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Improving Bedside Swallow Screening in Acute Stroke Patients: An Evaluation Plan

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Abstract

A stroke is a life-changing event for a patient and his or her family. The acute stroke patient is at risk for developing aspiration pneumonia, whether silent or overt. Prevention of pneumonia in this population requires timely completion and documentation of the bedside swallow screen to identify those patients at risk for aspiration pneumonia; however, anecdotal data from the emergency department at the site of this project suggested that completion and documentation of the screening were inconsistent. Guided by the quality caring model adopted by the project site as well as the logic model, the aim of this project was to evaluate emergency room nurses' compliance with documentation after completing a modified bedside swallow screening. To facilitate documentation compliance, the current bedside screening tool was modified to make it user friendly. Electronic records of stroke patients (n = 104) admitted to the emergency room were monitored for a period of 6 months after implementing the modified bedside swallow screening tool. The findings indicate that implementing the modified bedside swallow screening tool achieved 93% documentation compliance in the electronic records and 100% documentation in patient charts over this 6-month period and clearly identified patients at risk for developing aspiration pneumonia. Further study is recommended to determine the relationship between the results of the modified bedside swallow screening and the development of hospital-acquired pneumonia. Implementation of this modified bedside swallow screening tool can initiate therapeutic measures to reduce the incidence of aspiration pneumonia in the acute stroke patient, resulting in shorter length of hospitalization and reduced health care costs.

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Dedication

I dedicate this work to my children, Donald, Danielle, and Gabrielle, whose support and sacrifice were invaluable to me. Especially Gabrielle, who literally would check to see if I had any assignment due.

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The Doctor of Nursing Practice journey was made possible with support from my family, friends, and program instructors. Instrumental in this journey were my children; Donald, Jr., Danielle, and Gabrielle. Thank you for enduring countless hours of my studying and writing, and for keeping me focused. Dr. Eileen Fowles, whose relentless interest in my success is evident in my completion of this program, thank you. And finally, my friend and preceptor Carrie Risher, DNP, MSN, for sacrificing your time and sharing your knowledge.

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Section 1: Overview of the Evidence-Based Project

Introduction

Every year in the United States, 795,000 people suffer a new or recurrent stroke, of which 60% are females and 40% males (Centers for Disease Control & Prevention [CDC], 2014). Of all strokes, ischemic attacks accounted for 87%, 10% were intracerebral hemorrhagic, and 3% were subarachnoid hemorrhage (Go et al., 2013). Stroke is a debilitating event that affects the individual who suffers it as well as his or her family members. The majority of strokes can be prevented by controlling risk factors such as obesity, smoking, diabetes, hypercholesterolemia, and hypertension (CDC, 2014). Risks associated with strokes such as dysphagia increase the incidence of aspiration, thus increasing length of stay, healthcare costs, and mortality rates (Edmiaston, Connor, Steger-May, & Ford, 2014; Katzan et al., 2003; Katzan et al., 2007; Martino et al., 2005).

Bedside swallow screening is a simple method of determining whether a patient is at risk for aspiration. Approximately 35% of deaths that occur after an acute stroke are caused by pneumonia (Hinchey et al., 2005). Certain clinical characteristics indicate that a patient is at higher risk for aspiration, and the absence of deficits such as intact gag reflex does not rule out the potential for aspiration (Hinchey et al., 2005). Patients with infarction of the brain stem, multiple strokes, major hemispheric lesions, or depressed consciousness are at greatest risk of aspiration (Jauch et al., 2013). The literature suggests that the performance measure to identify dysphagia after an acute stroke improved from 55% in 2005 to 73% in 2009, but a problem still exists, and not all patients who aspirate will develop pneumonia (Hinchey et al., 2005). Performance

measures such as evidence-based bedside swallow screening tools have been shown to improve patient outcomes when used appropriately. It is believed that poststroke pneumonia is attributable to the aspiration of oral secretions or other oral intake in the presence of varying degrees of dysphagia (Hinchey et al., 2005).

Dysphagia has implications for the safety of oral diets, development of aspiration pneumonia, malnutrition, and administration of oral medications (Cichero, Heaton, & Bassett, 2009). Location of the brain lesion determines the potential for aspiration pneumonia. Some signs of aspiration, such as silent aspiration, are not obvious; therefore, the evaluator must be skilled in the identification of risk factors. Garon, Sierzant, and Ormiston (2009) defined *silent aspiration* as the passage of food or liquids through and below the level of the true vocal folds without producing a reflexive cough or other overt signs that aspiration has occurred (p. 178).

The current stroke guidelines recommend a swallow evaluation prior to the introduction of oral intake. Although video fluoroscopy swallow study (VFSS) is considered the "gold standard" of swallow assessment to examine the anatomy and physiology of swallowing, it is performed by using the modified barium procedure (Garon et al., 2009), is very expensive, and exposes the patient to radiation, although minimally. At the hospital, video fluoroscopy is used when the patient fails the comprehensive swallow assessment completed by the speech pathologist. In their study, Weinhardt et al. (2008) aimed to determine the validity of a registered nurse (RN) bedside dysphagia screening by comparing the RN rating with concurrent results from a speech therapist (p. 248). In order for the test to be administered, the patient must

demonstrate a level of alertness deemed adequate for oral intake and must have basic motor and laryngeal integrity as indicated by assessment of the cough reflex, ability to manage secretions, and ability to swallow effectively (Weinhardt et al., 2008). The Toronto Bedside Swallowing Screening test is an evidence-based tool for swallow assessment (Hinchey et al., 2005; Jauch et al., 2013). Some organizations develop modified screening tests with the assistance of a speech pathologist in an effort to expedite the bedside swallow screening process. Once dysphagia is recognized, clinicians can intervene to prevent aspiration by using variations in food consistency and fluid viscosity (Hinchey et al., 2005).

Adhering to established guidelines for stroke care is imperative for patient safety. The bedside swallow screen is a tool for primary identification of dysphagia when completed by competent practitioner. It is a valuable tool in reducing aspiration in acute stroke patients. Establishing standardized protocols for conducting a bedside swallow screen is recommended to assure that evidence-based practice is implemented.

Problem Statement

The problem addressed in this project was the need to increase compliance with bedside swallow screening in acute stroke patients. Due to neurological deficits, a stroke patient may exhibit altered cough reflex, which is an indicator of risk for aspiration pneumonia. The American Speech-Language-Hearing Association (ASHA) Preferred Practice Pattern on Swallowing Screening states, “Swallowing screening is a pass/fail procedure to identify individuals who require a comprehensive assessment of swallowing

function or a referral for other professional and/or medical services" (ASHA, 2004, p. 10).

Purpose Statement

The purpose of this project was to develop an evaluation plan for a modified bedside swallow screening for acute stroke patients. An important aspect of this project was the effort to restructure the current bedside swallow-screening tool to make it user friendly so that it might ultimately be used in all nursing units at the project site. The goal of the changes to the tool was to simplify the verbiage and to eliminate redundancy. The evaluation plan could demonstrate an improved bedside swallow screening compliance rate within the organization.

Nursing protocols assure that standards of care practice are followed for acute coronary syndrome (ACS) patients. Nurses must be trained to perform the bedside swallow assessment to establish whether patients can safely receive oral intake and swallow emergency medications such as aspirin (Adams et al., 2007; Carrozzella & Jauch, 2002; Rowat, Wardlaw, Dennis, & Warlow, 2001; Summer et al., 2009). When nurses are allowed to practice without established guidelines, there is more room for error and patient harm. Education regarding the use of the restructured tool was necessary to ensure that all nurses received the same information and competency assessment. The education was added to the closed circuit television, making it more accessible to the nursing staff. Education was also offered live during new staff orientation.

Nature of the Doctoral Project

This project was an evaluation plan to assess whether implementing a modified bedside swallow screening tool improved bedside swallow screening in acute stroke patients. The methods used to determine the effectiveness of the project were based on information from the quality improvement (QI) department and primary stroke center at the project site. This information was collected by extracting and analyzing data from electronic health records. Tracking the use of the form guided the QI project team to make adjustments once the project was implemented and informed the evaluation process.

Goals and Objectives

The goal of this QI and safety initiative was to increase compliance with stroke guidelines by revising the current modified Mann Assessment of Swallowing Ability (MASA) bedside swallow screening tool, developing an education program plan related to its use, and evaluating documentation compliance with the modified bedside swallow screening tool. The data gathered on patients did not include any personal health information; these data consisted only of information used to track the use of the bedside swallow screening form. The specific objectives were as follows:

1. Improve patient safety for the acute stroke patient as measured by compliance with bedside swallow screening. The ultimate goal is 100% compliance within 1 year.

2. Restructure the bedside swallow screening tool. A tool with a yes/no format would expedite the screening process with the same effectiveness as the current bedside swallow screen.
3. Evaluate program successes as well as opportunities for improvement, and report at established intervals.

Significance of the Project

The hospital was an accredited primary stroke center. The Joint Commission (TJC) accreditation is awarded to hospitals that have demonstrated exemplary stroke care every 3 years. A bedside swallow screen is an important aspect of nursing care of the acute stroke patient, indicating that "quality and safety are inextricably linked" (The Joint Commission Resources, 2015). Prevention of hospital-acquired pneumonia is a quality measure instituted by TJC. The National Quality Forum (NQF) endorses the National Database of Nursing Quality Indicators (NDNQI), and prevention of nosocomial infection is listed as a nursing quality indicator ("Nursing Quality," 2014). The bedside swallow screen identifies patients at risk so that interventions can be undertaken to prevent aspiration and pneumonia. When patient safety events are continuously reported, experts within the hospital can define the problem, identify solutions, achieve sustainable results, and disseminate the changes or lessons learned to the rest of the hospital (The Joint Commission Resources, 2015). Organizations that regularly collect data on outcomes in healthcare include state boards of health, the Centers for Medicare and Medicaid Services (CMS), and TJC. These agencies have performance measurement standards that are based on quality indicators (Zaccagnini & Waud-White, 2011).

Implementing the project may link dysphagia screening as it relates to pneumonia, leading to improved nursing quality of care and patient safety.

Social change refers to alteration in behaviors related to a significant event that becomes a cultural norm over time. Another strategy to prevent morbidity and mortality is the initiation of transitional care model (TCM) in health and social rehabilitation of this patient population. Preventing aspiration pneumonia in the acute stroke patient decreases length of stay and increased the patient's eventual transition to home. These programs provide the best outcomes when initiated during hospitalization. Bettger and colleagues (2012) conducted a systematic review of 44 studies of transitional care for acute stroke (n = 27) and myocardial infarction patients (n=17). The study findings indicate that it is imperative to be effective in improving functional outcomes, facilitating transfer from a hospital-based system to a community-based system, and preventing rehospitalization and adverse events (Bettger et al., 2012, p. 413). "Hospital-initiated transitional support seemed to result in fewer hospital days without adversely affecting functional outcomes, did not reduce rehospitalizations or health care use, and was cost neutral" (Bettger et al., 2012), suggesting that length-of-stay for patients who had stroke and harm related to stroke was not associated with these programs (p. 412). Although the prevalence of stroke and other chronic illnesses has increased, "many people do now expect to be more involved in managing their own condition" (Jones, Riazi, & Norris, 2013, p. 257).

Assumptions and Limitations

Assumptions

Assumptions are often embedded (unrecognized) in thinking and behavior, and uncovering them requires introspection (Grove, Burns, & Gray, 2013). Several assumptions were made for this project. The goal was to improve the bedside swallow screening process in acute stroke patients. It was assumed that nurses who care for stroke patients have a vested interest in preventing adverse outcomes. Further, it was assumed that the educational program would increase nursing knowledge, leading to proper screening techniques that would improve compliance with bedside swallow screening and patient outcomes. Additionally, it was assumed that annual competency testing would lead to improvement in the nursing care of stroke patients. It was also assumed that the program would decrease healthcare costs related to care of the stroke patient and readmissions. The outcome of this program may be applicable to primary stroke centers of similar size.

Limitations

This project involved the review of several screening tools and the current tool used by the practicum site. The current tool is a modified MASA developed by the speech and language pathologists at the practicum site. Limitations are restrictions or problems in a study that may decrease the generalizability of findings (Grove et al., 2013). Prevention of aspiration pneumonia is the goal of the bedside swallow screening process. Limitations of the developmental program include mandatory participation by all nurses and neurologists. The stroke team is multidisciplinary, consisting of the stroke

coordinator, quality improvement member, staff nurses, and nurse manager who analyze the data collected, which may lead to bias in reporting. The other issue faced was that "just in time" education might not be compatible with all electronic health record (EHR) programs.

Summary

Implementing change in a large organization presents several challenges. This chapter has contained an overview of the organization's problem of nursing noncompliance with bedside swallow screening procedures in the acute stroke patient to identify swallowing difficulty. The development of a quality improvement plan would meet the organization's goals and objectives. As with any quality improvement plan, an interdisciplinary team is necessary to assure the success of the project. Successful implementation of the revised modified bedside swallow screening tool would address deficits in the care of the acute stroke patient and improve outcomes. As a TJC designated primary stroke center, adhering to established guidelines is required.

Section 2: Background and Context

Introduction

The purpose of this project was to develop an evaluation plan to improve bedside swallow screening of the acute stroke patient. The modified MASA bedside screening tool was implemented at the practicum site; however, one of its barriers was difficulty of use, and a revision to make it user friendly was important to improve the screening process. The plan was to implement the revised bedside swallow screen as the tool of choice for house-wide screening, thus improving the screening compliance rate. A review of the current literature was conducted to identify gaps and to support the need for improvement in the current process. A literature review is an organized written presentation that summarizes what has been published on the topic by scholars and that presents relevant research findings (Grove et al., 2013). The literature review guided the development of the education program and the revised modified bedside swallow screening tool to meet organizational needs and goals.

Concepts, Models, and Theories

Theoretical Foundation

The quality caring model (QCM) exposes the hidden value of nursing (caring) and guided practice and provides a foundation for outcomes, evaluation, and research (Duffy, 2005). Nurses' understanding and interpretation of the QCM is crucial to its implementation and adoption. The hospital adopted Duffy's QCM in 2009, as the foundation for nursing practice "supporting the emerging evidence of the value of caring

relationships in optimizing patient, nurse, and systems outcome" (Duffy, 2005, p. 6). The QCM indicates that the "independent patient-nurse relationship is primary and includes all interactions and interventions for which nurses are accountable and implement autonomously" (Duffy, 2005, p. 4; Duffy & Hoskins, 2003, p. 82) and "places relationships, particular patient-nurse relationship, at the core of the therapeutic process" (Duffy, 2005, p. 4). Proponents of the QCM claim that it can be implemented during all phases of patients' hospitalization and that each person benefits from the symbiotic relationship. Nurses caring for the acute stroke patient are placed in a unique position in which they are able to build fundamental relationships that include the family. The nurse-patient relationship is central to caring, and in completing the bedside swallow screen, the nurse demonstrates caring by following established guidelines to identify aspiration risks in the acute stroke patient. There are many interrelated elements that improve patient and organizational outcomes, with the patient and family being central to the equation.

The hospital adopted Duffy's QCM as a framework for nursing care. The framework is a continuous and fluid process that culminates in a symbiotic relationship between the healthcare professional and the patient and family. Caring for the stroke patient can be stressful. The patient and family may be concerned about other symptoms associated with having a stroke, and the nurse-patient relationship is central to caring for them. The nurse demonstrates caring by following the established guidelines and completing the bedside swallow screening in a timely manner to determine aspiration risks in the acute stroke patient. The structure of the QCM applies to many aspects of the

nursing experience for the patient and the fulfillment of the nurses' need to care for the patient, in addition to impacting nurses' professional growth and development. The family may also be concerned about the care of the patient once discharged from the facility. The nurse is instrumental in making the transition process seamless for all parties. The patient benefits from having evidence-based nursing care that improves safety, improves knowledge, and decreases readmissions while the organization benefits from decreased costs associated with resource use and length of stay. Figure 1 depicts the interrelationships among the structure, caring relationships, and outcomes. These are either independent or collaborative relationships and can affect patient outcomes.

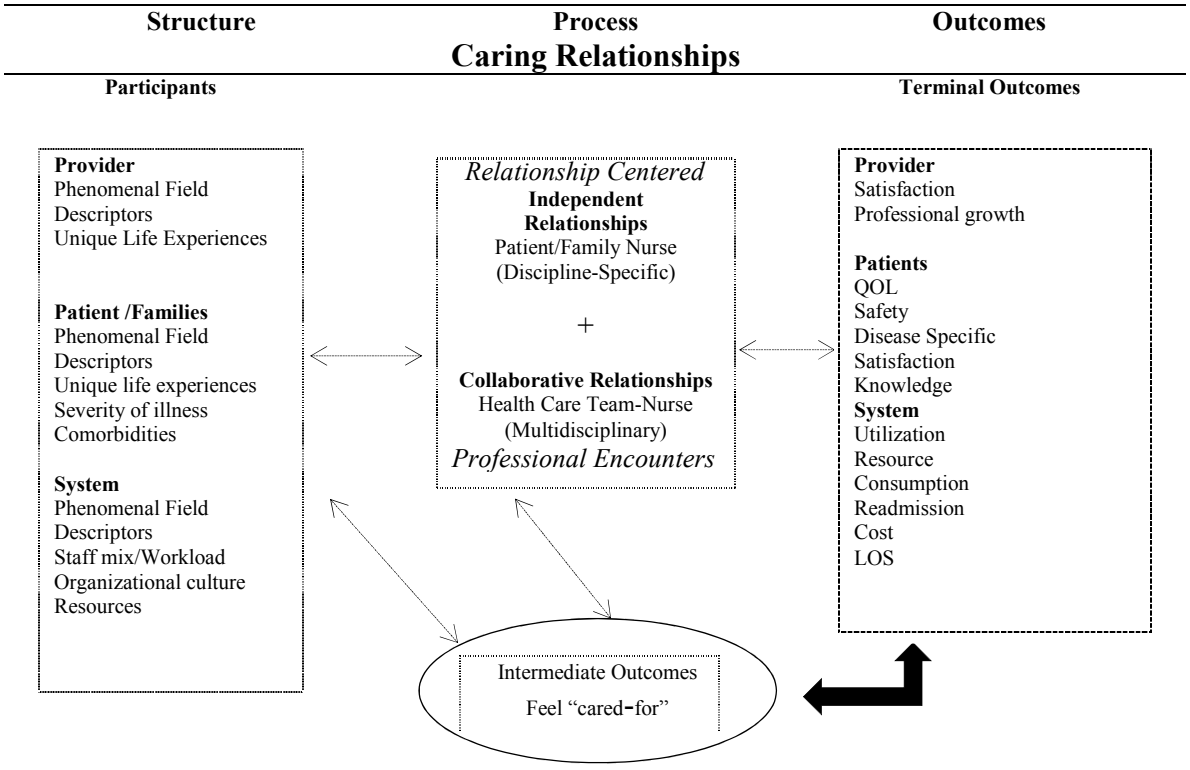

Figure 1. Structure, process, and outcomes in the QCM. From "The Quality-Caring Model: Blending Dual Paradigms" by J. Duffy and L. M. Hoskins 2003, *Advances in Nursing Science, 26* (1), p 81. Copyright 2003, Wolters Kluwer Health, Inc.

Project Design

The logic model provided an avenue for outcomes measurement on a continual basis while allowing adjustments to the program to improve the process and is built around the basic concepts associated with systems theory (Kettner, Moroney, & Martin, 2013). The use of the modified screening tool was evaluated at designated intervals and reported to the stroke steering committee. Successes and opportunities for improvement were also discussed with the leadership team, with feedback provided to staff.

Table 1

Logic Model for Improving Bedside Swallow Screening in Acute Stroke Patients

Input →	Activities →	Output →	Short-term outcomes →	Long-term outcomes
Staff Educators Stroke coordinator Speech pathologist Nursing director Medical director Hospital	Revision of bedside swallow screening tool Bedside swallow screening posttest screening tool Patient screening Program plan for the annual competency	All staff educated Patient screening completed Determine accuracy of screenings Annual competency	Improved compliance in 2 months Increased accuracy of screening	100% compliance in 1 year Decreased incidence of aspiration Decreased aspiration-related pneumonia

Nursing is a dynamic profession, and the integration of multiple disciplines was instrumental during the planning phase of this quality improvement project. The nursing staff was the focus of this effort, and with the assistance of the educator, stroke coordinator, speech pathologists, nursing director, and medical director, the order of

activities can be determined. The logic model was designed to "depict the sequence of or flow of events that identify program resources, match resources to needs, activates service process, completes the service process, and measures results" (Kettner, Maroney, & Martin, 2013, p. 6). The logic model gave the project team members designated timelines and responsibilities for the implementation of each phase and kept the project on track.

Definition of Terms

The following definitions were used to provide clarity throughout the program planning and evaluation periods.

Bedside swallow screen: An initial test of gag and swallowing reflex to accurately identify cerebrovascular accident patients exhibiting dysphagia risk factors (Weinhardt et al., 2008)

Comprehensive swallow assessment: An organized, goal-directed evaluation of a variety of interrelated and integrated components of deglutination (Mann, 2002).

Dysphagia: Difficulty of swallowing (as a symptom of some disease or infection (["Dysphagia," 2014]).

Nosocomial infection: Hospital-acquired infection that typically first appears 3 days after a patient is admitted to a hospital or other health care facility ("Nosocomial Infection," 2014).

Speech-language pathologists: Speech-language pathologists (sometimes called *speech therapists*) assess, diagnose, treat, and help to prevent communication and swallowing disorders in patients ("Speech-Language," n.d.)

*The Joint Commission***:** An independent, not-for-profit organization, The Joint Commission accredits and certifies more than 20,500 health care organizations and programs in the United States. Joint Commission accreditation and certification are recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting certain performance standards ("About the Joint," n.d.).

Relevance to Nursing Practice

Stroke is a disease that places an economic burden on families and society as a whole. Approximately 35% of deaths that occur after an acute stroke are caused by pneumonia (Hinchey et al., 2005). By improving the quality of the care that stroke patients receive, nurses can prevent further morbidity and mortality in this population. Initiating interventions to prevent debilitating nosocomial infections will decrease the burden on patients, families, and communities. The implementation of a standardized method of screening for aspiration risks is imperative to improve patient outcomes. The restructured modified bedside swallow screening tool will expedite this process, leading to timely, comprehensive swallow assessment with the MASA by the speech pathologist and preventing other adverse events that may occur, such as dehydration and malnutrition due to nothing by mouth (NPO) status.

Local Background and Context

Primary Stroke Center

As a primary stroke center accredited by the Joint Commission and the American Heart Association/American Stroke Association, the hospital agreed to follow the guidelines established by these entities. The hospital received federal funding to provide services to Medicare/Medicaid participants as well as indigent care. With these funds, the hospital is also regulated by the Centers for Medicaid and Medicare Services. Fitch, Broulette, and Kwong (2014) found that a large contributor to the incremental cost difference between patients with stroke with bleeding and a cohort without stroke or bleeding was primarily driven by inpatient utilization (p. 205). This is an added motivation to improve the bedside swallow screening (BSS) process because early identification of dysphagia decreases costs related to nosocomial infection and length of stay in this population. Although nurses may not be accustomed to the relative costs of patient care, they are responsible to a certain extent for preventable consequences related to missed, improper administration of the BSS, as well as follow-up care.

Literature Search Strategy

For the literature review, I used CINAHL, EBSCO, National Guidelines Clearing House, Google Scholar, and Cochrane Library search engines to obtain pertinent research findings on dysphagia screening of the acute stroke patient. A thorough search was conducted using the following terms: *acute stroke*, *stroke patient*, *dysphagia*, *dysphagia screening*, *bedside swallow screen*, *clinical swallow assessment*, *aspiration*, and

pneumonia. The research findings were reported within the past 10 years to reflect current recommendations for improved stroke care. Some research articles were included if they provided insight into evidence-based stroke care.

Bedside Swallow Screen

Hospital-acquired aspiration pneumonia (HAP) is a serious cause of morbidity tied to stroke-related dysphagia (Donovan et al., 2013). In the 1980s through the mid-1990s, the decision to allow food and fluids by mouth in patients after a stroke was generally done at the bedside by either nurses or physicians, who might consider the patient's gag reflex or level of consciousness and would occasionally give a test glass of water (Donovan et al., 2013). This method of assessment did not include a comprehensive swallow assessment and often led to HAP.

The incidence of pneumonia caused by aspiration in patients with dysphasia increases both mortality and the need for extended hospitalization (Sorensen et al., 2013). Sorensen et al., (2013) investigated whether the incidence of aspiration pneumonia could be reduced in such patients through early screening for dysphagia and intensified oral hygiene (p. 1). The authors evaluated the use of the Gugging Swallow Screening tool in preventing aspiration pneumonia in the acute stroke patient population and found that "early and systematic dysphagia screening by the Gugging Swallowing Screen method along with intensified oral hygiene reduced the incidence of x-ray verified pneumonia" (Sorensen et al., 2013, p. 143).

Smith Hammond et al. (2009) hypothesized that objective measures of voluntary cough would improve the accuracy of the clinical evaluation of swallowing, predicting patients who were at risk. The authors found that voluntary cough can identify stroke patients who are at risk for aspiration and may be useful as an adjunct to the standard bedside clinical assessment. The speech-language pathologist was instrumental in the screening process prior to and after administration of the video fluoroscopic evaluation of swallowing (VSE) or the fiber optic endoscopic evaluation of swallow (FEES) for validation. These two diagnostic tests reflected excellent agreement. Clinical signs of aspiration, speech problems, disorientation, cognitive deficits, and mortality were substantially more likely to be present among those patients at high risk of aspiration compared to nonaspirating subjects (Smith Hammond et al., 2009). At 3 months, the mortality rates for non-aspirators and aspirators were 4.8% and 33.3%, respectively, and at 18 months, these rates were 17.5% and 45.5%, respectively (Smith Hammond et al., 2009). It is apparent from this study that the mortality rates were significant at these endpoints. Early identification and prevention of aspiration are essential to improve morbidity and mortality associated with strokes. Smith Hammond et al. also found that objective measures of cough appear to be more effective in identifying patients who are at risk of aspiration than routinely used clinical assessments (p. 774). Additionally, they reported that three of four aspirators had cognitive deficits and nearly 90% had speech and/or language deficits (Smith Hammond et al., 2009).

Evaluation of Bedside Swallow Screening Tool

Identification of a dysphagia screening method with high sensitivity and specificity is important for successful determination of whether there is a swallowing deficiency in stroke patients. Weinhardt et al. (2008) studied the validity of RN bedside dysphagia screening compared to concurrent results from a speech therapist (p. 248). The goal of this study was to accurately identify patients with cerebrovascular accidents and limit the time of NPO status. The National Institutes of Health Stroke Scale (NIHSS), a standardized, valid assessment tool, was used to establish stroke deficits and severity. The NIHSS was used by a RN to evaluate five patients, who then were re-evaluated by a speech pathologist within 1 hour to determine validity and reliability of the screening. Of the 83 paired screenings, 94% (n=78) were in agreement on the dysphagia screening. Limitations of this study included the use of day-shift nurses only. The patient's swallowing capability may have changed between the RN and ST screening, thus decreasing validity. The night-shift staff then applied the swallowing screening tool, and there were no increases in aspirations. Adoption of the screening protocols decreased the number of patients who were denied oral nutrition. The authors recommended replication of this study to determine its generalizability.

Perry (2001) evaluated several screening methods in a 2-part study. In the first part of this longitudinal prospective survey, the author found that the best screening tool for dysphagia, when used by an independently competent nursing staff, is the Standardized Swallow Assessment (SSA). Minor modifications were made to address

individual concerns, and a user-friendly format of the tool was developed (Perry, 2001). As part of the study, a training program was presented to the nurses and the speech and language therapist (SLT) to provide consistency in the screening process. The results indicated that nurses who had formal training and those who conducted supervised swallow screening were in agreement with 86% accuracy. Nurses completed the gag reflex function assessment with 94.1% accuracy, as compared to 71.3% when conducted by junior doctors. Limitations of the program were that all staff were not independently competent and it could not be determined whether an independently competent nurse was present on the unit at all times.

Part 2 of this longitudinal prospective study survey was implemented to determine the "best evidence" for screening for dysphagia, and then the performance of a screening assessment tool for use by nurses was evaluated (Perry, 2001). The study involved two groups of 200 consecutive admissions with clinical diagnoses of acute stroke and assessed the performance of the SSA. The SSA demonstrated 94% agreement with clinical judgment of swallowing ability and paired variable of oro-motor skills and saliva control. Further volitional cough and phonation were in concordance with summative clinical judgment swallowing function, and the second audit group had shorter waiting time in NPO status for nutritional support as compared to the first group (9.0 vs. 3.7 days) and in overall hospital stay (10.3 compared to 4.7 days, both $p < 0.001$), in addition to experiencing fewer infective episodes (Perry, 2001).

Edmiaston, Connor, Loehr, and Nassief (2010) conducted a prospective study of 300 patients admitted to the service of a tertiary care hospital. The Acute Stroke Dysphagia Screen (ASDS) was developed with interrater and test-retest reliabilities of the new tool. Education training was presented to the nurses and the reliability of this tool was determined by test-retest method 2-weeks apart by randomly selected nurses from the original group. Sensitivity for aspiration was 95% and specificity for dysphagia was 91%, sensitivity for dysphagia was 91% and specificity was 74% (Edmiaston et al., 2010). The positive predictive value for dysphagia was 54% and for aspiration was 44%; the negative predictive value for dysphagia was 95% and for aspiration was 98% (Edmiaston et al., 2010). The Mann Assessment Screening Assessment was less sensitive in detecting aspiration risk than the ASDS tool (Edmiaston et al., 2010).

Cichero, Heaton, and Bassett (2009) conducted a prospective quasi-experimental study to develop a tool for dysphagia screening, evaluate reliability, evaluate nursing compliance, and develop a robust dysphagia screening program in an acute care facility. A 30-minute educational program was developed and presented by the speech pathologists. It covered all aspects of phases of swallowing, "dysphagia and aspiration, use of the new tool, and the at risk population" (Cichero et al., 2009, p. 1650). While the screening tool had reliability and sensitivity with high positive and negative predictive ability, an additional measure was taken to re-evaluate swallow daily. Failure of the screen prompted the nurse to notify the physician for "intravenous hydration and non-

feeding status" (Cichero et al., 2009). The educational/training program was instrumental in the success of the bedside screening program.

Titsworth et al. (2013) found that dysphagia screening correlated with decrease aspiration pneumonia by 57% (p. 3159). The aim of the study was to validate the process of the screening not the screen. In this tertiary center, the neurologist or a speech pathologist screened patients using the Mann Assessment of Swallowing Ability (MASA) before oral intake screened patients. This initiative included an education component for both physicians and nurses. Educational content was delivered to the physicians by a trained speech pathologist through grand rounds lectures on neurology and neurophysiology every 6 months and to nurse via an online program. A Modified Nursing Dysphagia Screen (MNDS) based on evaluation was completed by chart audits of every 10^{th} chart by the project nurse or the stroke coordinator with 95% interrater reliability. The rate of patients screened increased from 39% to 88.8% (Titsworth et al., 2013). The authors concluded that the implementation of a nurse administered screening protocol used as a part of a multitiered system of dysphagia evaluation in patients with stroke is beneficial (Titsworth et al., 2013).

Trapl et al. (2007) developed the Gugging Swallowing Screen (GUSS by testing for validity by comparing it to fiberoptic endoscopic evaluation of swallow (FEES). This screening test can be completed in 15 minutes or less. Unlike most dysphagia screening test which began by giving a bolus of water, the GUSS used a successful saliva swallow in phase 1 as a pre-condition for phase 2 of the test. The second phase introduced

semisolid, then liquid, and then solid consistencies of oral intake. The GUSS identified aspiration risks at a higher than the FEES in both samples tested, proving to be a valid instrument. The study concluded that due to the high sensitivity of the test, all patients with dysphagia and aspiration risk were identified and the specificities of 69% (FEES) and 50% (GUSS) indicated that some healthy patients were graded higher (Trapl et al., 2007). This discrepancy resulted in the "patient being put on a dysphagia diet prompting a recommendation of daily testing to identify these false-positive patients" (Trapl et al., 2007, p. 2951). The GUSS was successful in determining the severity of dysphagia and the risk of aspiration (Trapl et al., 2007).

Role of the DNP Student

I created an evaluation plan to improve compliance with bedside swallow screening in the acute stroke patient. This process required completing a needs analysis which was accomplished with the assistance of the stroke coordinator at the practicum site. Observation of current practice was also a factor in the needs analysis. Daily reconciliation of the chart or chart audits were completed when the screening process was not adhered to. If the screen was missed, the stroke coordinator went to the nursing unit, met with the nurse or supervisor to make the corrections. There were times when the screening was missed and the nurse was already off duty that presented a challenging situation because the screening could not be verified.

Another responsibility was to restructure the current modified MASA to be user-friendly and efficient. This was accomplished in meetings with the speech pathologist

over a period of 8 months. A flow diagram was created and presented to the stakeholders. The revision of the current stroke education program for new employees was dependent upon the changes made to the bedside screening tool which ensured that the nurses understood the process of screening to improve patient safety and compliance with established guidelines. This project addressed documentation compliance issues by creating embedded triggers in the restructured modified MASA tool as reminders for the nurse to complete the screening process prior to giving oral intake. Finally, I was responsible for analyzing the data from the electronic records and chart audits after the modified bedside swallow screening tool was piloted in the emergency room.

Role of the Project Team

Members of the project team were responsible for certain aspects of the revised bedside swallow screening program. There are approximately 1,600 nurses employed by the hospital, therefore the timeline for completing the didactic education program will be 4-weeks. A brief post-test was included to evaluate the staff's understanding of the process and skill competency testing assessed the nurses' knowledge related to administering the bedside swallow screen.

The orientation program was also updated and presented by the speech pathologists. It reflected current evidence-based practice. The speech pathologist created the annual competency program which facilitated100% accuracy and compliance with the screening process by the nurses. An annual competency program offered via the closed-

circuit television system was made available to nurses and must be completed on their anniversary date.

The project team was comprised of specialties within a single discipline, across disciplines, across departments, or across organizations and may be fluid or stable (Kelly, 2012). The project team is interdisciplinary and will include: (1) Author of this project plan will be program planner; (2) Emergency Department Manager of the pilot unit will be responsible for day-to-day nursing support; (3) Clinical Analyst for emergency services was responsible for technical support related to the form's usage; (4) One staff member and one team leader provided daily feedback and supported nursing staff and logged any suggestions for changes; (5) Vice President of Cardiac Services was responsible to promote, support training, budgets and implementation throughout the organization eventually. More immediate support encouraged the ED staff to promote usage; (6) Medical Director of Stroke will be responsible to provide physicians' standing orders for care of the patient; (7) Stroke Coordinator's responsibilities were instructional design, content, and monitoring learning as well as usage of the forms to improve compliance and orientation of new staff; (8) Speech Pathologist/Clinical Systems Analyst revised of the screening tool as well as developing the media portions of the program. SP was responsible for the annual competency training programs; (9) Quality Improvement manager or designee was responsible for data collection and reporting; (10) Technological support built the form in the electronic health record and linkages to appropriate diagnoses.

Summary

The literature suggested that standardized education programs and competency validation improved the BSS process significantly. Several tools were available to facilitate a successful program implementation, patient assessment, and eventual evaluation of outcomes. The hospital chose the MASA, which is a well-validated tool to evaluate every patient with acute stroke symptoms and consistency in completing the screen is imperative for the safety of this patient population. The screening tool was a modified MASA to quickly identify patients at risk for aspiration. The project team members were instrumental in the success of this program as well as to address the gap in practice in the stroke program. The next section will discuss key aspects of the project implementation plan and the expected outcomes.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to evaluate emergency room nurses' compliance with documentation after completing a modified bedside swallow screening for the acute stroke patient. As a DNP student, I assumed the leadership role in the project and planned the activities involved in the process. This section outlines the activities necessary for successful implementation and evaluation of the revised screening tool. The QCM guides nursing practice by describing the nurse-patient relationship and how this relationship applies to the provision of nursing care. Mild to moderate dysphagia often resolves within the first week after stroke onset, when almost 50% of patients with dysphagia experience aspiration (Hinchey et al., 2005). Keeping the patient and family informed of the purpose of testing and re-evaluation decreases stress responses related to the unknown. Some aspects of nursing care are intangible, which means that they are immeasurable but play a role in the recovery of patients from acute stroke.

Practice-Focused Questions

Inconsistent completion of the bedside swallow screen in the acute stroke patient increases the risk of aspiration in this population. To provide consistency in the screening process, a method to facilitate compliance involved education focused on a simple screening tool, its implementation, and evaluation for effectiveness. Members of the interdisciplinary team assisted with project development, implementation, and evaluation of the restructured modified bedside swallow-screening tool. Trapl et al. (2007)

concluded that “a simple assessment protocol for dysphagia can be used as a quick screening tool for detecting aspiration risk in acute stroke” (p. 2952). Team members were selected based on their knowledge base, expertise, and ability to influence changes within the organization. As a primary stroke center, the hospital at which this project was conducted was required to adhere to established guidelines. TJC accredited the hospital, and the American Stroke Association/American Heart Association (ASA/AHA) accredited the stroke program. Some guidelines, such as those pertaining to swallow screening, are not required by TJC but are required by ASA and AHA. Therefore, improving compliance with this measure further improved patient care and addressed a deficiency at the practicum site.

Sources of Evidence

The literature review presented many avenues for improving care of the acute stroke patient. All of these approaches involved formal educational content, a dysphagia screening tool, an evaluation process, and positive compliance scores. The hospital’s educational department manager preferred that all education programs be added to the educational television system. While this method provided easy access to learners, educational program designers must take into consideration differing learning styles. Instructional design that is focused on establishing and maintaining efficient and effective human performance must be guided by a model of human performance, carried out systematically, based upon theory, and oriented toward finding and applying the most cost-effective solutions to human performance problems and discovering productivity

improvement through human (Rothwell & Kazanas, 2004) in order to assure that learning occurs. Performance is best understood as the achievement of results and outcomes to which purposeful activities are directed (Rothwell & Kazanas, 2004). This quality improvement project addressed several gaps in acute stroke care by implementing a standard process for completing bedside swallow screens. The current screening tool was difficult to use because it was being used to collect other data related to the stroke program, as depicted in Appendix A. A modified tool was used to screen patients efficiently and provide expeditious assessment of those at risk for aspiration.

Protocol implementation guided the nurses caring for the acute stroke patient, assuring that quality care was being administered. The protocol largely depended on the restructured swallow screening form. The restructured screening tool used smart logic technology to stop screening process at any level based on the patients' assessment. A yes/no format served to eliminate guessing by the nurse, as depicted by the flowchart in Appendix B. The NIHSS information on the current form was removed, with the exception of a notification box that identified the patient with an acute stroke. When this stroke alert box was checked, a notification was sent automatically to the stroke coordinator, quality improvement manager, speech pathologist, and manager of the stroke unit, which expedited specialized care. The screen also gave consideration to the nurses' judgment, allowing them to change the pass/fail score if they felt that the patient exhibited subtle changes that increased the risk of aspiration. The final phase of the

screen involved administering 3 ounces of water to assess swallowing. If the patient failed this portion of the test, notification was sent as discussed previously.

Setting

The pilot was conducted in the emergency department (ED). The ED services over 70,000 patients annually and is the fifth largest ED in the state of Florida. The ED averaged 164 acute stroke patient admissions monthly based on available data from 2013. These patients entered care via private vehicles or emergency medical services (EMS). EMS notified the hospital when an acute stroke patient was within 15 minutes of arrival in order to mobilize the stroke team. The notification process was a component of a complex stroke alert system that mobilized several specialties with the goal of expediting the evaluation and treatment of the acute stroke patient and decreased morbidity related to brain injury. Another aspect of care was completing the bedside swallow screening to assess aspiration risk.

Data Collection

The hospital used a Cerner electronic health record that "collects patient information and infuses clinical content into the care processes to help improve care quality and operational efficiencies" (Cerner, 2015). Data from the revised beside swallow screening tool were collected via the electronic record and were reported every week for the first 4 weeks after implementation. Additionally, information on compliance with dysphagia screening was collected every 4 weeks consecutively for 3 months, and then at 6 months. The quality improvement manager or designee extracted the data from

the EHR at intervals indicated on a Gantt chart, which is discussed in the following section. A benchmark of 85% met the minimum requirement, with a goal of 100% compliance with screening at the end of the 6-month period. Associated diagnoses related to ischemic stroke were part of the revised tool. These diagnoses "triggered" the screening process and prompted the nurse to complete the BSS. A "hard stop" was not implemented because it might prevent the nurses from dispensing necessary intravenous or intramuscular medication. Any triggers were reported daily to QI and the stroke coordinator. For nurses who frequently triggered the alerts, verbal counseling also occurred. These triggers were tracked and reported for the entire project period, with expected improvements as compliance rates increased. The findings were reported on an Excel spreadsheet and graph at the end of the pilot period.

Instruments

Initiation of the BSS in the acute stroke patient was tracked in the EHR, which allowed the project team to extract the information in order to evaluate and improve the program. Pass/fail rates were calculated and reported as percentages. Data reporting entailed creating bar graphs depicting the number of acute stroke patients, the number of screenings completed, the result of the screenings, interventions by speech pathology, and patient outcomes.

Protection of Human Rights

An Institutional Review Board (IRB), also known as an independent ethics committee or ethical review board, is a committee designated to approve, monitor, and

review human experimentation in order to protect research subjects' rights (Ippoliti, 2015). The hospital's IRB reviewed and exempted on 8/20/16, Protocol #15/27/08. Approval was obtained from Walden University's IRB, Protocol # 02-29-16-0058077 effective 2/29/16, prior to evaluation of the bedside swallow screening program. This evaluation project was designed to improve the usage of a bedside swallow screening tool and did not require the collection of any identifiable patient health records.

Data Analysis

The number of acute stroke patients admitted to the hospital was compared to the number of bedside swallow screenings completed or missed. Pass/fail rates were also calculated to track patients with aspiration risks and their outcomes. Descriptive statistics were used to describe and summarize data using means, percentages, and standard deviations.

Summary

Improvement in the bedside swallow screening process made a difference in the quality of care that the acute stroke patient received. The evidence suggested that improvement in bedside swallow screening required a comprehensive program that included education, skills assessment, and competency testing. It also required a well-developed, validated, and reliable tool for effective evaluation of aspiration risks. Identification of patients with risks of aspiration and completion of swallow screening prevented adverse outcomes in this population. It also had an impact on length of stay that decreased costs associated with specialized acute care and rehabilitation. Reporting

the findings to the staff provided concrete information that validated the nursing care provided and patient outcomes.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to improve nurses' compliance with bedside swallow screening in the acute stroke patient. Stoke is the leading cause of disability in the United States. While stroke prevention is ideal, further disability associated with this population, such as that resulting from aspiration pneumonia, must be prevented. One of the simplest assessment tools, a bedside swallow screening assessment, was completed by the registered nurse upon identification of stroke symptoms. Stroke symptoms are described as facial drooping, arm weakness, and slurring of speech that would prompt the patient to call the emergency medical system. The hallmark of stroke survival is expeditious management.

In the interest of ensuring patient safety as well as meeting stroke guidelines, it was imperative to continue with the project to prevent possible patient harm resulting from the bedside swallow screening being completed inconsistently in the hospital. In working with my preceptor, the process to improve compliance with bedside swallow screening was included in the annual TJC report as an opportunity for improvement. The time for completion of data collection for the evaluation was April 2016, as depicted in Appendix E.

Electronic health record systems facilitate patient safety and quality improvement through: use of checklists, alerts, and predictive tools (Silow-Carroll, Edwards, & Rodin, 2012) and were proven to be successful in improving clinical efficiency and

communication. The bedside swallow screening tool was formatted for inclusion in electronic health records so that it would be more accessible to staff nurses. If standardized, an electronic medical record system is considered a useful tool for evaluating patient populations, disease categories, treatment patterns, and clinical outcomes within and across healthcare systems or local geographic regions (Marmura et al., 2010). The EHR was the data source for this project. The restructured bedside swallow screening tool was formatted for the Cerner EHR, the electronic medical record system used by the project site, and was placed on the main nursing workflow sheet. The restructured bedside swallow screen, depicted in Appendix B, was condensed and user friendly. The yes/no format decreased guessing related to unfamiliar words or concepts. For this project, the use of the restructured BSS form with acute stroke patients was effective in the identification of aspiration risk.

Important to the process was the development of a practice policy as depicted in Appendix C. In August 2015, a bedside swallow screening policy was written by the stroke coordinator in collaboration with other project team members. The stroke coordinator and quality improvement manager decided to delay implementation of the "hard stop" during this phase of the project. The "hard stop" would be implemented at a later stage in the process and prevent dispensation of medications if the bedside swallow screen were not completed. The policy was routed for approval signatures prior to implementation of the BSS. An education program on the use of the BSS was developed and presented to the ED staff by the stroke coordinator prior to implementation of the

form. In addition to visual assessment of the patient, a small amount of fluid would be given to test swallowing ability. This included one teaspoon for initial testing, then 3 milliliters of water to further test swallowing ability.

Findings

In 2015, it was unknown how many BSS had been omitted and documented as completed, or completed and not documented. This variation in practice created increased aspiration risks for acute patients. The completion rate at its lowest was 78.6%, which was unacceptable. The benchmark for improvement was 90%, with an ultimate goal of 100%. The restructured BSS was implemented in the ED on October 1, 2015, as a pilot. This pilot study was conducted over a 3-month period with data review at 6 months. The data were collected on a monthly basis and presented to the stroke steering committee. Successful completion of the BSS, indicating 100% compliance, supports plans to implement the process throughout the organization.

Table 2

Beside Swallow Screening Compliance, October 2015-April 2016 Stroke Steering Committee Report

	October	November	December	January	February	March
n	13	15	20	18	20	18
BSS completed	12	13	18	18	19	17
Percentage	92.3	86.7	90	100	95	94

Note. Data trending of bedside swallow screening as reported by Cerner.

Table 3

Bedside Swallow Screening Compliance, October 2015-April 2016 Stroke Program

	October	November	December	January	February	March
n	13	15	20	18	20	18
BSS completed	12	15	20	18	20	18
Percentage	92.3	100	100	100	100	100

Note. Data trending of bedside swallow screening completion after chart audits.

The chart audits completed by the stroke coordinator explained the discrepancy in the two reports. The report to the stroke steering committee was sent directly to the QI representative, who reported lower compliance except for the month of January, when compliance averaged 93%. The report to The Joint Commission is dependent on completed bedside swallow screens as well as documentation in the nurses' notes.

Implications

Hospital-acquired aspiration pneumonia (HAP) is a serious morbidity tied to stroke-related dysphagia (Donovan et al., 2013). More importantly, early identification of swallow ability plays an important role in the quality of care the patient receives by having a process in place to prevent injury. Implementation of the restructured bedside swallow screening tool improved scores, which was the goal of this project. Documentation errors still exist as described by the stroke coordinator. The nurse completed the bedside swallow screen, which was automatically documented in the

Cerner system but not in the nurses' flowchart. These two systems currently do not link the information; therefore, it was imperative that nurses include the information in their notes. Flags were still sent by the Cerner system to the stroke coordinator, triggering a chart audit when there was no documentation in the nurse's note. The chart audits ensured compliance with documentation of completed screening.

In accordance with the requirements of The Joint Commission and AHA/ASA, bedside swallow screening must be completed on every patient who presents with acute stroke symptoms to identify those at risk for aspiration. The hospital's goal was to improve compliance with bedside screening prior to reaccreditation, which was completed in April 2016. As a Primary Stroke Center, the hospital reports compliance with established performance measures annually. Additionally, reaccreditation is completed every 3 years to assure that the hospital is compliant with the "Getting with the Guidelines" (GWTG) performance measurements. The hospital's stroke program received the 2016 GWTG silver award from the American Stroke Association for compliance with the guideline for 12 consecutive months and improved stroke care. In addition, the rehabilitation center was moved to the hospital site to ensure that comprehensive rehabilitation of stroke patients occurs prior to discharge.

It is the responsibility of all healthcare providers to ensure that the best health services are accessible to the communities they serve. The hospital is the largest in Polk County, Florida, providing comprehensive stroke care. Community outreach educational programs have been created by the stroke coordinator and the American Stroke

Association to improve community members' awareness of stroke symptoms and available hospital services. The stroke community outreach programs are open to the public and their family members, and were funded and supported by grants from AHA/ASA and the hospital.

Project Strengths

Through initial investigation, a deficit in the care of the acute stroke patient was identified, and measures to improve the process were the basis of this project. The primary educational program was revised by the stroke coordinator and speech pathologists, allowing for initial and annual competency training. Implementation of the restructured bedside swallow screening brought awareness of its importance to the ED nurses who cared for these patients. Compliance was improved, although inconsistencies in documentation existed.

Project Limitations

This project was developed to improve stroke care, and its success relied primarily on the nurses' desire to provide the best possible quality of care to the patients. There were also technical limitations, as identified by inconsistencies in documentation. This process can be improved by further linking Cerner EHR and nurses' flow sheet to assure documentation compliance.

Recommendations

Several aspects of the project plan that were not implemented are necessary to improve compliance. The "hard stop" would have a positive influence on nursing

documentation, which would become habitual. The “hard stop” would also decrease the cost of salaries related to daily chart audits. Chart audits will be more challenging, especially during high census times when acute stroke patients are placed on overflow units, because a follow-up screen is required within 24 hours of admission. The stroke steering committee will provide continued monitoring and reporting of nursing compliance with the screening process along with reporting and posting the data for the nursing staff. These findings should be discussed in staff meetings and gain feedback from the staff.

Continual re-evaluation and annual assessments of nursing competencies to assure compliance are recommended. Formal remediation by unit supervisors and management was not implemented, but as this was a pilot program, there is still room for improvement prior to transition at the organizational level.

Analysis of Self

Understanding who I am is critical in my quest to achieve success in the academic and clinical environment. As a new nurse, my sole inspiration to seek knowledge was my father. He believed that knowledge is a powerful tool and is the basis for success in everything that can be achieved. He nudged me for almost 10 years to continue my education as a nurse. During those years, I had three children, and, as in most families, going back to school was not a priority. I realized that there was never going to be a good time to return to school. I began the BSN program at the University of South Florida; as I neared the completion of this degree, the university began its ASN master’s program. I

procured information on the available programs and selected the Family Nurse Practitioner program. At the time, all classes were on campus in lecture format, which was very time consuming. The decision to return to complete a terminal nursing degree emerged from a desire for personal achievement and was not taken lightly. The attraction of Walden's DNP program was that it was offered entirely online and met my needs. Since returning to school this time around, I have been challenged by more responsibilities and personal events hindering my progress. My goal was to complete the program by December 2015, but I began to take one course per quarter because my youngest daughter was in her senior year in high school. My tendency to procrastinate was overcome by my desire to accomplish my academic goal. I completed my proposal, and it went through the approval process without much delay, and it received expeditious passage through the IRB process. Because I was evaluating a program, I had to wait until April 2016 to collect the data.

Scholar

The DNP program has improved my ability to communicate effectively through discovery via research, writing scholarly papers, and disseminating information. I have learned to use quantitative and qualitative methods to decipher data sets, create graphics, interpret data, and group information for analysis. I have gained increased knowledge and understanding of the research process—more specifically, of the Walden IRB process. Initially, the DNP program was structured with a focus on quality improvement in the clinical practice setting. My project did not require Walden's IRB, which changed toward

the end of the project and presented some anxiety. This project was a great learning experience that will benefit me in future research in which I am engaged. Expression of my thoughts in writing was a skill that I improved upon during the program because the main method of communication was writing in the online environment.

As a scholar, I am able to engage leaders in the community to identify healthcare deficiencies and improve the availability of resources for everyone. I was able to communicate with the administrators at the practicum site to gain buy-in for my project, and I attended community meetings as well as participated in community volunteer programs to educate patients and families on my project topic. This was a very valuable experience.

Practitioner

As a practitioner, it is my responsibility to improve my nursing practice through continued learning and self-evaluation. Each day presents new challenges to the effort to provide consistent and safe patient care. I have the ability to seek information and knowledge, explore and connect ideas with my own thoughts, and seek meaning. I now look at deficiencies in my office practice to identify the best way to address them. During the research project, I was able to round with the nurse administrators and preceptor to the nursing units and observe problem-solving methods. I gained a foundation to effect change through thorough research processes involving implementation and evaluation. I continually self-evaluate to improve my practice.

Project Developer

Prior to entering the DNP program, I had experience with project development, but not on the scale that was necessary for this program. I was involved in the nurse practice council at my previous employer. A project developer must be able to take an idea from concept to completion. During the development of this project, there were many obstacles to overcome. My first challenge was explaining the project process to my preceptor. In her position, she worked independently; therefore, she did not appreciate that I had to have meetings with the administrators. The administrators were involved in other more pressing priorities, which made it difficult for them to meet with me. However, very early in the project planning phase, I met with the vice president (VP), director, manager, medical director, and nurse researcher, and I was successful in gaining their approval. Another factor that posed some difficulty was that my preceptor also decided to complete her DNP within the past year. Her program was not as developed as the Walden program, and getting her to understand that I needed IRB approval for the project constituted another obstacle. Her program did not require IRB approval or intense project development. Additionally, she had the support of the organization and complete access to the data necessary to complete her project (a written policy). I was able to obtain the data necessary to complete the project.

DNP-led scholarly projects provide a venue for students to assume leadership roles for effective interprofessional collaboration to improve health care, patient outcomes, and healthcare systems (Zaccagnini et al., 2011). I would prefer using a mixed

method to analyze practice problems because critical to patient care are the nurses providing those services; therefore, it is important to gain insight into their individual experiences and values. I feel confident in my abilities as a nurse researcher to improve quality patient care to effect optimal outcomes using the skills I have attained during this educational experience. I learned how important it is to involve the key stakeholders from the inception of a project.

Future Professional Development

According to Zaccagnini et al. (2011), "American health care still benefit enormously from expert clinicians who can utilize evidence-based projects and tools to improve the outcomes of care delivered by advanced practice nurses" (p. 490). My plan for the future is to continue my professional development through formal and informal education. Nursing informatics is of interest to me. I would be able to investigate and build nursing practice protocols to improve workflow and quality patient care. Nursing research requires data aggregation, and a certificate in nursing informatics would be beneficial for me as I seek to play a more active role in improving nursing care. I will use my skills to teach other nurses to identify clinical problems, complete literature reviews, write protocols of care, and apply evidence-based practice at the bedside.

Summary and Conclusions

This project was essential to the detection of poor swallowing ability in the acute stroke patient. The literature supported BSS as a tool to identify those at risk for hospital-acquired pneumonia and to decrease morbidity. Improvement in compliance with BSS

improved over the 6-month evaluation timeframe. Continued monitoring and annual competency evaluation will further assure that the policy/protocol is followed. Periodically, dashboards on BSS compliance will keep the issue in focus and further encourage staff by providing positive reinforcement. Preventing further injury to the acute stroke patient is imperative for continued rehabilitation of these patients.

Section 5: Dissemination Plan

Introduction

The evaluation and outcome of this project would be of interest to any health care provider involved in the care of stroke patients. Most importantly, this project is relevant to nurses on the stroke unit. Posting the results of bedside swallow screening compliance on the stroke unit would be of value to the nursing staff. Updated analyses posted on a monthly basis may improve nurses' accountability for the care they provide to these patients as it relates to compliance with bedside swallow screening. The hospital's monthly internal newsletter, which is disseminated on the hospital's website, offers a means to reach all nurses at the facility; a project summary could be presented in this publication. Additionally, dissemination could occur through nursing emails and onsite newsstands.

The project involved evaluating the implementation of the restructured bedside swallow screening with a goal of 100% compliance, including nurses' documentation of BSC completion in their notes. This was not accomplished; therefore, publication of the results at national conferences, especially those pertaining to stroke, should be delayed until all the components of the project have been implemented and evaluated, reflecting 100% compliance without prompting by the stroke coordinator.

Project Summary

Background

Risks associated with strokes, such as dysphagia, increase the incidence of aspiration, thus increasing length of stay, healthcare costs, and mortality rates. Bedside swallow screening is a simple method of determining whether the patient is at risk for aspiration. Approximately 35% of deaths that occur after an acute stroke are caused by pneumonia (Hinchey et al., 2005). Patients with infarction of the brain stem, multiple strokes, major hemispheric lesions, or depressed consciousness are at greatest risk of aspiration (Jauch et al., 2013). It is believed that post stroke pneumonia is attributable to the aspiration of oral secretions or other oral intake in the presence of varying degrees of dysphagia (Hinchey et al., 2005).

Location of the brain lesion determines the potential for aspiration pneumonia. Some signs of aspiration are not obvious, as in the case of silent aspiration; therefore, the evaluator must be skilled in the identification of risk factors. Garon et al. (2009) defined *silent aspiration* as the passage of food or liquids through and below the level of the true vocal folds without producing a reflexive cough or other overt signs that aspiration has occurred (p. 178).

The current stroke guidelines recommend a swallow evaluation be performed prior to introduction of oral intake in at-risk patients. Video fluoroscopy is used when the patient fails the swallow assessment completed by the speech pathologist. Weinhardt et al. (2008) conducted a study to determine the validity of a RN bedside dysphagia

screening by comparing the nurses' rating with concurrent results from a speech therapist (p. 248). In order for the test to be administered, the patient must demonstrate a level of alertness deemed adequate for oral intake, in addition to basic motor and laryngeal integrity, as ascertained by assessing the cough reflex and ability to manage secretions and swallow effectively (Weinhardt et al., 2008). Some organizations develop modified screening tests with the assistance of the speech pathologist that expedite the process and improve outcomes.

Adhering to established guidelines for stroke care is imperative in order to ensure patient safety. The bedside swallow screen is a tool for primary identification of dysphagia. When completed by a competent practitioner, it is a valuable tool in reducing aspiration in acute stroke patients. Standardized protocols are recommended to assure that evidence-based practice is implemented.

Purpose

The purpose of this project was to evaluate emergency room nurses' compliance with documentation after completing a modified bedside swallow screen. Prior to this evaluation, the current bedside swallow screening (BSS) tool was restructured to make it user-friendly and increase its use on all nursing units at the hospital to improve the bedside swallow screening compliance rate. Initial education on the restructured screening tool will be developed and added to the closed-circuit television system, and completion of this education will be a requirement prior to the use of the screening tool. A pilot study was conducted in the ED on the use of the restructured BSS.

Objective

The objective of this QI and safety initiative was to increase compliance with stroke guidelines by restructuring the bedside swallow screening tool and to develop an educational program related to its use.

Plan

1. Improve patient safety for stroke patients as measured by compliance with bedside swallow screening 100% of the time.
2. Restructure the bedside swallow screen tool. A tool with a yes/no format would expedite the screening process while maintaining its effectiveness as the current bedside swallow screen.
3. Evaluate program successes and opportunities for improvement and report initially on a weekly basis, then at 1 month, 3 months, and 6 months.

Project Design

The QI improvement project evaluated retrospective data after implementation of a revised evidence-based bedside swallow screening tool. Success of the project was measured by 100% compliance with the screening process in the acute stroke patient.

Data Collection Procedures, Instruments, and Variables

The target population of the project was the nurses in the ED. All patients who presented with acute stroke symptoms must have the bedside swallow screen completed to determine aspiration risks. Data collected between October 1, 2015 and April 30, 2016 were evaluated as a basis for determining the current screening rate. Retrospective data

was collected from January 1, 2015 until April 30, 2015. Only data on acute stroke patients was reported for this project. All triggered alerts in the electronic health record were tracked and reported to make program improvements.

Analysis

The data collected was analyzed based on reports from the stroke program. During the 6-month period of data collection, the average number of acute stroke admissions per month was 16.5. Cerner reminder alerts were sent on eight of these patients. These alerts triggered chart audits, and documentation was corrected when there was evidence that the BSS had been completed but had not been documented in the nurses' notes.

Results

There was an improvement in BSS compliance to 100% after chart audits were completed to correct nurses' documentation. This provided accurate data for the Joint Commission and the American Stroke Association for continued accreditation.

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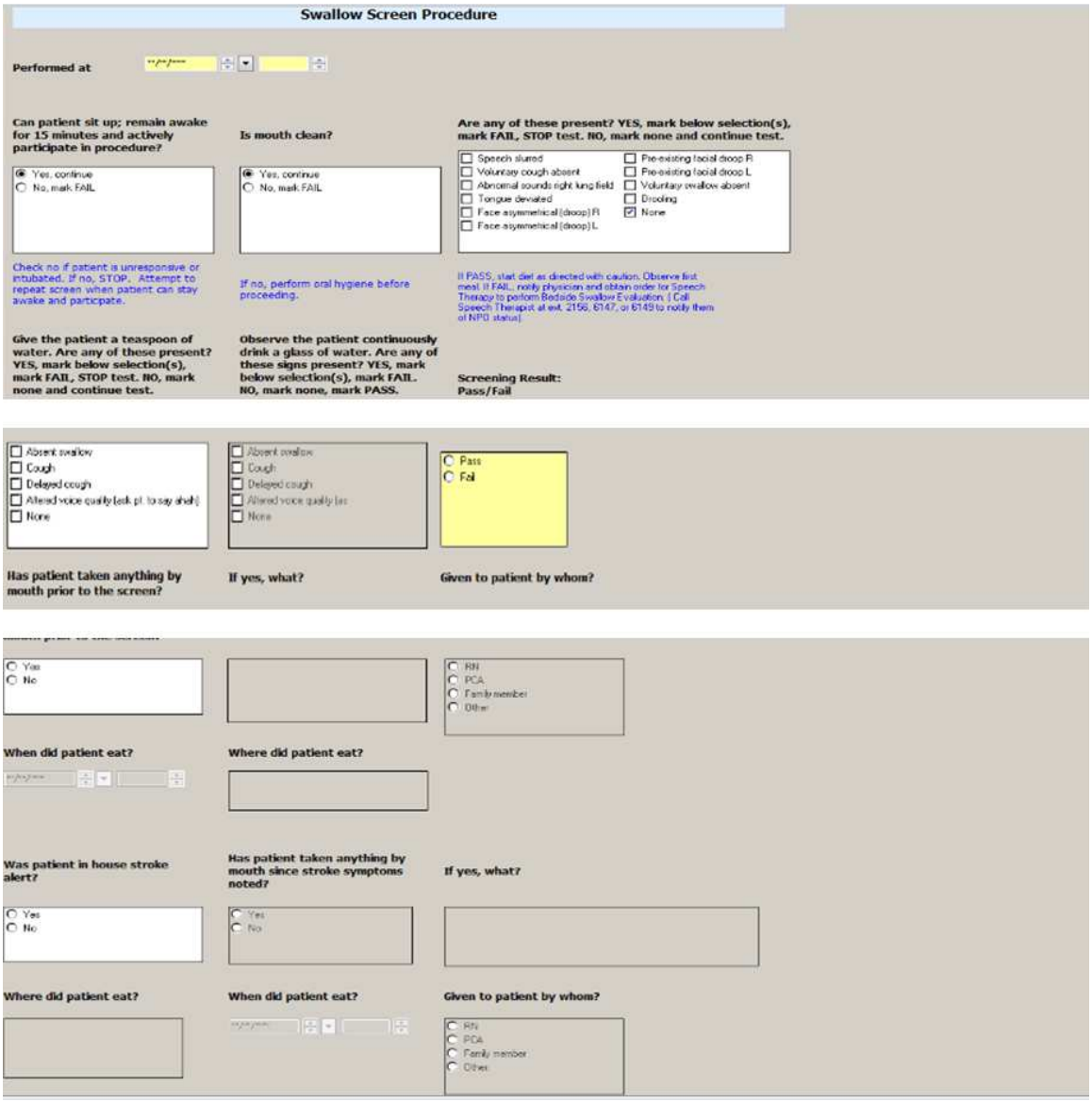
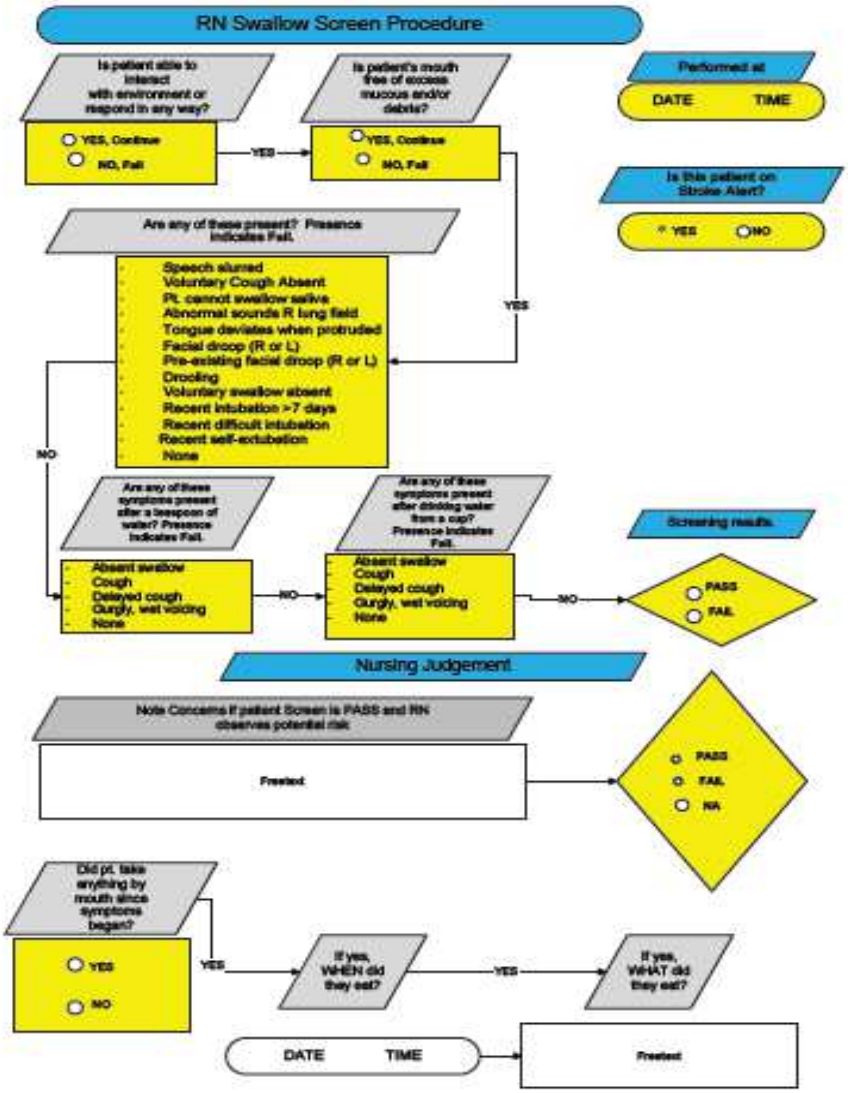
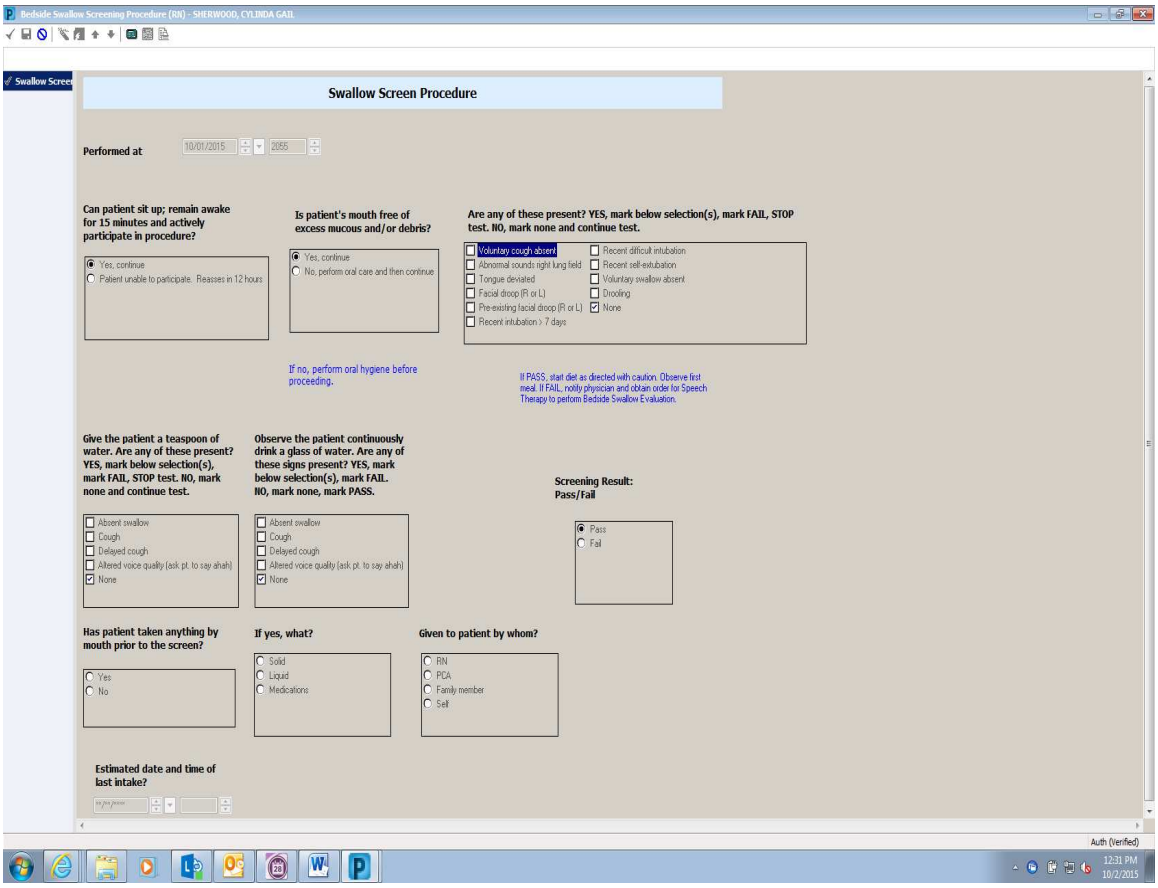
Appendix A: Current Bedside Swallow Screen



Appendix B: Revised Modified Bedside Swallow Screen Flowchart

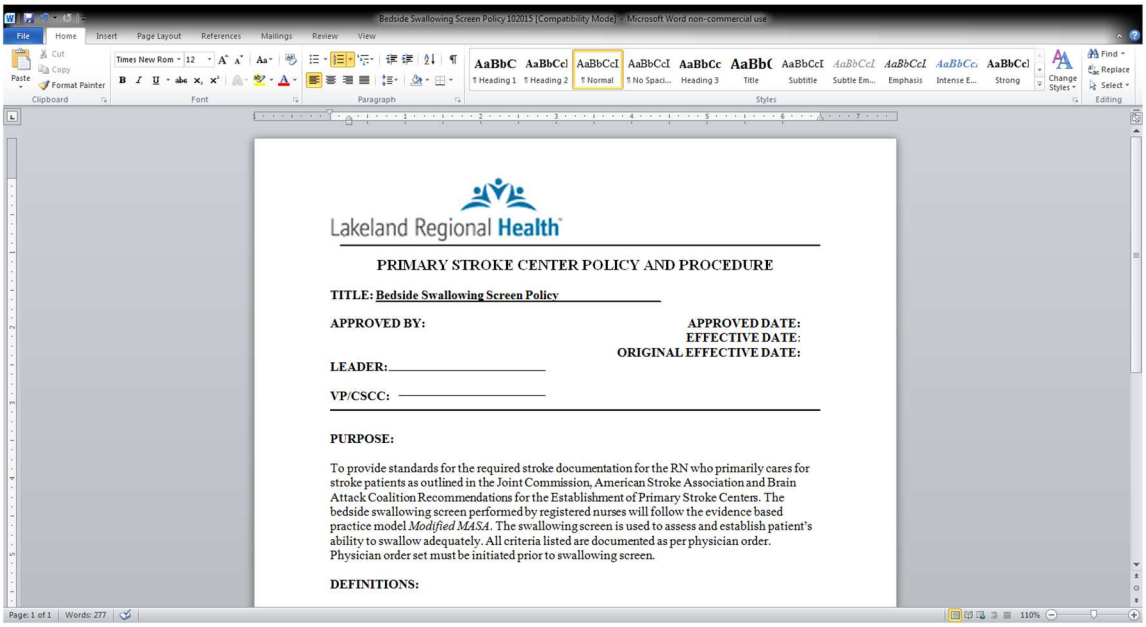


Appendix C: Restructured Bedside Swallow Screening



Appendix D: Primary Stroke Center Policy and Procedure

Bedside Swallowing Screening Policy



Lakeland Regional Health

PRIMARY STROKE CENTER POLICY AND PROCEDURE

TITLE: Bedside Swallowing Screen Policy

APPROVED BY:

APPROVED DATE:
EFFECTIVE DATE:
ORIGINAL EFFECTIVE DATE:

LEADER: _____

VP/CSCC: _____

PURPOSE:

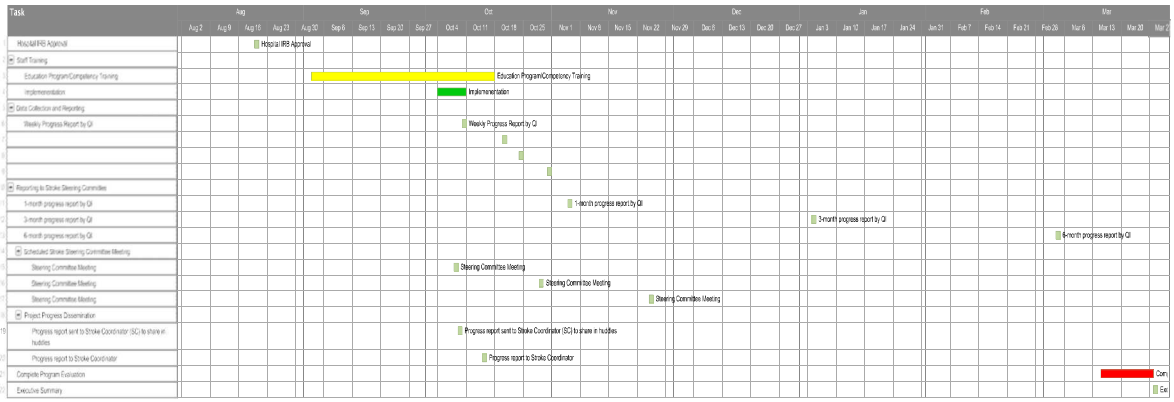
To provide standards for the required stroke documentation for the RN who primarily cares for stroke patients as outlined in the Joint Commission, American Stroke Association and Brain Attack Coalition Recommendations for the Establishment of Primary Stroke Centers. The bedside swallowing screen performed by registered nurses will follow the evidence based practice model *Modified MASA*. The swallowing screen is used to assess and establish patient's ability to swallow adequately. All criteria listed are documented as per physician order. Physician order set must be initiated prior to swallowing screen.

DEFINITIONS:

Appendix E: Timeline for the Bedside Swallow Screening Project

Implementation and Evaluation Plan

Bedside Swallow Screening Project



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