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Neurological Assessment Skills for Acute Care Nursing Staff

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Abstract

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Project Submitted in Partial Fulfillment

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Abstract

The ability to perform a rapid and comprehensive neurological assessment is an important tool for the nurse at the bedside when a patient has changes in their neurological state. According to the American Heart Association, it is essential for the bedside nurse to ensure they have the necessary skills to improve recovery, survival, and quality of life when experiencing changing neurological symptoms. The focus of this project was to answer the question of whether a self-learning staff education program on neurological assessment increases staff knowledge towards the ultimate goal of increasing competence when conducting a focused neurological assessment. The project question addressed whether a self-learning module could provide an increase in knowledge, competency, and performance of a bedside neurological assessment to identify what the changes represent as potential outcomes for the patient. The use of Knowles's adult learning theory and andragogy provide a concept where adult learners need to find the value in the material presented and incorporate it into their practice. The sample consists of 25 medical surgical registered nurses on a 24-bed acute care unit at a not-for-profit, government network system-based healthcare organization. The data from the pretest and posttest were analyzed by calculating the change in the scores which reflected a 50.43% increase in knowledge regarding a neurological assessment. These findings support the positive changes in baseline knowledge and competency through the recommended instructional methodology. The educational tool needs to be sustained and provided to the other medical surgical staff for continuity of care and assurance of the delivery of evidence-based best practices and high-quality care of the patient.

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Dedication

This project is dedicated to my mentor and preceptor, Dr. Simone Thomas for the hours of assistance and guidance in this process to keep me moving forward towards my dream and goal. And of course, my partner in all things good and bad, Mr. Allyn Libke.

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Section 1: Nature of the Project

Introduction

Stroke is the second largest cause of mortality and disability for adults in the United States and is a leading cause of worldwide disabilities (Lip et al., 2022). It is essential for nurses to ensure they have the skills to improve recovery, survival, and quality of life for patients experiencing a stroke (Kang, 2023). Evidence supports that nurse assessments and nurse driven protocols have made an impact on time-sensitive quality metrics as they relate to better patient treatments and outcomes (Olson et al., 2022).

Acute care bedside nurses must have the skills and knowledge to address a variety of health assessments needed during inpatient hospital stays, but one area that many nurses struggle with is that of a neurological assessment (Kang, 2023). A neurological assessment is defined as the evaluation of consciousness, sensory and motor functions along with the functions of the central and peripheral nervous systems (Bae & Roh, 2022). According to Bae and Roh (2022), nurses' neurological assessment competency is often non-optimal, leaving an identified need for improvement. They also struggle with what to do if there are changes identified in the patient condition that are neurological in nature (Olson et al., 2022). Completion of neurological assessments can be challenging, as they have components that are complex and difficult for nurses. In response nurse educators need to adopt an evidence-based approach that equips students with the optimal neurological assessment competency to ensure evidence-based patient care (Mei & Crompton, 2021).

The American Association of Colleges of Nursing (AACN, 2015) identified that nurses should work to the greatest scope of their profession. Providing the acute care nurses the tools to work at their highest performance level through continuing education allows the nurse to have the confidence to accurately assessment and identify life-threatening changes in the population they care for. Research supports that when nurses participate and recognize changes in the patient condition, there is earlier entry into interventions and the patients experience better outcomes (Johis et al., 2018). It is the completion and an understanding of the "why" that enhances the nurse's understanding of the need for a rapid and accurate neurological assessment of patients and how it allows providers to respond in a more timely and effective manner to improve patients' prognosis (Bae & Roh, 2022).

Problem Statement

The gap in knowledge identified by the organization is the evaluation of understanding of how to conduct a focused neurological assessment. This assessment includes the focus of patients with a change in neurological signs and symptoms and the recognition of what the changes represent as potential outcomes for the patient. Nurses' neurological assessment and competency can be improved by knowledge, experience, and formal training (Xue et al., 2023). Awareness of subtle, as well as flagrant signs of a change in the patient's condition are essential to initiate evaluation and care measures. Being unaware or unsure of a change in the patient neurologically can result in a delay and misinterpretation of symptoms that are associated with a stroke. Not knowing what questions to ask, as well as what next steps to take are a potential barrier to care for the

patient experiencing a possible detrimental and life-altering health condition (Bayrak & Tosun, 2023).

Purpose

The purpose of the Doctor of Nursing Practice (DNP) project was to explore whether a staff education program on neurological assessment will increase staff knowledge and perceived competence in conducting a focused neurological assessment.

This project took place on one of the acute care inpatient nursing units at an inner-city hospital in Missouri. The number of staff projected to participate in the staff education program was 32 registered nurses. The learning objectives were developed to address the desired outcomes for the neurological assessments. The learners completed a pretest, an assessment education module, and a posttest. Results were provided to me by the Designated Learning Officer (DLO). Results of the data were then analyzed using descriptive statistics.

Assessments are an integral part of the responsibilities of the nurse. Utilizing assessments, the nurse can identify and determine the appropriate pathway of care for changes in the patient condition (Sybrandt, 2023). Assessments are a tool that is used continuously to identify changes and improvements, and care is based on those results. The development and completion of a neurological assessment training module that will be completed by the staff will identify the areas of needed improvement, provide the education to address those gaps, and will be used to validate the retention of learning outcomes in acute care nurses.

Nature of the Doctoral Project

The literature review included database searches utilizing the ProQuest, Medline, Pub Med, Cochrane Reviews, Education Source, and CINAHL Plus with Full Text and PDF databases. All referenced journal articles were written between 2017 and 2024. Search terms included neurological assessments, tele-stroke, stroke, competency, formalized education, self-learning modules, learning platforms, and adult learners.

The project's steps included the planning, implementation, and evaluation of a learning module for the recognition of early neurological changes in the patient that could be indicators of a stroke. Before the project began, the DLO was notified and reviewed the materials developed for the project: the objectives, the module content, the pre and posttest, and timelines regarding completion. The pre and posttests consisted of 10 questions that were the same to gauge baseline understanding and increased knowledge after the completion of the module. Results of the data were provided to the DLO and to the executive leadership team. The module will be considered for implementation as part of new employee orientation moving forward if successful.

Significance

With the implementation of a new process and level of care, it becomes imperative that the nurses receive additional training to demonstrate competency in this area of care that will be provided. The program of training provided with the education for readiness does not address the inpatient readiness for this program; rather, it focuses on the entry of care through the emergency department. But data within the facility support that most of the code stroke patients who entered the algorithm were from an

inpatient setting at this facility. This additional module will allow a refresher to existing knowledge as well as the introduction to advanced knowledge required to care for the identification of changes relating to stroke. With these tools, the nurse can provide earlier intervention and introduction into the treatment algorithm of care for the patient.

The key stakeholders include the medical/surgical inpatient nurses, nurse managers, unit chief, and the executive leadership team. The success of this module can allow the current state of the facility to care for stoke patients to expand and patients will not have to move to a higher level of care that is not as patient-care focused as this special population is accustomed to. The education will focus on early recognition and intervention into the specialized care for stroke.

Nursing theory supports the use of evidence-based research, critical thinking, use of skills, and positive patient outcomes. Developing a formalized educational training module is essential to create a supportive environment for review of skills. Knowles Theory of Adult Learning will provide the framework for this project. According to the National Stroke Association (2023), understanding the importance of rapid identification and intervention assessment regarding change in condition is paramount to assure that guidelines for care are met and to decrease disabilities and death in patients.

Summary

The development of an education module to assist the nurses at the bedside is an essential tool that can be used for gaining new knowledge or for the reinforcement of existing knowledge. This may even lead to increased retention rates, with the increased perception that nurses are provided training when new programs are implemented, that

they are supported, and that they are provided the tools to perform at the scope of their practice. This may also allow for expansion of services and confidence of the leadership team that nurses are willing to be engaged in the growth of services for the patient population.

Section 2: Background and Context

Introduction

The American Stroke Association (ASA, 2023) has identified stroke as the fifth leading cause of death and a leading cause of disability in the United States. It is a disease that affects the arteries in the brain and when the arteries are blocked, the brain becomes deprived of oxygen and nutrients it needs, leading to the death of cells. For this DNP staff education project, a neurological review module was developed for the bedside to provide education for the identification of changes in the neurological status that could lead to a stroke. It is imperative to be aware of these sudden and sometimes varied changes in the patient's condition.

With the recent implementation of a national tele-stroke program, it is imperative that the bedside nurse become more aware of the subtle and profound changes in the patient's neurological state. The faster the recognition of changes in neurological symptoms, the faster the patient can be placed into the algorithm for care, and the better the outcomes are for prevention of death and long-term disability.

Finding the best and most effective learning modality is of great importance not only to the developer of the curriculum, but also to the learner. Understanding the "why" will need to be taken into consideration to actively engage the learner. Assuring that the module is succinct and provides evidenced-based practice also needs to be considered in the development of a self-learning module. Assuring the buy-in and support from the leadership of the unit needs to be gained to assure that the nurses know that it is also important to their success in the care of the patient.

Evidence supports the importance that improved assessment skills of the bedside nurse in the early recognition of changing neurological symptoms has a dramatic impact on disability and morbidity in the patient. The earlier the entry into the algorithm of care and intervention, the better the outcomes are for the patient. It is also imperative that nurses work to the fullest scope of their profession. Nurses can improve their neurological competency through knowledge, experience, formal training, and predictive intervention (Bae et al., 2022). Utilizing predictive nursing intervention means that before the formal implementation of nursing interventions, nurses conduct a comprehensive analysis of possible risks in the process of treatment plans and completes a predictive analysis of potential problems that may occur in the implementation of the nursing process. This then allows them to formulate corresponding nursing procedures to avoid and reduce the incidence of risk to the patient (Xue et al., 2023).

In one study, Olson et al. (2022) examined the performance of the nurse in tele-stroke encounters and found that by emphasizing the rapid and coordinated completion of the stroke workup by nursing personnel during a stroke code activation, there was an improvement in patient outcomes. This further supports the need for the nurse to have the necessary knowledge to perform interventions necessary to improve patient outcomes.

A basic neurologic exam should be completed on every patient as a routine. These components should serve as a baseline evaluation for the patient so that if there are changes in the patient, the nurse and provider can refer to the baseline condition of the patient. The comprehensive neurological assessment should include components of the National Institutes of Health Stroke Scale (NIHSS), the Glasgow Coma Scale, and a

Cranial Nerve review. These components should be completed when there are changing signs and symptoms in the patient. The education regarding these components needs to be presented in an evidence-based format to assure quality patient care.

Concepts, Models, and Theories

Learning and Behavior Theories

Nurses spend 20 times more hours in self-directed learning activities than in instructor-led classes (Schmidt & Fisher, 2022). The nurse educator needs to become the resource, not the source of learning. Nurse educators face constraints in time, budgets, and limited time of the staff, yet are expected to provide appropriate and effective learning experiences for their nursing staff. It becomes imperative to ensure that a thorough assessment of learning needs is completed and then come up with a creative way to plan, implement, and deliver and evaluate the efficacy of the learning curriculum.

Within this project, online education presents a set of challenges that differ from face-to-face instruction. Researchers have stressed the need for different principles for online learning (Huang, 2002). Students want varied instructional styles and interesting and engaging activities that may be difficult to incorporate in traditional lectures. There seems to be little advancement related to changes in current student learning styles and dynamics.

Learning theories provide a foundation for improved teaching, as they illuminate various facets of the learning process. The learning theories are used as for the adult online learning in this project include Knowles's adult learning theory and andragogy. Knowles focuses on the development of a "holistic" theory of adult learning anchored in

distinctive motivations and goals of adult learners (Moll, 2024). Knowles adopted the term “andragogy” to further separate the difference between adult and child types of learning. Knowles supported the belief that the self-concept of adult learners was founded in a deep need to be self-directing in their learning. Adults need to understand what they are learning and use life-learned tools to process the information presented. The learner also needs to be ready to learn, find the value in the learning, and incorporate it into their personal practices.

Andragogy is often thought of as the concept that helps educators and instructors understand adult learning (Curran, 2014), but it does not meet the criteria to be classified as a theory as it is a model under the theory of humanism that, according to Knowles (1980), is a set of principles applicable to most adult learning situations. Adults need to feel accepted, respected, and supported in their learning endeavors. As such, andragogy promotes a mutual relationship between instructors and students as joint inquirers and supports adult learners as identified with Knowles (Curran, 2014). As the learning progresses, learners move from dependent to independent learners in this environment. If learners need guidance, it can be provided by the instructors, as well as their peers.

All learning theories and approaches share a common trait in improvement of learning and may differ in explaining how the learning process occurs. Knowles’s theory of adult learning focuses on the andragogy branch of the humanism theory, and thus focuses on helping adults learn. All these theories focus on enhancing learning through experience, cognitive abilities, and skills.

Designing an Online Learning Environment for Adults

When designing an online learning environment for adult learners the DNP-prepared educator needs to utilize and rely on many of the tools that have been acquired in academia, knowing the learners and their unique environments, and be able to think outside of normal delivery methods to meet the needs of the learners in a working environment. It is this last part, the working environment, that can be the most difficult (Arghode et al., 2017). The material needs to be relevant, something the learner needs and has interest in, be concise, and they need to be able to work at their own pace as the demands of patient care will always come first.

When developing online learning, instructors should apply learning theory principles and promote motivation of learning to design simple, easy, and effective programs for better learner engagement (Ortega et al, 2018). Since learner engagement is integral for success in learner engagement, excellent instructional delivery should be matched equally with relevant and in-depth content. Instructors should realize that learning is not one-size-fits-all and occurs in multiple ways. While learners are open to learning, their own previous experiences sometimes interfere with their learning. In addition to motivation, the principles of andragogy should be considered, especially for online learning.

When developing a learning activity, the educator with advanced practice skill can utilize resources acquired in formal education. For a training to engage the learner and to be one that the adult learner can expand knowledge on, several steps that are essential to a quality offering need to be addressed:

1. Determine the need for the education to take place. This is accomplished through a needs assessment, change in process, or new equipment. Ask the nurses what their needs are.
2. Develop learning objectives. They need to be specific to the content and behavior that is identified in the module. The behaviors may include assessment skills, procedures, or recognition of changes.
3. Determine if the self-learning module is appropriate for the topic and situation.
4. Select the appropriate delivery media. This could be a formal learning platform, an informal power point presentation, a workbook, an escape room, or a video.
5. Develop the content. This should be developed in a conversational tone and appropriate to the learner's level of understanding.
6. Develop the format of the module. This could also utilize a format to measure baseline learning and increase knowledge post learning through use of a pretest and posttest.
7. Take design needs into consideration. The design should not compete with the presented content yet needs to be appealing for the learning environment. It should appeal to the learner's interest and meet the needs of many different learning styles.
8. Pilot the module for feedback and necessary changes.
9. Advertise that the learning module is available.

10. Elicit evaluation by the learner as to their overall learning experience and changed behavior.
11. Maintain records and provide reports the administrative leadership as needed.

Organizational engagement has been tested by Arghode et al. (2017) using a method called "appreciative andragogy." The purpose of their study was to strengthen the instructor–student relationship, identify online student resources, and identify learning goals between the instructor and students. This appreciative andragogy model included four instructor–student contact interventions over the first 4 weeks of an online course that aligned with learner performance, engagement and motivation, and building relationships. After the implementation period, 73% of the students experienced a positive change in their performance level, 51% of the students experienced a positive change in their motivation level, and 68% of the students experienced a positive change in student engagement (Arghode et al., 2017). This study demonstrated the need for instructors and instructional designers to develop online discussion activities in a way that meets adult learner needs.

Factors Contributing to Decreases in Nurse Knowledge

Unfamiliarity, time, patient care ratios, inadequate tools, and decreasing resources are just some of the contributing factors to decreases in knowledge of the nursing staff. Often new directives or equipment is introduced to the facility with little to no education for the staff that will be using the equipment. The current trend in training is having a champion who is responsible for choosing a select few individuals to train other staff members on the new information or process. Often, many staff do not encounter these

super-users or champions, or no allotted time is set aside for on duty training. This sets the organization and the successful implementation of the new idea up for failure, or a reversal to the old standard of care.

Another contributing factor is ongoing experience with medical situations not often seen. In this scenario, the inpatient bedside nurses have not often had experience with changing neurological symptoms, as those patients that were of having mimic symptoms or transient ischemic attacks were sent to a higher level of care because of the lack of a formalized pathway of care for these patients. Now that many of these patients are kept within the facility, the incidence of code strokes has increased because of the change in the mix of admitted patients. The assessment capabilities have increased for these nurses resulting in an acute awareness and need for refresher education.

Barriers to Success

The major issue that impedes a solution to successful completion of online training is time. Resources report that learners run out of time to complete the training, they are often interrupted by patient care needs and must stop the training, the atmosphere is not always conducive to training, and nurses struggles with the competing priorities of educational needs and patient care. This then leads to completion of the module, just to get it done and meet the mandatory assignments.

Another barrier to success is the inability to fully assess each learner for their baseline knowledge and learning potential. Self-learning modules are not always the best methodology for some learners. Those who learn from hands-on approaches are at a disadvantage with this type of learning activity. Those individuals may benefit from a

blended-learning or multi-sensory type of learning, and this needs to be taken into consideration for an in-person offering for the cranial nerve assessment.

The inability to have discussions about a particular subject can be a barrier to learning. Often the classroom allows learners to interact and learn from life experiences and stories. Online learning does not allow for this. Often the author or a contact person is not included, and for the off-shift nurses, resources are not on-site.

Learner engagement is another barrier that must be considered for success in online learning. Learner engagement is necessary and often is most successful in face-to-face education learning because it allows the learner to ask questions and gain confidence in the material presented. It allows for immediate feedback and clarification, whereas an online learning module does not allow for this. Some clarification of materials can be sought from peers, but often nurses are not comfortable in seeking this out unless they are with a cohort that desires the same clarification. Also, the ability to practice technique and procedures are not available at the time of learner and must be completed in another offering.

Strategies to Increase Knowledge

Activities are more effective if they are designed to be authentic activities in which each learner brings their own background to a discussion activity that applies to real-world situations. Authentic discussion topics can empower adult learners to take past learning and learn new takeaways that can be applied to real-world situations. This opens the door to different delivery methodologies such as in class lecture, self-learning module, and even simulation.

The incorporation of discussion with other learners when presenting an online teaching module. With the asynchronous nature of online discussion, this tool can provide an opportunity for critical reflection before crafting a response. The developments in social internet media present opportunities for new synchronous communication for online adults to form more cohesive learning groups to promote sharing of ideas and significant learning.

Self-learning modules are another resource that can be utilized to meet the needs of staff regarding necessary training. A self-learning module is defined as a collection of materials that allow the learner to acquire information without an instructor present. Self-learning modules are a learning technique that offers greater flexibility in learning than classroom can. Nurses who cannot attend classroom learning are able to access these modules and complete them as time allows. To be truly effective, the self-learning module topic needs to be narrow and specific. Self-learning modules are supported through the cognitive domain as well as andragogy.

The ideal teaching methodology would be a combination of all learning methods that would provide the learner with the ability to hear and interact with a patient in a safe environment. This is where simulation could be used for a more interactive environment to allow the learner to hear what the patient is experiencing, observe changes in symptoms, touch and test the patient for physical responses. The closest teaching methodology to provide this all-inclusive experience would be that of simulation. However, with the use of simulation, there is a need for the nurse to step-away from the

bedside to attend a session, but this could be used as an offering for remediation or the acquiring of new base knowledge (Johis et al., 2018).

Relevance to Nursing Practice

Evidence-based practice (EBP) is a problem-solving approach that integrates best research evidence, patient values and preferences, and nurse clinician's expertise to guide decision making. The goal of education for the bedside nurse is to provide EBP through education that is relevant, and in a method that assures that knowledge is increased in day-to-day practice. This allows the nurse to provide better outcomes in the delivery of care, lower costs associated with care, and result in higher satisfaction for both the nurse and the patient.

However, EBP does not occur consistently in hospital-based care. In descriptive survey research of more than 1,000 nurses across the United States who were members of the American Nurses Association, 46.4% perceived that EBP was inconsistently implemented in their organizations (Lovelace, 2020). Multiple barriers include a lack of support from managers, leaders, and colleagues, education about EBP, access to information, and health care organization culture. Nurses working in hospitals often must focus their care based on outcomes and metrics without a full understanding that the care they provide is also has roots in evidence.

There are recognized strategies that have been implemented and produced successful outcomes in addressing gaps-in-practice by nurse/clinical leaders. They include utilizing surveys to examine nurse perceptions of the organizations' culture, their knowledge base, a desire to expand knowledge, and a willingness to change (Lovelace,

2020). This information can be adapted to the clinical environment to assess the willingness and ability for the proposed change.

Knowledge and education about were consistently cited as issues in implementing improvements clinically. Nurses are often told to collect data when there is a process change or implementation of a new protocol; the results and the "why" is not often communicated well to the staff and the buy-in is not there. Once the why and how are addressed, there is more buy-in and an atmosphere of engagement by the bedside nurse.

This doctoral project will focus on many of these strategies to fill the gap in knowledge and practice by providing an educational module that is designed to provide the adult learners at the bedside the information of a neurological assessment and early recognition of changes in neurological changes for rapid entry into the treatment pathway. The presentation of the results of the pre and post test results will provide data as to the efficacy of the learning module and assist in allowing nursing leadership to become aware of the issues and gaps that remain in staff knowledge and provide guidance in the development and implementation strategies to address any further needs in EBP.

Bedside nurses need education that is flexible and keeps them current in knowledges of changing practices or procedures and the evidence that drives them. The DNP-prepared nurse can facilitate that gap in knowledge and provide education that is flexible and accommodating to their needs for not only the nurses on day shift, but those working nights as well. It reinforces the need for relevant, accessible, and convenient ways to meet the educational needs of the learner. With the challenges faced by the

educator, the educator needs to be aware of the differences with attending an in-person offering where the cost-effectiveness of not having to pull nurses from care for learning opportunities versus the importance of having in-classroom education. With this type of education, taking into account the schedules of the individuals, the costs of overtime for attending classes, and the amount of time the instructors have to present would have to be a part of the comparison of benefits versus presenting an online format that allows for flexibility of the learner to work at their own pace, no overtime, resulting in a better work-life balance, and supports adult learning as autonomous, self-directed, and independent.

Local Background and Context

The facility where this project is being implemented is a not-for-profit, government network system-based healthcare organization in Missouri. The organization does participate in the shared governance model, which allows the staff to be involved in the decision-making processes on the unit. This project was presented the leadership of the medical/surgical inpatient floors, one of which accepted the project for their staff. The information about the learning module will be presented to the staff on one inpatient unit. The module to be developed will be no longer than an hour, and completion time is estimated to be 45 minutes if uninterrupted. The module was developed as a PowerPoint module and then converted to video so the learners that learned through auditory/lecture modalities were addressed, the visual learners are able to follow the slides and the notes, for the learning through reading, and for those who learn best with demonstration, a

follow-up module was built for those learners that want to see many of the examinations completed.

The learning at this facility historically has been presented in multiple formats, with face-to-face lecture and slides being utilized heavily. Many of the nurses refer to this methodology as “death by PowerPoint”. There are many barriers at this time for this format, as it was imperative to evaluate this methodology versus a self-learning module. The costs of in-person teaching for the multiple educators and over multiple shifts and the costs to have extra staff to come in and cover learners on the evening and night shifts were extremely high. The value-add of this methodology was the question and answers portion, and if demonstration of the assessment were to be done live, additional time and costs would need to be added in. With the state of a significant shortage in nursing staff for the units, this presentation style was not deemed appropriate at this time.

With the independent nature of the learners at this facility, when an informal poll was taken of five nurse from days and nights on each participating unit, the consensus was that the learners wanted a learning module no more than 60 minutes and something they could listen to, take notes on, and even print and reference to. Feedback from the nurse managers was favorable to this presentation style and they looked forward to the pre- and posttest data that the module would provide.

Once the module was loaded into the Talent Management System, the learning platform for this system, the nurses were notified electronically of the module and the completion due date. The learners were provided a 60-day completion time. The module was only open once the pretest has been completed and the learner was not be able to see

the completion score, nor which questions were incorrect. The learner then moved to the module, and once that was completed, the posttest was completed and scored. Feedback was provided at this point on the answers that were correct and incorrect. Data were collected and provided as an executive report to the nursing leadership and the executive leadership. Data were then synthesized to identify additional learning needs for the staff and any additional learning need for the staff.

Definition of Terms

Evidence-based practice, or *EBP*, is defined by the American Nurses Association (ANA, 2024) as nursing that "involves providing holistic, quality care based on the most up-to-date research and knowledge rather than traditional methods, advice from colleagues, or personal beliefs." It uses research to verify the validity of practice and determine the relevance to best nursing practices which become the standards of care.

Self-learning module is defined as a self-paced, self-contained, self-instructional, and interactive learning resource. Such modules can be used for distance learning, are developed by educators, and may use curriculum developers that focus on the most essential and desired learning competencies using motivation and assessment.

Neurological assessment at the basest is the evaluation of the brain and nervous system. It is a series of tests that assess mental status, reflexes, movements, and strength. It includes the collection of both subjective and objective data using a physical examination and interview process (Ernstmeyer & Christman, 2021).

Talent management system is a software solution that helps organizations manage their employees' skills and development. It includes recruitment, performance

management, learning and development, and compensation management components. It is the educational learning platform that this entire health care system utilizes for the development, presentation, documentation and tracking of education that is both mandatory and optional for their employees.

Role of the DNP Student

Professional Context

As an educator in the DNP role, it is essential to utilize the tools and guidelines for practice that are found in evidence. Providing the resources and materials are an essential part of this. Looking at how implementation of new procedures and programs are developed at the governing level, often they are generic in nature, as they leave the specifics for each facility to adapt the guidelines individual facility cultures.

As a DNP-prepared educator, this is where the guidelines provided nationally can assist in this process. My role for this project was to provide the educational modules developed by the national Telestroke program, but to also identify areas that would need additional education and support in making this initiative a success so that eventually the facility is able to further expand services in this area.

My role in this DNP project is to empower and educate the professional nurses within this facility to work at the highest scope of care for the patients that experience changes in their neurological state. I was also tasked with ensuring that the staff knew how to follow organizational policy and algorithm that supports the change in processes for the neurologically compromised patient. This then created an opportunity to

demonstrate to nursing leadership the importance of providing an educational opportunity for the bedside nurse to demonstrate skill and competency in this area.

Summary

It is important to remember that effective instruction and content presentation skills are important, but truly successful learning cannot take place without students' efforts and willingness to learn and apply the material they are being presented. Utilizing and implementing a variety of different instructional methodologies are necessary for the DNP-prepared educator, but they should be matched with equally good student motivation for promoting learning. The learner must have a connection to the material being presented. An educator can provide information and facilitate discussions, but a learner needs to understand the content and adopt the changes into practice.

Section 3: Collection and Analysis of Evidence

Introduction

With the incidence of stroke being the fifth leading cause of death in the United States and the leading cause of long-term disability (Centers for Disease Control and Prevention, 2015), it becomes necessary to assure that bedside nurses caring for patients have the assessment skills and baseline knowledge to recognize the signs and symptoms exhibited by patients with a changing neurological status as early as possible. With early recognition of changes in a patient's neurological status comes earlier entry into the algorithm of care and treatment. With early intervention with thrombolytic therapies comes an increase in the return of function and decrease in death and disability rates.

An essential priority for stroke that occurs in the hospital setting should be to identify the event promptly and treat according to the most recent EBPs found within the literature, the National Hospital Inpatient Quality Measures (Joint Commission, 2023; Quality Net, 2022). However, in-hospital research indicates that care for in-hospital stroke frequently falls short of quality expectations (Cumbler et al., 2014). There can be significantly longer delays in stroke symptom recognition among in-hospital stroke patients compared to community-based patients; these patients with in-hospital stroke were more likely to have longer hospital stays and be dead or disabled at discharge (Saltman et al., 2015). Findings from these studies indicate the importance of the importance of assuring that nurse personnel are equipped with the knowledge to recognize onset of stroke and activate appropriate protocol when necessary. Under current Joint Commission standards, patients presenting with stroke symptoms should be

rapidly triaged and diagnosed; those experiencing ischemic stroke should be treated with intravenous thrombolytic therapy within 3 hours of the onset of symptoms (Joint Commission, 2023; Quality Net, 2022).

The stroke chain of survival conceptual model has helped frame systems of care improvements in EDs and recently in the prehospital setting to facilitate timely reperfusion (Lo, 2022).

Practice-Focused Question

The practice-focused question for this staff education program is, "will a staff education program on neurological assessment increase staff knowledge towards the ultimate goal of increasing competence in conducting a focused neurological assessment?" The question focused on approximately 32 nursing staff on one medical-surgical unit, consisting of novice to expert nurses with a minimum of 2 to 30 plus years of experience. Upon completion and analysis of the pre and posttests and the self-learning module, A Neurological Assessment for the Bedside Nurse (see Table 1), data were analyzed to evaluate increased knowledge.

The nursing profession is facing a severe shortage, and it is imperative that DNP-prepared leaders and educators provide the information and tools that are important and relevant to the nurse delivering care at the bedside in the most efficient, cost-effective, and supportive way. Unit managers have confirmed that one of the frequently identified reasons that nurses have made the decision to leave the organization is that they feel unsupported when it comes to new initiatives, citing a lack of education along with the "why" for the change given is absent, as noted from exit interviews.

Sources of Evidence

In addressing the practice-focused question, I reviewed the literature for referenced recommendations on adult learning methodologies and delivery platforms that meet the needs of a nursing workforce that is challenged. The literature indicated that raising self-awareness in personal learning strategies, eliciting nursing leadership engagement, using concise and relevant educational curriculum, and providing the education utilizing an effective delivery methodology to increase knowledge and buy-in are crucial (Carroll, 2022). This DNP staff education project was designed to assess the baseline knowledge of staff related to a neurological assessment and then provide the continuing education curriculum to the staff through the completion of a self-learning module. This supports an environment where change is addressed and supported through research, evidence and education as identified in the literature.

Within nursing theory, promotion of the underlying essential for this project is expressed using evidence-based research and positive patient outcomes. Nursing theory provides and supports a conceptual framework for nursing education, EBP, adult learning principles that result in an improved working environment and can provide quality patient care and experiences. This project incorporated Knowles's theory of adult learning, which provided the framework for the project.

The literature review included database searches in Medline, Pub-Med, Education Source, and CINAHL and for literature pertaining to neurological assessments, learning platforms, and adult learning environments.

Published Outcomes and Research

The completion of a comprehensive search of the literature for neurological assessment modules included the following databases: Medline, Pub Med, Education Source, CINAHL Plus with Full Text and PDF, Cochrane Reviews, and the Joanna Briggs Institute. All referenced journal articles were published between 2014 and 2024. Key search terms and combinations of search terms used included *nurse*, assessment, neurological assessment, comprehensive neurological assessment, stroke, tele-stroke, adult learning, self-learning, self-learning modules*, and *adult learning principles*. The scope of the review included searches for sources published from 2014 to 2024 to comprise peer-reviewed articles and education-based materials.

Evidence Generated for the Doctoral Project

The following paragraphs outline a step-by-step description of how the evidence was collected for this DNP project.

Participants

The project took place within a not-for-profit, government network system-based healthcare organization in Missouri. The population includes 32 nursing staff on one medical/surgical/telemetry floor supporting 30 patient beds. There were no exclusion criteria for this project apart from not being licensed as a registered nurse. The sample was considered a convenience sample, as it was inclusive of all licensed nursing staff. The sample size was 32 nurses because it was inclusive of all licensed nursing staff and thus represented the target population because the sample was the target population.

Procedures

The self-learning module, Neurological Assessment for Bedside Nurses (see Appendix A), has been developed in 2024, and designed to identify and measure nurses' recognition of changing or worsening neurological signs in the patient. The self-learning module consists of a pretest to gauge baseline knowledge (see Appendix B), the self-learning module (see Appendix A), and the posttest (see Appendix C). For this project, the module was administered to staff nurses to serve as new education, or a review of current knowledge as it relates to changes in the neurological state of the patient. The pretest and the posttest consist of 10 multiple-choice questions on the areas of needed improvement identified by completion of the Needs Evaluation (see Appendix E). The results will be relayed to the clinical educators for more individualized education in the identified area of needed improvement.

The nursing leadership on the medical-surgical nursing units were invited to participate in promoting participation by the staff in the educational program. This was to demonstrate support in managing and reducing the incidence of missed opportunities on their floors. The organization's focus on education and research to increase quality in patient outcomes are incorporated into the staff education program. The results of the module will be shared with the nursing leadership from the medical-surgical units as well as the executive team as to the findings and needed improvements recognized through the educational program. The impact of the education will be reviewed in 6 months by the organization's education and training department by re-surveying the unit nurses utilizing the posttest.

Protection

The nurses had to be assured that the data collection process would remain anonymous through de-identification when reported to nursing leadership. The data collection of the results of the tests show no staff identities, as tests were labeled as asterisks prior to distribution of any report. The learning platform administrator and Learning and Organizational Development staff collected the data and shared the deidentified report with me for data analysis.

The institutional review board (IRB) approval was obtained from VA Electronic Determination Aid (VAEDA) Portal to ensure the protection of the participants. The project was determined to be a quality improvement project, and no further IRB intervention required. The Walden University's informed consent page was signed for approval to implement the project by the host site. The Walden Education manual was utilized to document and provide an explanation regarding the protection of patients.

The purpose of this DNP staff education project was to increase knowledge as it relates to neurological changes in the patient to assure early intervention and decreased morbidity. The module summative evaluation tool (see Appendix D) is composed of five questions in a Likert choice format to allow for question item analysis. The data were de-identified to protect participants from actual or perceived retribution for answers given.

Analysis and Synthesis

The process of implementation of the self-learning module, Neurological Assessment for Inpatient Nurses was assigned for 30 days. The de-identification process noted above was utilized to protect the integrity of the evidence. The data were collected

and collated into a presentation for both education and nursing leadership for review. Potential barriers to implementation may include uploading the training onto the learning platform, and staff engagement-having the time to complete this module. If these problems occurred, there would be a need to engage the learning platform administrator for assistance with the upload of the module, and engagement would need to be addressed with nursing leadership to promote completion of the module.

The education and training were offered to nursing staff that were previously identified and remained available for the nurses to complete for a period of 30 days to account for staff members that may be on leave. These staff include those that have maternity leave, sick leave, or Family Medical Leave Act (FMLA). The summative evaluation provided information on the learner's feedback as to the value and buy-in of the presented material. I will allow for revision where necessary and as to whether the module should continue within the organization as a routine education for staff.

The educational project included a pre- and posttest, a self-learning module, and summative evaluation. After all course pre- and posttest, as well as the summative evaluation were completed, an item analysis of the questions was collected. The overall scores from both the pretests and posttests were compared and evaluated to determine whether the education was effective. This would be evidenced by a higher posttest score than a pretest score.

Summary

With the incidence and occurrence of the risks of mortality and disability associated with stokes, it is imperative that the bedside nurse receive educational support

and training to equip them with the tools to be effective in a neurological assessment of their patient to support quality patient outcomes. This staff education project utilizing a pretest, a self-learning module, and posttest was administered to the nursing staff to measure and validate an increase in knowledge through the completion of a neurological assessment at the bedside. The intent is to increase knowledge, empower, and equip nurses to use their assessment skills to assure using EBP, the best outcomes for their patients. Once the project was completed, a summative evaluation was completed and is discussed in the following sections of this document.

Section 4: Findings and Recommendations

Introduction

The focus of this project was the assessment and competency of the bedside nurse in the completion of a neurological examination through the completion of a self-learning module that focuses on the identified areas of concern identified through the completion of a needs self-assessment and the development and implementation of a self-learning module that included a pretest and posttest evaluation of knowledge. The goal was to identify those areas of needed improvement and provide the nurse with a tool that they could complete independently at their own pace for learning to increase and expand knowledge of the components and the completion of a neurological assessment at the bedside.

Completion of the self-learning module validates and demonstrates the efficacy of the learning of the presented materials in the module. This project supported the need for identification of the baseline knowledge of the nurses on the medical-surgical floor regarding neurological assessment completion after the introduction of a tele-stroke program and the initiation of Code Stroke for activation and entry into the algorithm of care. The self-learning module titled Neurological Assessment for the Bedside Nurse (see Appendix A) was placed into the learning portal and assigned for a 2-week period to the bedside registered nurses on one medical surgical floor. The pretest consisting of 10 questions was completed prior to opening of the course material. Once the course material was completed, participants completed the posttest, which consisted of the same 10 questions to allow me to compare data and measure learning.

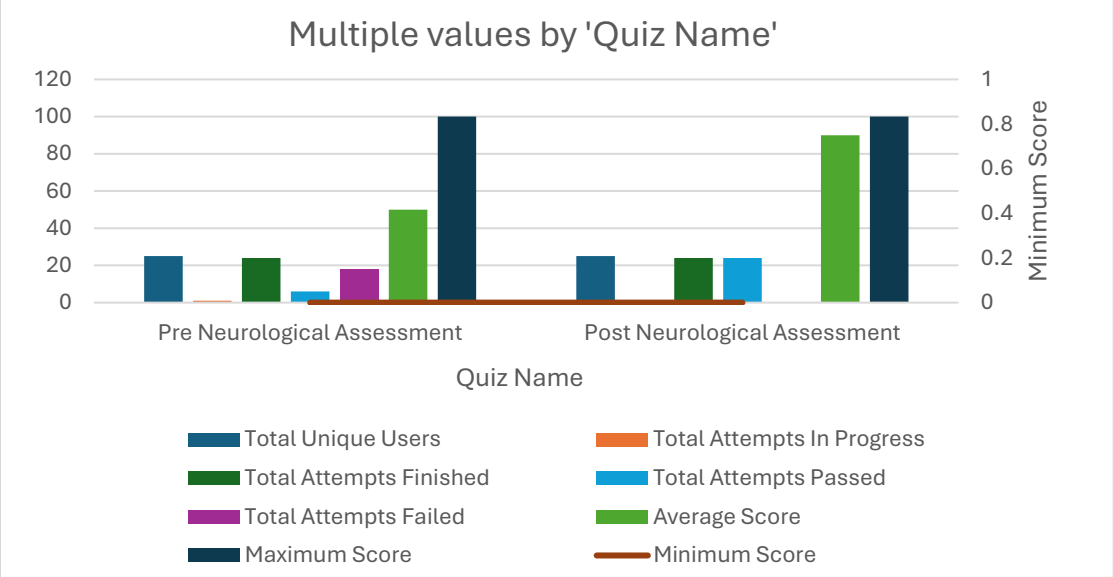
Findings and Implications

The project was implemented on a medical-surgical unit with 25 nurses who were qualified to participate in the project. All 25 nurses were able to complete the pretest. The same 12 nurses completed the educational module, posttest, and evaluation. Demographic data were not collected utilizing the de-identification process to protect nursing staff.

The findings are summarized as follows in Figure 1. In summary, the data collection demonstrates that the nursing staff had scores that averaged 50 on the pretest.

Figure 1

Multiple Values by Quiz Name



Note. Results show the average score pre and posttest. Pretest scores average 50 and posttest scores average 80.

The data reported support the data gathered on the Neurological Needs Survey (see Appendix E), a five question Likert survey that was completed prior to the development of the self-learning module. This survey was developed to assist in the

development of the areas of focus for the self-learning module. Table 1 shows the self-scoring of staff as it relates to various educational areas for the development of a self-learning module.

Table 1

Neurological Needs Survey Self-Scoring

Question	Sum of very unfamiliar	Sum of unfamiliar	Sum of somewhat familiar	Sum of familiar	Sum of very familiar
Cranial nerves	10	6	7	1	1
GCS	6	6	9	2	2
Neurological assessment	7	5	5	6	2
s/s stroke	0	4	3	6	4
Types of stroke	6	6	7	3	3
Grand total	29	27	31	18	12

The participation by the staff to complete the needs survey was remarkable in that the completion rate was 99% with only one survey not completed. The staff were engaged in participation regarding this project, identifying in themselves the need for more education in a topic that now has come to the forefront for their everyday practices.

Table 2

Completion of Neurological Needs Survey

% of total 'Iteration', where 'Evaluation' is 'Incomplete'	
Evaluation	Sum of Iteration
Passed	99.03%
In process	0.97%
Grand total	100.00%
N = 25	

The practice-focused question for this staff education program is: “Will a staff education program on neurological assessment increase staff knowledge towards the ultimate goal of increasing competence in conducting a focused neurological

assessment?" The mean pretest score was 46.0, whereas the mean posttest score was 91.2. Based on the completion and results of the paired samples *t*-test (see Table 3), the difference is statistically significant, $t(12) = 5.853$, $p < .05$. Therefore, the implemented educational initiative was effective in improving knowledge of the completion of a neurological assessment by the bedside nurses.

Table 3

Paired Samples t-*Test for Means*

Statistic	Variable 1	Variable 2
Mean	46	91.2
Variance	308.3333333	77.66666667
Observations	25	25
Pearson correlation	0.543891856	
Hypothesized mean difference	0	
df	24	
t Stat	-15.3183672	
P($T \leq t$) one-tail	3.43298E-14	
t Critical one-tail	1.71088208	
$P(T \leq t)$ two-tail	6.86596E-14	
t Critical two-tail	2.063898562	

Once the modules were assigned, all staff were able to complete the training within the 2-week deadline. The data were collected and presented to me for summative result evaluation. A post module completion evaluation (see Appendix D) was completed by staff to gauge individual evaluation of learning and module impact. Data from the evaluation indicated that the nurses surveyed perceived an advancement in their knowledge of the completion of a neurological assessment. The evaluation received 0% ratings in the categories of Strongly Disagree, Disagree, and Neither A nor D.

Participants rated the educational initiative as either Agree or Strongly Agree (see Figure 2 and Table 4).

Figure 2

Summative Evaluation Percentages Based on a Likert Scale

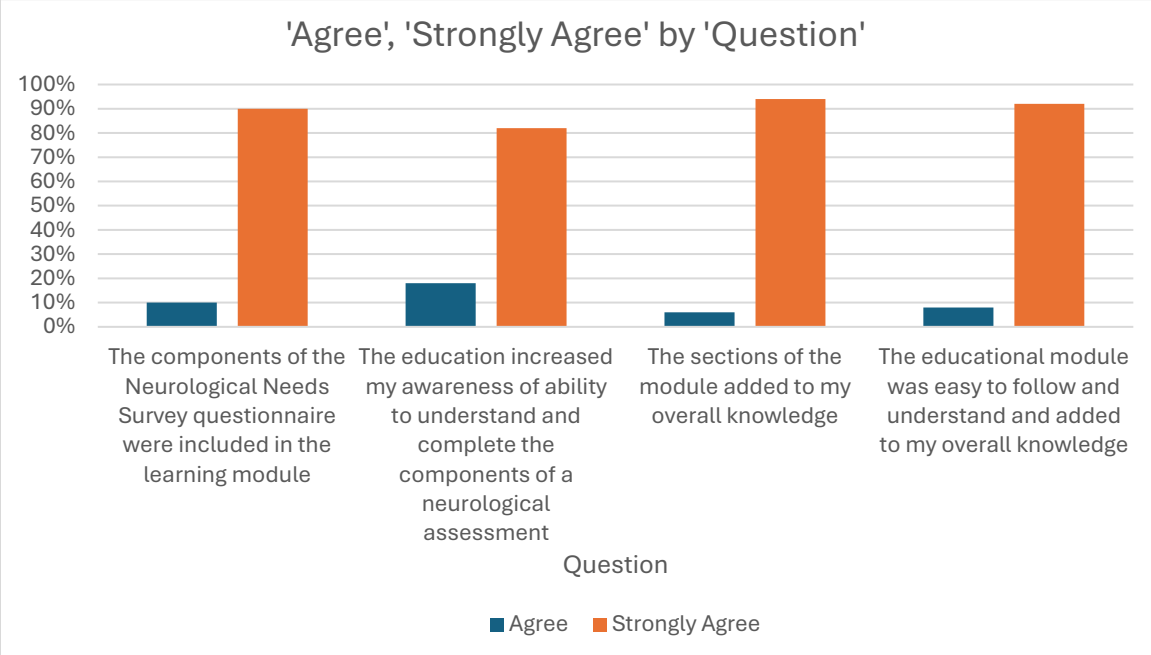


Table 4

5-Point Likert Scale of Post-Evaluation of the Self-Learning Module

Number	Question	Agree	Strongly agree
1	The components of the Neurological Needs Survey questionnaire were included in the learning module	10%	90%
2	The education increased my awareness of ability to understand and complete the components of a neurological assessment	18%	82%
3	The sections of the module added to my overall knowledge	6%	94%
4	The educational module was easy to follow and understand and added to my overall knowledge	8%	92%

Recommendations

The recommended solution to address the need for a thorough understanding of a neurological assessment and its components that need to be documented for nursing include continuing education on the awareness and continued practice of these skills in the workplace. The increase in the scores from pretest to posttest indicating the increased learning during this project reflects an increase in the components, skills, and knowledge that occurred with this self-learning educational module. It would be beneficial for the remainder of the medical surgical nurses on the other three inpatient nursing units in this facility to follow this teaching plan with the incorporation of proven educational activities, such as blended learning classes for those nurses who need a more hands-on learning method for success and practice. The results of the pretest did identify a gap in existing knowledge and practice among nurses and these activities could improve the parameters for the other floors with an option for completion.

The facility would benefit from incorporating the self-learning module to be further assigned to all nursing personnel to gauge baseline knowledge and acquired knowledge to provide quality evidence-based care to the patient population suspected of changes in neurological status and early entry into care.

Contributions of the Doctoral Project Team

Although there was no designated project team, there were key players in the implementation of this project: the DLO, the site preceptor, the site educator, and the nurse manager on the designated unit. The site preceptor was responsible for granting access to the nursing staff, encouraging the staff to complete the self-learning module,

and obtaining hospital policies and procedures that were essential in the development and implementation of the module. The site educator was responsible for assisting in the granting approval for the project and for access to nursing evidence practice council for the ethics review board approval. The nurse manager on the designated unit assisted in gathering the completed data, which included the Neurological Needs Survey, and the data from the learning portal regarding the pretest, posttest, and evaluation during all phases of the project.

Strengths and Limitations of the Project

Multiple strengths were evident throughout this project. During the initial stages the project, the organization found value in the project as they had just initiated a tele-stroke project, and this was a new project that also had focus not only in the critical areas, but on the inpatient medical surgical units as well. It was felt that there could be a gap in practice regarding neurological assessment. A neurological needs assessment was supported by management, and this helped to identify areas of need and focus for the module, so the staff were engaged in expanding knowledge in their personal practice. With the data collection, the host site granted access to a medical-surgical unit which contributed to having 25 participants. The nurses were engaged in every step of the process, and the management team supported this educational endeavor.

The limitations that were experienced was the staffing shortage that this healthcare system is experiencing. The nurses have little down time, and this module was also presented at a time of staff needing to complete annual training. Without the support of management and the desire of the staff for the education, the timely completion may

not have been possible. The staff were informed 60 days in advance that this education was coming, so they were prepared for it. The other limitation is that the reports built into the learning platform were not always easy to access, and if this type of learning is to be used in the future, more reports will have to be built to provide necessary data. Another limitation is competing priorities in that for those learners to be able to practice in order to refine skills, a blended-learning class would need to be set up to allow staff to become proficient at this skill. This is not possible currently due to staffing challenges.

Summary

This DNP staff education project was successful as the data supported the increased knowledge as it relates to neurological assessment components and completion. This was demonstrated by an increase in knowledge from pretest to posttest of the self-learning module, Neurological Assessment for the Beside Nurse.

In reference to the practice-focused question for this staff education program, "Will a staff education program on neurological assessment increase staff knowledge towards the ultimate goal of increasing competence in conducting a focused neurological assessment?", there has been an increase in awareness of changing conditions, focus on the necessary components of the assessment, and an increased in knowledge of the completion of a neurological assessment by the bedside nurses on the unit. There has been earlier recognition of changing conditions and earlier entry into the algorithm of care for their patients. The nurses are feeling more included in the interdisciplinary care team at the facility, and thus provide the patient with the best evidence-based care possible to reduce the risk of mortality and morbidity.

Section 5: Dissemination Plan

Dissemination of the findings from this staff education DNP project will be completed in three phases. Phase 1 will be the report of the data to the DLO and the Learning and Organizational Development team. Phase 2 will be reporting of the findings and recommendations to the staff of the results of their data. Phase 3 will be the reporting of the project to the Evidence-Based Practice Council.

The reaction of nursing leadership in Phase 1 has been very receptive, requesting that this module be assigned to the remaining staff on the medical surgical units for completion. Based on the data presented, there was an overall agreement that this would be of benefit to the remainder of the nursing staff to complete.

The second phase has also been completed, with the data that were collected from the nursing staff showing increased knowledge and competency. The staff were presented the data at a staff meeting and were very open to providing even more feedback, acknowledging confidence in early recognition of changing symptoms and early entry into care.

The third phase has been scheduled for early January with the Evidenced-Based Practice Council as they only meet once a month. There has been encouragement to place this information into a poster presentation for Nurses Week in 2025.

Analysis of Self

I have never been so proud to be a nurse and an educator. In this DNP project, I was able to utilize those skills from the toolbox that I have built through the many years of education and practice. The ability to take a perceived problem and—through

evidence, research, collaboration, professional development and so many other tools—make something that is relevant, needed, evidence-based, best practice, and makes a difference to both the nurse and the patient is so very rewarding and humbling. Assuring that the next generation are provided the knowledge, skills and tools to continue the practice of nursing, while improving outcomes and standards.

This was a topic that I was passionate about and affected me deeply due to past experiences with other nurses knowing that neurological changes are subtle but have a profound outcome on the patient if missed. I was a critical care neurosurgical nurse, and I want to ensure that this secondary cause in morbidity and mortality was addressed to the best of my abilities. I was privileged to work with many peers on this project, providing me assistance from care to data retrieval.

As this project progressed, my preceptor, hospital educator, and fellow nurses, especially the nurse manager on the designated medical-surgical unit became a team, all wanting to see the completion and a product of the nurses that was of benefit to them. I also want to acknowledge the role the education platform administrator had in making this project a success. She was the expert who helped me gain access to the platform reports I used in the data collection for the project. The internal research approval website for the healthcare facility ensured that all guidelines were met and approved for this project.

Toward the end of the project, completion became difficult. The unexpected nursing staff shortage and turnover on the chosen floor created an atmosphere that had to be focused on patient care needs and placed challenges on gaining access to the nursing

staff to deliver the education as planned. There were also challenges within my own work–life balance and the pressures placed on me to meet the needs of the facility versus that of academia. These changes interfered dramatically with the ability to effectively balance work, school, and personal life obligations. However, without the help of family, friends, colleagues, and my chair, I would have not been able to finish this culmination of my career by keeping myself on task.

Summary

The goal of this staff education DNP project was to provide an education program on neurological assessment that increases staff knowledge and increases competence in conducting a focused neurological assessment. The goal was reached through the completion of a Neurological Needs survey, development and completion of the self-learning module Neurological Assessment for the Bedside Nurse, by the collection of data utilizing the pre- and posttest assessments, and completion of the evaluation of the overall staff education DNP project.

Throughout this project, the many nurses who participated in the education project made this a reality and a success. This project's goal will not entirely come to full dissemination until the other nurses are assigned the module and complete the training on this topic and can increase their knowledge and competence in neurological assessment skills until it is completed.

References

American Nurses Association. (2015). *Code of ethics for nurses with interpretive statements*. http://nursingworld.org/DocumentVault/Ethics-1/CodeofEthicsforNurses.html

American Association of Colleges of Nursing. (2015). *The essentials of doctoral education for advanced nursing practice*. www.aacn.nche.edu

Arghode, V., Brieger, E. W., & McLean, G. N. (2017). Adult learning theories: implications for online instruction. *European Journal of Training and Development*, *41*(7), 593–609. https://doi.org/10.1108/EJTD-02-2017-0014

Bae, K. S., & Roh, Y. S. (2022). Effects of a multifaceted neurological assessment educational program in nursing students: A randomized crossover study. *Nurse Education in Practice*, *63*, Article 103378. https://doi.org/10.1016/j.nepr.2022.103378

Bayrak, D., & Tosun, N. (2018). Determination of nursing activities for prevention of heart attack and stroke in hypertension patients. *International Journal of Caring Sciences*, *11*(2), 1073–1082. https://www.proquest.com/scholarly-journals/determination-nursing-activities-prevention-heart/docview/2148636778/se-2

Bednarski, D., LeFlore, Y., Spybrook, K., Ceccanese, K., Miloch, S., Suggs, S., Lake, E., & Newlin, M. E. (1999). Building confidence and competence: Self-learning modules. *Medsurg Nursing*, *8*(3), 203–205. https://www.proquest.com/scholarly-journals/building-confidence-competence-self-learning/docview/230523102/se-2

Carcich, G. M., & Rafti, K. R. (2007). Experienced registered nurses' satisfaction with using self-learning modules versus traditional lecture/discussion to achieve competency goals during hospital orientation. *Journal for Nurses in Staff Development*, *23*(5), 214–222. https://doi.org/10.1097/01.nnd.0000294927.21919.7e

Carroll, K. (2022). Power with presence: Connecting theory and knowledge to nursing practice. *Nursing Science Quarterly*, *35*(3), 302–303. https://doi.org/10.1177/08943184221092436

Curran, M. K. (2014). Examination of the teaching styles of nursing professional development specialists, Part II: Correlational study on teaching styles and use of adult learning theory. *The Journal of Continuing Education in Nursing*, *45*(8), 353–359. https://doi.org/10.3928/00220124-20140716-01

Darley, S., Knowles, S., Woodward-Nutt, K., Mitchell, C., Grande, G., Ewing, G., Rhodes, S., Bowen, A., & Patchwood, E. (2021). Challenges implementing a carer support intervention within a national stroke organisation: Findings from the process evaluation of the OSCARSS trial. *BMJ Open*, *11*(1) Article e038129. https://doi.org/10.1136/bmjopen-2020-038129

Dickinson, J. K., Quay, C., & Dolen, E. (2023). Use of nursing theory to guide doctoral research: An exploratory study. *Nursing Science Quarterly*, *36*(4), 381–386. https://doi.org/10.1177/08943184231187868

Ernstmeyer, K., & Christman, E. (Eds.). (2021). Neurological Assessment. In *Nursing skills*. Chippewa Valley Technical College.

https://www.ncbi.nlm.nih.gov/books/NBK593206/

Forneris, S. G., Tagliareni, M. E., & Allen, B. (2022). Accelerating to practice: Defining a competency-based curriculum framework for nursing education Part 1. Nursing education perspectives (Wolters Kluwer Health), *43*(6), 363–368. https://doi.org/10.1097/01.NEP.0000000000000954

Gatti-Petito, J., Lakatos, B. E., Bradley, H. B., Cook, L., Haight, I. E., & Karl, C. A. (2013). Clinical scholarship and adult learning theory: A role for the DNP in nursing education. *Nursing Education Perspectives*, *34*(4), 273–276. https://www.proquest.com/scholarly-journals/clinical-scholarship-adult-learning-theory-role/docview/1442705897/se-2

Hu, W., Jin, T., Pan, Z., Xu, H., Yu, L., Chen, T., Zhang, W., Jiang, H., Yang, W., Xu, J., Zhu, F., & Dai, H. (2023). An interpretable ensemble learning model facilitates early risk stratification of ischemic stroke in intensive care unit: Development and external validation of ICU-ISPM. *Computers in Biology and Medicine*, *166*, Article 107577. https://doi.org/10.1016/j.compbiomed.2023.107577

Johis, O., Gonzalez, J. M., de, T. L., & Karina, G. (2018). Implementation of an in-hospital stroke simulation protocol. *International Journal of Health Care Quality Assurance*, *31*(6), 552–562. https://doi.org/10.1108/IJHCQA-08-2017-0149

Kang, H. (2023). Needs assessment survey for stroke care core competency-based training for neuroscience nurses. *The Journal of Continuing Education in Nursing*, *55*(2), 63–68. https://doi.org/10.3928/00220124-20231030-02

Lip, G. Y. H., Lane, D. A., Lenarczyk, R., Boriani, G., Doehner, W., Benjamin, L. A.,

Fisher, M., Lowe, D., Sacco, R. L., Schnabel, R., Watkins, C., Ntaios, G., & Potpara, T. (2022). Integrated care for optimizing the management of stroke and associated heart disease: A position paper of the European Society of Cardiology Council on Stroke. *European Heart Journal*, *43*(26), 2442–2460. https://doi.org/10.1093/eurheartj/ehac245

Lovelace, R., Noonen, M., Bena, J. F., Tang, A. S., Angie, M., Cwynar, R., Field, R., Rosenberger, J., Ross, D., Walker, D., & Albert, N. M. (2017). Value of, attitudes toward, and implementation of evidence-based practices based on use of self-study learning modules. *The Journal of Continuing Education in Nursing*, *48*(5), 209–216. https://doi.org/10.3928/00220124-20170418-05

Maloney, S., Tai, J. H., Paynter, S., Lo, K., & Ilic, D. (2013). Self-directed online learning modules: Students' behaviours and experiences. *Pharmacy*, *1*(1), 8–15. https://doi.org/10.3390/pharmacy1010008

Mei, Y. N., Tacey, M., & Crompton, D. (2021). 052 Predictive value of signs and symptoms in code strokes for diagnosis of ischaemic stroke or TIA. *BMJ Neurology Open*, *3*, A19. https://doi.org/10.1136/bmjno-2021-ANZAN.52

Moll, I. (2024). A psychological critique of Knowles' andragogy as a theory of learning. *Studies in Adult Education & Learning / Andragoška Spoznanja*, *30*(1), 151–170. https://doi.org/10.4312/as/16396

Olson, D. M., Provencher, M., Stutzman, S. E., Hynan, L. S., Novakovic, S., Guttikonda, S., Figueroa, S., Novakovic-White, R., Yang, J. P., & Goldberg, M. P. (2022). Outcomes from a nursing-driven acute stroke care protocol for telehealth

encounters. *Journal of Emergency Nursing*, *48*(4), 406–416. https://doi.org/10.1016/j.jen.2022.01.013

Reed, P. G. (2022). Midrange theory evaluation to advance nursing knowledge. *Nursing Science Quarterly*, 35(3), 315–320. https://doi.org/10.1177/08943184221092426

Rogers, A. (2013). Theories in adult learning and education: By Paul Bélanger. Barbara Budrich Publications, Opladen and Farmington Hills, 2011, 106 pp. Study Guides in Adult Education series, ISBN 978-3-86649-362-9 (pbk). *International Review of Education*, *59*(3), 405–407. https://doi.org/10.1007/s11159-013-9333-9

Schmidt, K. L., & Fisher, J. C.. (1992). Effective development and utilization of self-learning modules. *The Journal of Continuing Education in Nursing*, *23*(2), 54–59. https://doi.org/10.3928/0022-0124-19920301-05

St Clair, C. (1984). A continuing education program's performance versus ideals as seen by rural nurses. *The Journal of Continuing Education in Nursing*, *15*(4), 123–128. https://doi.org/10.3928/0022-0124-19840701-06

Straehle, M., Kim, E., Rothenberger, C., Alexander, R., Bryant, S., & Hinkley, T. (2023). The development and validation of a medical-surgical nursing competency framework. *MEDSURG Nursing*, *32*(4), 219–226. https://doi.org/10.62116/msj.2023.32.4.219

Sybrandt, A. E. (2023). Stroke admission simulation: Engaging novice and expert nurses. *The Journal of Continuing Education in Nursing*, *55*(3), 113–119. https://doi.org/10.3928/00220124-20231130-03

The Joint Commission. (2008, July 9). *Sentinel event alert. Behaviors that undermine a*

culture of safety. http://www.jointcommission.org/SentinelEvents/Sentineleventalert/se_40.htm

Worthmann, H., Winzer, S., Schuppner, R., Gumbinger, C., & Barlinn, J. (2023). Telestroke networks for area-wide access to endovascular stroke treatment. *Neurological Research and Practice*, *5*(1), Article 9. https://doi.org/10.1186/s42466-023-00237-9

Xue, L., Deng, J., Zhu, L., Shen, F., Wei, J., Wang, L., Chen, Q., & Wang, L. (2023). Effects of predictive nursing intervention on cognitive impairment and neurological function in ischemic stroke patients. *Brain and Behavior*, *13*(3), Article e2890. https://doi.org/10.1002/brb3.2890

Younas, A., & Quennell, S. (2019). Usefulness of nursing theory-guided practice: An integrative review. *Scandinavian Journal of Caring Sciences*, *33*(3), 540–555. https://doi.org/10.1111/scs.12670

Appendix A: Neurological Assessment for the Bedside

Neurological assessment for the B

Appendix B: Neuro Exam Pretest

1. The Glasgow coma scale measures patients according to what three categories?
    a. Motor, Sensory, and Verbal
    b. Motor, Cognition, and Verbal
    c. Motor, Eye Opening, and Verbal
    d. Eye Opening, Verbal and Auditory

2. Patients suffering from acute stroke will most often exhibit which of the following symptoms:
    a. slurred speech, memory deficit, impaired coordination
    b. impaired coordination, impaired auditory sensation, and visual changes
    c. Facial drooping, arm weakness, and abnormal speech.
    d. visual changes, arm weakness, and abnormal speech

3. The National Institutes of Health Stroke Scale (NIHSS) is commonly used to assess a patient's cognitive status when there is a concern of cognitive impairment.

    The Mini Mental State Examination (MMSE) is a standardized tool that is commonly used to assess patients suspected of experiencing an acute cerebrovascular accident.
    a. NIHSS, MMSE
    b. MMSE, NIHSS

4. According to the Glasgow Coma Scale (GCS) patients scoring less than 8 would be classified as:
    a. Lethargic
    b. Comatose
    c. Obtunded
    d. Alert and Oriented X 2

5. When performing a Mini Mental Status Exam (MMSE), a nurse should ensure the patient is wearing appropriate assistive equipment such as hearing aids or eyeglasses.
    a. True
    b. False

6. A nurse administers the Mini Mental Status Exam (MMSE) to a patient admitted with dementia. The patient scores 18 on the exam. The nurse interprets this result to mean the patient has:
    a. Mild cognitive impairment
    b. Severe cognitive impairment
    c. No cognitive impairment

7. The three primary causes of ischemic stroke are:
    a. Intracranial hemorrhage, subarachnoid hemorrhage, and small vessel disease (lacunar)
    b. Large vessel disease, small vessel disease (lacunar), and cardioembolism
    c. Cardioembolism, intracranial hemorrhage, and subarachnoid hemorrhage
    d. Small vessel disease (lacunar), cardioembolism, and subarachnoid hemorrhage

8. In an ischemic stroke, an antifibrinolytic is not indicated due to intercranial bleeding.
    a. True
    b. False

9. Supportive measures for an Ischemic Stroke include all the flowing EXCEPT:
    a. Mechanical thrombectomy
    b. Blood glucose
    c. Airway, breathing, and oxygenation
    d. No Neurological assessment
    e. IV fibrinolytics

10. The minimum score that an individual can achieve on the Glasgow Coma Scale (GCS) is:
    a. 0
    b. 15
    c. 3
    d. 5

Appendix C: Neuro Exam Posttest

1. The Glasgow coma scale measures patients according to what three categories?
    e. Motor, Sensory, and Verbal
    f. Motor, Cognition, and Verbal
    g. Motor, Eye Opening, and Verbal
    h. Eye Opening, Verbal and Auditory

2. Patients suffering from acute stroke will most often exhibit which of the following symptoms:
    e. slurred speech, memory deficit, impaired coordination
    f. impaired coordination, impaired auditory sensation, and visual changes
    g. Facial drooping, arm weakness, and abnormal speech.
    h. visual changes, arm weakness, and abnormal speech

3. The National Institutes of Health Stroke Scale (NIHSS) is commonly used to assess a patient's cognitive status when there is a concern of cognitive impairment.

    The Mini Mental State Examination (MMSE) is a standardized tool that is commonly used to assess patients suspected of experiencing an acute cerebrovascular accident.
    c. NIHSS, MMSE
    d. MMSE, NIHSS

4. According to the Glasgow Coma Scale (GCS) patients scoring less than 8 would be classified as:
    e. Lethargic
    f. Comatose
    g. Obtunded
    h. Alert and Oriented X 2

5. When performing a Mini Mental Status Exam (MMSE), a nurse should ensure the patient is wearing appropriate assistive equipment such as hearing aids or eyeglasses.
    c. True
    d. False

6. A nurse administers the Mini Mental Status Exam (MMSE) to a patient admitted with dementia. The patient scores 18 on the exam. The nurse interprets this result to mean the patient has:
    d. Mild cognitive impairment
    e. Severe cognitive impairment
    f. No cognitive impairment

7. The three primary causes of ischemic stroke are:
    e. Intracranial hemorrhage, subarachnoid hemorrhage, and small vessel disease (lacunar)
    f. Large vessel disease, small vessel disease (lacunar), and cardioembolism
    g. Cardioembolism, intracranial hemorrhage, and subarachnoid hemorrhage
    h. Small vessel disease (lacunar), cardioembolism, and subarachnoid hemorrhage

8. In an ischemic stroke, an antifibrinolytic is not indicated due to intercranial bleeding.
    c. True
    d. False

9. Supportive measures for an Ischemic Stroke include all the flowing EXCEPT:
    f. Mechanical thrombectomy
    g. Blood glucose
    h. Airway, breathing, and oxygenation
    i. No Neurological assessment
    j. IV fibrinolytics

10. The minimum score that an individual can achieve on the Glasgow Coma Scale (GCS) is:
    e. 0
    f. 15
    g. 3
    h. 5

Appendix D: Module Completion Evaluation

1. The components of the Neurological Needs Survey questionnaire were included in the learning module.

☐Strongly Disagree ☐ Disagree ☐ Neither A nor D ☐ Agree ☐ Strongly Agree

2. The education increased my awareness of ability to understand and complete the components of a neurological assessment.

☐Strongly Disagree ☐ Disagree ☐ Neither A nor D ☐ Agree ☐ Strongly Agree

3. The sections of the module added to my overall knowledge.

☐ Strongly Disagree ☐ Disagree ☐ Neither A nor D ☐ Agree ☐ Strongly Agree

4. The educational module was easy to follow and understand and added to my overall knowledge.

☐Strongly Disagree ☐ Disagree ☐ Neither A nor D ☐ Agree ☐ Strongly Agree

Appendix E: Neurological Needs Survey

1. How familiar are you with the completion of a bedside Neurological assessment?

☐Very unfamiliar ☐ Unfamiliar ☐ Somewhat familiar ☐ Familiar ☐ Very familiar

2. How familiar are you with the completion of a Glasgow Coma Scale?

☐ Very unfamiliar ☐ Unfamiliar ☐ Somewhat familiar ☐ Familiar ☐ Very familiar

3. How familiar are you with the Cranial nerve functions?

☐ Very unfamiliar ☐ Unfamiliar ☐ Somewhat familiar ☐ Familiar ☐ Very familiar

4. How familiar are you with signs and symptom of a stroke?

☐ Very unfamiliar ☐ Unfamiliar ☐ Somewhat familiar ☐ Familiar ☐ Very familiar

5. How familiar are you with the types of strokes?

☐ Very unfamiliar ☐ Unfamiliar ☐ Somewhat familiar ☐ Familiar ☐ Very familiar