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Impact of Nursing Education on Dysphagia Screening Knowledge

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This is to certify that the doctoral study by

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Walden University
2020

Abstract

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by

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MS, Walden university, 2008

BS, Lake Superior State University, 2006

Project Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Dysphagia is a common, life-threatening complication potentially experienced by patients with acute stroke. Complications related to dysphagia can lead to aspiration pneumonia, morbidity, and mortality. Thus, early identification of dysphagia is necessary for improving patient outcomes and avoiding adverse health consequences. Nurses have the unique opportunity to impact patient care by increasing knowledge of evidenced-based treatment of dysphagia in acute ischemic stroke patients. Therefore, the project question asked whether Registered Nurse (RN) dysphagia education could improve nursing knowledge of dysphagia screening. The purpose of this project was to increase RN knowledge regarding dysphagia screening using the Yale Swallow Protocol (YSP). The Johns Hopkins nursing evidence-based practice model and adult learning theory were used as the theoretical frameworks to inform this doctoral project. Evidence from the literature and the YSP also supported this project. Data to answer the project question was obtained from the 57 RN participants through an anonymous pre-test to measure staff knowledge of dysphagia screening prior to the educational module. Post-test data was then obtained to measure knowledge acquisition. Results were analyzed via paired t test and were found to show a statistically significant difference between the pre-test and post-test scores ($t = 6.254$, $df = 56$, $p = .000$), suggesting that the educational activity had a positive impact on learner knowledge. This educational module promotes positive social change by increasing RNs' knowledge, confidence, and competence when caring for stroke patients, thus increasing quality of care.

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Dedication

I would like to dedicate this DNP Scholarly Project to my family. To my beloved mother, thank you for being the cheerleader in my life, instilling your love for God, family, and pursuing educational dreams. I wish you were here to celebrate this accomplishment with me. I know your smiling down on me with pride. To my daughters, Jennifer, Samantha and Hannah, thank you for your patience and understanding when I had to focus on schoolwork, and for giving me the strength and encouragement to preserve and succeed. To my wonderful grandchildren, I am grateful for your love, laughter, and distractions when I needed to take a break. Most importantly, I would like to dedicate this project to Don, the love of my life. Thank you for your patience and all the sacrifices that you made to help me pursue my dreams. Your support and encouragement mean so much to me. Without the love and support from each of you, I would never have been able to reach this accomplishment.

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Section 1: Introduction to the Study

Introduction

Stroke is the fifth leading cause of death in the United States, and the burden of stroke in the United States has been estimated at $34 billion annually (Centers for Disease Control and Prevention, 2017). Further, dysphagia is a common, life-threatening complication experienced in patients admitted with a diagnosis of acute stroke (Campbell, Carter, Kring, & Martinez, 2016). Complications related to dysphagia can lead to aspiration pneumonia, morbidity, mortality, and increased healthcare costs (Al-Kaled et al., 2016). Thus, early identification of dysphagia is essential for improving patient outcomes and avoiding adverse health consequences (Campbell et al., 2016). Nurses play an important role in identification of patients at risk for dysphagia (Campbell et al., 2016), and when provided with the appropriate education, tools, and processes, these nurses will be better equipped to assess for dysphagia risk and intervene as needed (Abu-Snieneh, Saleh, 2018; Powers et al., 2018).

Clinical performance measures for evidenced-based stroke care require that patients hospitalized with acute stroke must have a dysphagia screen before eating, drinking, or receiving oral medications (Powers et al., 2018). Numerous dysphagia screening methods have been published in the literature, but to date there is insufficient evidence to recommend one standardized method for dysphagia screening (Smith et al., 2014). Thus, organizations bear the burden of developing processes and educating staff to perform dysphagia screening utilizing an evidence-based dysphagia screening tool.

Evidence-based dysphagia screening is being utilized at a specialty care hospital in a Midwestern state. This hospital has implemented the Yale Swallow Protocol (YSP; Leder & Suiter, 2014) and follows guidelines from the American Heart Association (AHA)/American Stroke Association (ASA) for early management of patients with acute ischemic stroke (Powers et al., 2018). Implementation of the YSP required development of this staff education project to increase registered nurses' (RNs') knowledge for dysphagia screening when caring for stroke patients. This education project was created for RNs because they are the only nursing staff qualified to perform patient assessments; licensed practice nurses and clinical care aids are not qualified to perform patient assessments like dysphagia screening. This educational project may impact positive social change, by providing RNs with the knowledge and resources to care for stroke patients that follow AHA/ASA guidelines. Therefore, RNs were taught the importance of incorporating and adhering to practice based on evidence and how recognizing dysphagia can impact patient care, preparing them to perform evidence-based dysphagia screening.

Problem Statement

Dysphagia is a life-threatening complication in patients who have suffered from acute stroke. Dysphagia occurs in 50-60% of acute stroke patients and in 40-52% of rehabilitation stroke patients (Martino, Maki, & Diamant, 2014). Dysphagia among stroke patients has been associated with aspiration pneumonia, dehydration, malnutrition, and death (O'Horo, Rogus-Pulia, Garcia-Arguello, Robbins, & Safdar, 2015). Aspiration pneumonia may occur in 43-50 % of stroke patients with dysphagia during the first year

after stroke and contributes to mortality rates as high as 45% (Umay, Unlu, Saylam, Caki, & Korkmaz, 2013).

The methods for dysphagia screening, and the tools being used by nurses for dysphagia screening, have varied from institution to institution. This is due to a lack of defined standards for what constitutes a valid and reliable dysphagia screen (Donovan et al., 2018). All hospitals caring for stroke patients must ensure nursing staff have the knowledge to provide evidence-based stroke care and adhere to protocols that reflect current care practices (Powers et al., 2018). A minimal standard of care for all stroke patients is that a qualified healthcare worker will screen stroke patients for dysphagia within 24 hours of hospital admission (Hines, Kynoch, & Munday, 2014). Early detection of dysphagia through screening can allow for earlier treatment, shorten the recovery period, reduce medical complications, and improve patient outcomes (Umay et al., 2013).

To address concerns with dysphagia and a need for early screening, an expert panel that included speech language pathologists (SLPs) and the stroke coordinator at a Midwestern hospital reviewed evidence-based dysphagia screening tools and protocols to implement a new dysphagia screening tool for this organization. The current dysphagia screening tool was originally developed at this organization. This tool was implemented after determining inter-rater reliability rate of 81% for a total of 100 patients at this organization. However, after a review of the literature, the expert panel chose the YSP to replace the current dysphagia screening tool at this specialty care hospital in a Midwestern state.

According to the literature, YSP is simple and inexpensive to administer, quick to perform and interpret, reliable and accurate, and validated for use by RNs (Leder & Suiter, 2014). Several dysphagia screening tools have been recommended in the literature for stroke patients; however, only a limited number have been validated against gold standard assessment of aspiration risk (Smith et al., 2018). The YSP is one of the tools validated against the gold standard for instrumental evaluation of swallowing (Leader & Suiter, 2014), so it meets identified criteria necessary to be a successful screening tool (Leader & Suiter, 2014).

Further, it was identified that there is no formalized staff education at the organization in this study to train RNs to complete dysphagia screening for stroke patients. To address this a gap in practice, this staff education project was developed, utilizing a web-based education management system to improve knowledge acquisition for RNs who care for stroke patients throughout the hospital. The staff education project was developed collaboratively by an expert panel, which included me, a stroke coordinator, a SLP, and the intensive care unit (ICU) staff educator. Dysphagia screening education will then occur annually for RNs who care for stroke patients at this facility to ensure staff are qualified and have the tools necessary to perform dysphagia screening. The plan for the stroke program is to implement annual dysphagia screening education via the web-based education management system once the education module and summative evaluation materials are developed and implemented.

Purpose

The purpose of this staff education project was to increase RNs' knowledge regarding dysphagia screening and assist in the implementation of the YSP to be used as a nursing dysphagia screen with acute stroke patients. The practice-focused question was "Will RNs who complete a dysphagia screening education module demonstrate improved knowledge acquisition for dysphagia screening?" The Walden University Manual for Staff Education, John Hopkins nursing evidenced-based practice (JHNEBP) model (Dang & Dearholt, 2017), and YSP (Leder & Suiter, 2014) were used to guide the development of this staff education project. The adult learning theory (Rutherford-Hemming, 2012) guided the development of the course learning objectives and measurement of knowledge acquisition.

Skills for performing dysphagia screening vary among experienced and novice nurses, and disparity in assessment of the patient can greatly affect decisions regarding screening results and interventions (Mandysova, Trundova, & Ehler, 2016). Further, clinical assessment and management of dysphagia in stroke patients can be challenging due to limited resources and availability of SLPs to perform specialized assessments (Martino, Maki, & Diamant, 2014). This DNP project may help to prevent disparities in the way that patients are currently being screened and treated for dysphagia.

The current dysphagia screening tool has been used at this organization for several years, but newly hired RNs are not trained regarding how to correctly perform dysphagia screening. Therefore, the current tool will be replaced by the validated YSP after RNs are taught how to perform dysphagia screening using this evidence-based

dysphagia screening tool. Educating staff to use the YSP will ensure that RNs have the skills necessary to perform dysphagia screening as well as determine the need for further evaluation of swallowing function (Leader & Suiter, 2014). The effectiveness of dysphagia screening is dependent on accuracy and reliability of the screening method and effectiveness of dysphagia management interventions (Smith et al., 2018).

This DNP project addressed a gap in practice related to nursing knowledge of dysphagia screening. RNs need education and resources to deliver evidence-based care and adhere to the organizations policy and procedure for dysphagia screening of stroke patients. Physician admission orders for stroke care at this specialty care hospital state that dysphagia screening will be completed before patients are given food, fluids, or medications by mouth. If a patient fails the dysphagia screen, the patient will have nothing by mouth until a swallow evaluation is completed by speech therapy. The organization's policy and procedure for dysphagia screening identifies that the RN is the staff member who is responsible for dysphagia screening. Thus, this staff education was aimed at increasing their knowledge regarding evidence-based dysphagia screening.

Nature of the Doctoral Project

The organization is revising the nursing dysphagia screen policy and procedure and the stroke admission order sets for the care of stroke patients. This includes retiring the current dysphagia screening tool and implementing the YSP. Therefore, RNs need to be educated and have increased knowledge for dysphagia screening utilizing the YSP. This DNP project thus addresses a gap in practice related to nursing knowledge of dysphagia screening by providing staff the skills and resources to perform evidence-

based dysphagia screening utilizing the YSP. Evidence to guide this doctoral project was obtained from the Walden Library databases, which included CINHAL, Medline, PubMed and ProQuest

A literature review was completed to study the evidence for dysphagia screening instruments and protocols in the literature. The review was limited to peer-reviewed full text articles and systemic reviews between the years 2013–2019. Key words used for review of the literature included *stroke*, *dysphagia screening*, *bedside swallow screen*, *swallow screening tools*, *nursing swallow screen*, *difficulty swallowing*, *deglutition*, *stroke guidelines*, *aspiration pneumonia*, and *Yale Swallow Protocol*. The Joanna Briggs Level of Evidence and Grades was used to organize and appraise articles that were used to inform this doctoral project (The Joanna Briggs Institute, 2014). The JHNEBP model, adult learning theory, and YSP were the theoretical framework for the doctoral project. Approval to conduct this educational project was sought from the institution's institutional review board (IRB).

A web-based education module and live super user education were developed for this staff education project to address a gap in practice related to nursing knowledge of dysphagia screening. Sources of evidence that were collected by the facility to meet this doctoral project included an anonymous pretest and anonymous posttest (see Appendix A). RNs were asked to complete an anonymous paper-based pretest prior to engaging in the web-based dysphagia screening education module. Completion of the dysphagia screening education module were followed by an anonymous paper-based posttest to

measure knowledge acquisition. Deidentified evidence was provided by the facility to me and was organized and analyzed for the purpose of this DNP project.

Significance

This specialty care hospital provides care for approximately 9,000 inpatients per year, and approximately 307 stroke patients were cared for in 2018 at this hospital. RNs are the stakeholders are impacted by this staff education project. There is strong evidence in the literature that dysphagia screening by nurses significantly reduces the number of chest infections in patients with stroke (Hines et al., 2014). Therefore, it is important that formal dysphagia screening guidelines are in place in healthcare organizations and that formalized guidelines include screening patients for dysphagia with a validated tool within 24 hours of admission (Hines et al., 2014). Adhering to dysphagia screening guidelines and protocols allows for early identification of potential swallowing problems and implementing appropriate interventions, which can affect positive social change. Implications for positive social change are based on national standards (Smith et al., 2014) and an expectation that dysphagia screening will be performed and documented on stroke patients whom are hospitalized for acute stroke, before food, fluids, or medications are given by mouth (Powers et al., 2018).

The current nursing swallow screen policy and procedure requires that all stroke patients are screened for dysphagia, followed by an automatic referral to SLP for a swallow evaluation, regardless if they pass or fail the dysphagia screen. Implementation of the YSP will facilitate a referral to SLP only when patients fail the YSP, which will decrease inappropriate referrals to SLP for patients who pass the YSP. The YSP has been

determined to be simple and inexpensive to administer, quick to perform and interpret, reliable and accurate, validated for use by RN and applicable for all patients regardless of diagnosis (Leder &Suiter, 2014). A double-blinded replication study was completed and confirmed that the YSP is a valid reliable tool for determining aspirant risk when compared to video-fluoroscopic swallow study (Leder & Suiter, 2014). In addition, the YSP may be considered for use for other patient populations at this organization, which may reduce the burden of creating dysphagia screening resources regardless of diagnosis.

Summary

Dysphagia is a common complication associated with stroke and increases the risk for aspiration pneumonia (Smith et al., 2019). Thus, evidence-based guidelines recommend early dysphagia screening prior to oral intake of food, fluid, or medications for patients hospitalized for stroke (Donovan et al., 2013). This staff education project was developed to increase RNs' knowledge for dysphagia screening. Educating RNs to perform dysphagia screening using the YSP will allow the hospital in this study to deliver evidence-based care to patients in this region. Impact evaluation was completed by analyzing pretest and posttest comparisons. The Walden University Manual for Staff Education was used guide this project. In addition, the JHNEBP model, adult learning theory, and YSP were also used to guide this DNP project. The models, relevance to nursing practice, background and context, and my role of as a DNP student and project team's role will be discussed in Section 2.

Section 2: Background and Context

Introduction

Dysphagia is a common complication associated with stroke and is a significant risk for aspiration pneumonia (Smith et al., 2019), which affects approximately 6-15% of stroke patients (Bray et al., 2017). Research has shown that 13.1% patients who failed dysphagia screening developed pneumonia compared to 1.9% of patients who passed dysphagia screening. In addition, 52.4% of patients who failed dysphagia screening suffered severe disability, and 14.0% were discharged to long-term care institutions (Powers et al., 2018). Therefore, evidenced-based guidelines from the AHA/ASA recommend early dysphagia screening prior to oral intake of food, fluid, or medications for patients hospitalized for stroke (Donovan et al., 2013).

The purpose of this DNP project was to address a gap in practice related to nursing knowledge of dysphagia screening and implementation of the YSP for stroke care. The practice-focused question for this DNP project addressed whether RNs who complete a dysphagia screening education module would demonstrate knowledge acquisition for dysphagia screening. This staff education project was completed to provide RNs the knowledge and skills to perform dysphagia screening utilizing an evidenced-based dysphagia screening tool. I worked collaboratively with members of the expert panel to develop a staff education project, which included course learning objectives, a web-based dysphagia screening education module, a pretest and posttest (see Appendix A), and live super user education. Hospital leadership was responsible for overseeing this staff education project and granted approval of the project to ensure RNs

have the knowledge and skills necessary to provide evidenced-based stroke care. Rationale for use of concepts, models and theories that were used for this staff education project will be discussed in this section. In addition, relevance to nursing practice, role of the DNP student, and role the project team for this staff education project will also be discussed.

Concepts, Models, and Theories

Concepts from the JHNEBP model, adult learning theory, and YSP were used to inform this DNP project and development of the course learning objectives. The YSP is an evidenced-based approach to decision making and was used as a screening instrument and validated dysphagia swallow screening protocol for this doctoral project. Permission was obtained from Leder and Suiter (2014) to use the YSP at this hospital (see Appendix B). The YSP documentation tool has been implemented into the electronic charting system to use for stroke patients at this specialty care hospital.

The JHNEBP model was used to develop the practice question, facilitate a search of the evidence regarding dysphagia screening, and implement an action plan for this DNP project. The JHNEBP model is described as a problem-solving process for clinical decision making. The JHNEBP model encourages use of scientific evidence as well as applying critical thinking and judgment when providing evidenced-based care for patients (Dang & Dearholt, 2017). Permission to use the JHNEBP model and e-tools was obtained by this DNP student for developing the staff education project (see Appendix B). Permission was granted from Johns Hopkins after completing a request online and

agreeing to adhere to legal terms, which includes not modifying the model or the tools without written approval from Johns (Dang & Dearholt, 2017).

Principles from the adult learning theory were also used to guide development of this staff education project. Adult learning theory recognizes that adult learners are problem-centered, self-directed, and respond best to learning when they understand why they need to learn something (Spies, Seale & Botma, 2015). Evidence in the literature was reviewed to identify best practices for implementing staff education, utilizing current evidence to promote a culture of critical thinking, and translating research findings in stroke patient care (White, Dudley-Brown, & Terhaar, 2016).

Terms Used in Doctoral Project

The following terms will be clarified to improve understanding of the terms that were used in this doctoral project: *aspiration pneumonia*, *clinical practice guidelines*, *clinical performance measures*, *dysphagia*, *dysphagia screen*, *hemorrhagic stroke*, *ischemic stroke*, *nursing bedside swallow screen*, *speech language pathologist*, *swallow evaluation*, and *The Joint Commission*.

Aspiration pneumonia: A complication of dysphagia from aspiration of oral contents into the respiratory tract (Jeyaseelan, Vargo, & Chae, 2015).

Clinical Practice Guidelines: A systematically developed professional guideline for evidence-based care (Powers et al., 2018).

Clinical performance measures: Standards and recommendations to advise health care providers and health care delivery systems on measuring the quality of care (Smith et al., 2014).

Dysphagia: Difficulty in swallowing (Daggert et al., 2015).

Dysphagia screen: The use of a bedside swallow screening tool by an appropriately trained clinician (Bray et al., 2017).

Hemorrhagic stroke: Occurs when a blood vessel in the brain bursts and spills blood into or around the brain. The bleeding causes brain cells to die and the part of the brain that is affected stops working correctly (Centers for Disease Control and Prevention, 2018b).

Ischemic stroke: Occurs when blood flow through the artery that supplies oxygen-rich blood to the brain becomes blocked. As a result, the brain cannot get adequate blood and oxygen, so brain cells die (Centers for Disease Control and Prevention, 2018b).

Nursing bedside swallow screen: A process in which a nurse is trained to perform a swallow screen at the bedside, utilizing an evidence-based screening tool (Campbell, Carter, Kring, & Martinez, 2016).

Swallow evaluation: A comprehensive swallow assessment through various textures and consistencies (Jiang, Fu, Wang & Ma, 2016).

Speech language pathologist: Someone who specializes in the evaluation, diagnosis, and treatment of dysphagia and swallowing disorders (Jiang et al., 2016)

The Joint Commission: A U.S.-based organization that accredits U.S. health care organizations and programs. The Joint Commission accreditation and certification is recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting performance standards (The Joint Commission, 2018).

Relevance to Nursing Practice

Evidence has shown that patients with dysphagia are 3-11 times more likely to develop aspiration pneumonia than patients with normal swallowing ability (Poorjavad & Jalale, 2014). In addition, mortality risk is higher in patients who have dysphagia, resulting in approximately 20% of stroke patients who die from aspiration pneumonia in the first year after acute stroke (Poorjavad & Jalale, 2014). However, researchers have identified that clinical swallow screen are only 80-85% accurate and reported sensitivity and negativity values are too low (Leder & Suiter, 2014). Additionally, expert recommendations following the State-of-the-Art Nursing Symposium, International Stroke Conference in 2012, have determined that there is not enough evidence to recommend a single consensus method for dysphagia screening (Donovan et al., 2013).

To address this gap in practice, a review of the literature for evidence-based dysphagia screening was completed to identify dysphagia screening instruments and protocols. Key words used for review of the literature included *stroke*, *dysphagia screening*, *bedside swallow screen*, *swallow screening tools*, *nursing swallow screen*, *difficulty swallowing*, *deglutition*, *stroke guidelines*, *aspiration pneumonia*, and *Yale Swallow Protocol*. The literature search resulted in 1,078 articles. The literature was used to anticipate staff learning needs and promote the development of educational content and summative evaluation for this staff education project. Additional key words were combined to narrow down the search, which included *staff education*, *staff development*, and *Yale Swallow Protocol*. This search resulted in seven full-text articles.

A prospective, blinded, referral-based study was completed to identify if RNs who have completed a web-based education module, could administer and interpret the Yale swallow protocol reliably, when compared with speech-language pathology (Warner, Suiter, Nystrom & Suiter, 2013). Fifty-two RNs and 101 inpatients participated in the study. Results from the study confirmed reliability and 98% accuracy, 96·5% sensitivity, 97·9% negative predictive value and <2% false negative rate. These results allowed for the adoption of the RN administered the YSP, for the hospital population, at the large, urban, acute care, teaching hospital (Warner, Suiter, Nystrom & Suiter, 2013).

Local Background and Context

This organization is a large hospital in a midwestern state, in the United States. The hospital receives patients from across the region and provides care in 65 specialties and subspecialties. The medical staff consists of more than 200 doctors who work as a team with as much as 1,800 employees. This organization cares for approximately 9,000 inpatients and more than 350,000 outpatients per year. This organization is striving to obtain Joint Commission's certificate of distinction, for Primary Stroke Centers. Achievement of certification signifies that the services provided meet the unique needs specific to stroke care and improve outcomes (The Joint Commission, 2019). The Joint Commission recognizes organizations that demonstrate compliance with the Joint Commission's national standards and performance measurement (The Joint Commission, 2019).

Utilizing an evidence-based dysphagia screening tool and demonstrating compliance with the Joint Commission's national standards and performance

measurement, is a priority for this specialty care hospital. (The Joint Commission, 2019). The YSP is replacing the current dysphagia screening tool, because the YSP meets clinical criterion for a reliable screening tool and has been shown to be reliable for determining the likelihood of aspiration risk. The YSP has a sensitivity of 96.5 %, a negative predictive value of 97.9 %, and a false negative rate less <2.0 % (Leder & Suiter, 2014). This organization intends to provide annual dysphagia screening staff education so developing an education module and assessment tools that can be used on an annual basis is a key goal of this organization.

Role of the DNP Student

I am currently a staff nurse working in ICU at the facility where this DNP project was conducted. This project was not a part of my current employment responsibilities and was performed outside of my regular work hours. This DNP project provide me an opportunity to impact the nursing profession by collaborating with a team of experts at this specialty care hospital, by developing a dysphagia screening staff education project. As a DNP student I used leadership and organizational skills that are key attributes of the DNP. Staff education needs to be completed at this hospital, so that RNs have the knowledge and skills necessary to perform dysphagia screening accurately, prior to implementation of the YSP.

I served as a change agent for the staff education project. As a change agent I was responsible for organizing the staff education project. I took a leadership role in development of the course learning objectives, developing a web-based education module, developing evaluation materials, educating super users, analyzing and

disseminating results of the staff education project. My role in educating the super-users was to develop the super-user learning activities, scheduling and initiating super-user education sessions. I have extensive experience as a stroke coordinator for two primary stroke centers. My experience includes working in Hawaii for two years as a stroke coordinator, and previously for five years at this specialty care hospital. This experience provided me with thorough understanding regarding AHA / ASA clinical practice guidelines, and requirements for obtaining Primary Stroke Center Certification. I am well versed regarding standards for nursing dysphagia screens, while participating on the Great Lakes Regional Stroke Network Swallow Screening project in 2010 (Hedworth, Tonaelli, & Vasquez, 2018). I participated in a dysphagia screening workgroup, which included fellow stroke coordinators and speech pathologists, and completed an extensive review of the literature, regarding criterion for nursing dysphagia screening. This workgroup sought to identify regional expert consensus on swallow screening and worked towards standardizing and improving dysphagia screening throughout the region (Hedworth, Tonaelli, & Vazquez, 2011).

I also participated in a multidisciplinary work group, that developed the current dysphagia screening tool, that is being utilized at this organization. A non-randomized descriptive study was completed to measure inter-rater reliability and validity of the dysphagia screening tool. In addition, I collaborated on an abstract that was presented at the International Stroke conference poster abstract session in 2011, entitled “Abstract 2284: Reliability and Validity of the MGHS Dysphagia Screening Tool for Stroke Patients.” This abstracted was published in the Journal of Stroke in 2012 (Stebelton,

Savolainen, Carli, Filizetti & Massey, 2012). I have experience as well presenting a webinar for the Arkansas Stroke Registry to teach about my experience and expertise developing and validating a nursing bedside dysphagia screen.

Potential biases that I may possess would include my previous experience working as a stroke coordinator at this specialty care hospital, and the role I played in the development and testing of the previous dysphagia screening tool; utilized at this organization. I have addressed this bias by working with the stroke coordinator to understand the organizations desire to implement a new dysphagia screening tool and to educated myself regarding the research behind the YSP. I educated myself regarding recommendations from current literature and best practices on dysphagia screening. I also participated in several meetings with the stroke coordinator and SLP to collaborate on this staff education project so that any biases I had regarding educating staff to use a new tool would be addressed.

Role of the Project Team

An expert panel was developed to discuss implementation of a new dysphagia screening tool for stroke patients at this specialty care hospital. This expert panel consisted of the SLP, neurologist, and the stroke coordinator, who work at this organization. The goal was to review evidence-based dysphagia screening tools in the literature. The expert panel was tasked with making recommendations, regarding an evidence-based dysphagia screening tool to replace the current dysphagia screening tool that was being utilized at this organization. A 4-week time frame was used for reviewing the literature and providing feedback to the stroke steering committee. The stroke

steering committee is a leadership team that includes the medical director of the neuroscience program, neurologist, neurosurgeon, stroke coordinator and administrative leadership.

The YSP was chosen by the expert panel and stroke steering committee, as the dysphagia screening tool that will be used to provide evidence-based dysphagia screening, for stroke patients at this specialty care hospital. Research showed that the YSP meets all criteria to be a reliable and valid tool for determining aspiration risk and determine need for further evaluation (Leder & Suiter, 2014). It is simple and inexpensive to administer, quick to perform, applicable to all patients, and validated for use with other health-care professionals (Leder & Suiter, 2014). Criteria that was found in this tool, not found in other studies, is that The YSP has a 96.5 % sensitivity, 97.9 % negative predictive value and a false negative rate of < 2.0 % (Leder & Suiter, 2014).

The expert panel developed a nursing dysphagia screening policy and procedure, as well a staff education project for RNs. Staff education was completed utilizing the approved learning objectives and delivered via a web-based education module and included live super-user education. This staff education project met the needs of the organization by addressing a gap in practice related to nursing knowledge of dysphagia screening. The web-based education module was uploaded into the organizations learning management system by the ICU staff educator. The stroke coordinator, SLP and myself served as content expects for development of the web-based education module and the super-user education.

The web-based education module and evaluation materials were made available to RNs in the emergency department, ICU, intermediate care unit, cardiac unit, and float pool on the organizations learning management system. These RNs are the nursing staff who care for stroke patients in this organization, and therefore needed to have this staff education. In addition, a live super-user in-service was developed collaboratively by the stroke coordinator and myself to provide education for staff who demonstrate the ability to attain advanced assessment skills. These staff will later be utilized as "dysphagia screening super-users" and will provide staff mentoring on the nursing units, when RNs perform dysphagia screening using the YSP for the first time.

Summary

In the United States the economic burden of stroke has been estimated at $34 billion each year. This financial burden includes the cost of health care services, medications to treat stroke, and lost productivity (Centers for Disease Control and Prevention, 2018). A staff education project was implemented to educate RN's and measure knowledge acquisition when performing dysphagia screening, using the YSP. Knowledge acquisition and effectiveness of the staff education project was evaluated by use of the pre-test and post-test comparison. Educating RNs how to perform the YSP is necessary to ensure evidence-based dysphagia screening and standardization of screening by RNs throughout the organization. In section 3 sources of evidence and data that was generated for the purpose of the doctoral project will be discussed. Furthermore, this section will describe how analysis and synthesis will be used to address the practice-focused question.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this DNP project was to assist in the development of a staff education project at a specialty care hospital to increase RNs' knowledge regarding dysphagia screening by utilizing the YSP for acute stroke patients. This project addressed the gap in practice related to nursing knowledge of dysphagia screening and lack of formal education for dysphagia screening at this organization. Section 2 covered the development of this project; concepts from the JHNEBP model, adult learning theory, and YSP and how they were used to inform this DNP project; and my role as well as the role of the project team. In Section 3 sources of evidence that were used to address the practice problem will be discussed. Protection of participants, procedure for collecting evidence, analysis, and synthesis of the evidence will also be discussed.

Practice-Focused Question

Evidenced-based guidelines recommend completing a dysphagia screen by a trained healthcare professional prior to eating, drinking, or administering oral medications (Smith et al., 2018). Though swallow assessment prior to eating and drinking are recommended in the U.S., European, and United Kingdom guidelines, there is no specific approach recommended for assessment and treatment of dysphagia (Bray et al., 2017). Utilizing an evidenced-based dysphagia screening tool and demonstrating compliance with national standards are priorities for this specialty care hospital. The primary practice focus question for this DNP project was designed to answer whether RNs who complete a dysphagia screening education module would demonstrate

knowledge acquisition for dysphagia screening. Participants were asked to complete a summative evaluation via a paper-based pretest and posttest questionnaire. Summative evaluation were directly related to the identified learning objectives and measured RNs knowledge acquisition at the specialty care hospital in Midwestern United States

Dysphagia screening is not required to be a formal evaluation of swallowing by a SLP but should be standardized screening procedure to correctly identify patients with dysphagia and ensure timely referral to SLP for a swallow examination and appropriate management when patients fail the swallow screen (Daggett et al., 2015). However, due to the limited availability of SLPs at this specialty care hospital to assess for dysphagia on a 24 hour/7-day-a-week basis, nurses are essential for timely dysphagia screening and facilitating referrals to SLP when patients fail dysphagia screening (Daggett et al., 2015). Therefore, it is essential to educate RNs to perform dysphagia screening utilizing an evidenced-based dysphagia screening tool and demonstrate compliance with national standards (Smith et al., 2018).

Sources of Evidence

Dysphagia is a life-threatening complication in patients with stroke that has a prevalence rate of 19-81% (Umay et al., 2013). This wide prevalence rate is due to varying screening tests used in stroke care and the interim when screening tests are performed (Umay et al., 2013). Because aspiration pneumonia occurs in 43-50% of patients with dysphagia during the first year after stroke (Umay et al., 2013), early identification of dysphagia and aspiration risk for stroke patients is necessary to avoid adverse patient outcomes (Donovan et al., 2013). However, there are over 35 post-stroke

dysphagia screening tools (Jeyaseelan, Vargo, & Chae, 2015). Many of these dysphagia screenings tools have strengths and limitations (Donovan et al., 2013), and there is considerable variation in dysphagia screening tools used in hospitals (Smith et al., 2018). Evidence-based guidelines for acute ischemic stroke do not specify which dysphagia screening tools are best to use. Thus, hospitals are encouraged to select a dysphagia screening tool that appropriate for their practice. But evidence has shown that the effectiveness of dysphagia screening depends on the accuracy and reliability of the screening method used and dysphagia management interventions (Smith et al., 2018).

For this project, an extensive literature search was completed by members of the expert panel prior to choosing the YSP. Numerous dysphagia screening tools and nursing swallow screens were compared for clinical characteristics that identify patients who are at risk for aspiration from dysphagia. Evidence was obtained from databases such as CINHAL, MEDLINE, ProQuest nursing, PubMed and Embassy. Government websites such as the Centers for Disease Control and Prevention and agencies such as The Joint Commission. A combination of key words used to guide the literature search included *dysphagia screening*, *bedside swallow screen*, *swallow screening tools*, *nursing swallow screen*, *stroke guidelines*, *aspiration pneumonia*, *Yale Swallow Protocol*, *staff education*, *staff development*, and *professional development*.

Literature Review

Sources of evidence in the literature, which were relied on to develop this staff education project, include a systemic review of expert opinions. For instance, according to the AHA/ASA 2018 guidelines for the early management of patients with ischemic

stroke, dysphagia screening before a patient begins eating, drinking, or receiving oral medication is reasonable to identify patients who are at risk for aspiration (Powers et al., 2018). The AHA/ASA recommended that a SLP or other trained healthcare provider may complete dysphagia screening. In addition, because it is not well-established which dysphagia screening tool is to be used for evaluation, the choice for a dysphagia screening tool may be based on instrument availability or other considerations (Powers et al., 2018).

The initial search of the literature for this DNP project yielded 1,087 articles, which was further narrowed down to 21 articles and organized using The Joanna Briggs Institute Level of Evidence and Grades of Recommendation (Joanna Briggs Institute, 2014). The publication times for the articles were from 2012-2018. While examining the literature regarding dysphagia screening, using the Joanna Briggs Institute appraisal system, much of the literature were Level 5, which is expert opinion and bench research level. For the 21 articles that were used to guide this DNP project, there was strong support for dysphagia screening using an evidence-based screening tool, which is considered best practice for the care of patients with acute stroke.

Table 1

Number of Articles Utilizing Joanna Briggs Level of Evidence and Grades

Criteria	Level of Evidence	No. of articles
Quasi-experimental prospectively controlled study	2c	5
Pretest–Posttest or historic/retrospective group study	2d	1
Cohort study with control group	3c	2
Systemic review of descriptive studies	4a	4
Case study	4d	2
Systemic review of expert opinion	5a	3
Expert consensus	5b	4

The AHA/ASA 2018 guidelines were also reviewed for evidenced-based integrity, as they are endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons (Smith et al., 2018). These guidelines have also been endorsed by the Society for Academic Emergency Medicine (Powers et al., 2018). The AHA/ASA 2018 guidelines identified that 13.1% patients who fail dysphagia screening were more inclined to develop pneumonia compared to 1.9%. In addition, 52.4% of these patients had severe disability and 14.0% were discharged to long-term care institutions, which indicates that early dysphagia screening is reasonable for identifying patients who are at higher risk for adverse outcomes that are associate with dysphagia (Powers et al., 2018). These statistics support the need for this organization to implement use of the YSP and provide staff education to ensure that RNs are knowledgeable regarding dysphagia screening.

The AHA/ASA Clinical Performance Measures for Adults Hospitalized with Acute Ischemic Stroke also clarified that dysphagia screening can be either a bedside swallowing screen administered by nursing staff, bedside swallow evaluation performed by a SLP, video-fluoroscopic evaluation, fiber optic endoscopic evaluation of swallow, or other method approved by institutional protocol (Smith et al., 2014). In addition, assessment of swallowing before eating, drinking, or receiving oral medications is considered a Class I, Level of Evidence B recommendation (Smith et al., 2014).

In addition to providing information on endorsed guidelines, research from the literature review indicated that nurses have an important role in screening for dysphagia with a validated tool within 24 hours of admission (Hines, Kynoch & Munda, 2014).

There has been strong evidence to support the role of nurses in the identification and management of dysphagia in patients with neurological impairment. Results have shown that when nurses are trained to use a dysphagia screening tool, the number of accurate screens performed will be increased, resulting in reduced chest infections and rates of death among patients with dysphagia (Hines et al., 2014). Early identification and initiation of appropriate interventions can greatly reduce complications associated with dysphagia and positively impact of patient outcomes (Hines et al., 2014).

Studies show that dysphagia is a serious medical condition that can result in aspiration pneumonia, malnutrition and dehydration (O'Horo, Rogus-Pulia, Garcia-Arguello, Robbins & Safdar, 2015). Dysphagia rates are as high as 47% after acute ischemic stroke (Masrur et al, 2013). Studies have shown pneumonia is associated with a 5-fold increase in mortality among hospitalized stroke patients (Masrur et al, 2013). Identifying dysphagia at the bedside can be challenging, because there is a wide a variety of dysphagia screening tools (Etges, Scheeren, Gomes, & Barbosa, 2014) and many tools lack the sensitivity necessary for screening effectively (O'Horo, Rogus-Pulia, Garcia-Arguello, Robbins & Safdar, 2015). Therefore, organizations are encouraged to choose the instrument that suits the needs of the activity and patients that are being screened (Etges, Scheeren, Gomes, & Barbosa, 2014). In addition, studies show the incidence of pneumonia may decrease at hospitals that adopt a formal dysphagia screening protocol (Masrur et al, 2013). More research is needed that is focused on development of a comprehensive screening tool for the detection of dysphagia and prediction of adverse

health outcomes, such a pneumonia (O'Horo, Rogus-Pulia, Garcia-Arguello, Robbins & Safdar, 2015)

Evidenced Generated

The YSP was implemented after educating RNs regarding the importance of using an evidence-based dysphagia screening tool. RNs at this special care hospital were educated utilizing a web-based education module. The module educated nurses regarding the importance of applying clinical practice guidelines for stroke care utilizing the evidence-based dysphagia screening tool for early management of stroke patients. The purpose of dysphagia screening is to determine the likelihood of aspiration risk, determine the need for further evaluation, and decrease related complications such as pneumonia, malnutrition, disability, and death. Once dysphagia is recognized, the nurse can intervene to prevent aspiration by keeping the patient Nil Per Os (nothing by mouth) and sending a referral to the SLP for extensive swallow evaluation.

For the staff education project, the expert panel determined that anonymous paper-based pre-test and post-test questionnaires (see Appendix A) specific to the learning objectives would be analyzed to measure acquisition of knowledge and the effectiveness of the staff education project. The following learning objectives were approved by members of the expert panel and administration at this organization, after fully analyzing education needs and developing the nursing dysphagia screening policy and procedure.

1. Apply guidelines for stroke, utilizing the YSP.
2. Recognize symptoms of dysphagia in acute stroke patients.

3. Identify when to initiate the YSP.
4. Accurately assess patient results upon completion of the Yale Swallow
5. Protocol.
6. Evaluate patient results
7. Initiate appropriate interventions.

Participants

Participants for the nursing dysphagia screen web-based education intervention included 57 RNs in ICU, intermediate care unit, emergency department, cardiac unit, and the float pool. Staff were selected for participation in the staff education project to measure knowledge acquisition for dysphagia screening, because they provide care for stroke patients at this hospital. Staff from behavioral health, obstetric and pediatric unit nurses will be excluded from the education, because they do not provide care from acute stroke patients, and therefore measurement of knowledge acquisition for dysphagia screening is not necessary.

Procedure. The procedure for collection of evidence and data generated for the purpose of this DNP project was accomplished after Walden IRB and organizational IRB approval. Tools that were used to collect evidence for this DNP project included anonymous pre-test and anonymous post-test (see Appendix A). Pre-test and post-test data were given to the DNP student by the facility retrospectively for analysis, to ensure staff participation remained anonymous and all data was deidentified.

The anonymous pre-test were completed by staff on paper, to measure staff's knowledge of dysphagia screening prior to completion of the web-based dysphagia

screening educational module. Anonymous post-test was completed by staff on paper, after completing the web-based dysphagia screening education module, to measure knowledge acquisition.

The questions on the anonymous pre-test and anonymous post-test are the same questions as the pre-test and post-test questions assigned on the learning management system. It is important for this DNP project to use the same pre-test and post-test questions, that the facility is utilizing to measure knowledge acquisition. Pre-test and post-test data from the learning management system will not be provided to this DNP student, in order to ensure protection of participants and ensuring all data for this DNP project is deidentified

Data obtained from the organizations learning management system, regarding pre-test and post-test questionnaires, will only be used by leadership at the organization to measure knowledge acquisition and determine if the dysphagia screening education module is effective for meeting the educational needs of the nursing staff. Validation of education and knowledge acquisition is important for quality stroke care, as this organization seeks approval by The Joint Commission to become a certified primary stroke center (The Joint Commission, 2014).

I developed a cover letter detailing the DNP project, with an emphasis on voluntary participation in the project. The cover letter described the purpose of the anonymous pre-test and post-test. The cover letter detailing the DNP project and anonymous evaluation materials were distributed to the staff educators by this DNP student. Staff educators then distributed the materials to respective nursing units for

participants to complete at their convenience. Participants were instructed to place completed pre-tests and post-tests in corresponding envelopes. The procedure for distributing and retrieval of the anonymous evaluation materials was recommended by administration and content experts at this organization.

Super-users were educated during a face-to-face, interactive education intervention. Approximately 10 RNs from ICU & intermediate care unit were sought out by the stroke coordinator and ICU leadership to serve as super-users and mentors for ICU. I served as the lead organizer for the super-user education intervention. I demonstrated how to correctly perform dysphagia screening using the YSP, followed by a return demonstration by attendees. This face-to- face educational session provided super-users the necessary skills and resources to serve as mentors in ICU & intermediate care unit.

Protections. Approval from Walden's IRB and site agreement was obtained before the project began. The project complied with the Walden's IRB, guidelines set forth in the educational manual and the IRB at the DNP project site. The Walden IRB approval number for this project is 02-07-20-0056526. A consent form for anonymous questionnaires was given to staff prior to collecting questionnaire responses, explaining that the project was voluntary and that a consent signature was not appropriate for these types of questionnaires and providing respondents with anonymity is required. It also explained that if participants joined, they could change their mind later. Results of the pre-test and post-test questions that were completed on the organizations learning management system were not provided for this DNP project.

Analysis and Synthesis

An Excel spread sheet was be used to record, track, and organize the evidence for this DNP project. Descriptive statistics using percentage difference in pre/post-test scores was completed. using the IBM SPSS statistical software package. I addressed the issue of outliers by data cleaning and inspecting the highest and lowest values to determine data entry errors, or the legitimacy of any outliers, and removing outliers if appropriate. Analysis and dissemination of information for this staff education project will be presented to the stroke steering committee and nursing leadership at this organization.in graph form utilizing Microsoft Office Power Point presentation.

Summary

There are many challenges associated with implementing evidence-based guidelines for dysphagia screening (Smith et al., 2018). According to the AHA/ASA these challenges include the absence of consensus regarding the most accurate and reliable tool (Smith et al., 2014). This organization is currently using a dysphagia screening tool that has not been tested for reliability and validity. Therefore, a revised dysphagia screening tool has been developed, based upon best evidence. Educating staff to perform dysphagia screening using an evidence-based dysphagia screening tool will address this gap in practice. Sources of evidence to address the practice focus question was discussed in Section 3. In addition, a description of how the evidence was collected, protection of participants analysis and synthesis of the data were also discussed. In Section 4 the findings and implications for the DNP project will be discussed.

Recommendations to address the gap in practice, strengths, limitations, and dissemination plan will also be discussed in Section 4.

Section 4: Findings and Recommendations

Introduction

Dysphagia is a life-threatening complication experienced by patients with acute stroke (Campbell, Carter, Kring, & Martinez, 2016), as it is associated with aspiration pneumonia, dehydration, malnutrition, and death (O'Horo, Rogus-Pulia, Garcia-Arguello, Robbins & Safdar, 2015). Thus, stroke patients must be screened for dysphagia within 24 hours of hospital admission for acute stroke (Hines et al., 2014). Nurses play a significant role in early identification and treatment for dysphagia when they possess the tools and skills to preform evidence-based dysphagia screening (Hines et al., 2014).

The purpose of this staff education project was to address the gap in practice regarding RNs lack of knowledge for evidence-based dysphagia screening and skills necessary for implementation of the YSP. The practice focus question for this doctor project was "Will RNs who complete a dysphagia screening education module demonstrate improved knowledge acquisition for dysphagia screening?" The Walden University Manual for Staff Education, JHNEBP model (Dang & Dearholt, 2017), and YSP (Leder & Suiter, 2014) were used to guide the development of this staff education project. Additionally, the adult learning theory (Rutherford-Hemming, 2012) was used as a teaching methodology to guide development of the course learning objectives and measurement of knowledge acquisition.

The evidence for this project was obtained through a collection of pre-test and post-test data. The anonymous pre-test was completed by staff on paper prior to completing the web-based dysphagia screening education module, and an anonymous

post-test was completed after. Pre-test and post-tests were labeled with corresponding numbers prior to distributing to participants, so that data remained deidentified. The data were organized in an Excel file using a row to represent each participant with columns depicting the pre-test and corresponding post-test. A paired sample *t* test using SPSS Version 24 software was performed to evaluate whether an increase in knowledge acquisition occurred, after completion of the dysphagia screening educational module.

Findings and Implications

There were 57 RNs who participated in this staff education project for both the pre-test and post-test, with almost all participants answering every question for both tests. A paired samples *t* test, utilizing SPSS was performed to determine whether there was a significant difference in the pre-test and post-test scores. A paired sample *t* test compares means from the same group at different times (Eddington, 2015). Every *t*-value has a *p*-value to go with it, which range from 0% to 100%, lower being better because it indicates that the data did not occur by chance (Eddington, 2015). For example, a *p*-value of .01 means there is only a 1% probability that the results from an experiment happened by chance. In most cases, a *p*-value of 0.05 (5%) is accepted to mean the data is valid (Eddington, 2015).

For this project each participant's pre- and post-test percent scores were calculated for the tests and then the percent differences (pre-test score vs. post-test score) were used in the paired *t* test. The pre-test analysis demonstrated that RNs had some knowledge on dysphagia screening best practices. The results of the pre-test scores, which assessed the participants' knowledge before the educational activity, were as

follows: M = -6.98, *SD* = .517. The analysis of the posttest scores (M = 7.53, *SD* = .601) revealed an improvement in the staff's knowledge on dysphagia screening best practices. The analysis also indicated that there was a statistically significant difference between the pre-test and post-test scores, suggesting that the educational activity had an impact on the learners' knowledge, and it did not occur by chance (t = -6.254, df = 56, p = .000).

Results from analysis of the paired samples *t* test demonstrated strong evidence that the educational module is associated with a change in the participants performance on the post-test. In this participant sample (N = 57) the overall pre-test score was 86.3%, and post-test scores improved to 94.9 %. Due to the significant changes in pre- and post-test scores, I decided to further analyze the individual test questions. The question-by-question look at test answers revealed that Questions 4 and 8 were more difficult than the rest of the test. The results revealed there was significant improvement in test Question 4 (pre-test 12.3%, post-test 61.4%), and though the group improved on the post-test, almost 40% of participants still missed the question. For Question 8 results (pre-test 61.4%, post-test 90.9%), about 40% of participants incorrectly answered the Question 8 on the pre-test, and 9.1 % missed it on the post-test (see Table 2).

Table 2

Number of Participants for Each Question and Comparison of Test Results

Test question	Pretest *N*	Pretest %	Posttest *N*	Posttest %
1	57	100 %	57	100
2	57	96.5 %	57	100 %
3	57	91.2 %	57	94.7 %
4	57	12.3 %	57	61.4 %
5	57	100 %	57	100 %
6	57	100 %	57	100 %
7	57	100 %	56	100 %
8	57	61.4 %	55	90.9 %
9	57	100 %	56	100 %
10	57	98.2 %	56	100 %

Unanticipated Limitations

There were two unanticipated limitations that may have impacted the findings for this project. The first limitation was a 6-month delay in the development and roll out of the education module. This was due to a new hospital facility that had been built to replace the previous hospital structure, which resulted in physically moving the entire hospital from one location to another. Allocating resources to build the dysphagia screen module into the learning management system was a low priority during this time frame. The delay in the role of out this educational module resulted in a delay to educate staff for the implementation of the YSP. Once the module was completed, staff had a 30-day time frame to complete the education module so that the old swallow screen could be retired and the YSP could go into effect.

The second potential limitation was the procedure for participation in this DNP project. If RNs volunteered to participate in this DNP project, they were asked to complete pre- and post-tests voluntarily on paper, so participation remained anonymous and all data remained deidentified. This essentially meant volunteers were being asked to

complete the tests twice; once in the learning management system for tracking and evaluation of staff training and a second time, anonymously on paper, for the purpose of this DNP project. This process was determined by leadership and IRB at the hospital in order to protect subjects and maintain anonymity. This process could have a potential impact due to added time commitment by volunteers to take the tests twice and the possibility that answers may vary in electronic versions of the tests; compared to paper-based

Potential implications to positive social change at this specialty care hospital include improved knowledge for evidence-based dysphagia screening among RN staff. Improved scores on the post-test indicates staff can adequality recognize dysphagia in stroke patients utilizing the YSP, which has been shown to be a reliable tool for determining the likelihood of aspiration risk (Leder & Suiter) (2014).

Recommendations

It appears that volunteers who completed the pre-test may have had a high-level of knowledge regard dysphagia screening because participants received 100% on 5 of the pre-test questions (see Table 2). However, it seems quite clear that subject matter on questions 4 and 8 should be the focus of any revisions of the education materials at least initially. If we consider the high-level of knowledge that participants came into the training with, I would be interested in how less experienced participants would react to the educational materials.

The educational content of this project will need to be reviewed on an annual basis to ensure the content and suggested practices remain relevant and staff who care for

stroke patients have the tools and knowledge necessary to perform evidence-based dysphagia screening. In addition to assigning the web-based dysphagia screening module to new employees on nursing units that care for stroke patient. Super users will continue to provide staff mentoring when new employees perform dysphagia screening using the YSP for the first time This will ensure that new staff have hands on training and ability to perform a return demonstrate when using the YSP to screen patient for dysphagia for the time.

Contribution of the Doctoral Project Team

The project was conducted by the doctoral student with collaboration by members of the expert panel, which included the Stroke Coordinator, Speech Pathologist, and ICU Staff Educator at the specialty care hospital. Each member was informed of their role(s) and responsibilities, including dates and times of meetings, due dates for project related items, development of the education module, pre and post-tests, summative evaluation, and super-user education sessions. Following the development and review of the educational content the project team was granted approval to proceed with the staff education project.

DNP Student

The role of this DNP student for this project was to serve as a content expert regarding dysphagia screening and serve as a change agent. As a change agent I collaborated with the stroke coordinator and was responsible for organizing the staff education project. I took a leadership role in the development of measurable course learning objectives, developing the Microsoft power point staff education module, pre-

test and post-test questions, educating super users, as well as analyzing and disseminating results of the staff education project. My role in educating the super-users was to develop the super-user learning activities, scheduling meeting times and initiating super-user education sessions.

Stroke Coordinator

The stroke coordinator and the role that she played was instrumental to the success of this project. She facilitated a literature search with content experts of evidence-based dysphagia screening tools, which resulted in a recommendation to replace the dysphagia screening tool that was currently being used at this organization. The stroke coordinator shared results of the literature search as well as content expert recommendations with the Neurologist and leadership, who granted approval to educate the nursing staff and implementation of the YSP at this specialty care hospital. The stroke coordinator took a leadership role in scheduling project meetings and reserving meeting spaces. She was key in collaborative development of the staff education module, super-user education sessions, pre/ post-tests and summative evaluation. She took a leadership role for uploading the staff education module, pre/post-tests, and summative evaluation materials to the learning management system.

Speech Language Therapist

The Speech Language Therapist played a vital role as a content expect when reviewing the literature for evidence-based dysphagia screening tools and recommending the YSP to leadership at this organization. She was able to meet regularly with the stroke

coordinator and this DNP student to develop the staff education module, pre-test and post-tests and super-user training sessions.

Nurse Educator

The Nurse Educator also played a significant role in this staff education project. She served as a content expert regarding the process for uploading the web-based education module, pre-test and post-tests into the organizations learning management system. She provided feedback regarding how to contact staff for participation in the DNP project and providing participants anonymous pre-test and post-tests to this DNP student for analysis.

Strengths and Limitations of the Project

The staff education project had some identified strengths and limitations. One strength was utilizing super users as the "go-to" people in the various nursing departments to mentor and assist staff for implementation of the YSP. The super users demonstrated immediate buy in regarding use of the YSP for stroke patients. Each of the super users was recommended by unit directors for this project because they demonstrated strong communication skills; were approachable, and enthusiastic. These traits helped to facilitate staff buy in and participation in the education activities and roll out of the YSP. The project team also served as a strength for the staff education project. The project team members served as content experts, providing recommendations, feedback and ongoing assessment of activities throughout roll out of the YSP. This team of experts were all very engaged in the project, used their knowledge to solve the gap in

practice, and applied clinical scholarship as well as analytic methods for evidence-based practice.

There were no demographics variables for participants who completed the pre-post-tests. Leadership from the organization did not want participant demographics to be included in this staff education project. This is viewed as a limitation of the project. It is unclear if the 57 participants had previous experience using the old dysphagia screening which may have impacted the finding for this project. related to participants their previous knowledge regarding dysphagia screen best practices or years of nursing experience. Requiring staff to complete 2 separate versions of the pre/post-tests is also a potential limitation of the study but a necessary process utilized in order to ensure anonymous participation and provide respondents with anonymity. A second limitation was the timing for the project. Initially this education project was set to begin 6 months earlier but due to completing priorities and projects such as the physical move of the hospital, this project was put on hold. Once the dysphagia screening education module was uploaded to the learn management system, staff were given a 30-day window of time to complete the pre-test, dysphagia screening education module and post-test. This narrow timeline was chosen so that implementation of the YSP could be completed and clinical performance measures for evidence-based stroke care were being utilized.

Section 5: Dissemination Plan

The staff education module was developed by an expert panel collaboratively utilizing a web-based education management system to improve knowledge acquisition and address the gap in practice at the specialty care hospital in this study. The educational content designed for this staff education project served as a strong foundation for implementation of the YSP at the organization. Nursing RNs demonstrated improved knowledge regarding dysphagia screening and acknowledged that they feel confident to perform evidenced-based dysphagia screening for stroke patients. Annual dysphagia screening education will be completed moving forward via the web-based education management system to ensure that staff remain confident in their ability to perform dysphagia screening and prevent disparity in assessment of patients that could affect decisions regarding screening results and interventions at this specialty care hospital.

The plan for dissemination of this project is for me to present the results of the project to the Stroke Steering Committee. The Stroke Steering Committee meeting is attended by the stroke leadership team as well as other key administrative leaders at this organization. The Stroke Steering Committee meets monthly and oversees all aspects of the stroke program at this organization. I have developed a Microsoft power point presentation that discusses the gap in practice that this DNP project addressed, implementation of the staff education module, pre-/post-test project results, and summative evaluation from staff.

The completed project in the form of a scholarly paper will also be presented to the Human Resource Department at this specialty care hospital as per their request to

ensure no identifying information regarding the institution is disclosed prior to publication. Additionally, the completed project in the form of a scholarly paper will be submitted to ProQuest to be published in the official database. ProQuest is an official databased utilized for doctoral and master's level theses and dissertations. Publishing this project in ProQuest will provide dissemination of the project to a broader nursing profession.

Analysis of Self

The DNP project has provided me with the opportunity to translate the knowledge that I gained through my doctoral studies into my nursing practice. This project experience allowed me to evaluate and develop care delivery approaches that meet the current needs of patient populations based on scientific evidence and best practices. I was also able to work in an interprofessional team that functioned in a highly collaborative fashion, which has prepared me to play a central role in interprofessional teams and assuming a leadership role when appropriate.

As a practitioner I was able to impact patient care in a clinical setting by evaluating the educational needs of RNs caring for stroke patients and taking a leadership role in developing an educational activity that facilitated evidence-based care to improve patient outcomes. In addition, as a scholar, I used analytic methods to critically appraise existing literature of dysphagia screening. I was able to use the scholarship of discovery and scholarly nursing practice to solve the gap in practice. Furthermore, as a project manager, I was able to use the principle of practice management including conceptual and practical strategies in the development and evaluation of the staff education project.

The staff education project was successfully designed, planned, initiated according to best practices. Challenges regarding the delay in implementing the staff education project and uploading the module to the learning management system were addressed collaboratively by the team by assessing the impact these delays had on patient safety and excellence in practice. Overall, my role as a DNP practitioner, scholar, and project manager has positioned me to be a change agent and influence institutional change to improve healthcare delivery and outcomes. In addition, I will be able to use this project to promote patient safety and policy development on multiple levels.

Summary

The aim of this DNP project was to improve knowledge acquisition for dysphagia screening. Skills for dysphagia screening vary among experienced and novice nurses. Disparity in assessment of the patient can affect the care of patients regarding screening results and implementation interventions to promote aspiration (Mandysova, Trundova & Ehler, 2016). The goal of the study was accomplished by educating stuff using the web-based dysphagia screening educational module and evaluating knowledge acquisition through use of pre- and post-test analysis. The Walden University Manual for Staff Education, JHNEBP model (Dang & Dearholt, 2017), YSP (Leder & Suiter, 2014), and adult learning theory (Rutherford-Hemming, 2012) were used to guide the development of this staff education project.

Findings of the project showed that the web-based dysphagia screening education module had an impact on knowledge acquisition. In addition, completion of the dysphagia screen education module provided the necessary tools and resources to be able

to implement use of the YSP, which is an evidence-based dysphagia screening tool for stroke patients at the specialty care hospital in the study. The DNP project may help prevent disparities in the way patients are screened for dysphagia in this hospital. Further, findings and insights from this project may influence future staff education projects and practice interventions within the organization.

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Appendix A: Nursing Dysphagia Screen Pretest and Posttest Questions

Please complete the anonymous pre-test questions before completing the nursing dysphagia screening module. Your participation for completing the anonymous pre-test questions is greatly appreciated.
(correct answers are bolded)

1. Clinical Practice Guideline recommendations state that early dysphagia screening for stroke patients can:

a. **Identify patients that are at higher risk for aspiration and related adverse outcomes.**
b. Diagnose patients with aspiration pneumonia.
c. Interfere with medication administration.
d. Replace a formal Speech Therapy Evaluation.

2. A nurse suspects that a stroke patient is experiencing symptoms of dysphagia when the patient states:

a. I am so thirsty, can I have something to drink?
b. **I noticed when I ate breakfast it felt like my food was getting stuck in my throat.**
c. I was eating dinner when I suddenly lost control of my arm and I dropped my fork.
d. I have had a cough for the last week.

3. A patient is receiving a diagnostic work up to determine the cause of her stroke. She has been eating and drinking without complication since her admission. Today you notice that she is coughing after swallowing coffee. What is the best action for the nurse to take?

a. Initiate a Code Stroke
b. **Complete the Yale Swallow Protocol as a nursing dysphagia screen**
c. Let her finish her coffee
d. Call the provider and request the patient be NPO (nothing by mouth)

4. What is the first action for the nurse to take when a non-stroke patient shows signs of an altered gag reflex?

a. **Contact the provider to request NPO (nothing by mouth) and Speech Therapy consult.**
b. Complete the Yale Swallow Protocol as a nursing dysphagia screen
c. Weigh the patient to assess for possible weight loss
d. Initiate supplemental oxygen at 2L per nasal cannula

5. Dysphagia is a common complication of acute stroke and is associated with higher mortality and worse patient outcomes
a. **True**
b. False

6. Dysphagia Screening does not provide a detailed description of the patient's swallow function, but it can identify individuals who are likely to have swallowing impairments.
a. **True**
b. False

7. The Yale Swallow protocol is an evidence-based dysphagia screening protocol (DSP) that has been validated for use by Nurses in the clinical setting with adult patients who have experienced a stroke.
a. **True**
b. False

8. When administering the Yale Swallow Protocol, a patient is excluded from the 3 ounce/90 ml water swallow challenge if:
a. The patient doesn't know his/her name.
b. The patient has a left facial droop.
c. The patient is sitting upright at 90 degrees.
d. **The patient is unable to remain alert for testing.**

9. The stroke patient passes the 3 ounce/90 ml water swallow challenge when the patient is:
a. Able to drink 1.5 ounces/45 ml of water without coughing or choking.
b. Able to drink with a straw.
c. Able to hold the cup independently.
d. **Able to drink the entire 3 ounces/90 ml in sequential swallows without coughing or choking.**

10. A patient fails the Yale Swallow Protocol but has aspirin ordered to be given immediately. The best action for the nurse to take is to:
a. Give the oral aspirin as ordered.
b. **Contact the provider to change the route of the aspirin from oral to per rectum.**
c. Not give the aspirin because the patient is NPO (nothing by mouth).
d. Only give the oral aspirin when you can observe the patient for coughing and or choking.

Appendix B: Permission to Use Yale Swallow Protocol

I am interested in implementing the Yale Swallow Protocol as a nursing dysphagia screen within the adult Stroke population. I am writing to inquire about permission to use the Yale Swallow Protocol in our institution. Could you provide me with any information or guidance?

Best,

You are welcome to use the YSP. All I ask is that you cite it as Leder & Suiter, 2014 (our book). Thanks. Please let me know if you have additional questions.

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