementation of INTERACT training. Next, the INTERACT training occurred. Finally, the same 15 questions asked on the pretest were administered as a posttest. The results from both tests were evaluated to determine if the education intervention effectively improved the participants' knowledge. The project implementer distributed written informed consent before the training session (Appendix H). Participants were given the option to withdraw from the study at any time.

## Feasibility and Appropriateness

The information sessions were conducted during the day and the evening via Zoom technology. I am employed by the organization that provides primary care to the residents at each of the selected facilities, and I am a primary care provider at one of the facilities.

There were four one-hour sessions, two on day shift and two on night shift, to accommodate the needs of the facility staff. I was responsible for explaining and obtaining informed consent from the participants and conducting scheduled Zoom education sessions. In addition, I absorbed costs associated with developing the project, such as paper and printing fees. Organizational arrangements were scheduled before starting the research project.

**IRB Approval and Process**

ACU IRB approval was obtained before the implementation of this research project. I first submitted an Exempt Non-Research/Non-Human Research Determination Request. Research ethics and protection human research participants courses were completed in July 2020. Both trainings were required of students, committee members, and program administrators advising me in this project.

The ethics courses covered issues about research involving human subjects, including the risks and benefits of the study, informed consent, withdrawals, and maintenance of confidentiality of the data collected during and after the study. Certificates of completion were granted after each module of the ethics training.

**Interprofessional Collaboration**

I had a consistent weekly collaboration with the director of clinical services (DCS) and the regional director of clinical services (RDCS). The RDCS agreed to support this DNP project and allowed the recruitment of participants from the two long-term care facilities. Close communication was essential in the planning necessary to conduct this project. The DCS and RDCS were primary stakeholders in the DNP project. Once the project was ready to be implemented, the DCS assisted in the recruitment process. The DCS advertised and discussed the

DNP project with the licensed nurses in their facility. Interested nurses were instructed to contact me for information on the information session.

All participants and facility leadership were stakeholders in this DNP project. The subjects of the study depended on me to maintain ethical standards throughout the study. Appropriate approval was obtained from the IRB to ensure human subjects were protected. I obtained consent from each participant before they participated in the study and after inclusion criteria were met.

**Practice Setting**

The established settings were two different long-term care facilities located in South Carolina. The first facility is located in an urban area in the city of Columbia. The facility has over 170 Medicare and Medicaid certified (dually certified) beds. The facility has an average daily census of greater than 100 residents with an average daily occupancy rate greater than 50%. The average length of stay for residents is approximately 25 days. The second facility is located in urban Charleston, SC. The facility has over 140 Medicare and Medicaid certified beds. The average daily census is greater than 130 residents. The average daily occupancy is greater than 85%. The average length of stay is approximately 30 days.

**Target Population**

The target population for this DNP project included licensed practical nurses, licensed vocational nurses, and RNs with an associate, bachelor's, master's, or doctoral degree. All nurses were at least 18 years of age, graduated from an accredited nursing program, and successfully completed the NCLEX exam. All nurses were licensed to work in the state of South Carolina. There were no exclusions based upon race, marital status, or socioeconomic status. The inclusion and exclusion criteria determined the assembly of the target population. A convenience sampling

of nurses from two long-term care facilities was used for the study. Any long-term care employees meeting the inclusion criteria were allowed to participate in the study (Elfil & Negida, 2017).

**Risks and Benefits**

There were risks associated with this study related to stress, potential burnout, quality of care, and breach of privacy. Psychological risks associated with this study are in the form of perceived stress with initiation and completion of documentation for evaluation and communication of changes in condition. Participants may have feared for their jobs when documentation is not perceived as completed to management standards. Participants may have also experienced stress related to the extra duties of completing INTERACT tools in the EHR systems. The addition of forms leads to more time spent away from patient care and could lead to participants cutting corners to complete assigned tasks. Measurements were put in place to lessen the potential risks.

The benefits associated with this study included the empowerment of participants through additional education. Early identification of changes in condition using the INTERACT tools can also improve patients' quality of care. Besides, reduction of rehospitalization rates and healthcare costs are beneficial to all stakeholders.

**Timeline**

The timeline of development and implementation of the project began with the inception of the DNP program in August 2018 and lasted until the end of the program in August 2021. The research study in the long-term care settings occurred over a two-week timeframe. The actual and anticipated series of events that occurred for this DNP project are listed from inception to completion (Appendix I).

## Chapter Summary

My utilization of a quasi-experimental research design assisted me in answering the question about whether an educational program on INTERACT with licensed nurses increased their knowledge on the components of the INTERACT tool. The INTERACT QI tool retains credibility for the measurement of unavoidable rehospitalizations through its established validity and reliability, making it a sound choice as a measurement tool (Ouslander et al., 2016). The specific research design and the paired *t* test for data analysis helped me achieve the desired outcomes with the method used. Approval to conduct this research study was obtained in accordance with ACU's IRB.

# Chapter 4: Results

In this project, I used a paired-samples *t* test to explore the relationship between the pretest and posttest for the INTERACT tools educational intervention offered to nurses working in long-term care. There were changes in the pretest and posttest scores, and the participants asked questions during the Zoom meetings. All questions were answered during each session. The participants were 29 nurses who voluntarily chose to complete the pretest, posttest, and Zoom meetings. The pretest was completed prior to the Zoom meetings. The Zoom meetings lasted for one hour, where a PowerPoint with information from the INTERACT program was reviewed. The participants took the test again for an evaluation of their posttest knowledge.

## Purpose of the Study

The purpose of the project was to establish a baseline of the nurses' knowledge of the INTERACT tools, then provide an educational intervention on the INTERACT tools. The communication tools, decision support tools, advance care planning tools, and the quality improvement tools were reviewed during the Zoom session. The test administered consisted of 15 multiple choice questions based on the INTERACT tools. During the Zoom sessions, participants discussed the guidelines for rehospitalizations and the development and purpose of the INTERACT quality improvement program. I then compated the results from the to the results from the posttest to establish if the intervention was effective.

## Demographics

The targeted population was nurses working in long-term care. The nurses were informed about the study by flyers placed throughout the long-term care facilities. All participants were over 30 years old (31.03% were 30–35 and 68.97% were 36 or over), with the mean age of the participants' falling within the category of 36 and over years of age, as seen in Figure 1.

The majority of the participants classified themselves as female, including transgender women (93.10%). The remaining participants classified themselves as male, including transgender men, as seen in Figure 2. The participants classified themselves as African American (68.97%), White (27.59%), and Other (3.45%). Figure 3 shows the majority of participants described themselves as African American.

The mean number of years the participant had been as a nurse fell within the category of 11–15 years, as seen in Figure 4. The participants' highest level of education was indicated by selecting LPN/LVN, AND,BSN,MSN or doctoral degree. Figure 5 shows the majority of nurses that participated in the study were LPN/LVN (55.2%), followed by ADN-prepared nurses (31.03%), and then BSN and MSN-prepared nurses (6.90%); no participants had a doctorate degree.

The number of years the participant had worked in long-term care ranged between 1 year and 16+ years. The majority of nurses that participated in the study had worked at least five years in long-term care. The mean number of years worked in long-term care fell within the category of 6–10 years, as seen in Figure 6.

**Figure 2**

*Participants' Ages*

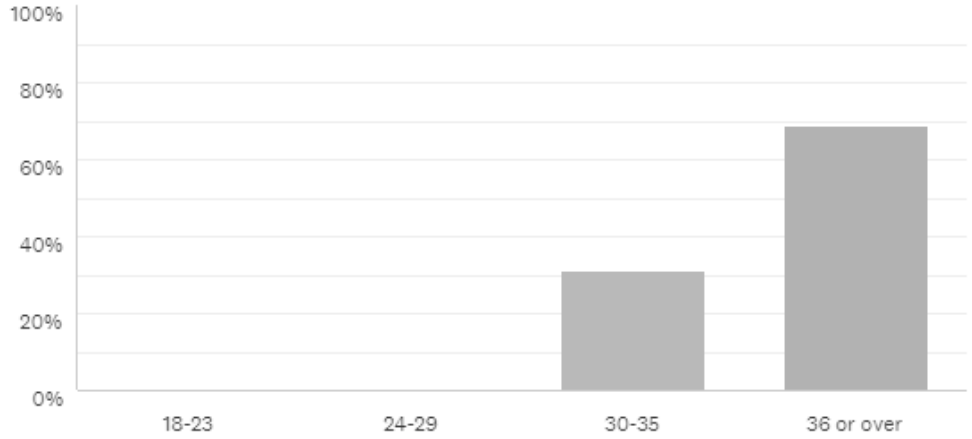



**Figure 3**

*Participants' Gender*

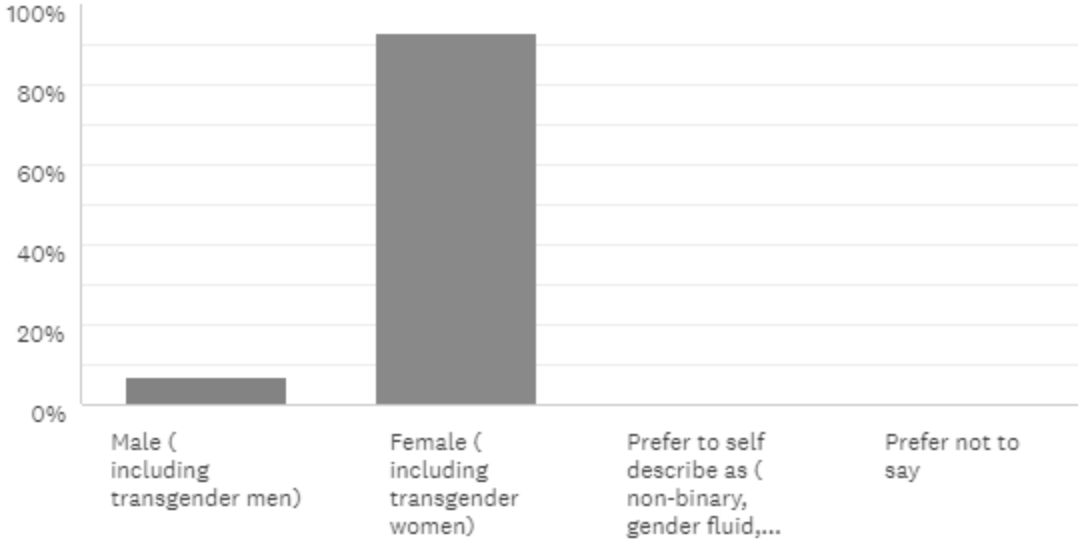


**Figure 4**

*Participants' Ethnic Groups*

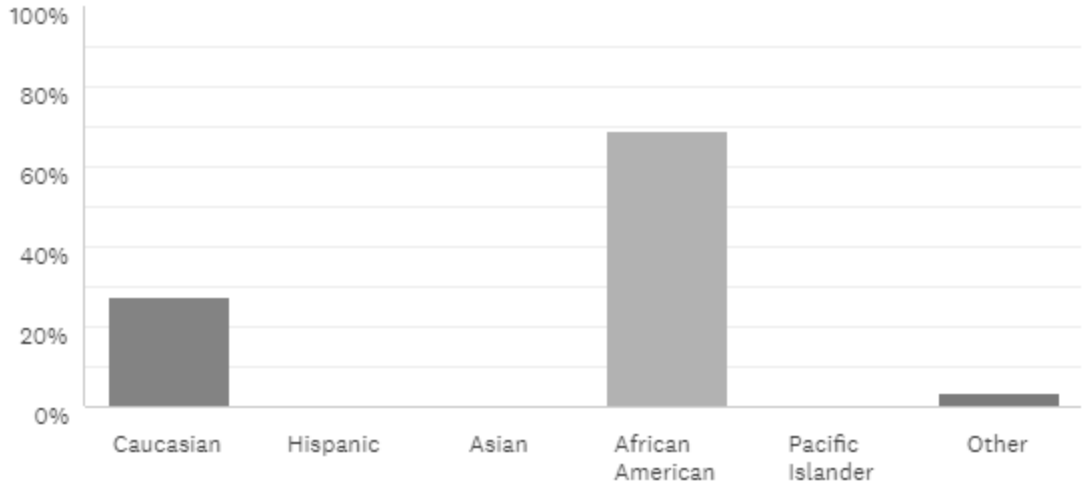



**Figure 5**

*Number of Years as a Nurse*

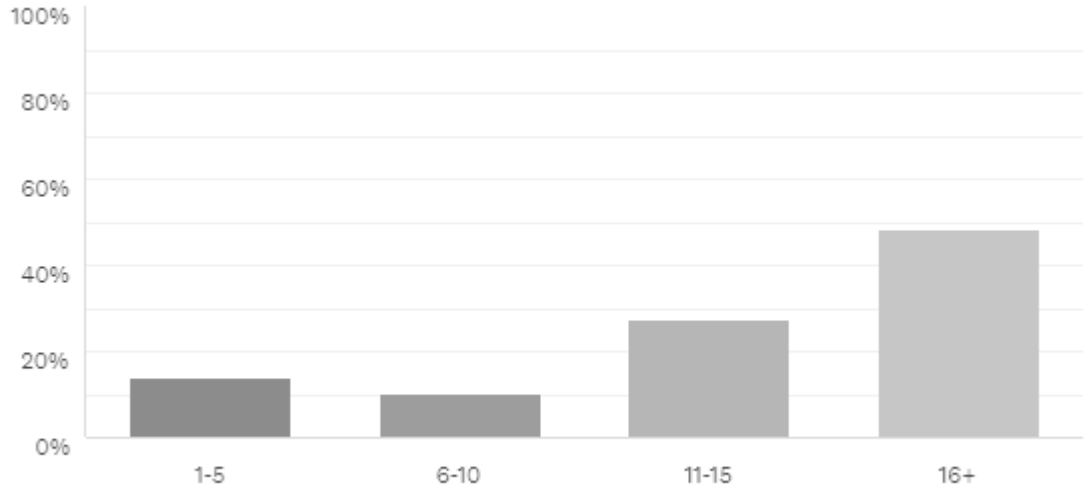


**Figure 6**

*Participants' Level of Education*

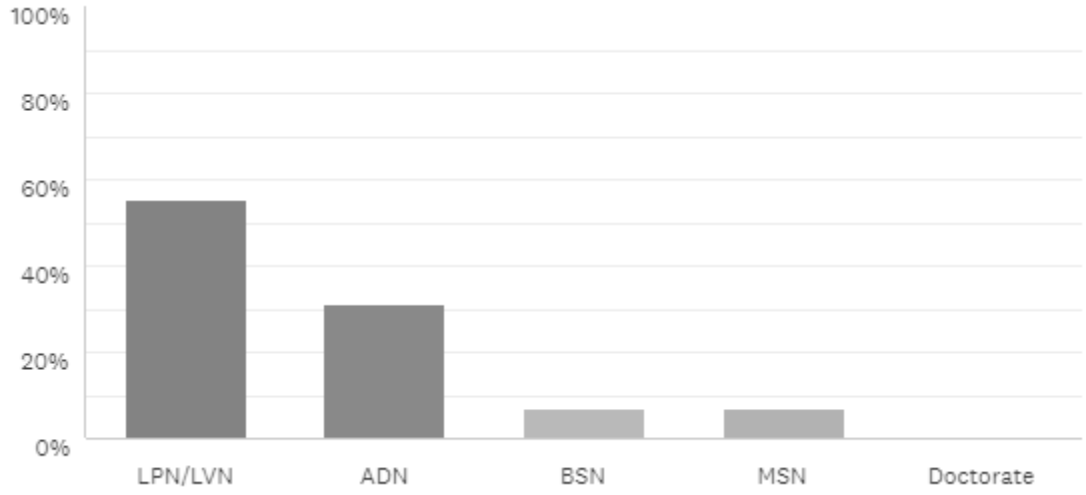
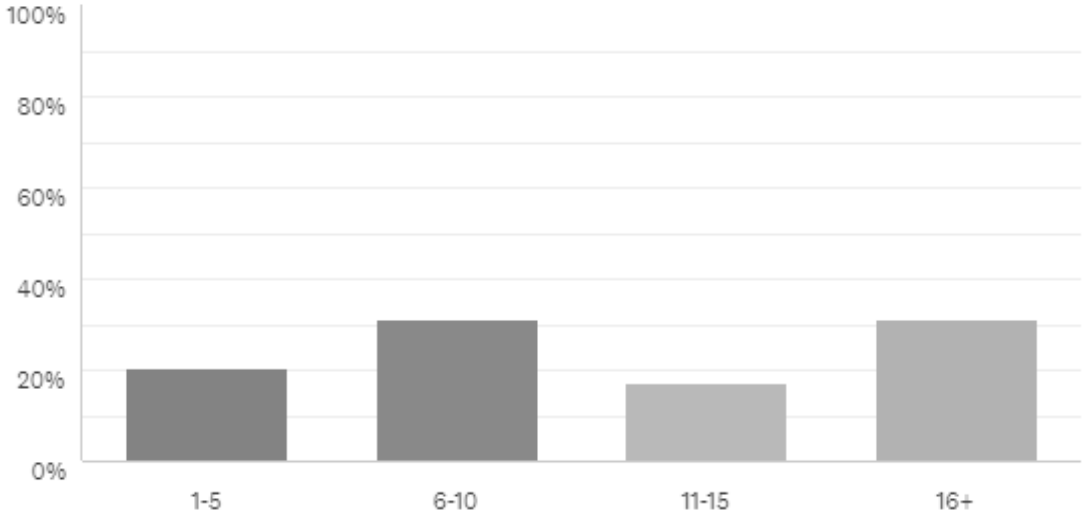



**Figure 7**

*Number of Years Working in Long-Term Care*



**Statistical Test and Analysis**

I conducted paired-samples *t* tests to compare the means from the two datasets to determine if there is a variance between them (Winters et al., 2010). In this project, the two datasets were the results from the pretest and posttest on the INTERACT tools. The mean of the pretest was 75.2069, and the posttest was 87.3793. The mean shows the average of the dataset as shown in Table 3 (Winters et al., 2010). The standard deviation shows the distance between a value and the mean (Winters et al., 2010). In this project, the standard deviation for the pretest was 15.46974, and the standard error mean value was 2.87266. The standard deviation for the posttest was 18.80998, significantly lower than the mean value of 87.3793. The *N* comparison is the statistical significance of each of the answers from the survey; *N* represents the total number of participants (see Table 1).

**Table 1**

*Paired-Samples Statistics*

| Pair 1 | *M* | *N* | *SD* | *SEM* |
|---|---|---|---|---|
| Pretest | 75.2069 | 29 | 15.46974 | 2.87266 |
| Posttest | 87.3793 | 29 | 18.80998 | 3.49293 |

Table 2 represents the paired-samples test, showing an average of the mean, which was -12.17241. The standard deviation was 23.27947, including the mean, which is the average difference between the two values (Winters et al., 2010). The standard deviation displays a difference in the scores. The standard error of mean is the standard deviation of the distribution of differences (Munro, 2013). The *t* was -2.816, indicating the difference did not occur by chance. The difference between the scores was probably due to the education session. The lower limit of the interval was -21.02745, and the upper limit was -3.31738 of the interval estimation

for the mean based on a *t* distribution with n-1 degrees of freedom (Munro, 2013). The *df* value was 28 (*df* = n - 1). The *df* value is one less than the total number of participants (Munro, 2013). The significance (two-tailed) = 0.009, indicating there is a statistically significant difference between the pretest and posttest (Munro, 2013). Therefore, the null hypothesis was rejected, proving the scores of the pretest were significantly different from that of the posttest.

**Table 2**

*Paired-Samples Test*

| Paired Differences | | | | | *t* | *df* | Sig.Two -Sided *p* |
|---|---|---|---|---|---|---|---|
| | | | 95% CI | | | | |
| *M* | *SD* | *SEM* | Lower | Upper | | | |
| -12.17241 | 23.27947 | 4.32289 | -21.02745 | -3.31738 | -2.816 | 28 | .009 |

An explanation of the components of the PICOT as related to the analyzed data are found in the following information:

C (comparison) - The nurses lacked knowledge versus an increase in knowledge

O (outcome) - The outcomes were likely an increase in knowledge of the INTERACT tools.

The comparison in the project was found to be accurate; the nurses lacked knowledge, but, following the intervention, their knowledge improved. The findings showed a lack of knowledge of the INTERACT tools, but after the Zoom sessions (intervention), their knowledge of the INTERACT tools increased.

**Limitations**

One limitation of this project was the low sample size. Due to the COVID-19 pandemic, staffing was a challenge at the facility. Facility turnover was a limitation to the study. Many open

positions resulted in limited participants. Visitation was restricted during the time at which the project was conducted, limiting the modes of solicitation for participants. Another limitation was the presence of an annual survey in one of the facilities, which caused a lack of communication and participation in the project.

## Interpretation of the Findings

The research question was as follows: In a short-term rehabilitation unit, does an educational program on INTERACT with licensed nurses result in increased knowledge on the use of the INTERACT tool? It was crucial to determine whether an educational session on the INTERACT tool helped to increase their knowledge. The participants' knowledge was improved by participating in the Zoom session. Thus, the null hypothesis was rejected with this variable. The findings from this project revealed licensed nurses' knowledge of the INTERACT tool improved as evidenced by an increase from pretest to posttest scores.

## Chapter Summary

In this study, I examined the knowledge base of the INTERACT tools among licensed nurses. The study findings showed an overall increase in the understanding of the INTERACT tools. The null hypothesis was rejected because of the lack of knowledge of the INTERACT tool. I conducted descriptive statistics to show the breakdown of demographics. Overall, findings of the pretest and posttest were statistically significant.

# Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this project was to evaluate the knowledge of licensed nurses on the INTERACT tools using a 15 question pretest and posttest. The pretest was administered via SurveyMonkey prior to the one-hour Zoom session to gauge if the participants gained knowledge after the Zoom session. The content questions on the pretest and posttest were identical. The total number of participants was 29 licensed nurses, who seemingly had a lack of knowledge of the INTERACT tools. After attending the Zoom education session, the licensed nurses were more knowledgeable of the components of the INTERACT tool, as evidenced by improved scores. In this chapter, I discuss the implication of analysis and the relationship of the evidence-based findings to the DNP Essentials. Also, I discuss the recommendations for the use of the INTERACT tool in long-term care and future research.

## Implication of Analysis for Leaders

This project showed how DNP leaders could help improve patient outcomes by educating and training licensed nurses on the components of the INTERACT tool in long-term care facilities. Understanding the meaning and purpose of each tool can result in the increased confidence of licensed nurses to implement therapeutic interventions, guiding nursing excellence and nursing practice (Giardino & Hickey, 2020). Leaders must be the driving force behind the implementation of evidence-based practice in long-term care facilities. With the focus on rehospitalizations in long-term care facilities, it is important to understand how proper assessment and effective communication can deter unnecessary hospital transfers.

## EBP Findings and Relationship to DNP Essentials (I–VIII)

In this section, I discuss the DNP Essentials I-VIII and how they apply to the development and implementation of this project. The DNP essentials are foundational

competencies that assist DNP graduates with the necessary skill set needed to transform the delivery of healthcare in the United States (Giardino & Hickey, 2020). The DNP Essentials address the DNP students' capability to improve safety and patient outcomes and confront complex patient and organizational problems in the healthcare system (Giardino & Hickey, 2020). Each essential component was relevant to the construction and analysis of findings from this project and are explained further below.

### *Essential I: Scientific Underpinnings for Practice*

This essential for nursing practice relates to the development of new practice approaches with scientific foundations based on nursing theories (American Association of Colleges of Nursing [AACN], 2006). Benner's theory of novice to expert was used as the foundation for implementing this DNP project (Benner, 2005). Licensed nurses continually increase their knowledge through education and life experiences. Understanding the progression of licensed nurses through the steps of skill acquisition can lead to better preparation to handle changes in a patient's condition and effective communication of the change to providers. This essential helped to clarify how education on the INTERACT tool can be significant in reducing unnecessary hospital transfers. Completing the DNP program has made it more apparent that nurses should be encouraged to pursue their DNP. Obtaining a DNP aids in the preservation of the nursing discipline, and the improvement of healthcare outcomes through the translation of nursing science.

### *Essential II: Organizational and Systems Leadership*

This is an essential that emphasizes the DNP graduate influencing organizational and systems leadership to promote patient safety and improved patient outcomes (AACN, 2006). This DNP project encouraged the development of evidence-based interventions to be translated

into clinical practice to promote safety and improved outcomes for an at-risk population. Through this essential, an understanding of necessary steps to decrease hospital transfers was recognized and recommendations were provided to leadership to improve patient outcomes.

***Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice***

This essential highlights the role of the DNP graduate in research and scholarship. This DNP project correlates with this essential through data collection and analysis. The data in this program were analyzed using the current version of SPSS software to identify if licensed nurses who participated in an educational intervention increased their knowledge of the components of the INTERACT tools.

***Essential IV: Information Systems and Patient Care Technology***

This essential supports the improvement of healthcare outcomes through the use of information technology (Giardino & Hickey, 2020). This DNP project aligns with Essential IV through the completion of data collection and analysis to improve the patient outcomes through education on the INTERACT tool to increase the accuracy of data input in the EHR. Increasing the accuracy of data input through education will help to decrease the number of acute care transfers. Information technology allows for patient information to be utilized by an interdisciplinary team, encouraging continuity of care and improved patient outcomes.

***Essential V: Health Care Policy for Advocacy***

This essential examines the changes on the institutional, local, and national levels based on health care policy (Giardino & Hickey, 2020). This DNP project relates to this essential through the development of interventions and implementation of facility protocols to prevent unnecessary hospital transfers of patients from the facility. Through this project it was made

evident that more long-term care employees must become involved in healthcare policy to advocate for change to improve patient outcomes.

***Essential VI: Interprofessional Collaboration***

This essential for improving patient and population health outcomes through interprofessional collaboration addresses the ability to effectively communicate and collaborate, both interdisciplinary and intradisciplinary, to improve healthcare delivery throughout the healthcare system (Giardino & Hickey, 2020). This DNP project required interdisciplinary collaboration to examine the identified issues regarding rehospitalizations, the development of a process improvement plan, and the implementation of the DNP project.

***Essential VII: Clinical Prevention and Population Health***

This essential for improving the nation's health emphasizes improving the health of populations and disease prevention through understanding the psychosocial dynamics and cultural diversity of the population (Giardino & Hickey, 2020). This DNP project provided needed education to licensed nurses to assist with the early identification of changes in condition to prevent unnecessary transfers to an acute care facility from the long-term care facility. Having better knowledge of the components of the INTERACT tool, the licensed nurses should be able to identify changes earlier and communicate pertinent information to the provider to promote treatment within the facility. Use of the INTERACT tool can promote improved outcomes for the residents of a long-term care facility.

***Essential VIII: Advance Nursing Practice***

This essential addresses the ability of DNP graduates to assess health and illness, implement evidence-based interventions, and provide guidance to nurses for the progression of nursing practice (Giardino & Hickey, 2020). This DNP project utilized the licensed nurses'

understanding of the INTERACT tool to develop interventions to be implemented in long-term care facilities to reduce the number of acute care transfers. Based on the statistical data, licensed nurses need additional education on identifying and communicating a patient's change in condition to facilitate appropriate treatment within the facility. Completing this project helped to show that evidence-based practice can influence health promotion through education, skill development, and communication.

## Recommendations for Future Research and Clinical Practice

Unnecessary hospital transfers can have an undesirable effect on patients, families, and healthcare organizations. Providing education to licensed nurses on the INTERACT tool aids in the use of an effective process to combat rehospitalizations. Utilizing a larger sample size involving more facilities could further explain the true knowledge base of licensed nurses using the INTERACT tool. Planning the education session at a time outside of the facility's survey window would encourage better engagement from facility staff. Additional recommendations for clinical practice is the implementation of a quality improvement program on the INTERACT tool, including education, training, and monitoring over six months.

## Chapter Summary

In this project, I examined the increase in knowledge of licensed nurses after an educational session on the components of the INTERACT tool. The statistical data showed a significant increase in knowledge for this group concerning the components of the INTERACT tool. The findings showed a lack of knowledge of the components of the INTERACT tool prior to the educational intervention.

Future plans for this study include journal publication. Additionally, by continuing to provide education and training in the long-term care facilities during orientation and at regularly

scheduled intervals, unnecessary hospital transfers can be decreased. The use of the INTERACT quality improvement program in long-term care facilities is supported by evidence-based practice, including the reduction of rehospitalizations rates. The collaboration between DNP-prepared clinicians, healthcare organizations, government agencies, and consumers can facilitate advocacy and improved outcomes for long-term care facilities.

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## Appendix A: Pretest with Demographics

1. What is your age?
   [ ] 18-23 years

   [ ] 24-29 years

   [ ] 30-35 years

   [ ] 36 or over

2. How would you describe your gender?
   [ ] Male (including transgender men)

   [ ] Female (including transgender women)

   [ ] Prefer to self-describe as _____ (non-binary, gender-fluid, agender, please specify)

   [ ] Prefer not to say

3. What is your ethnic group?
   [ ] Caucasian

   [ ] Hispanic

   [ ] Asian

   [ ] African American

   [ ] Pacific Islander

   [ ] Other_____

4. How many years have you been a nurse?
   [ ] 1-5

   [ ] 6-10

   [ ] 11-15

   [ ] 16+

5. What is your highest level of education?
   [ ] LPN/LVN

   [ ] ADN

   [ ] BSN

   [ ] MSN

   [ ] Doctorate

6. How many years have you worked in long term care?
   [ ] 1-5
   [ ] 6-10
   [ ] 11-15
   [ ] 16+
7. SBAR is an acronym for . . .
   a) Situation, Background, Assessment, Recommendations
   b) Situation. Background, Assessment, Response
   c) Situation, Background, Appearance, Response
   d) Situation, Background, Appearance, Recommendation
8. The SBAR helps the nurse to . . .
   a) Gather, outline, and communicate the important parts of a change in condition
   b) Gather, outline and communicate the patients progress in therapy
   c) Gather, outline and communicate the important parts of a patients transfer to assisted living facilities
   d) Gather, outline and communicate the patients current status to the interdisciplinary team
9. The purpose of the SBAR is to . . .
   a) Evaluate the patient and give nurses an organized guideline to communicate discharge instructions to the caregiver
   b) Evaluate the patient and give nurses an organized guideline to communicate changes to the provider.
   c) Evaluate the patient and give nurses a an organized guideline to discuss changes with the patient
   d) Evaluate the patient and give nurses an organized guideline to discuss changes with the interdisciplinary team
10. The" R" section of the SBAR is used to . . .
    a) Communicate the current problem
    b) Communicate relevant background information on the patient
    c) Communicate what the nurse needs from the provider to care for the patient
    d) Communicate the assessment of the patient by the nurse
11. An SBAR should be completed when . . .
    a) a patient is transferred to another unit
    b) a patient has an acute change of condition
    c) the patient needs to communicate with the interdisciplinary team
    d) the patient has a care plan meeting scheduled with the interdisciplinary team
12. The Acute Change in Condition File cards . . .
    a) Provide guidance for the nurse on when to communicate acute changes to the provider.
    b) Provide guidance for nurses on evaluating of acute changes.

c) Provide guidance for nurses on communicating acute changes to the interdisciplinary team.
d) Provide guidance for nurses on identifying acute changes.

13. The Acute Change in Condition file cards places acute changes into two reporting categories, which are . . .?
    a) Report to MD and Report to NP/PA.
    b) Report immediately and Report Non-immediate.
    c) Report Now and Report later.
    d) Report to DON and Report to Administrator.
14. The Signs and Symptoms on the Acute Change in Condition file cards are . . .
    a) In order from most common s/s to least common s/s.
    b) In numerical order.
    c) In order from least common s/s to most common s/s.
    d) In alphabetical order.
15. According to the Acute Change in Condition file cards, reporting labs should include . . .
    a) The lab test, who ordered it, and why the test was done.
    b) The lab test, who ordered, it and the results of the test.
    c) The lab test, why it was done, and the results of the test.
    d) The lab test, why it was done, and if a repeat lab is needed.
16. A provider should be notified immediately for . . .
    a) Blood glucose greater than 300 and less than 70 mg/dl.
    b) Persistent unilateral or bilateral edema.
    c) Difficulty sleeping.
    d) Intermittent recurrent vomiting.
17. The Care Paths tool is . . .
    a) A reference tool to help nurses evaluate specific symptoms that commonly cause acute care transfers.
    b) A reference tool to help nurses decide which acute care facility can care for a patient being transferred.
    c) A reference tool to help nurses decide which provider should be called for the acute change of condition.
    d) A reference tool to help nurses how to discuss advanced directive with patients and their families.
18. INTERACT is an acronym for . . .
    a) Interventions to Reduce Acute Care Transfers
    b) Interactions to Reduce Acute Care Transfers
    c) Interventions to Reduce Acute Changes Together
    d) Interactions to Reduce Acute Changes Together
19. The purpose of the INTERACT program is to . . .

a) Reduce the number of acute changes that occur in patients
b) Reduce the frequency of acute care transfers
c) Reduce the number of times a patient is seen by the provider
d) Reduce the frequency of phone calls to the provider

20. What type of INTERACT tool is the SBAR?

a) A quality improvement tool
b) A communication tool
c) A decision support tool
d) An advance care planning tool

21. The Stop and Watch are designed to be used by . . .

a) Charge nurse
b) The Director of Nursing
c) Nursing assistants
d) The Quality Assurance nurse

## Appendix B: Posttest

1. SBAR is an acronym for . . .
   e) Situation, Background, Assessment, Recommendations
   f) Situation. Background, Assessment, Response
   g) Situation, Background, Appearance, Response
   h) Situation, Background, Appearance, Recommendation

2. The SBAR helps the nurse to . . .
   e) Gather, outline, and communicate the important parts of a change in condition
   f) Gather, outline and communicate the patients progress in therapy
   g) Gather, outline and communicate the important parts of a patients transfer to assisted living facilities
   h) Gather, outline and communicate the patients current status to the interdisciplinary team

3. The purpose of the SBAR is to . . .
   e) Evaluate the patient and give nurses an organized guideline to communicate discharge instructions to the caregiver
   f) Evaluate the patient and give nurses an organized guideline to communicate changes to the provider.
   g) Evaluate the patient and give nurses a an organized guideline to discuss changes with the patient
   h) Evaluate the patient and give nurses an organized guideline to discuss changes with the interdisciplinary team

4. The" R" section of the SBAR is used to . . .
   e) Communicate the current problem
   f) Communicate relevant background information on the patient
   g) Communicate what the nurse needs from the provider to care for the patient
   h) Communicate the assessment of the patient by the nurse

5. An SBAR should be completed when . . .
   e) a patient is transferred to another unit
   f) a patient has an acute change of condition
   g) the patient needs to communicate with the interdisciplinary team
   h) the patient has a care plan meeting scheduled with the interdisciplinary team

6. The Acute Change in Condition file cards . . .
   e) Provide guidance for the nurse on when to communicate acute changes to the provider
   f) Provide guidance for nurses on evaluating of acute changes

g) Provide guidance for nurses on communicating acute changes to the interdisciplinary team
h) Provide guidance for nurses on identifying acute changes

7. The Acute Change in Condition file cards places acute changes into two reporting categories . . .
e) Report to MD and Report to NP/PA
f) Report immediately and Report Non-immediate
g) Report Now and Report later
h) Report to DON and Report to Administrator

8. The Signs and Symptoms on the Acute Change in Condition file cards are . . .
e) In order from most common s/s to least common s/s
f) In numerical order
g) In order from least common s/s to most common s/s
h) In alphabetical order

9. According to the Acute Change in Condition file cards reporting labs should include . .

a) The lab test, who ordered it, and why the test was done

b) The lab test, who ordered, it and the results of the test

c) The lab test, why it was done, and the results of the test

d) The lab test, why it was done, and if a repeat lab is needed

10. A provider should be notified immediately for . . .

a) Blood glucose greater than 300 and less than 70 mg/dl

b) Persistent unilateral or bilateral edema

c) Difficulty sleeping

d) Intermittent recurrent vomiting

11. The Care Paths tool is . . .

a) A reference tool to help nurses evaluate specific symptoms that commonly cause acute care transfers

b) A reference tool to help nurses decide which acute care facility can care for a patient being transferred

c) A reference tool to help nurses decide which provider should be called for the acute change of condition

d) A reference tool to help nurses how to discuss advanced directive with patients and their families

12. INTERACT is an acronym for . . .

a) Interventions to Reduce Acute Care Transfers

b) Interactions to Reduce Acute Care Transfers

c) Interventions to Reduce Acute Changes Together

d) Interactions to Reduce Acute Changes Together

13. The purpose of the INTERACT program is to . . .

a) Reduce the number of acute changes that occur in patients

b) Reduce the frequency of acute care transfers

c) Reduce the number of times a patient is seen by the provider

d) Reduce the frequency of phone calls to the provider

14. What type of INTERACT tool is the SBAR?

a) A quality improvement tool

b) A communication tool

c) A decision support tool

d) An advance care planning tool

15. The Stop and Watch are designed to be used by . . .

a) Charge nurse

b) The Director of Nursing

c) Nursing assistants

d) The Quality Assurance nurse

**Appendix C: Stop and Watch Form**

## *Stop and Watch*
## Early Warning Tool

INTERACT

If you have identified a change while caring for or observing a resident/patient, please **circle** the change and notify a nurse. Either give the nurse a copy of this tool or review it with her/him as soon as you can.

**S** Seems different than usual
**T** Talks or communicates less
**O** Overall needs more help
**P** Pain – new or worsening; Participated less in activities

**a** Ate less
**n** No bowel movement in 3 days; or diarrhea
**d** Drank less

**W** Weight change; swollen legs or feet
**A** Agitated or nervous more than usual
**T** Tired, weak, confused, or drowsy
**C** Change in skin color or condition
**H** Help with walking, transferring, toileting more than usual

☐ Check here if no change noted while monitoring high risk patient

*Patient / Resident*

*Your Name*

*Reported to* *Date and Time (am/pm)*

*Nurse Response* *Date and Time (am/pm)*

*Nurse's Name*

# Appendix D: SBAR Form

## SBAR Communication Form

*and Progress Note for RNs/LPN/LVNs*

INTERACT
Version 4.0 Tool

### Before Calling the Physician / NP / PA / other Healthcare Professional:

☐ **Evaluate the Resident/Patient:** Complete relevant aspects of the SBAR form below
☐ **Check Vital Signs:** BP, pulse, and/or apical heart rate, temperature, respiratory rate, $O_2$ saturation and finger stick glucose for diabetics
☐ **Review Record:** Recent progress notes, labs, medications, other orders
☐ **Review an INTERACT Care Path** or **Acute Change in Condition File Card**, if indicated
☐ **Have Relevant Information Available when Reporting**
*(i.e. medical record, vital signs, advance directives such as DNR and other care limiting orders, allergies, medication list)*

### SITUATION

The change in condition, symptoms, or signs observed and evaluated is/are_____

This started on _____ /_____ /_____ Since this started it has gotten: ☐ Worse ☐ Better ☐ Stayed the same

Things that make the condition or symptom ***worse*** are _____

Things that make the condition or symptom ***better*** are _____

This condition, symptom, or sign has occurred before: ☐ Yes ☐ No

Treatment for last episode *(if applicable)* _____

Other relevant information _____

### BACKGROUND

**Resident/Patient Description**
This resident/patient is in the facility for: ☐ Long-Term Care ☐ Post Acute Care ☐ Other: _____

Primary diagnoses _____

Other pertinent history *(e.g. medical diagnosis of HF, DM, COPD)* _____

**Medication Alerts**
☐ Changes in the last week *(describe)* _____

☐ Resident/patient is on *(Warfarin/Coumadin)* Result of last INR: _____ Date _____/_____/_____

☐ Resident/patient is on other anticoagulant *(direct thrombin inhibitor or platelet inhibitor)*

Resident/patient is on: ☐ Hypoglycemic medication(s) / Insulin ☐ Digoxin

Allergies _____

**Vital Signs**

BP _____ Pulse _____ (or Apical HR _____ ) RR _____ Temp _____ Weight _____ lbs *(date _____/_____/_____)*

For HF, edema, or weight loss: last weight before the current one was _____ on _____/_____/_____

Pulse Oximetry *(if indicated)* _____% on ☐ Room Air ☐ $O_2$ ( _____ )

Blood Sugar *(Diabetics)* _____

**Resident /Patient Name** _____

*(continued)*

# Appendix E: Change of Condition File Cards

## Change in Condition: *When to report to the MD/NP/PA*

INTERACT Version 4.0 Tool

### Immediate Notification

**Any symptom, sign or apparent discomfort that is:**

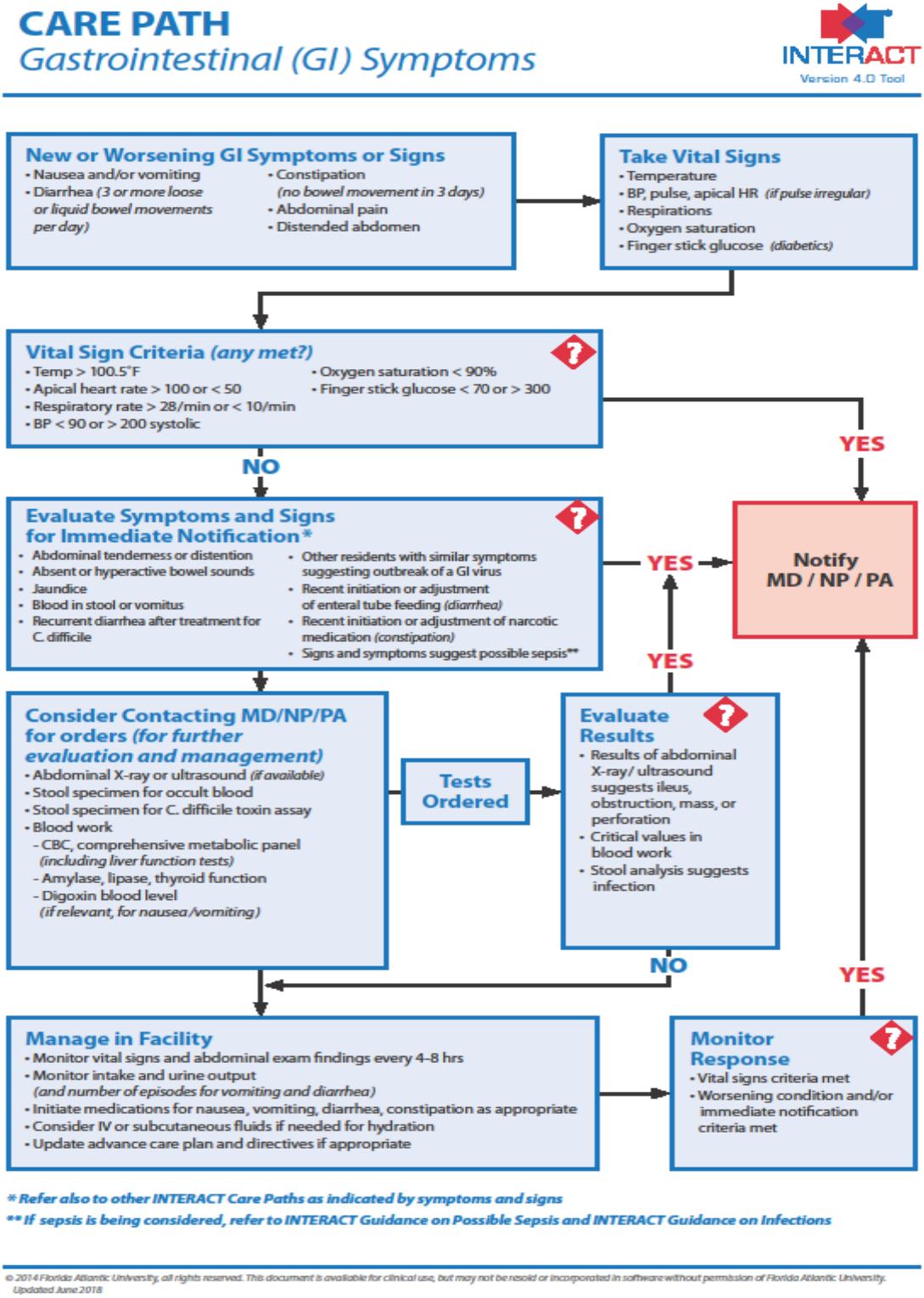
- **Acute** or **Sudden** in onset, and:
  - **A Marked Change** *(i.e. more severe)* in relation to usual symptoms and signs, or
  - **Unrelieved** by measures already prescribed

### Non-Immediate Notification

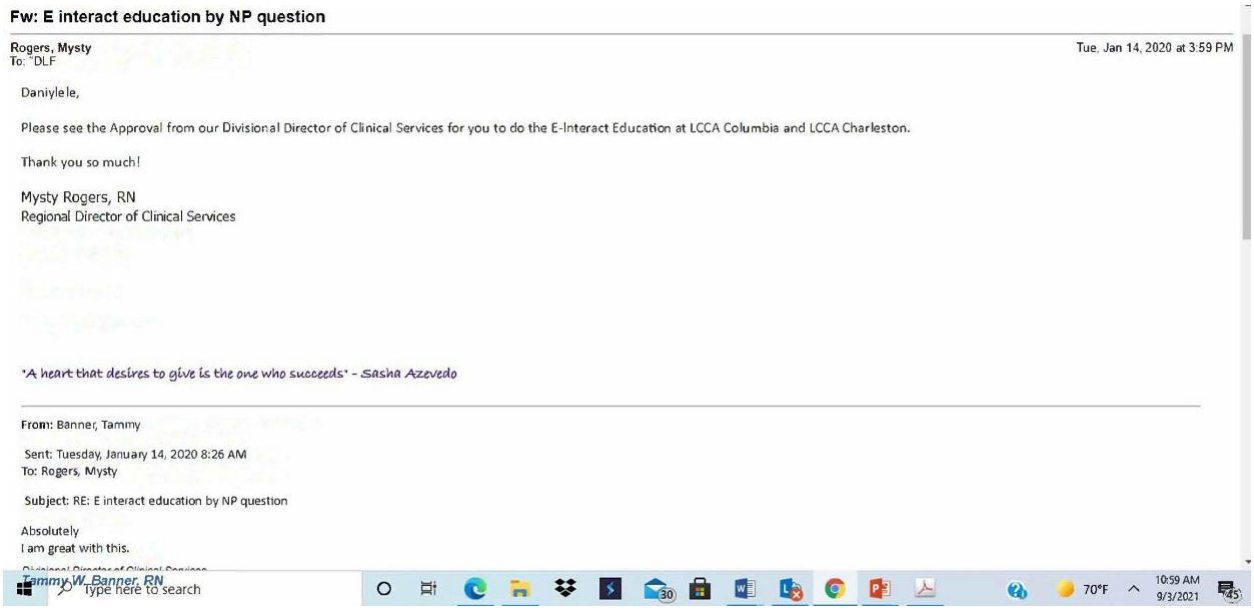
- **New or worsening symptoms that do not meet above criteria**

This guidance is adapted from: AMDA Clinical Practice Guideline – Acute Changes in Condition in the Long-Term Care Setting 2003; and Ouslander, J, Osterweil, D, Morley, J. *Medical Care in the Nursing Home.* McGraw-Hill, 1996

# Appendix F: Care Paths



# Appendix G: Permission to Use



**Fw: E interact education by NP question**

**Rogers, Mysty** Tue, Jan 14, 2020 at 3:59 PM
To: "DLF

Daniylele,

Please see the Approval from our Divisional Director of Clinical Services for you to do the E-Interact Education at LCCA Columbia and LCCA Charleston.

Thank you so much!

Mysty Rogers, RN
Regional Director of Clinical Services

*A heart that desires to give is the one who succeeds* - Sasha Azevedo

---

**From:** Banner, Tammy

Sent: Tuesday, January 14, 2020 8:26 AM
To: Rogers, Mysty

**Subject:** RE: E interact education by NP question

Absolutely
I am great with this.

Tammy W. Banner, RN

Type here to search 70°F 10:59 AM 9/3/2021

## Appendix H: Informed Consent Form

Introduction: Education of Nurses on the Use of the INTERACT tool

You may be able to take part in a research study. This form provides important information about that study, including the risks and benefits to you as a potential participant Please read this form carefully and ask the researcher any questions that you may have about the study. You can ask about research activities and any risks or benefits you may experience. You may also wish to discuss your participation with other people, such as your family doctor or a family member.

Your participation in this research is entirely voluntary. You may refuse to participate or stop your participation at any time and for any reason without any penalty or loss of benefits to which you are otherwise entitled.

**PURPOSE AND DESCRIPTION:** The purpose of this project is to determine whether an education session on the INTERACT tool components will increase the knowledge of licensed nurses on the proper use of the tools. All licensed nurses working at this facility will be asked to participate in an educational program to review the INTERACT tools and how to fill them in and use them correctly.

If selected for participation, you will be asked to attend 2 zoom meetings. The initial meeting is expected to last 45 minutes to review the project and its purpose, the consent form and completion of the pre-test. The second meeting is expected to last one hour. During the second session you will be taught each form in the INTERACT program, where they are located in the EHR, how to complete them and completion of the posttest.

**RISKS & BENEFITS:** There are risks to taking part in this research study. Below is a list of the foreseeable risks, including the seriousness of those risks and how likely they are to occur:

There may be risks associated with this study related to stress, potential burnout, quality of care and breach of privacy. Psychological risks associated with this study in the form of stress with starting and completing documentation for the evaluation and communication of changes in condition. Participants may fear for their jobs when documentation is not thought to be completed to management standards.

Participants may experience stress related to the extra duties of completing INTERACT tools in the EHR systems. The addition of forms leads to more time spent away from resident care and can lead to participants cutting corners to complete assigned tasks. Measurements will be put in place to lessen the potential risks.

There are potential benefits to participating in this study. The benefits associated with this study include the empowerment of participants through additional education. Early identification of changes in condition using the INTERACT tools can also lead to improved quality of care for patients. In addition, reduction of rehospitalization rates and healthcare costs are benefits.

The researchers cannot guarantee that you will experience any personal benefits from participating in this study.

**ALTERNATIVE PROCEDURES**: There are no alternative procedures.

## Appendix I: Timeline

| Task date<br>Month/Year Completed | Project Task |
|---|---|
| August 2018 | Development of PICO question |
| July 2019 | Completed project chair form |
| July 2019 | E-mailed DNP program director |
| July 2019 | Secured research project chair |
| August 2019 | Met with facility administration |
| December 2019 | Completed theoretical framework |
| December 2019 | Secured clinical site for DNP project |
| January 2020 | Secured letter of support from DDCS |
| January 2020 | Continued to finalize PICO question |
| February 2020 | Began Chapter 1 of project |
| Feb 2020 | Chair review of Chapter 1 |
| March 2020 | Continued revision on Chapter 1 |
| April 2020 | Began Chapter 2 Literature Review |
| May 2020 | Chair review of Chapter 2 |
| June 2020 | Began Chapter 3 |
| June 2020 | Chair review of Chapter 3 |
| July 2020 | Ongoing work on Chapter 1-3 |
| July 2020 | Requested Committee members |
| Jan 2021 | Scheduled proposal defense |
| Feb 2021 | Completed proposal defense |
| Feb-Mar 2021 | Revisions to proposal defense |
| April 2021 | Submission of IRB application |
| May 2021 | Received IRB Approval |
| June 2021 | Distribution of flyers |
| July 2021 | Zoom sessions completed |
| July 2021 | Data analysis |
| Aug 2021 | Worked on Chapters 1 through 5 |
| September 2021 | Scheduled final defense |
| October 2021 | Final Classes |
| November 2021 | Final Classes |

## Appendix J: IRB Approval Letter

ABILENE CHRISTIAN UNIVERSITY
*Educating Students for Christian Service and Leadership Throughout the World*

**Office of Research and Sponsored Programs**
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

May 19, 2021

Daniyele L. Feaster
Department of Nursing
Abilene Christian University

Dear Daniyele,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "Education of Nurses on the Use of the INTERACT Tool",

(IRB# 21-057 )is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determi whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs