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Evaluation of the Bedside Swallow Screen

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Ruby Ben

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Walden University
2018

Abstract

Evaluation of the Bedside Swallow Screen

by

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MSN, Walden University, 2015

BSN, Arkansas State University, 1993

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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August 2018

Abstract

Dysphagia is a leading complication of a stroke. A nurse-driven bedside swallow screen can identify dysphagia and decrease the risk for complications such as aspiration pneumonia. At the project site, the use of the bedside swallow screen was at 33%; there was noncompliance with the use of the bedside swallow screen by the emergency department nurses. The purpose of the doctoral project was to increase the use of the bedside swallow screen. Published outcomes, research, and reports generated from archived data were the sources of evidence. The six sigma methodology was used to inform the quality improvement doctoral project. At the end of the quality improvement project, the posttest scores were statistically significantly higher than the pretest scores mean. The nurses' scores demonstrating level of confidence before the training ($M =$ 68.39, $SD = 10.86$) were lower than scores indicating their level of confidence after the training ($M = 79.55$, $SD = 10.56$), and the paired t test showed statistical significance $p <$ .001. The training made a statistically significant difference in the emergency department nurses' knowledge and confidence in performing the dysphagia screen. After the causes of low compliance were identified, strategies developed and implementation of the swallow screen in the emergency department increased. The quality improvement project improved the use of the dysphagia screen at the project site from 33% to 60%. The project made a positive impact on social change by reducing stroke patients' risk for complications.

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Dedication

I would like to dedicate my DNP project to my grandparents, William and Julius Brunson, and mother, Emma, who always pushed me to do my best. I would also like to dedicate my project to my husband, Andra, and children, AJ and Jennifer, for their sacrifice while I was in school working toward my goal.

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Introduction

A swallow screen done on an acute stroke patient allows for early intervention, decreased morbidity, decreased length of stay, and reduced hospital cost. (Daniels, Anderson, & Petersen, 2013). A best practice for acute stroke patients is early detection of dysphagia (Daniels et al., 2013). The completion of the bedside swallow screen in the emergency department (ED) at the project site is 33% and putting the patients and the hospital at risk. Documentation of the bedside swallow screen is completed by ED nurses. Improving the utilization of the swallow screen on acute stroke patients will have a positive impact on social change by preventing complications, shortening the patient's length of stay in the hospital, and assuring that adequate nutrition is provided without compromise (Palli et al., 2017). The number of patients who will develop aspiration pneumonia will decrease due to the utilization of the swallow screen (Palli et al., 2017).

Problem Statement

Stroke patients who come into the ED with symptoms of stroke may have weakness while experiencing ischemia or a bleed to their brain. In the early stage, patients cannot function and cannot swallow. It is a very frightening time for the patient. If the nurse does not fully evaluate their symptoms, there can be unfortunate effects such as aspiration pneumonia, an extended hospital stay, increased cost, loss of wages, and an increased burden on the family. There are inconsistencies with the completion and documentation of the swallow screen in the ED. There is a nurse noncompliance issue in completing the dysphagia screen. The ED is not a stroke center but participates in

Arkansas Saves. Arkansas Saves provides the ED with 24-hour coverage by a neurologist who can read CT scans and prevent delay of treatment for the stroke patients. The hospital also has a neurologist on staff who works Monday through Friday from 8:00 a.m. until 5:00 p.m. Thus, the 24/7 neurologist coverage by Arkansas Saves can improve outcomes in the project facility in a significant way.

The setting is a 24-bed ED which is part of a 225-bed facility. There are 190 acute care beds in the project facility, and another 35 are recuperative care beds for a total of 225 beds. The ED has physicians, registered nurses, nursing assistants, emergency medical technicians, and two advanced practice nurses. The hospital's quality committee has been measuring the hospital's performance with the stroke measures as required in the Get with the Guidelines (GWTG) program of the American Heart Association (American Heart Association [AHA], 2017a) and the hospital is not meeting the standards.

Strokes are the fifth leading cause of death in the United States (Centers for Disease Control and Prevention [CDC], 2017a). Strokes are also treatable if healthcare professionals act fast to prevent death and disabilities. A crucial part of the acute stroke protocol is the swallow screen because many patients experience dysphagia after a stroke. Dysphagia is a difficulty in swallowing and is usually a symptom of diseases such as strokes, neurological disorders, and esophageal disorders (Cohen et al., 2015). Completing a swallow screen on an acute stroke patient allows for early intervention, decreased morbidity, decreased length of stay, and decreased hospital cost (Daniels et al., 2013). The project hospital has a swallow screen completion rate around 33% of

acute stroke patients since June of 2016. Insufficiencies in care cost Americans unnecessary suffering (National Academies of Sciences Engineering Medicine, 2017).

Research and recommendations for a bedside swallow screen are available, but there continues to be a gap in practice. The speech and language pathologist (SLP) is a healthcare professional who is trained to evaluate patients for dysphagia. A concern is that the SLP is not available around the clock, and the absence can delay a patient's screening for dysphagia (Campbell, Carter, Kring, & Martinez, 2016). Nurses are present on every shift in the acute care hospital and can prevent the delay of a dysphagia screen. A best practice for acute stroke patients is early detection of dysphagia using a bedside dysphagia screen (Daniels et al., 2013).

There are several things that can cause low utilization rates for the bedside swallow screen. If a swallow screen is done and not documented, then the chart abstractor must assume that the nurse did not complete the screen on the patient which will result in a lower use rate (Lakshminarayan et al., 2010). The swallow screen will appear not done if the ED nurse documents that the patient has taken anything by mouth before completing the swallow screen. Another potential cause of low utilization of the swallow screen is a knowledge issue for the ED nurses. The ED had a significant turnover of nurses. Most of the nurses have 1 to 2 years of experience at the project site. There is a possibility that the nurses do not understand or know the significance of completing the swallow screen. There must be further investigation to verify these potential causes.

Purpose Statement

The purpose of the quality improvement (QI) project was to determine the reasons for nurse noncompliance in completing the dysphagia screen and to increase compliance for completion of the bedside swallow screen. The gap in practice that was addressed was evidenced by the very low AHA GWTG scores on the swallow screen at the project site. Evidence supports performing a bedside swallow screen. A study with 18,017 patients diagnosed with strokes, between March 1 through December 31, 2009, suggested that the patients who were unscreened were at a higher risk for pneumonia (odds ratio [OR] of 2.2; 95% CI, 1.7 to 2.7) compared to screened and passed (Lakshminarayan et al., 2010). Best practice is that a swallow screen is performed before the patient has food or drink (AHA, 2017b).

The hospital participates in the AHA's GWTG. The GWTG track a hospital's performance on stroke quality measures. One of those quality measures is using the dysphagia screen to screen acute stroke patients. The measure is the percent of acute stroke patients who had a screen with a hospital approved evidence-based bedside swallow screen. The completion of the screen must be before the patient has food, fluids, or medication by mouth (AHA, 2015). The measure does not require that the screen is done within a specified timeframe. Hospitals can achieve public recognition for their performance that can give them a competitive edge against other hospitals (AHA, 2015).

Early screening an acute stroke patient for dysphagia can minimize complications associated with the disease (Cohen et al., 2015). It is critical that ED nurses begin to complete the screen on acute stroke patients. The guiding practice-focused question for

the doctoral project was: Will completion of the swallow screen for acute stroke patients in the ED increase after the causes of low compliance are identified, strategies developed and implemented?

Through this QI project, I addressed the gap in practice by determining the causes of noncompliance, implementing strategies that addressed the causes and increased the utilization of the swallow screen. Using lean and six sigma principles (LSS), I led a project team who identified the causes for the poor utilization of the swallow screen at the hospital and implemented interventions to improve use (Chung, 2015). The LSS methodologies are systematic approaches to solve problems that can improve quality of care, patient safety, and reduce overall waste and drive down cost (Chung, 2015).

Nature of the Doctoral Project

The sources of evidence included scholarly peer-reviewed studies, QI data available at the project site, and data collected from the closed charts of the stroke patients. I also used focus groups and a pre-and post-test as sources of evidence. The QI project was already a part of the organization's quality plan. I used define, measure, analyze, implement, and measure methodology (DMAIC) to determine the causes of noncompliance, implement strategies, and to improve the utilization of the bedside swallow screen. The DMAIC method uses LSS tools across five phases to complete a QI project and achieves measurable results (American Society for Quality [ASQ], 2018a).

In the first phase of the DMAIC method, the opportunity for improvement is identified (ASQ, 2018a). The members of the process improvement team brainstormed and listed the potential causes for the low utilization of the bedside swallow screen and

decided on a problem statement to guide the investigation. During process

improvements, members of the team brainstorm and list the causes of an identified

problem (Kush, 2015). According to Kush (2015), the improvement team must identify a

problem statement. The problem statement is used by the team to state the gap in

practice and guide the research to find the cause of the deficit (Kush, 2015). The next

phase was measure. In the measure phase, the form of measurement was identified

(ASQ, 2018a). The analyze phase determined and verified the causes (ASQ, 2018a).

The team confirmed the reported reasons for the decrease in utilization of the swallow

screen by using LSS tools (ASQ, 2018a). During the implementation phase, the team

verified causes, and worked toward eliminating the causes. In the control phase, the

improved process performance was controlled and monitored (ASQ, 2018a). The

purpose of the QI project was to determine the reasons for nurse noncompliance in

completing the dysphagia screen and to increase compliance for completion of the

bedside swallow screen.

Significance

An increase in utilization of the swallow screen in acute stroke patients will affect

several stakeholders. Those stakeholders include patients, families, and the hospital. The

patients who come into the hospital with stroke-like symptoms and who are later proven

to have an acute stroke will be at less risk for complications related to stroke such as

aspiration pneumonia. The use of the swallow screen will decrease the risk for aspiration

pneumonia and improve the outcome for the acute stroke patient (Trapl et al., 2007).

With the reduction of complications, acute stroke patients are less likely to suffer from

loss of wages due to inability to work. Approximately 58% of patients are unable to work after complications related to stroke (Bahouth & LaMonte, 2005).

The victim's family will not have the burden of caring for an acute stroke patient who has suffered from preventable complications. The complications of an acute stroke influence the patient's outcome (Edwardson & Dromerick, 2017). Stroke patients living at home after suffering from complications create a burden on the family (Nishio et al., 2015). The family must adjust their life to care for their family member, and the adjustment creates stress on the caregiver (Nishio et al., 2015).

Early detection of dysphagia reduces complications, length of stay in the hospital, and cost for the healthcare facility (Suhail, Ahmed, Nabi, & Iqbal, 2014). Bonilha et al. (2014) found that stroke patients who suffered dysphagia complications compared to patients who did not experience difficulties paid $4,510 more in hospital cost in 2004. The higher price is concerning to hospitals because of the Centers for Medicare and Medicaid mandates that hospitals be responsible for patient outcomes and cost containment (Bonilha et al., 2014). The reimbursement associated with stroke patients is not increasing, and hospitals are forced to find ways to be more cost efficient (Bonilha et al., 2014). By using the swallow screen in acute stroke patients, there will be a reduction in cost and improved patient outcomes (Bonilha et al., 2014). The doctoral project will contribute to the nursing practice by closing a gap in practice for the acute stroke patient. Evidence suggests that the use of a bedside swallow screen on the acute stroke patient will reduce the risk associated with dysphagia. The utilization of the swallow screen will

result in early detection of dysphagia. A best practice for acute stroke patients is early detection of dysphagia (Daniels et al., 2013).

The use of a bedside swallow screen is a recommendation that is not unique to the project site and is transferable to other hospitals. The QI project was not uncommon because other hospitals have completed similar studies. The studies suggested the use of a bedside swallow screen will reduce complications related to dysphagia and that early detection is crucial.

Implications for Social Change

The achievement of social change is when deliberate actions are taken to improve the conditions of people using strategic ideas and planning (Walden, 2017). Enhancing the utilization of the swallow screen on acute stroke patients by ED nurses had a positive impact on social change. A positive impact is a decrease in the number of patients who will develop aspiration pneumonia. Approximately one-third of acute stroke patients with dysphagia aspirate and develop pneumonia (Armstrong & Mosher, 2011). Using a swallow screen on acute stroke patients improve the outcomes for people who experience an acute stroke. The project was a deliberate effort to improve the terms of the acute stroke patients. The project supported the mission of Walden University to promote social change.

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Summary

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Dysphagia in acute stroke patients is an issue that affects over six million people who survive strokes (González-Fernández, Ottenstein, Atanelov, & Christian, 2013). ED nurses performing the swallow screen on acute stroke patients before they eat, or drink is

a best practice. According to GWTG, the project site is at 33% use of the bedside swallow screen on acute stroke patients, and the national comparison for hospitals who are certified by the Joint Commission and that participate in the American Heart Association GWTG is 86.5% (Knox, 2017). The organization's expected goal is 80%. The complications associated with dysphagia patients can lead to a burden on the patient, family, and the hospitals. Increasing the utilization rate of the swallow screen for acute stroke patients will have a positive impact on the patient's outcome. It is critical for the nurse leader to understanding the background related to the issue, role of the DNP, and the method most appropriate to guide the QI project.

Section 2: Background and Context

Introduction

The guiding practice-focused question for this doctoral project was: Will completion of the swallow screen for acute stroke patients in the ED increase after the causes of low compliance are identified, strategies developed and implemented? The purpose of the DNP QI project was to determine the reasons for nurse noncompliance in completing the dysphagia screen and to increase compliance for completion of the bedside swallow screen. I used DMAIC methodology to identify the causes of low use of the bedside swallow screen. In this chapter, I will discuss the concepts, models, and theories that I used for the project, address the relevance of the project to nursing practice, describe the local background, and my role as the DNP student.

Concepts, Models, and Theories

In the DNP project, it is critical to understand the concepts, models, and theories associated with improving the bedside swallow screen. Other topics of importance included a description of current practice guidelines, the tools for preventing aspiration pneumonia, and the barriers to improving the swallow screen. There will also be more detail on topics mentioned in the previous sections.

Current Practice Guidelines on the use of the Swallow Screen

The best practice for performing the bedside swallow screen is before the acute stroke patient eats or drinks (AHA, 2017b). The GWTG best practice is the completion of an evidence-based swallow screen protocol approved by the hospital before the patient has food, fluids, or medication by mouth (AHA, 2015). The measure does not require a

specific timeframe for the screen (AHA, 2015). The Joint Commission recommends a swallow screen on all patients with a stroke diagnosis before they can resume an oral diet (Edmiaston, Connor, Steger-May, & Ford, 2014).

Dysphagia must have a definitive diagnosis by an SLP, but the diagnosis may not come for 24 to 48 hours (Cummings et al., 2015). The ED nurses perform the initial screen in the ED (Cummings et al., 2015). The standard is that acute stroke patients admitted through the ED have a specific hospital approved dysphagia screening tool (Cummings et al., 2015). Cummings et al. (2015) compared the results of a nurse-driven swallow screen and an SLP swallow screen on ischemic stroke patients. The average age of the patients was 71.7 (SD±13.5; Cummings et al., 2015). Most of the patients had ischemic strokes (*n*=35). Cummings et al. (2015) found that the nurse-driven dysphagia screen identified 16 of 18 participants who screened positive by the SLP. The nurse dysphagia successfully screened 28 of 31 patients who tested negative by the SLP (Cummings et al., 2015). The sensitivity and specificity of the nurse dysphagia screen was 89% and 90% respectively to the SLP screen (Cummings et al., 2015).

As a result of a systematic review of the literature, Hines, Kydock, and Munday (2016) suggested that the swallow screen is done before the acute stroke patient eats or drinks. The systematic review included 15 studies and indicated that nurses trained with specific formal guidelines to perform a bedside swallow screen reduce chest infections and death. The studies were from 2008 to 2013 (Hines et al., 2016). The studies included experimental and epidemiological study designs (Hines et al., 2016). The review also suggested that the presence of formal hospital guidelines reduced inpatient

death OR = 0.60, 95% CI [0.43, 0.84]. Nurses encounter the patients first, and a swallowing tool should be in place to assess the patient for dysphagia (Malhi, 2016). The nurse performs the initial swallow screen and requests the SLP to follow up with a formal swallow screen (Malhi, 2016).

Tools for Preventing Aspiration Pneumonia in Stroke

Edmiaston et al. (2014) performed a study over a 5-year period in a hospital setting that included 225 acute stroke patients. In the 5-year period, Edmiaston et al. (2014) tracked the prevalence of pneumonia after the implementation of a bedside swallow screen. The study design was a retrospective analysis of ICD 9 codes for the stroke patients and a secondary analysis of ICD 9 codes for pneumonia to determine annual pneumonia rates (Edmiaston et al., 2014). The sensitivity of the swallow screen had a sensitivity of 94%, 95% CI [88%, 98%] and the specificity of 66%, 95% CI [57%, 75%] (Edmiaston et al., 2014). There was not an increase in pneumonia in patients who were screened (Edmiaston et al., 2014). The study suggested that a simple bedside swallow screen will identify the potential for aspiration and dysphagia in the acute stroke patient (Edmiaston et al., 2014).

Sivertsen, Graverholt, and Espehaug (2017) performed a criteria-based clinical audit on a stroke unit to assess submission of the bedside swallow screen before and after implementation science. Sivertsen et al. (2017) included ICD 10 codes for eligible stroke patients. Sivertsen et al. (2017) excluded patients with pre-existing swallowing problems. The baseline number of participants was $n = 88$ (Sivertsen et al., 2017). The researchers found that 6% of the patients had a swallow screen completed before staff

education 95% CI [2, 11] and on the re-audit (n =51) there was a 61% swallow screen

completion rate 95% CI [45, 74] (Sivertsen et al., 2017). The study suggested that using

implementation science will improve the swallow screen documentation (Sivertsen et al.,

2017).

Sorensen et al. (2013) performed a controlled trial that included 146 acute stroke

patients with moderate to severe dysphagia to identify if performing an early swallow

screen and intensified oral hygiene would decrease the incidence of aspiration

pneumonia. The researchers placed the patients in three groups that included an

intervention group (n =58), an internal control group (n =58), and an external group (n

=30) all of which were from a comparable control group (Sorensen et al., 2013).

Sorensen et al. (2013) used the Gugging swallow screen in the study. The Gugging

swallow screen is based on the ability of the patient to swallow liquids and different

textures of food (Sorensen et al., 2013). The x-ray verified pneumonia in four of 58

patients in the intervention group, 16 of the 58 in the internal control group, p <0.01, and

eight of 30 in the external control group, p = 0.05, (Sorensen et al., 2013). Sorensen et al.

(2013) concluded that the use of the Gugging bedside swallow screening tool and intense

oral hygiene would reduce the incidence of x-ray verified pneumonia (Sorensen et al.,

2013).

Barriers to improving the use of the Swallow Screen

A barrier to improving the utilization of the bedside swallow screen includes the

fear of putting a patient's safety at risk when an untrained nurse administers the water

trial (Daniels et al., 2013). There was also a fear that performing the swallow screen may

take too much time in a busy ED department where everything is expected to be done

rapidly (Daniels et al., 2013). Daniels et al. (2013) used a before and after design and

qualitative methods to determine the feasibility of a bedside swallow screen. The study

included 278 patients who came to the ED with stroke-like symptoms. A Cochran-

Armitage test $z = $ -5.1042, $p < 0.0001$. The odds for completing the swallow screen were

4 times higher after implementation compared to two months before implementation

(Daniels et al., 2013). The study identified barriers, nurse adherence, and assisted in the

development and implementation of an improvement plan to increase use of the

dysphagia screen (Daniels et al., 2013). The results suggested that it was feasible for ED

nurses to administer the bedside swallow screen and to address the barriers in an

implementation plan, and it will increase use of the swallow screen (Daniels et al., 2013).

Another barrier to completing the swallow screen was the culture of the project

site organization. The employees at the project site took a culture of safety survey and

the results were negative. Employees working in the ED perceived that understaffing

prevented a culture of safety. Sorra, Khanna, Dyer, Mardon, and Famolaro (2012)

suggested that hospitals which have a positive culture of safety have a more positive

assessment of care from patients. These findings validated that improvements in the

culture of safety may lead to improved patient experience with care (Sorra et al., 2012).

Quality Improvement Model

The QI project was already a part of the organization's QI plan. In the QI project,

I used DMAIC methodology to identify the causes for the low fulfillment of the swallow

screen and worked toward eliminating those reasons. The DMAIC methodology is an

LSS process. The LSS procedure is an organized and systematic method to improve a process (Boaden, Harvey, Moxham, & Proudlove, 2008). The project site trained several employees in departments throughout the organization on the principles of LSS. The employees were familiar with the DMAIC methodology. The process improvement teams included distinct levels of certification for LSS. Deblois and Lepanto (2016) performed a systematic review of 149 publications, seven of which were literature reviews, suggested that LSS is a valuable process optimization approach, and the key to its success is training the frontline staff, middle managers, and administration.

DMAIC Methodology

The DMAIC methodology puts a process through five phases. The first phase was define. In the define phase, the team identified the opportunity for improvement by using LSS tools and the input from the improvement team (ASQ, 2018a). In the define phase, the nurse leader determined the reason the dysphagia screen was not complete through information obtained from the ED personnel. The use of a focus group and pretest identified barriers. The focus group and pretest captured stated and unstated needs (Six Sigma Institute, 2018). The intention of the focus group with the ED nurses was to surface their thoughts and ideas on why conformity for the swallow screen was low.

The next phase was measure. In the measure phase, the form of measurement is identified (ASQ, 2018a). I used the hospital QI data to measure completion of the swallow screen and used a pre-test and post-test to measure the ED nurses' knowledge about the swallow screen. Terry (2015) stated that pre-and posttest provided real-time

feedback. The pretest confirmed the knowledge deficits among the ED nurses, and thus provided the basis for a targeted educational process. The posttest confirmed that learning took place.

The analyze phase identified and verified the causes (ASQ, 2018a). The team confirmed the reported reasons for the decrease in utilization of the swallow screen by using LSS tools (ASQ, 2018a). A cause and effect diagram is an LSS tool appropriate for identifying the cause of the decrease in utilization of the swallow screen. The Six Sigma Institute (2018) stated that a cause and effect diagram or fishbone diagram captured the causes through a brainstorming activity to identify the root causes of the issue.

During the implementation phase, the team reduced the verified causes by strategizing appropriate interventions to address them (ASQ, 2018a). The ED nurses received education according to the findings in the implementation phase and the training assisted in gaining the nurses support in implementing the swallow screen before the patient has any food or drink in the ED. In the control phase, the improved process performance was controlled and monitored (ASQ, 2018a).

Lewin's Theory of Change

It is also critical to use theory to assist with changing the behavior of the ED nurses. Lewin's theory of change suggested that change must go through three phases. Those phases are unfreezing, moving, and refreezing (Fawcett, 2014). Lewin theory of change states that behavior is a dynamic balance of forces working in opposite directions (Lewin, 2011). The concepts of the theory include a driving force, restraining force, and

equilibrium (Lewin, 2011). Driving forces push in a direction and makes change occur (Lewin, 2011). Restraining forces hinder change because they push people in opposite directions (Lewin, 2011). Equilibrium is being in a state where driving forces and restraining forces are equal, and change does not occur (Lewin, 2011). In the phases of change, it is crucial that these forces are recognized. In the unfreezing phase, the driving force increases to decrease the restraining force to make the need for change realized (Lewin, 2011). In the moving phase, there is a change in thought, behavior, and feeling that is more productive during the change (Lewin, 2011). In the refreezing phase, the new process becomes the permanent change (Lewin, 2011).

Definitions of Terms

The following definitions are necessary to provide an understanding of terms used throughout the project.

Bedside swallow screen: is an initial test of gag and swallowing reflex to accurately identify cerebrovascular accident patients are exhibiting dysphagia risk factors (Weinhardt et al., 2008). The bedside swallow screen is also called the dysphagia screen.

Dysphagia: is a difficulty in swallowing after a stroke (Cohen et al., 2015).

A *Lean and Six Sigma Blackbelt:* is a person who has advanced knowledge of LSS tools and terminology and serves as an LSS expert and advisor on process improvement teams; a certified black belt will typically facilitate multiple process improvement teams (ASQ, 2018b).

A *Lean and Six Sigma Greenbelt:* is a person who analyzes and solves problems under the supervision of an LSS Black Belt on QI projects; a green belt is often a process

owner with managerial responsibility for the people who work within the process (ASQ, 2018c).

Relevance to Nursing Practice

Strokes are the fifth leading cause of death in the United States (CDC, 2017a). Strokes kill over 100,000 people each year in the United States and cost billions of dollars each year which includes healthcare services, medication, and missed days from work (CDC, 2017a). Aspiration pneumonia is the most dangerous complication of an acute stroke (González-Fernández et al., 2013). Pneumonia attributes to mortality in all medical complications following a stroke (Armstrong & Mosher, 2011). Aspiration pneumonia from dysphagia in stroke patients causes significant morbidity and mortality in the stroke patient population (St. John & Berger, 2015). Improving the care that the acute stroke patients receive will minimize complications and decrease stroke mortality. The ED nurses can reduce the mortality and morbidity rate associated with stroke patients. Early screening of an acute stroke patient for dysphagia using the bedside swallow screen can minimize these complications (Cohen et al., 2015). Utilizing the swallow screen decreased the number of patients who were not allowed to eat or drink until an SLP could evaluate them the next day.

Over six million people survive from strokes, and most were affected by dysphagia (González-Fernández et al., 2013). Dysphagia can lead to aspiration pneumonia and increase the length of stay (LOS). Aspiration pneumonia is the most dangerous complication of an acute stroke (González-Fernández et al., 2013).

Pneumonia attributes to mortality in all medical complications following a stroke

(Armstrong & Mosher, 2011).

The use of the bedside swallow screen can identify patients who have difficulty

swallowing and can prevent aspiration pneumonia (Jiang, Fu, Wang, & Ma, 2016). Jiang

et al. (2016), performed a systematic review of eight nonexperimental studies with a

combined participant total of 1254 suggested that a bedside screening tool performed by

nurses was suitable for detecting dysphagia. Palli et al. (2017) did a study to determine if

the time for the swallow screen would improve if the nurses versus the SLP, who are not

available on weekends, were performing the screen. The study included 384 patients

with a mean age of 72.3+/- 13.7 years with a median Health Stroke Scale score of 3 (Palli

et al., 2017). Palli et al. (2017) included an intervention group and a control group. The

time for the dysphagia screen for the control group was 20 hours, and the intervention

group was seven hours ($p = 0.001$). The pneumonia rate for the intervention group was

3.8% versus 11.6% control group, $p = 0.004$, (Palli et al., 2017). Palli et al. (2017) stated

the length of hospitalization was also reduced [median, eight days, range 2-40 versus

median, nine days; range, 1-61days, $p = 0.33$.

Hines et al. (2016) performed a systematic review of 15 studies using the Joanna

Briggs Institutes standard for systematic review suggested that there is compelling

evidence that the use of a bedside swallow screen with patients with acute neurological

dysfunction significantly decreased the number of chest infections and deaths. Hines et

al. (2016) performed a study between 2008 and 2013. In the Hines et al. study, the nurse

initiated swallow screen by trained nurses improved the accuracy of the screen. Hines et

al. (2016) concluded that organizations with formal swallow screen reduced the number

of inpatient deaths OR=0.60, 95% CI [0.43, 0.84], p = 0.003, and chest infections,

OR=0.68, 95% CI [0.51, 0.90], p = 0.008 (Hines et al., 2016).

The GWTG - Stroke reported that 216,372 (68.9%) of 314,007 patients of the

1244 hospitals that participate in the program from 2003 to 2009 had a bedside swallow

screen and among them, 17,906 (5.7%) developed hospital-acquired pneumonia (Masrur

et al., 2013). In the Masrur et al. (2013) study, the dysphagia screen did not occur for

31% of the eligible patients who developed hospital-acquired pneumonia.

State of Nursing Practice

The current nursing practice in 2017 for performing the bedside swallow screen

was 84% for the benchmark hospitals that participate in GWTG. For Arkansas, the use

of the dysphagia screen was 68%. The project site use was 33%. The strategies and

standard practices used to address the issue of the low use of the swallow screen on acute

stroke patients was nurse education and implementation of a nurse-driven swallow screen

protocol in the ED. Titsworth et al. (2013) performed a single center trial study that

included patients with hemorrhagic and ischemic strokes. Titsworth et al. (2013)

performed a 42-month study that included a pre and post intervention period with 2334

participants. Post education the swallow screen utilization went from 39.3% to 74.2%, p

< 0.001, (Titsworth et al., 2013). Daniels et al. (2013) suggested the odds for completing

the swallow screen were 4 times higher after implementation of a nurse-driven bedside

dysphagia screen compared to two months before implementation. The doctoral project

filled the gap in practice revealed in the literature related to the decreased use of the

swallow screen. The project identified the barriers that caused the low use of the bedside

swallow screen, and the project team designed an improvement plan around the identified

causes of little use of the screen.

Local Background and Context

Arkansas had 1,653 deaths in 2015 related to strokes (CDC, 2017b). The project

hospital was not a primary or secondary stroke center, but it was the closest acute care

hospital for many of the surrounding towns. In 2016 the hospital cared for 184 stroke

patients. The hospital's QI committee currently monitors acute stroke patients. The

hospital had recently become a part of GWTG-Stroke. The GWTG-Stroke program

assists hospitals with improving the care of stroke patients by promoting the utilization of

scientific treatment guidelines (AHA, 2017b). The facility had accreditation through the

Joint Commission. The Joint Commission recommended that all patients with a stroke

diagnosis be screened before they can resume an oral diet (Edmiaston et al., 2014).

Utilization of the bedside swallow screen in place at the hospital met the recommendation

of the Joint Commission. The Centers for Medicare and Medicaid Services [CMS]

(2017) can penalize the hospital for patients who have less than 30-day mortality and

readmission. Patients who develop aspiration pneumonia have a higher in-hospital and

30-day mortality risk as well as 30-day readmission rate (Komiya et al., 2016). These

issues are motivations for the hospital to improve the utilization of the bedside swallow

screen.

The use for the dysphagia screen at the project hospital was 33% compliance rate.

I used DMAIC to verify the causes and remove the barriers. It is crucial to increase

utilization of the swallow screen. Improved patient outcomes for stroke patients gave the

organization a competitive advantage against other hospitals. The organization's mission

was to provide quality patient-centered services to its patients. The mission was in line

with the DNP QI project. Stroke patients who develop complications have increased the

length of stay, and as a result, increases health care cost. Hospitals must find ways to

decrease the length of stay and health care cost (CMS, 2013).

The literature on the topic of swallow screen came from many sources. I used

CINAHL, PubMed, EBSCO, UptoDate, and Ovid to search for information about the

swallow screen for stroke patients. The search concepts used were dysphagia, swallow

screen, acute stroke, stroke, bedside swallow screen, and aspiration. A review of the

literature reflected throughout the proposal supports the use of a bedside swallow screen

that is performed by the nurses before the patient eats or drinks. Sorensen et al. (2013)

performed a controlled trial of 146 patients that suggested that a bedside swallow screen

will decrease the risk of pneumonia. A retrospective analysis by Edmiaston et al. (2014)

indicated that a simple bedside swallow screen will identify aspiration pneumonia. Hines

et al. (2016) performed a systematic review of 15 studies that suggested that nurses

trained with specific formal guidelines to perform a bedside swallow screen significantly

reduced chest infections and death. The literature supported the use of a bedside swallow

screen for acute stroke patients.

Role of the DNP Student

My role as a DNP student was to lead a QI project team in the ED who ultimately

improved the utilization of the swallow screen for acute stroke patients. Within the DNP

project team, we assessed the current use of the swallow screen, determined causes for noncompliance, strategized interventions that resulted in improved scores and better patient care. I reviewed reports that identified the low usage of the bedside swallow screen and that served as a measurement to track improvement. A crucial step was to make sure that the leadership of the hospital agreed that the project was important to achieve. As the team leader and certified LSS green belt for the QI project, I ensured that all necessary stakeholders were on the improvement team. I was responsible for guiding the team while using the DMAIC methodology to identify the causes of decreased utilization and strategize interventions that ultimately improved the rate.

I made sure that all stakeholders were made aware of the evidence-based practice and that their questions were answered. Once the implementation plan was developed by the team I disseminated the information to the stakeholders. The need for education emerged in the analyze phase of the DMAIC process. Implementation of an educational program was a key intervention that improved the utilization of the nurse-driven dysphagia screen. A bias to using the swallow screen came from the ED nurses because of the fast pace of the ED. The steps that decreased the bias included showing the evidence that supported utilization of the bedside swallow screen and having the support of the hospital leadership. Another action to minimize the bias was including the ED nurses throughout the process of planning for the quality improvement.

Role of the Project Team

The project team included the vice president of nursing, the project manager, stroke coordinator, nurse educators, ED nurses, and the ED nurse educator. The role of

the project team was to work together while taking the issue through the DMAIC process. The vice president of nursing served as the project champion and assisted in removing organizational obstructions (Harvard Business Review Staff, 2016). The project manager identified the problem with the assistance of the other team members, communicated the objectives of the team and provided a framework for the activities (Harvard Business Review Staff, 2016). The team members were the heart of the team, and it's crucial that the right people were on the team (Harvard Business Review Staff, 2016). The team was responsible for caring out duties assigned by the project lead. The team members were responsible for administering a pre-and posttest to assess the ED nurses' knowledge about performing the bedside swallow screen. The nurse educator assisted in education development and ongoing competency

Summary

The utilization of the swallow screen at the hospital for my DNP project has been 33% or less since June 2016. The evidence supported using the bedside swallow screen. Utilizing the swallow screen will decrease the risk of aspiration pneumonia and mortality. In section three the collection and analysis of evidence to support the utilization of the bedside swallow screen will be presented.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of the QI project was to determine the reasons for nurse noncompliance in completing the dysphagia screen and to increase compliance for completion of the bedside swallow screen. The review of several studies suggests that completing the swallow screen before the acute stroke patient eats or drinks will decrease the risk for complications that lead to an extended hospital stay and even death. The current national benchmark in 2017 for performing the dysphagia screen prior to oral intake was 86.5% for hospitals certified by the Joint Commission (Knox, 2017). The project site use was 33%. I led the collection and analysis of the evidence that led to an increase in the use of the bedside swallow screen. In section three, I will discuss the sources of evidence and analysis and synthesis. There will also be a detailed presentation of the methods for tracking, organizing, and analyzing the evidence.

Practice-Focused Questions

The primary question that I addressed in this project study was: Will completion of the swallow screen for acute stroke patients in the ED increase after the causes for low compliance are identified, strategies developed and implemented? The purpose of the QI project was to determine the reasons for nurse noncompliance in completing the dysphagia screen and to increase compliance with completion of the bedside swallow screen. The operational term that was a crucial aspect of the doctoral project was dysphagia screen. A dysphagia screen was used interchangeably with a bedside swallow screen in the project. In the QI project, a bedside swallow screen was an ED nurse-driven

assessment of an acute stroke patient for swallowing difficulties. The purpose aligns with the practice-focused question because the improved use of the bedside swallow screen addressed the deficiency at the practicum site.

Sources of Evidence

The review of the literature identified many sources of evidence that will improve the use of the bedside swallow screen. There was an increase in completion of the swallow screen by the nurses in each project. The studies included an implementation and education plan. The sources of evidence that I relied on were systematic reviews and peer reviewed studies. Another source was the closed patient charts in the electronic health record (EHR) reports. Once the project was approved, the EHR reports were within the scope of the DNP project because of the time constraints. The time constraints were related to my timeline for project completion. The stroke coordinator was able to get the results quicker from the EHR than waiting for the coordinator to retrieve the results from GWTG.

Published Outcomes and Research

The databases and search engines that I used to find outcomes and research related to the practice problem included PubMed, CINAHL, UptoDate, The Joanna Briggs Institute of EBP Database, and the Cochran collection. The key search terms were *dysphagia, dysphagia screen, swallow screen, screen, bedside swallow screen, and stroke.* The scope of the review regarding years searched was from 2010 to 2018. The studies were peer-reviewed. The search was exhaustive and comprehensive because of the multiple databases used and the scope of review.

Archival and Operational Data

The project site used the Epic EHR that collected patient data and put archived data into useful reports (Epic, 2016). The stroke coordinator used the EHR to identify the discharged acute stroke patients admitted through the ED with and without a dysphagia screen completed. The data measured the compliance for the use of the swallow screen in real time. Real-time information was actionable because we were able to see the results of the DNP project's team actions much sooner. The stroke coordinator was a member of the hospital quality team and retrieved the archived data three months before an improvement plan initiation. The goal of the organization was to achieve 50% compliance for ED nurses use of the swallow screen after the improvement plan began. Approval to gain access to the data came through permission from the hospital and Walden's Institutional Review Board (IRB). The IRB approval number for this project is 04-26-18-0432653. The data gained from Epic was the best source of evidence because it pulled the information directly from the discharged patient's record. These data were provided to the me in a deidentified way for secondary analysis.

Another source of archived data is the GWTG program. The project site had a chart abstractor who documented the information for GWTG. The chart abstractor entered the information in the patient management tool from the closed charts. The GWTG company took the hospital's report and entered it into a program. The program gave information on a quarterly basis on the performance for each of the stroke measures. The stroke measures are not reported in real time by GWTG. The GWTG compared

hospital's performance. The information came from closed charts and the hospital's

performance, which was transparent information at the project site.

Evidence Generated for the Doctoral Project

It was crucial that I could generate evidence for the QI project and had a plan for

each step of the process. The data collection involved focus groups, pre- and posttest,

and a cause and effect diagram. The first step was to identify the QI team members.

After choosing the key stakeholders, a meeting was scheduled with the project team to

discuss the issue and the project goal and timeframe. Two focus groups were established

to get the ED nurses' opinion about the inconsistency of performing the bedside swallow

screen. The team sent an invitation to the focus groups via email. A pretest was given to

the ED nurses to assess their knowledge and attitude toward the dysphagia screen. The

information gathered from the focus groups, included open-ended questions and

discussion, and the pretest assisted in identifying the cause of low compliance.

Participants

The individuals who contributed evidence to address the practice-focused

question were the ED nurses and nursing assistants who worked in the ED. It was

important to make sure that the nursing assistants were aware that acute stroke patients

cannot drink or eat anything until after the bedside swallow screen and the patients are

cleared to eat or drink. The findings did not reveal a need for additional education for the

nursing assistants.

There were two focus groups. One focus group consisted of three expert ED

nurses and the second group were three novice ED nurses. The novice nurses were in a

separate focus group for these nurses to feel safe, and being around their peers created a

safe environment for them to voice their concerns about the swallow screen. Gillespie,

Grubb, Brown, Boesch, and Ulrich (2017) performed a nonexperimental descriptive

study to develop, validate, and educate student nurses about nurse bullying, and the study

suggests that in areas where nurse bullying exists, the new nurses feel oppressed and will

not speak up about their concerns depending on their surroundings. The ED nurse

manager decided who was to be a participant in the focus groups. The focus groups

resulted in qualitative data that identified barriers to completing the swallow screen on

acute stroke patients from the expert and novice nurse's perspective. The ED nurses

performed the dysphagia screen in the training, and their input in the focus groups was

vital to improving compliance.

Procedures

Critical components of the DNP project were included in identifying and

removing the causes for decreased utilization of the bedside swallow screen using the

DMAIC methodology. The team was representative of all stakeholders necessary to

discuss the issue in the ED with reduced usage of the bedside swallow screen. The team

included an administrator, certified LSS black belt, a certified LSS green belt, ED nurses,

and stakeholders who were necessary for the quality improvement process. The QI teams

at the project site included employees trained in LSS because they made it part of their

process for making improvements throughout the hospital.

Another part of the DNP project included education and training on the dysphagia

screen. The nurse manager requested education to be completed within 2 weeks of the

initiation of the improvement plan. The goal of 100% of the ED nurses to receive the education was not achieved during the initial training. Some of the nurses did not receive the initial training because of termination of employment, vacation, medical leave, and the per diem staff worked other jobs and were not available. Forty-six nurses worked in the ED, and 31 received the initial training and education. After removing those nurses who had been terminated by the facility, it left 10 nurses to train to achieve the goal of 100% of the ED nurses trained. These nurses received training on the dysphagia screen but were not included in the data because the circumstances for training was different. These nurses did not take the pre-test before training on the dysphagia screen.

Documented training on how to use the bedside swallow screen was required training for the ED nurses. The education included online education and a skill-based competency in performing the swallow screen. The nurses delivered a return demonstration on a member of the project team. A combination of two of either the SLP, stroke coordinator, or the ED nurse educator watched each nurse carry out a dysphagia screen and measured the success of the demonstration around the education.

A pre- and posttest comparison assessed the nurses' knowledge and confidence toward the swallow screen. The pre- and posttest included 10 questions that tested the nurses' knowledge and 10 questions that tested the nurses' confidence in performing the dysphagia screen. The knowledge questions were yes or no questions. The confidence questions were on a 100-point scale with 20 as not confident to 100 which was very confident. Pretest and posttest survey data provided insight into the outcome of interest before and after the application of intervention (Terry, 2015). The ED nurse educator

assisted in the development of the pre- and posttest. An expert panel from the project site, who included the stroke coordinator, ED nurse educator, and the SLP, determined the face and content validity of the pre and posttest.

The training program provided to the nurses was done so electronically, using the hospital electronic education system called NetLearning. The pre-test was given through Survey Monkey and the posttest immediately after the hands-on training which was provided to nurses only after they successfully completed the NetLearning training. All of the tests were deidentified by assigning each nurse a number, and the nurse would put their number on the test instead of their name.

The knowledge and self-confidence tests were validated by a panel of content experts. To ensure reliability, the Kuder-Richardson-20 was used for the knowledge based questions, because they represent nominal data (the questions were either right or wrong). The self-confidence questions were measured on an ordinal scale (20=no confidence; 100=very confident) as there were 10 questions on the self-confidence scale, and there was a possible range of 20-100.   The internal consistency reliability was determined by performing a statistical analysis on the knowledge and confidence questions. The Cronbach alpha test assesses the internal consistency reliability of an instrument or test (Tavakol & Dennick, 2011). The Cronbach alpha test also lets the researcher know if the test is long enough and if the questions are interrelated (Tavakol & Dennick, 2011). The Cronbach alpha is expressed as a number between zero and one, the closer to one the more consistent and reliable the test (Tavakol & Dennick, 2011). The

Cronbach alpha for the confidence questions was 0.7. A Cronbach alpha of 0.7 is

acceptable (Taber, 2017). The result of the Cronbach alpha is in Table 1 below.

Table 1

Cronbach Alpha Results on the Confidence Questions

	Valid Cases	Items	Result
n	31	20	
Cronbach's Alpha			0.7

The Cronbach's alpha result for the confidence questions was 0.7 which is an acceptable result for internal consistency reliability.

The internal consistency for the knowledge questions was performed using the

Kuder Richardson 20 (KR 20). The KR 20 is a special case of the Cronbach alpha test

with two variables which are either right or wrong and scored as zero or one (Cronbach,

1951). The results of the KR 20 are expressed as a Cronbach alpha result. The KR 20

was 0.636. A KR 20 score of 0.5 is considered reasonable (Goforth, 2015). The results

of the KR 20 are in table 2 below. Reliability for internal consistency was demonstrated

with a KR 20 score of 0.636 and a Cronbach alpha score of 0.7. The KR 20 result for the

knowledge questions was 0.63 which is a reasonable result for internal consistency

reliability.

Table 2

KR 20 Results on the Knowledge Questions

	Valid Cases	Items	Result
n	31	10	

Cronbach's Alpha	0.636

Protections

The procedures used to ensure the ethical protection of the participants in the doctoral project were approved by the hospital and following the Walden QI project guidelines. All data obtained in the project, including the pre- and posttest results, and the narrative from the focus groups were provided to the me in a deidentified dataset and transcribed narrative. The identity of the nurses participating in the project were blinded and held confidential. The GWTG data did not have the patient's name or the ED nurse's name. The team masked the data. Permissions were granted from the organization and from the Walden University IRB to ensure ethical protection for all participants involved in the project. The IRB approval number for this project is 04-26-18-0432653.

<div align="center">

Analysis and Synthesis

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The information gathered during the DNP project was kept in an SPSS project folder and a Word file. A cause and effect diagram showed theories regarding barriers to performing the swallow screen. Organizing the narrative data from the focus group discussions, assisted the QI team to brainstorm solutions. The pre- and posttest paired *t*-test, and Cronbach alpha test assisted in assessing the data, confirming its reliability and the statistical significance of the data, confirming that knowledge scores improved and that attitudes were changed from negative to positive.

A cause and effect diagram assisted in organizing the theory of the contributing causes of low performance of the bedside swallow screen. The cause and effect diagram

was a qualitative approach that helped in making sure the strategies for improvement match the issues that emerge from the evidence. The pretest and posttest were ways to test the theories. The responses to the knowledge questions were tested using a parametric two samples *t*-test. The parametric test showed the difference in knowledge before and after the education of the ED nurses. The KR 20 was used to determine the internal consistency of the 10 knowledge questions, which included correct or incorrect items. The expert panel provided face and content validation of the survey instrument. Those three validators included the stroke coordinator, SLP, and the ED nurse educator. The paired *t*-test was used to show a statistically significant change in nurses' confidence towards performing the bedside swallow screen after education. The Cronbach's alpha test assessed the confidence questions for internal consistency reliability.

Summary

The peer-reviewed studies provided an understanding of background information and the successful interventions that have improved the usage of swallow screens at other organizations. It was critical to follow the DNP QI project guidelines and wait until Walden University IRB approval before interacting with the ED bedside nurses. The pre- and posttest, cause and effect diagram, and the descriptive and inferential statistics were critical parts of the project.

Section 4: Findings and Recommendations

Introduction

The purpose of the project was to increase the utilization of the nurse-driven bedside dysphagia screen. Prior to the implementation of the DNP project, the use of the swallow screen was 33% or less and putting the patients and the hospital at risk. The dysphagia screen should be completed by the ED nurses. Strokes are the fifth leading cause of death in the United States (CDC, 2017a). Dysphagia is a difficulty in swallowing and is usually a symptom of a disease (Cohen et al., 2015). Completing a swallow screen of an acute stroke patient allows for early intervention, decreased morbidity, decreased the length of stay, and decreased hospital cost (Daniels et al., 2013). Improving the utilization of the swallow screen on acute stroke patients will have a positive impact on social change by preventing complications, shortening the patient's length of stay in the hospital, and assuring that adequate nutrition is provided without compromise (Palli et al., 2017). The guiding practice-focused question for this project study was: Will completion of the swallow screen for acute stroke patients in the ED increase after the causes of low compliance are identified, strategies developed and implemented?

Findings and Implications

The source of evidence for utilization of the dysphagia screen was the EHR. The stroke coordinator abstracted the utilization data from the patients' closed charts and for the project, the last 3 months of deidentified data were used as the baseline before education on the swallow screen was provided to the ED nurses. Evidence for the causes

of low utilization of the swallow screen (33% compliance) was obtained through two

focus groups: a focus group for new ED nurses and one for experienced ED nurses.

There were three nurses in each group. The nurses who were not able to meet in person

called into the meeting via conference call. Each of the focus groups met separately and I

asked open-ended questions to identify reasons the dysphagia screen was not done

consistently in the ED. A copy of the questions used for each focus groups is in

Appendix B. Each meeting lasted approximately 1 hour. Neutral probes were used to

clarify responses. Those neutral probes included the following questions: (a) can you

explain, (b) can you give me an example of what you mean, (c) is there anything you

would like to add, (d) can you say more about that, and (e) I'm not sure I understand, can

you help me out? I wrote the responses verbatim, and all the responses were deidentified.

I read the comments several times looking for codes, categories, and themes. I

highlighted the themes that emerged from the comments.

There were repeated phrases that I found in both the ED novice focus group and

the ED experienced nurse focus group. Those phrases included "fast pace," "busy and

fast pace," "good teamwork," "full support," "a lot of support, "not having education,"

"haven't received education," "no training," "need education," "everyone has your back,"

"we work together," "the screen is not easy to get to in Epic,' "not enough staff," and "I

never got the education." Common phrases among the ED new nurse focus group were

"I am afraid they will aspirate," "the residency is a joke," "it's a lot to learn in the ED,"

and "I don't want them to aspirate on me." A common theme among the ED experienced

nurse focus group was "its more new nurses than experienced nurses," "I'm constantly

teaching." I identified several codes and themes. Those codes were new nurse orientation, education, fear, electronic health record, other duties, not enough staff, and teamwork. An analysis of the words, word patterns, led to two themes. The themes of the qualitative analysis were lack of education and a busy work environment. The qualitative data analysis is below in Figure 1.

Qualitative Data Analysis

| New Nurse Orientation | Education | Fear | Electronic Health Record | Other Duties | Not enough staff | Teamwork |

Knowledge

Staff and Equipment

Job Responsibilities

Lack of Education

Busy Work Environment
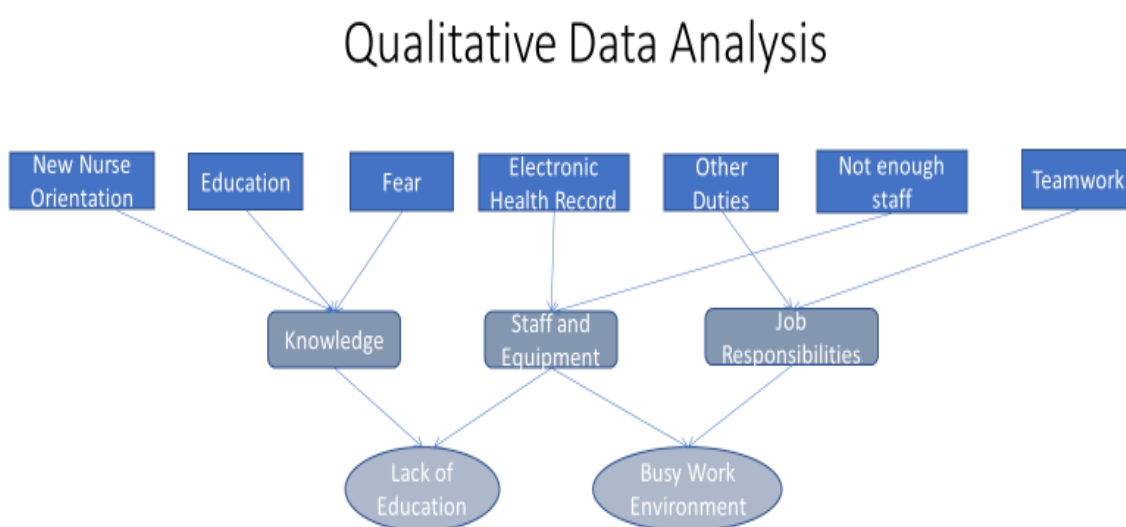
Figure 1. The qualitative coding categories and themes obtained from the ED new nurse and experienced nurse focus groups.

I collected the reasons that the dysphagia screen was not being done from a brainstorming activity with the ED nurses. I had the ED nurses to perform the brainstorming activity at the end of each focus group session. I also informed the ED nurses to allow everyone to answer and that there was not a right or wrong answer. The

cause and effect diagram shows that there are multiple reasons why the screen was not

completed. The EHR is too slow, it is hard to find the screen, the environment is busy

and fast pace, there a lot of new nurses, the stroke coordinator is new to her role, lack of

education, and the dysphagia screen completion rate is not shared with the bedside

nurses. After I discussed the discoveries of the brainstorming activity, focus groups, and

cause and effect diagram with the experts, it was determined that education and routinely

showing the results to the ED nurses would increase the utilization. The issue concerning

the inability to find the screen in the EHR and method problems were addressed in the

education. The staffing and environment issues were shared with the ED nurse manager.

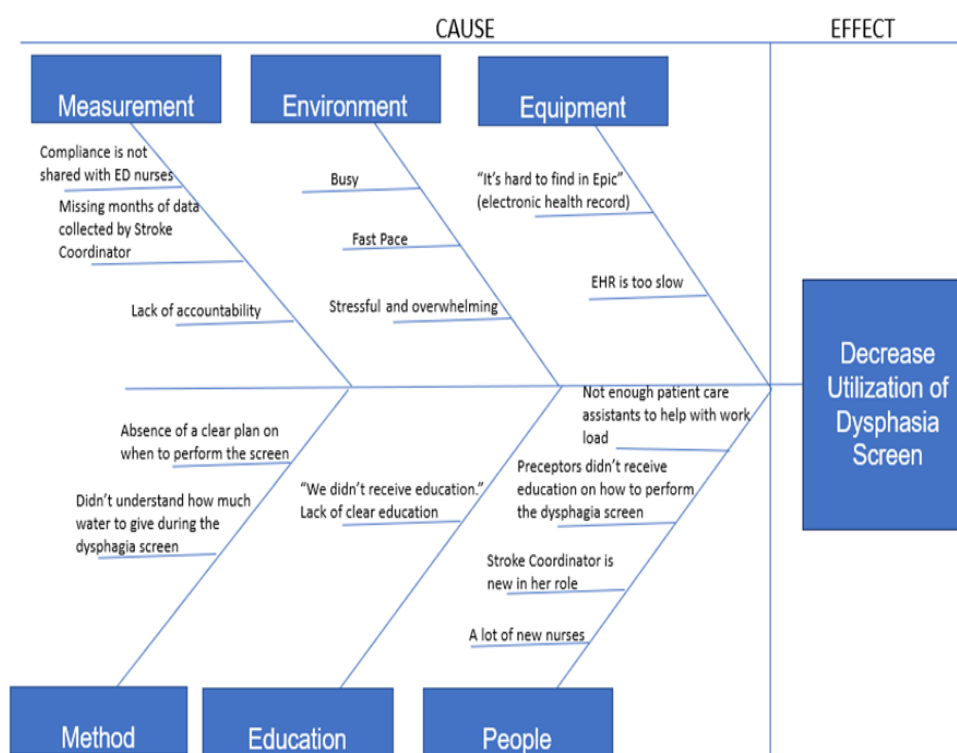The cause and effect diagram is below in Figure 2.

Figure 2. The cause and effect diagram displays the reasons why the utilization of the
dysphagia screen was low.

I performed the statistical analysis of the data in the project through IBM SPSS. The data must be checked for normality. The test for normality assists the researcher in determining which test should be used to evaluate the data. When the data are not tested for normality, it is difficult to draw accurate and reliable conclusions (Ghasemi & Zahediasl, 2012). A violation of the normality assumption should not cause problems with sample sizes greater than 30 (Ghasemi & Zahediasl, 2012). There were 31 participants in the project. Parametric procedures are allowed even when the data are not normally distributed when sample sizes are greater than 30 (Ghasemi & Zahediasl, 2012). I checked the pretest and posttest scores for normality, and the pretest and posttest data were not normal. The results are in Table 3 below. The Normality test suggested that the data were not normally distributed. The p value is $< \alpha$ for both the pretest and posttest and suggest the data are not normally distributed. However, the paired samples t-test provided for some violation of the assumption.

Table 3

Normality Test

Shapiro-Wilk (α=0.05)	Sig.	Kurtosis	Skewness
Pretest	0.004	1.219	-1.102
Post test	0.003	-1.128	0.064

I performed a paired samples t-test on the pre- and posttest scores to determine if the training made a statistical difference in the ED nurses' knowledge in performing the dysphagia screen. According to Ghasemi and Zahediasl (2012), the t-test is allowed

because there are more than 30 participants in the project and the kurtosis and skewness for both data sets is < 2. Nurses' scores on the pretest (M = 54.69, SD = 23.02) and the posttest (M = 87.53, SD = 8.84) were tested using a paired t-test: t (30) = -8.157, p < .001. Thus, the post test scores were statistically significantly higher than the pretest scores mean. The training made a statistically significant difference in the ED nurses' knowledge. The results are in Table 4 below.

Table 4

Paired samples t test on pretest on post test scores

	M	*SD*	*t*	Df	Sig. (2-tailed)
Pretest – Post test	-32.84	22.42	-8.15	30	.000

The paired samples t-test on the pretest and post test scores suggest that the training made a statistically significant difference.

I performed a paired samples t-test on the pre- and postconfidence scores to determine if the training made a statistical difference in the ED nurses' confidence in performing the dysphagia screen. The nurses' scores on their level of confidence before the training (M = 68.39, SD = 10.86) were lower than their level of confidence scores after the training (M = 79.55, SD = 10.56), and the paired t-test showed statistical significance t (30) = -5.50, p < .001. The training made a statistically significant difference in the ED nurses' confidence in performing the dysphagia screen. The results are in Table 5 below.

Table 5

Paired samples t test on pre and post confidence scores

	M	*SD*	*t*	Df	Sig. (2-tailed)
Pre – Post Confidence	-11.16	11.29	-5.50	30	.000

The paired samples t-test on the pre and post confidence scores suggest that the training made a statistically significant difference.

The stroke coordinator at the project site collected weekly baseline data on the use of the swallow screen between March and May. The stroke coordinator and the ED educator conducted training in the third week of June, and the project team began to see positive results immediately (see the control chart in Figure 3). The stroke coordinator retrieved the data from patient's closed charts and summarized here deidentified. The completion rate is also depicted on the control chart in Figure 3, showing an improvement up to 67%. The completion rate ranged from 50 % to 67% after the training on the dysphagia screen. The stroke coordinator collected the data monthly and reported to the Performance Improvement Committee. The initial goal was to increase the dysphagia screen completion rate to 50% by the end of 2018 with an overarching goal of 100% compliance by the end of 2019.
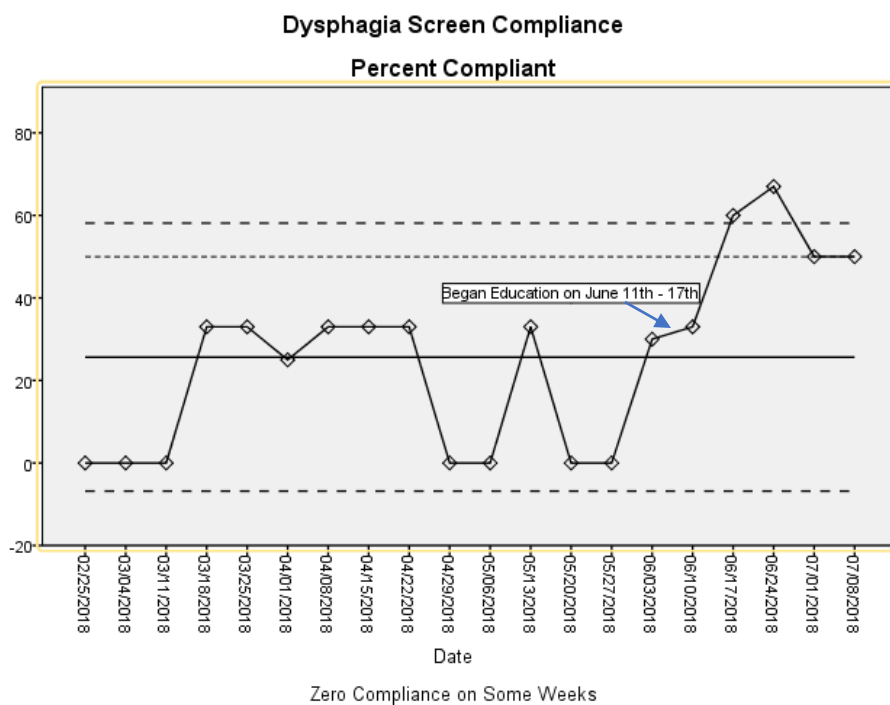
Dysphagia Screen Compliance

Percent Compliant

Began Education on June 11th - 17th

Date

Zero Compliance on Some Weeks

Figure 3. Dysphagia screen completion control chart

During the QI project, an unanticipated limitation was the number of ED nurses who terminated employment at the practicum site and the number who were not available for the initial training. Those nurses who were not available for the initial training did not complete their pre-test by the set deadline. The findings from the project were that education was not done effectively on how to perform the dysphagia screen and as a result, yearly training was established through the hospital's NetLearning and required annually.

Recommendations

One solution that will potentially address the gap in practice is to provide annual education for the ED nurses. The training will be through the hospital's online learning called NetLearning. The SLP will demonstrate how to do the dysphagia screen and the

importance of completing the screen in a video. After watching the video, the ED nurses will go through simulation training on how to perform the dysphagia screen. Two experts, which include the stroke coordinator and the ED nurse educator, will use a competency check sheet to note if they are competent in performing the dysphagia screen. After the training, the nurse must take a test. The stroke coordinator must share the dysphagia screen completion rate each week with the employees and provide immediate correction if the screen in not completed and offer reward and recommendation to those nurses who have been 100% compliant. There should also be a reward and recognition for each month that the overall completion rate meets or exceeds the goal. Providing reward and recognition motivates employees to reach the set goal (Kirkman, Li, Zheng, Harris, & Liu, 2016). The dysphagia screen must be an annual education to make sure the nurses are competent. The training is based on practice guidelines established by the Joint Commission. The Joint Commission recommends a swallow screen on all patients with a stroke diagnosis before they can resume an oral diet (Edmiaston et al., 2014). Another solution that may be more of a challenge for the organization is to address some of the more experienced nurses' concerns regarding time constraints in the ED which prevent them from performing the swallow screen.

Contribution of the Doctoral Project Team

The doctoral project team included the stroke coordinator, ED educator, and the SLP contributed to the education of the ED nurses. The group of professionals were the experts on the dysphagia screen and assisted in preparing the pre- and posttest, the dysphagia screen education and simulation video, and the kinesthetic education. The

SLP wanted to extend the project by educating the nurses in the inpatient setting on how to use the dysphagia screen.

Strengths and Limitations

One strength of the project was the identification of the reason for low completion of the dysphagia screen. Another advantage was the project team included experts on the topic and education was developed for the ED nurses with the assistance of the stroke coordinator, ED nurse manager, and SLP. The ED nurse manager was very supportive and wanted to see the dysphagia screen completion improve. The limitations of the project were the fast pace, many novice nurses, and the attitude of the nurses completing the screen. A future project will be educating other nurses throughout the hospital on how to perform the dysphagia screen on patients who have acute strokes in the inpatient setting.

Summary

The DNP project was critical to increase the compliance for the dysphagia screen. The literature and the Joint Commission supported the use of a bedside swallow screen before an acute stroke patient eats or drinks. An analysis of the data after education on the dysphagia screen endorsed the effectiveness of the training for the ED nurses at the project site. After the causes of low compliance were identified, strategies developed and implemented the completion of the swallow screen in the emergency department increased.

Section 5: Dissemination Plan

Dissemination

The findings of the QI project suggested a need to educate the ED nurses on how to perform the dysphagia screen and the importance of completing the screen. I shared the findings with the vice president of patient care, ED nurse manager, stroke coordinator, and ED nurse educator. The vice president of patient care and the ED nurse manager permitted me to begin educating the ED nurses on the dysphagia screen. The nurses were trained in three ways. Those three ways were through the hospital computerized learning system called NetLearning, a video, and simulation. The ED nurses were assigned to take the dysphagia screen education and test in the NetLearning with a 2-week deadline to complete. The NetLearning education is in Appendix C. Secondly; the ED nurses were sent a video link via email that had to be completed before the simulation training. The video had the SLP talking about the importance of performing the screen and gave a demonstration. The link to the video is in Appendix D. Finally, the ED nurses had to perform the screen on a person through simulation training. During the simulation, the experts who included the stroke coordinator and ED nurse educator pulled up the dysphagia screen in the EHR and provided further education on when the screen should be done, and its location before the nurse completed the competency check off. The skill was signed off by both experts for the ED nurse to be deemed competent to perform the dysphagia a screen. A copy of the competency is in Appendix E. The education established during the QI project will be required for the ED nurses annually.

The audiences appropriate for dissemination of the project are other emergency departments. The research is also relevant for the American Heart Association to assist in disseminating knowledge to others on how to improve their utilization of the nurse-driven dysphagia screen. The Journal of Emergency Nursing is another appropriate venue for the DNP project because it is an official publication of the Emergency Nurses Association as well as conferences sponsored by the association as a poster presentation.

Analysis of Self

I am a lifelong learner. Before I started working toward obtaining my DNP, I made sure that my family supported me and that I was confident in myself and my ability to complete the program. I graduated with my BSN in May of 1993 and obtained my MSN in 2015. After I earned my MSN, I had a desire to learn more. I wanted to learn more because knowledge is power and it will allow me to have a positive effect on social change. Education is also something that no one can take away from me. Many of my colleagues asked me what my motivation was to go back to school and proceeded to tell me why they would not go back to get a higher degree. I have never been a follower, and I want to set an example for my children, young people of color, and my profession.

As a Practitioner

The DNP program has improved me professionally in many ways. I am confident when I am speaking to my colleagues and administrators. I can use two forms of statistical software that allows me to explain research and process improvement in a more meaningful way. In my current role as special projects manager, the skills that I learned in the program are already helping me better perform my job. I can take problems and

look for solutions by finding the best evidence. I am continually looking for ways to make improvements that will enhance patient safety and quality.

As a Scholar

Because of the research and assignments throughout the DNP program, I can successfully design, implement, and evaluate programs and processes in the healthcare setting and the community. I serve as a mentor to several nurses, and I encourage them to be lifelong learners. I am more respected for my knowledge. I learned many things through the development of my DNP project. My understanding was enhanced on how to perform qualitative and quantitative research. Through the knowledge that I have gained from the program, I will have an impact on my profession and my community.

Project Manager

As the project manager for my DNP project, I learned many things with the help of my preceptor. She was there to assist me whenever I needed assistance. The project brought me out of my comfort zone and pushed me to take control of assignments without intimidation. My challenge was making sure that I had support for the project. I had the support of the vice president of patient care, but my concern was a proposal brought up by another hospital during my project. The project site is part of a system, and during the project, someone from another hospital attempted to make a change where the SLP had to perform the swallow screens. The proposal was a failed attempt. Another challenge was the time span between the time the vice president of patient care gave me her support and the time it took to get through the process. The ED nurse manager was also very supportive throughout the project. An insight that I gained from the project is

the importance of keeping the supporters of the project involved and updated throughout the process.

Professional Goals

My plans include obtaining a certification as a black belt in lean and six sigma and a certification as a professional in healthcare quality. I plan to stay up to date on current issues and improvements in healthcare through continuing education obtained from conferences, courses, and journals. I also plan on starting a nonprofit organization to increase diversity and inclusion in healthcare. I will continue to mentor nurses and encourage them to become lifelong learners.

Summary

The DNP project was crucial in improving the utilization of the dysphagia screen on acute stroke patients by the ED nurses. Improving the usage of the screen decreases the risk for acute stroke patients to develop complications. The use of an evidence-based swallow screen that is performed by nurses is a best practice. Improving the utilization of the swallow screen on acute stroke patients will have a positive impact on social change by preventing complications, shortening the patient's length of stay in the hospital, and assuring that adequate nutrition is provided without compromise (Palli et al., 2017).

References

American Heart Association. (2015). Stroke fact sheet. Retrieved from

   http://www.heart.org/idc/groups/heart-public/%40wcm/%40gwtg/documents/

   downloadable/ucm_310976.pdf

American Heart Association. (2017a). Best practices center stroke. Retrieved from

   http://www.heart.org/HEARTORG/Professional/GetWithTheGuidelines/Best-

   Practices-Center-Stroke_UCM_305500_Article.jsp#.WkltPt-nHIU

American Heart Association. (2017b). Get with the guidelines stroke. Retrieved from

   http://www.heart.org/HEARTORG/Professional/GetWithTheGuidelines/GetWitT

   heGuidelines-Stroke/Get-With-The-Guidelines-Stroke

   Overview_UCM_308021_Article.jsp#.WdramGhSzIU

American Society for Quality. (2018c). Six Sigma Black Belt Certification. Retrieved

   https://asq.org/cert/six-sigma-black-belt

American Society for Quality. (2018b). Six Sigma Green Belt Certification. Retrieved

   from https://asq.org/cert/six-sigma-green-belt

American Society of Quality. (2018a). The define measure analyze implement control

   (DMAIC) process. Retrieved from http://asq.org/learn-about-quality/six-

   sigma/overview/dmaic.html

Armstrong, J. R., & Mosher, B. D. (2011). Aspiration pneumonia after stroke:

   Intervention and prevention. *The Neurohospitalist, 1*(2), 85–93.

   doi:10.1177/1941875210395775

Bahouth, M. N., & LaMonte, M. P. (2005). Acute ischemic stroke: Evaluation and

management strategies. *Topics in Advanced Practice Nursing eJournal, 5*(4).

Retrieved from http://www.medscape.com/viewarticle/518320_2

Boaden, R., Harvey, G., Moxham, C., & Proudlove, N. (2008). Quality improvement:

Theory and practice in healthcare. NHI Institute for Innovation and Improvement.

Retrieved from https://qu.elft.nhs.uk/wpcontent/uploadscontent/

uploads/2014/04/quality_improvementtheory_and_practice_in _heathcare1.pdf

Bonilha, H. S., Simpson, A. N., Ellis, C., Mauldin, P., Martin-Harris, B., & Simpson, K.

(2014). The one-year attributable cost of post-stroke dysphagia. *Dysphagia*,

29(5), 545–552. doi:10.1007/s00455-014-9543-8

Campbell, G. B., Carter, T., Kring, D., & Martinez, C. (2016). Nursing bedside dysphagia

screen: Is it valid? *American Association of Neuroscience Nurses, 48*(2), 75-79.

doi: 10.1097/JNN.0000000000000189

Centers for Disease Control and Prevention. (2017b) Stats of the state of Arkansas.

Retrieved from https://www.cdc.gov/nchs/pressroom/states/arkansas/arkansas.htm

Centers for Disease Control and Prevention. (2017a). Stroke. Retrieved from

https://www.cdc.gov/stroke/

Centers for Medicare and Medicaid Services. (2013). Lower costs, better care, reforming

our healthcare delivery system. Retrieved from

https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-Sheets/2013-Fact-

Sheets-Items/2013-02-28.html

Centers for Medicare and Medicaid Services. (2017). Readmission reduction program.

Retrieved from https://www.cms.gov/medicare/medicare-fee-for-service-

payment/acuteinpatientpps/readmissions-reduction-program.html

Chung, A. (2015). Evaluating the applicability and sustainability of lean and six sigma continuous process improvement methodology to improve health care quality. John Hopkins University. Retrieved from https://jscholarship.library.jhu.edu/bit stream/handle/1774.2/39630/CHUNG-DISSERTATION-2015.pdf?sequence=1& Allowed=y

Cohen, D. L., Roffe, C., Beavan, J., Blackett, B., Fairfield, C. A., Hamdy, S., …Bath, P. M. (2016). Post-stroke dysphagia: A review and design considerations for future trials. *International Journal of Stroke, 11*(4), 399-411. doi:10.1177/17474930 16639057

Cronbach, L. J. (1951). My current thoughts on coefficient alpha and successor procedures. Stanford University. Retrieved from http://journals.sagepub.com.ezp.waldenulibrary.org/doi/pdf/10.1177/0013164404 266386

Cummings, J., Soomans, D., O'Laughlin, J., Snapp, V., Jodoin, A., Proco, H., ... Rood,D. (2015). Sensitivity and specificity of a nurse dysphagia screen in stroke patients. *MEDSURG Nursing, 24*(4), 219-222. Retrieved from https://eds-aebscohostcom.ezp.waldenulibrary.org/eds/ pdfviewer/pdfviewer? vid=1&sid=52ba466b-41b6-44ac-90cc-e453d8bd624f%40sessionmgr4007

Daniels, S. K., Anderson, J. A., & Petersen, N. J. (2013). Implementation of stroke dysphagia screening in the emergency department. *Nursing Research and Practice, 2013*, 1-7. Retrieved from https://www.hindawi.com/journals/nrp/

2013/304190/citations/

Deblois, S., & Lepanto, L. (2016) Lean and six sigma in acute care: a systematic review of reviews. *International Journal of Health Care Quality Assurance, 29*(2), 192-208. Retrieved from https://doi.org/10.1108/IJHCQA-05-2014-0058

Edmiaston, J., Connor, L. T., Steger-May, K., & Ford, A. L. (2014). A simple bedside stroke dysphagia screen, validated against video-fluoroscopy, detects dysphagia and aspiration with high sensitivity. Journal of Stroke Cerebrovascular Disease, 23(4), 712-716. doi:10.1016/j.jstrokecerebrovasdis.2013.06.030

Edwardson, M. A., & Dromerick, A. W. (2017). Ischemic stroke prognosis in adults. Retrieved from http://www.uptodate.com/contents/ischemic-stroke-prognosis-in-adults

Epic. (2016). In a nutshell. Retrieved from https://www.epic.com/about

Fawcett, J. (2014). Thoughts about conceptual models, theories, and quality improvement projects. *Nursing Science Quarterly, 27*(4), 336-339. doi:10.1177/08943 18414546411

Gillespie, G. L., Grubb, P. L., Brown, K., Boesch, M. C., & Ulrich, D. (2017). "Nurses eat their young": A novel bullying educational program for student nurses. *Journal of Nursing Education and Practice, 7*(7), 11–21. doi: 10.5430/jnep.v7 n7P11

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism, 10*(2), 486–489. doi: 10.5812/ijem.3505

Goforth, C. (2015). Using and interpreting Cronbach's Alpha. University of Virginia

    Library. Retrieved from https://data.library.virginia.edu/using-and-interpreting-

    cronbachs-alpha/

González-Fernández, M., Ottenstein, L., Atanelov, L., & Christian, A. B. (2013).

    Dysphagia after stroke: An overview. *Current Physical Medicine and*

    Rehabilitation Reports, *1*(3), 187–196. doi:10.1007/s40141-013-0017-y

Harvard Business Review Staff. (2016). Five critical roles in project management.

    Retrieved from https://hbr.org/2016/11/five-critical-roles-in-project-management

Hines, S., Kynoch, K., & Munday, J. (2016). Nursing interventions for identifying and

    managing acute dysphagia are effective for improving patient outcomes:

    Systematic review update. *American Association of Neuroscience Nurses, 48*(4),

    215-223. doi: 10.1097/JNN.0000000000000200

Jiang, J.-L., Fu, S.-Y., Wang, W.-H., & Ma, Y.-C. (2016). Validity and reliability of

    swallowing screening tools used by nurses for dysphagia: A systematic

    review. *Tzu-Chi Medical Journal*, *28*(2), 41–48. doi: 10.1016/j.tcmj.2016.04.006

Kirkman, B. L., Ning L., Zheng, X., Harris, B., & Liu, X. (2016). Teamwork works best

    when top performers are rewarded. Harvard Business Review. Retrieved from

    https://hbr.org/2016/03/teamwork-works-best-when-top-performers-are-rewarded

Komiya, K., Rubin, B. K., Kadota, J., Mukae, H., Akaba, T., Moro, H., … Kohno, S.

    (2016). Prognostic implications of aspiration pneumonia in patients with

    community acquired pneumonia: A systematic review with meta-analysis.

    Scientific Reports, 6, 38097. doi:10.1038/srep38097

Knox, P. (2017). *Dysphagia screening prior to oral intake compliance in percentage April 2016 to March 2017.* Unpublished Manuscript.

Kush, M. (2015). The statement problem. Quality Process. Retrieved from http://asq.org/quality-progress/2015/06/one-good-idea/the-statement-problem.html

Lakshminarayan, K., Tsai, A. W., Tong, X., Vazquez, G., Peacock, J. M., George, M. G., … Anderson, D. C. (2010). Use of dysphagia screening results in predicting poststroke pneumonia. *Stroke; a Journal of Cerebral Circulation, 41*(12), 2849–2854. doi:10.1161/STROKEAHA.110.597039

Lewin, K. (2011). Change Theory. Current Nursing. Retrieved from http://currentnursing.com/nursing_theory/change_theory.html

Malhi, H. (2016). Dysphagia: warning signs and management. *British Journal of Nursing*, 25(10), 546-549. Retrieved from https://eds-a-ebscohost-com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?vid=1&sid=00a09e6e-82ec-4843-af65-b9aa7724408a%40sessionmgr4009

Masrur, S., Smith, E. E., Saver, J. L., Reeves, M. J., Bhatt, D. L., Zhao, X., … Schwamm, L. H. (2013). Dysphagia screening and hospital-acquired pneumonia in patients with acute ischemic stroke: Findings from get with the guidelines-stroke. *Journal of Stroke and Cerebrovascular Diseases*, *22*(8), 301-309. Retrieved from https://ac-els-cdn-com.ezp.waldenulibrary.org/S1052305712003783/1-s2.0-S1052305712003783-main.pdf?_tid=266f77a2-e84c-11e7-b5c8-00000aab0f6c&acdnat=1514080122_a3ff2e06984842ec056d17b0e96917cd

National Academies of Sciences Engineering Medicine (2012). Transformation of health

    system needed to improve care and reduce costs. Retrieved from

    http://www.nationalacademies.org/hmd/Reports/2012/Best-Care-at-Lower-Cost-

    The-Path-to-ContinuouslyLearning-Health-Care-in-America/Press-Release.aspx

Nishio, D., Takahashi, H., Hayashi, T., Hirano, Y., Minakawa, T. & Kigawa, H. (2015).

    Factors influencing the burden of caregivers of stroke patients with hemiplegia

    living at home. *International Journal of Physical Medicine & Rehabilitation,*

    3(3), 1-5. doi:10.4172/2329-9096.1000279

Palli, C. Fandler, S., Doppelhofer, K., Niederkorn, K., Enzinger, C., Vetta, C., …

    Gattringer, T. (2017). Early dysphagia screening by trained nurses reduces

    pneumonia rate in stroke patients: A clinical intervention study. *Stroke, 48*(9),

    2583-2585. doi: 10.1161/STROKEAHA.117.018157

Sivertsen, J., Graverholt, B., & Espehaug, B. (2017). Dysphagia screening after acute

    stroke: A quality improvement project using criteria-based clinical audit. *BMC*

    Nursing, 16(27). doi:10.1186/s12912-017-0222-6

Six Sigma Institute. (2018). Six Sigma DMAIC process-define phase: Capturing the

    voice of the customer (VOC). Retrieved from http://www.sixsigma-

    institute.org/Six_Sigma_DMAIC_Process_Define_Phase_Capturing_Voice_Of_

    Customer_VOC.php

Sorensen, R. T., Ramussen, R. S., Overgaard, K., Lerche, A., Johansen, A. M., &

    Lindhart, T. (2013). Dysphagia screening and intensified oral hygiene reduce

    pneumonia after stroke. *Journal of Neuroscience Nursing, 45*(3), 139-146.

doi:10.1097/JNN.ObO13e31828a412c

Sorra, J., Khanna, K., Dyer, N., Mardon, R., & Famolaro, T. (2012). Exploring
relationships between patient safety culture and patients' assessments of hospital
care. *Journal of Patient Safety, 8*(3), 131-139. doi:10.1097/PTS.0b013
e318258ca46

St. John J., Berger L. (2015). Using the Gugging Swallowing Screen (GUSS) for
dysphagia screening in acute stroke patients. *Journal of Continuing Education in
Nursing, 46*(3), 103-104. doi: 10.3928/00220124-20150220-12

Suhail, R., Ahmed, S., Nabi, S., & Iqbal, M. (2014). The burden of dysphagia and chest
infection in acute ischemic stroke in a tertiary care hospital of Islamabad capital
territory. *Pakistan Journal of Neurological Sciences, 9*(4), 8-13. Retrieved from
http://ecommons.aku.edu/cgi/viewcontent.cgi?article=1086&context=pjns

Taber, K. S. (2017). The use of Cronbach's Alpha when developing and reporting
research instruments in science education. Research Science Education. Retrieved
from https://link.springer.com/content/pdf/10.1007%2Fs11165-016-9602-2.pdf

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International
Journal of Medical Education, 2*, 53–55. doi:10.5116/ijme.4dfb.8dfd

Terry, A. J. (2015). *Clinical research for the Doctor of Nursing Practice*. (2nd ed.).
Burlington, MA: Jones & Bartlett

Titsworth, W. L., Abram, J., Fullerton, A., Hester, J., Guin, P., Waters, M. F., & Mocco,
J. (2013). Prospective quality initiative to maximize dysphagia screening reduces
hospital-acquired pneumonia prevalence in patients with stroke. *Stroke, 44*, 3154-

3160. doi: 10.1161/STROKEAHA.111.000204

Trapl, M., Enderle, P., Nowotny, M., Teuschl, Y., Matz, K., Dachenhausen, A., & Brainin, M. (2007). Dysphagia bedside screening for acute-stroke patients: The Gugging *Swallowing Screen Stroke, 38*(11), 2948-2952. doi: 10.1161/STROKEAHA.107.483933

Walden University. (2017). Mission. Retrieved from http://catalog.waldenu.edu/

Weinhardt, J., Hazelett, S., Barrett, D., Lada, R., Enos, T., & Keleman, R. (2008). Accuracy of a bedside dysphagia screening: A comparison of registered nurses and speech therapists. *Rehabilitation Nursing, 33*(6), 247-252.

Appendix A: Pre- and Posttest

1. If the patient is able to sit up 30 degrees and remain alert for 5 minutes continue the screen. Yes or No

2. The patient has some difficulty managing secretions: stop the screen. Yes or No

3. The patient was on a ventilator for greater than seven days on a recent previous admission: stop the screen. Yes or No

4. Give the patient 3.5 ounces of water and observe the patient swallowing the water. Yes or No

5. A part of the Stroke Bundle is the patient receiving an aspirin on arrival to the ED. The acute stroke patient may take an aspirin by mouth with a sip of water before the swallow screen is completed. Yes or No

6. If the answer is yes to one of the initial screening questions, the nurse may continue the dysphagia screen. Yes or No

7. If the patient is speaking clearly then the patient does not have to take the swallow screen and is considered as passed. Yes or No

8. A patient must be able to sit up 90 degrees to swallow the water during the swallow screen. Yes or No

9. If the patient coughs up some secretions, stop the swallow screen. Yes or No

10. If the answer is no to one of the initial screening questions, the nurse must continue the dysphagia screen. Yes or No

    The responses for the following questions is on a Likert Scale from one to five. One is not confident to five which is very confident.

11 I am performing the dysphagia screen correctly.

12 It is important to perform the swallow screen on acute stroke patients because it
can prevent aspiration pneumonia.

13 If the patient eats drinks anything before the swallow screen is completed it
appears that the swallow screen was not done.

14 If the nurse records yes to any part of the swallow screen the screen fails.

15 The nurse cannot perform the swallow screen without a physician's order.

16 I know we can improve the utilization of the swallow screen.

17 It's not important to perform the dysphagia screen on stroke patients.

18 The dysphagia screen is given before the patient eats or drinks anything.

19 The head of the bed must be 45 degrees to perform the swallow screen.

20 During the swallow screen, 25 ml of water is given to the patient.

Appendix B: Focus Group Questions

ED New Nurse Focus Group Questions

1.   How do you feel as a new nurse in the ED?

2. What type of work environment is it in the ED?

3. What type of teamwork do you have in the ED?

4. What are some of the things that could hinder you from doing your job?

5. What type of support do you have as a new nurse in the ED?

6. How do you feel about the dysphagia screen?

7. Why is the dysphagia screen not completed?

8. What makes you afraid to perform the dysphagia screen?

9. What type of training did you receive concerning how to perform the dysphagia screen?

10. Why do you think its's important to perform the dysphagia screen?

ED Experienced Nurse Focus Group Questions

1. How do you feel as an experienced nurse in the ED?

2. What type of work environment is it in the ED?

3. What type of teamwork do you have in the ED?

4. What are some of the things that could hinder you from doing your job?

5. What type of support do you have as a new nurse in the ED?

6. How do you feel about the dysphagia screen?

7. Why is the dysphagia screen not completed?

8. What makes you afraid to perform the dysphagia screen?

9. What type of training did you receive concerning how to perform the dysphagia screen?

10. Why do you think its's important to perform the dysphagia screen?

Appendix C: NetLearning PowerPoint

# Steps to performing the bedside swallow screen

Phase 1: If the answer is YES to any of the screening questions, Do not attempt the remainder of the screen.

- ➢ Is the patient unable to sit up at least 45 degrees and remain alert for 5 minutes?
- ➢ Currently on thickened liquids diet.
- ➢ Is oxygen saturation unacceptable (below 90%)
- ➢ Is the vocal quality wet or gurgling?
- ➢ Does the patient have difficulty managing secretions?

- ➢ Does the patient have a weak or absent cough?
- ➢ Does the patient have a PEG, G-J tube or NG tube in place?
- ➢ Does the patient have a tracheal tube in place?
- ➢ Has the patient been on a ventilator greater than 7 days this admission?

yes or no?

Phase Two: Water Test

- Step one observe the patient with one small sip of water (5-10 ml.) Give the patient the water in a small medicine cup while sitting up 45 degrees or more and ask them to drink the water.

  - Does the patient cough, clear throat, or have wet or gurgling vocal quality?

    - If the answer is No, the patient passed step one and continues to step two.

    - If the answer is Yes, the patient has failed the dysphagia screen. Let the physician know and make the patient nothing by mouth until after a swallow evaluation by the speech and language pathologist.
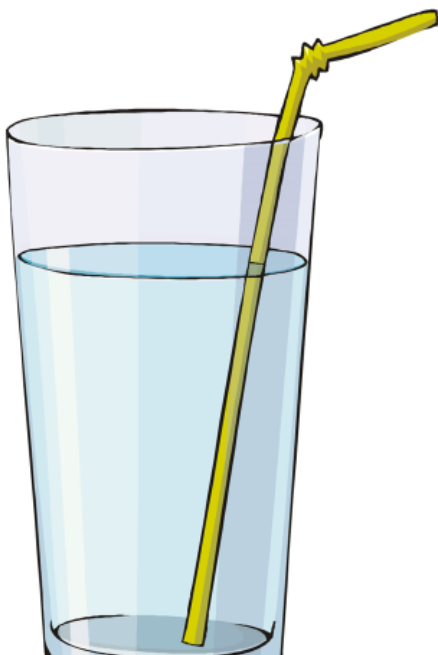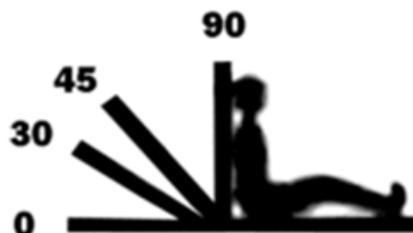
Phase Three: Water Test

- Step 2 observe the patient with several ounces of water using a straw. Give the patient the water in a cup while sitting up 45 degrees or more and ask them to drink the water.

- Does the patient cough, clear throat, or have wet or gurgling vocal quality?

  - If the answer is Yes, the patient has failed the dysphagia screen. Let the physician know and make the patient nothing by mouth. The physician must order other means for medication and nutrition. A speech-language pathologist evaluation is needed.

  - If the answer is No, the patient passed the swallow screen and is clear to by mouth meds and diet as per doctor's orders. Speech-language evaluation is still required by guidelines.

file:///J:/BH%20Learning%20Dashboards/Net%20Learning/125799-Dysphagia%20Screen%20Education%20NLR%20ED

CBL Test Questions
1. I will continue the dysphagia screen if the patient is unable to sit up at least 45 degrees and remain alert for 5 minutes. True or False (Answer: False)

2. I will stop the dysphagia screen if the patient has a weak or absent cough. True or False (Answer: True)

3. An acute stroke patient must remain NPO until he or she passes the dysphagia screen.

   True or False (Answer: True)

4. If the patient passes the initial water test, have the patient sit up at a 45 degree angle and drink several sips of water using a straw. True or False (Answer: True)

5. If at any phase the patient experiences coughing or gurgling during the dysphagia screen, stop the screen. True or False (Answer: True)

6. To perform the initial phase of the dysphagia, screen the patient must be

   a. Sitting at a 45 degree or more angle in the bed

   b. Not have difficulty managing secretions

   c. Oxygen saturation greater than 90%

   d. All of the above

      The answer is d.

Appendix D: Dysphagia Screen Education and Simulation Video Link

Dysphagia Screen Education and Simulation Video Link:
https://youtu.be/hGkNhdYCcd0

Appendix E: Dysphagia Screen Competency Check Sheet

Dysphagia Screen Competency Check Sheet

Name/Number: _____

Yes or NO (Circle Answer)	Competency Check List
Yes or No	1. Nurse explains why its important to perform the dysphagia screen.
Yes or No	2. The nurse explained the dysphagia screen to the patient.
Yes or No	3. The nurse put the patient bed at 45 degrees or higher
Yes or No	4. The nurse performs phase I according to the screen and verbalizes when to stop the screen.
Yes or No	5. The nurse gives the patient 5 to 10 mls in a medicine cup and verbalizes when to stop the screen in phase two.
Yes or No	6. The nurse gives the patient a cup of water to drink using a straw in phase three.
Yes or No	7. The nurse verbalizes /understands when to stop the swallow screen.
Yes or No	8. The nurse stops the screen when he/she hears cough, or gurgling.

Competency Met/Competency Not Met

Expert Signature_____