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Improving Nurses' Knowledge of Stroke

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Abstract

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MS, Walden University, 2011

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Project Submitted in Partial Fulfillment

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Abstract

Stroke is a devastating disease. Stroke care has advanced greatly in the past 20 years with innovations in radiologic imaging, development of tissue plasminogen activator (tPA), organized systems of care, telestroke, and best practice guidelines via Get with the Guidelines Stroke (GWTGS). However, stroke remains the 5th leading cause of death in the United States. To provide current and quality care for stroke patients, nurses need ongoing stroke education. Additionally, stroke centers must provide a sustainable stoke education program to their nurses to keep their knowledge current. Guided by Rosswurm and Larrabee's model, this quality improvement project addressed whether an educational program based on evidence in GWTGS could increase nursing knowledge of stroke. A convenience sample of 50 medical-surgical nurses from a stroke telemetry unit participated in this program. Nursing knowledge was assessed by using a student-developed tool based on the GWTGS best practice evidence to evaluate for increased knowledge regarding stroke and stroke management. Using simple descriptive statistics, the percent difference from pretest to posttest was calculated. The results revealed a 16.79% increase in nurses' knowledge. The practicum organization therefore adopted the program. Implications for nursing practice and social change include organizations adopting the educational program as a sustainable learning opportunity for nurses in regards to stroke care.

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Dedication

In memory of my grandparents, Gilbert and Helen McDaniel, and in honor of my parents, Rodney Sr. and Brenda McDaniel.

Acknowledgments

To everyone who has supported me on this journey in my life, thank you. This has been a long but rewarding journey.

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Section 1: Overview of the Evidence-Based Project

A priority in health care is the need for education regarding stroke. A stroke occurs approximately every 40 seconds and a person dies from a stroke approximately every four minutes in the United States (Niemi, McErlane, & Tillett, 2013). Stroke is the fifth leading cause of death in the United States (Stroke Organization, 2015). Stroke is also a leading cause of serious long-term disability in the United States. Over 4 million individuals in the United States are living today with the effects of a stroke (Stroke Organization, 2015). Proper management of stroke risk factors, awareness of stroke warning signs, and appropriate emergency action are critical for preventing stroke incidence, mortality, or morbidity (American Heart Association, 2004). In 2002, The Joint Commission (JC) implemented disease-specific care (DSC) certification (Morrison, 2005). The DSC for stroke involves compliance with consensus-based national standards, effective use of established clinical practice guidelines to manage and optimize care, and an organized approach to performance measurement and improvement activities (Morrison, 2005). When seeking DSC certification for primary stroke care certification, stroke centers review and revise policies, procedures, and protocols on an ongoing basis to ensure compliance with best practices. It is imperative for nursing staff to be knowledgeable in recognizing stroke symptoms and reacting appropriately in the event of a stroke. Cameron (2013) noted that nurses providing stroke education must be trained appropriately regarding stroke, the risk factors and pathophysiology, implications and effects of stroke, available community resources, and emotional needs for patients and families. Nurses are required to complete four hours of continuing education in regards to

stroke annually if they are employed in a stroke certified center; however, nurses who do not work in a stroke certified center are not required to complete annual stroke education. The purpose of this quality improvement program was to develop a nursing stroke education program to educate nurses regarding stroke. This educational program provided the best evidence for practice with the Get with the Guidelines (GWTG) Stroke program. The nurses were assessed before the educational program to evaluate their baseline knowledge on stroke. The nurses then were assessed to evaluate their knowledge level after the educational program. A 15-question paper pretest and posttest was completed before and after each educational program. The desired outcome was to improve nurses' knowledge of stroke. The implication for social change was for organizations to adopt a stroke educational program for nurses and to evaluate knowledge in regards to stroke so that nurses caring for stroke patients are knowledgeable about stroke. If the key to managing stroke is time, then the need for information-sharing and education to nurses is critical. With early and informed actions, the number of strokes can decrease and lives can be saved.

Background

Stroke kills almost 130,000 Americans each year (Kochanek, Xu, Murphy, Minino, & King, 2011). Every year, more than 800,000 people in the United States have a stroke (Stroke Organization, 2015). In addition to the personal toll on health, stroke cost the United States an estimated $73.7 billion in 2010 (Stroke Organization, 2015). The increased demands for accountability by all health care professionals and the growing expectations that current practice be based on the best available knowledge and evidence

is critical in caring for stroke patients (Lindsay, Kelloway, & McConnell, 2005). There will be more strokes as people continue to live longer and the risk of stroke increases with age. Nursing-sensitive outcomes may be interpreted with more meaning when they are linked to evidence-based best practice guidelines that provide a structured means of ensuring care is consistent among all health care team members, across geographic locations, and across all care settings (Green, Kellyoway, Davies-Schinkel, Hill, & Lindsay, 2011). Educational programs providing education on the current best practices in regards to stroke are needed to support ongoing efforts to prevent and treat strokes. Through the implementation of a quality improvement program, nurses had the opportunity to increase their knowledge levels in regards to stroke so they could improve their ability to provide evidenced-based care to their patients and the patient's families regarding stroke.

Problem Statement

As evidence-based practices are developed and implemented in regards to stroke care, it is imperative to create educational programs for nursing staff to keep abreast of basic knowledge and current evidence-based practices so nurses can play a pivotal role in stroke awareness and prevention for current and future patients. Over the last several decades, a growing area of research has emerged demonstrating strong links between specific education related to nursing care and specific patient outcomes in the area of stroke care (Green et al., 2011). Education and research on the causes, prevention, and treatment of stroke are important to improve patient outcomes and reduce the burden of this condition on the healthcare system (McCormack & Reay, 2013). Education, clinical

application and ongoing maintenance of skills are necessary for successful learning and development of assessment expertise (Gocan & Fischer, 2008). Stroke centers provide education for nurses to assess, monitor, and evaluate the quality of decisions that ultimately affect patient outcomes. This quality improvement project focused on improving nurses' knowledge of stroke.

Purpose

The purpose of the quality improvement program was to increase nurses' knowledge of stroke though development of a nursing stroke education program that could be a sustainable program model for educating nurses in a stroke center. In 2003, TJC and the American Heart Association (AHA) established a relationship to improve care and outcomes for stroke patients by increasing nursing education in regards to stroke (Flaster, 2013). Ongoing assessment (monitoring and management of performance indicators, stroke signs, and symptoms), by nurses is necessary to ensure patient safety and the ability to optimize patient recovery from the potentially devastating and long-term impact of stroke (Lindsay et al., 2005). Education and clinical research provides the means to compare new treatments and ways of delivering care with existing practice to improve the quality and efficacy of patient care (McCormack & Reay, 2013). Given the widespread burden of stroke, it is critical that nursing education address the essential components of prevention awareness, assessment, care, and rehabilitation to help patients achieve the highest standard of care that needs to be given to stroke patients (Catangui & Slark, 2012). Edwards (2006) conducted a systematic review of the context and delivery of educational programs for nurses on stroke units and how they impacted practice and

influenced patient outcomes. Edwards (2006) noted that the results supported a recurrent theme in the literature demonstrating a need for impact on change about education for nurses on strokes. Given that education on stroke is imperative, this project focused on improving nurses' knowledge about stroke.

Question

Does a GWTG Stroke educational program in a medical-surgical telemetry unit increase nurses' knowledge of stroke?

Project Objectives

The project objective of this quality improvement program was to develop and implement a nursing stroke education program based on evidence from GWTG Stroke. Nursing knowledge was assessed before and after the educational program to evaluate for increased knowledge regarding stroke and stroke management. A summative program evaluation was performed to assess the overall quality of the program and whether it met the defined goals, purpose and objectives of improving nurses' knowledge about stroke using best practice guidelines and evidence-based knowledge for practice. Areas of the project were revised based on the feedback from the learning participants and the practicum organization.

Framework for the Project

I used Rosswurn and Larrabee's evidence-based practice model for this quality improvement program. Rosswurm and Larrabee developed a model with a six-step process to facilitate a shift from traditional and intuition-driven practice to evidence-based practice (Hodges & Videto, 2011). By using this evidence-based practice model, I

was able to integrate new approaches to practice and address change with the implementation of educational programs on stroke. Rosswurm and Larrabee's evidence-based practice model helped to answer the project question: Does an educational program of GWTG Stroke to nurses on a medical-surgical telemetry unit increase nursing knowledge of stroke?

Nature of the Project

Nursing as a profession has a social mandate to contribute to the good of society through knowledge-based practice (McCurry, Revell, & Roy, 2009). Patients with strokes can be effectively managed and treated with proper education to nursing staff. The major concept to remember is that time is brain (Stark, 2002). There needs to be an increased response in recognizing stroke symptoms along with an increased response from the health care system from initial point of patient contact to achieve the most effective treatment of brain attack (Justice, Howe, Dyches, & Heifferon, 2008). An important part of acute stroke management and decreasing stroke-related mortality is preventing complications within the first 24-48 hours (Considine & McGillivray, 2010). Organized stroke care using evidence-based protocols and interdisciplinary stroke teams has demonstrated a reduction in stroke mortality, morbidity, hospital costs and the need for long-term care (Gocan & Fisher, 2008).

Nurses make clinical decisions every day that impact the lives of their patients (Arries, 2006). Nurses are strong patient advocates, and this quality improvement program could help nurses be stronger patient advocates in the area of stroke. Standards for stroke assessment, monitoring, and evaluation affect the quality of decisions and

ultimately patient outcomes in regards to stroke care (Gocan & Fisher, 2008). Gocan and Fischer (2008) noted that from their experience, the implementation of education on best practice guidelines for nursing neurological assessment of acute stroke survivors had the potential to achieve positive results. These positive results included high levels of self-reported nursing competence in neurological assessment skills, problem-solving, and care plan development from the implementation of stroke education. This quality improvement program contributes to the good of society by improving nurses' knowledge of stroke with the GWTG Stroke program.

Definitions of Terms

Stroke: A focal (or at times global) neurological impairment of sudden onset, and lasting more than 24 hours (or leading to death), and of presumed vascular origin (World Health Organization, 2010).

Joint Commission (JC): The Joint Commission's Certificate of Distinction for Primary Stroke Centers recognizes centers that make exceptional efforts to foster better outcomes for stroke care (Joint Commission, 2012).

American Stroke Association (ASA): The American Stroke Association is dedicated to prevention, diagnosis and treatment to save lives from stroke. (AHA, 2014).

Nursing sensitive outcomes: Nurse-sensitive outcomes represent the consequences or effects of nursing interventions that result in changes in patients' symptom experiences, functional status, safety, psychological distress, and/or costs (Green et al., 2011).

American Heart Association (AHA): The American Heart Association is the oldest, largest voluntary organization in the United States devoted to fighting cardiovascular diseases and stroke (AHA, 2014).

Outcomes research: Research designed to document the effectiveness of health care services and the end results of patient care: patient outcomes (Polit & Beck, 2008).

Evidence-based practice: A practice that involves making clinical decisions on the best available evidence, with an emphasis on evidence from disciplined research (Polit & Beck, 2008).

Interdisciplinary team: A group of health care professionals from diverse fields who work in a coordinated fashion toward a common goal for the patient (Catangui & Slark, 2012).

Multidisciplinary team: A team of professionals including representatives of different disciplines who coordinate the contributions of each profession, which are not considered to overlap, in order to improve patient care (Carlsson, Ehnfors, & Ehrenberg, 2010).

Primary stroke center: A hospital where a group of medical professionals who specialize in stroke, work together to diagnose, treat, and provide early rehabilitation to stroke patients (Vega, 2009).

Get With The Guidelines – Stroke: The American Heart Association's collaborative performance improvement program, demonstrated to improve adherence to evidence-based care of patients hospitalized with stroke (AHA, 2014).

Stroke systems of care: A system of care to coordinate and promote patients' access to the full range of activities and services associated with stroke prevention, treatment, and rehabilitation (Schwamm et al., 2010).

Stroke certification: A certification that recognizes the attainment and demonstration of a unique body of knowledge necessary for the practice of stroke nursing (American Board of Neuroscience Nursing, 2014).

Assumptions

I assumed that nursing staff would attend the educational program; that organizational practices would not change before, during, or immediately after the educational program; that the educational program would provide material that improves nursing knowledge; and that staff would participate in the pretest and posttest to determine whether nursing knowledge increased as a result of the educational program. Having the nursing staff attend the educational program was vital to determine whether this quality improvement program was successful. With organizations having rapid cycle changing practices, the key for this quality improvement program was to make sure no best practice guidelines of stroke care changed during the implementation of this quality improvement program.

Scope and Delimitations

The purpose of this quality improvement program was to develop a nursing stroke education program to educate nurses regarding stroke. Nursing knowledge was assessed before and after the educational program to evaluate for increased knowledge regarding stroke and stroke management by using a pretest and a posttest. The purpose for focusing

on this topic was to provide education to improve nurses' knowledge of stroke. Fifty medical-surgical nurses from a stroke medical-surgical telemetry unit were invited to participate. Future educational programs will be offered to additional nursing staff based on the successful results of this quality improvement program.

Limitations

A limitation of time and location of space was a concern for this quality improvement program. Allowing nurses' time away from the clinical area to attend the educational program was a challenge with unit scheduling to limit overtime in addition to using classroom space that was available during the time nurses were allowed to attend the quality improvement program. The willingness of nursing staff to participate in this voluntary program was also a concern as the nurses were busy in their day-to-day routines of caring for patients and they were not required to attend trainings according to their union contract.

Significance

Nurses play a significant role in reducing death and disability in people who have suffered a stroke, but some nurses may not be educationally prepared to meet the challenges of this complex condition (Mason-Whitehead, Rideway, & Barton, 2013). Several links between practice and performance measurement were identified in the literature and showed how education strengthens nurses' knowledge of their role in stroke and helps to define the roles of other health care professionals and lines of accountability in stroke management (Lindsay et al., 2005). Uptake of evidence-based best practices at the point of care has been shown to have a measurable positive impact on processes of

care and patient outcomes when it comes to education on stroke care (Green et al., 2011). Collaborative interdisciplinary work is essential in stroke care provisions as well as education in regards to care (Catangui & Slark, 2012). To better coordinate the fundamental components of stroke care, the AHA and ASA recommend establishing stroke systems of care (O'Tool, Slade, Brewer, & Gase, 2011). One rationale for establishing stroke systems of care is to ensure that all patients having signs or symptoms of stroke are transported to a facility that is capable of evaluation and treatment (O'Tool et al., 2011). Stroke training courses ensure that collaborative work starts with collaborative training and notes so that those who learn together can grow together and become the best possible teams to ensure the best outcomes for stroke patients (Catangui & Slark, 2012). Professionals including nurses, physicians, certified nursing assistants, dietary staff, social workers, case managers, physical therapists, occupational therapists, rehabilitation nurses, speech language therapist, volunteers, and clinical nurse specialists make up the interdisciplinary team that cares for stroke patients. A team that is knowledgeable about stroke care can make a difference for a patient and his/her family. Nurses work together as a team and they can learn and grown from each other in terms of knowledge and skill sets. Strategies aimed at continuously upgrading staff knowledge and sustaining a culture of collaboration and commitment to the patients, are key for quality care (Strume, Baernholdt, Noerholm, & Lind, 2013). Educational sessions allow nurses an opportunity to enhance their knowledge base. By implementing this quality improvement program, I was able to determine whether a GWTG Stroke educational program in a medical-surgical telemetry unit increased nurses' knowledge of stroke.

Implications for Social Change in Practice

The social change philosophy includes education and political forces for achieving social and environmental change (Hodges & Videto, 2011). The Joint Commission Primary Stroke Certification recommendations stress the need for all nurses who care for stroke patients with stroke symptoms to attend annual stroke education (Niemi et al., 2013). The desired outcome was to provide a continual source of nursing stroke knowledge so that nurses could maintain stroke knowledge and competency caring for stroke patients. Edwards (2006) noted that findings would be valuable in the development of ongoing training programs and may contribute to a cohesive approach at a national level in regards to stroke care. Thora, Rudi, Eline, Marieke, & Marijke (2010) noted that education of stroke care will result in improved nursing care and management of patients with stroke and result in improved efficiency and quality of care of these patients. In a 2005 survey of Americans 93% of respondents recognized sudden numbness on one side as a symptom of a stroke. Only 38% were aware of all major symptoms and knew how to call 9-1-1 when someone was having a stroke (Fang et al., 2008). An important part of stroke education is awareness. Awareness and modification of risk factors such as hypertension and smoking have resulted in a reduction in the incidence of stroke; however, the number of strokes continues to rise as a result of the aging population and increased life expectancy (Considine & McGillivray, 2010). A vital part of acute stroke management and decreasing stroke-related mortality is preventing complications within the first 24-48 hours (Considine & McGillivray, 2010). Implications for social change from this quality improvement program will hopefully result in the

practice change of organizations providing education to nursing staff on stroke. Watkins et al. (2012) noted that by promoting stroke-specific education within a wide range of disciplines allied with stroke services, all stroke workers can share a vision of excellence through multidisciplinary work and a commitment to the development of stroke services that offer the best in clinical care to patients and their families. Nurses are an integral part of the multidisciplinary team, providing 24/7 stroke care from planning and implementing care to the evaluation of the patient's condition (Catangul & Slark, 2012). Developing team work and team building can foster professional development, enhance trust, and enhance delivery of stroke by reducing any potential conflict between professionals (Kerr, 2012). Through the implementation of this quality improvement program, nurses' knowledge level increased in regards to stroke.

Summary

With constant changes in today's health care, it is imperative that nurses continue to be provided opportunities to learn about evidence-based practices and advanced changes in the areas of stroke care. GWTG Stroke helps health care facilities ensure continuous improvement of stroke treatment by aligning clinical care with evidence-based practices. By facilitating an opportunity for nurses to be educated about stroke and increasing their knowledge of stroke, I could improve treatment and outcomes for stroke patients. Through this quality improvement program, I could also help to identify potential barriers with education. Section 2 provides a review of scholarly literature on this topic. The literature supports the development for new educational evidence-based practice guidelines in regards to stroke care.

Section 2: Review of Review of Scholarly Evidence

The purpose of this quality improvement program was to develop a nursing stroke education program to educate nurses regarding stroke. The question addressed whether a GWTG Stroke program in a medical-surgical telemetry unit increased nurses' knowledge of stroke. Nursing knowledge was assessed before and after the educational program to evaluate for increased knowledge regarding stroke and stroke management using a pretest and a posttest. Nursing knowledge was provided based on current evidence-based practice of GWTG Stroke. The literature search for this project focused on key concepts related to stroke and stroke education related to GWTG Stroke. Stroke care has advanced greatly in the past 20 years with innovations in radiologic imaging, development of tissue plasminogen activator (tPA), organized systems of care, advanced acute stroke therapies, telestroke, and best practice guidelines. The literature review covers the history of stroke care, treatment protocols for stroke care, education of nurses about stroke care, and implementation of stroke programs.

Literature Search Strategy

I conducted a literature search using CINAHL, EBSCO Host, Google, and MEDLINE via the Walden University library website. Boolean search terms were used. The key words for the search were *stroke, education, nurse, quality improvement, GWTG's stroke, and knowledge*. Over 2,000 articles from the last 10 years were linked to the search terms and the list was narrowed down to 50 articles. The literature on stroke was exhaustive including areas involving GWTG Stroke, advances in medications, discharge planning, education and ongoing research in the area of stroke.

Literature Review Related to Methods

Treatment Protocols for Stroke Care

Governments and those responsible for providing health care, are increasingly aware of the impact that stroke has on the health of the population and the cost to the community (Langhorne & Rudd, 2009). The implementation of evidence-based best practice guidelines, such as GWTG Stroke, improves patient outcomes by reducing variation in practice and ensuring consistent quality care (United States Department of Veterans Affairs, 2008). GWTG Stroke is an in-hospital database that promotes the latest scientific treatment guidelines for stroke comparative outcomes to clinicians. GWTG Stroke was piloted in 2001 and nationally implemented in 2003. GWTG Stroke is based in the United States, and at this time more than 1,656 hospitals are participating in GWTG Stroke. The AHA-ASA manages the current GWTG Stroke program. The GWTG Stroke program includes data collection by hospitals and other healthcare facilities on patient demographics. This patient demographic information may include the patient's age, patient's gender, acute outcomes, health outcomes, patient measures, quality/core measures, and other information collected by the hospitals or other healthcare facilities. As of 2013, the GWTG Stroke registry had recorded over 2.5 million patient admissions (Ellrodt, 2013). Fonarow (2014) noted that hospital participation in GWTG Stroke and the adoption of its tools led to an improvement in the timeliness of tPA administration for stroke patients. Historically, less than 30% of patients have been treated with tPA within 60 minutes of arriving at the hospital. After the implementation of the initiative, the number of patients who received treatment within that time frame

increased to 53.3% (Fonarow, 2014). This improvement was associated with lower in-hospital mortality and overall stroke complications, ultimately leading to patients having a shorter hospital stay (Fonarow, 2014). Wyatt (2012) noted that specific health care organizations are focusing on reducing admissions, mortality, injury, and the costs associated with not addressing stroke. Early recognition of stroke symptoms and immediate intervention are the best predictors of patient recovery (Alkadry, Wilson, & Nicholas, 2006). The implementation of treatment protocols for stroke, such as GWTG Stroke, is making a difference in today's health care environment.

Teaching Nurses About Strokes

The purpose of this quality improvement program was to develop a nursing stroke education program to educate nurses about stroke. Assessment is an essential nursing skill that includes clinical information to strengthen decisions about health interventions and priorities (Gocan & Fischer, 2008). Having a specific education program related to stroke could improve nurses' knowledge and decrease admissions, mortality, and health care costs (Gocan & Fischer, 2008). Neurological assessment of the acute stroke survivor provides the cornerstone for early diagnosis, appropriate prognostic evaluation, and optimal management to obtain favorable patient outcomes (Gocan & Fisher, 2008). Training and developing nurses' and therapists' competence in all aspects of stroke care are paramount in order to provide a specialist stroke service (Catangui & Stark, 2012).

Considine and McGillvray (2010) noted that there was significant improvement in triage decisions by 4% with the implementation of evidence-based practice regarding prevention of early complications of stroke. The ASA and other researchers published

findings showing that persons treated in designated stroke units had better outcomes than those who were treated in general units due to the education and training provided to the staff (Censullo, Mokracek, & Newmark, 2007). Patients treated by stroke specialist and others with relevant stroke-specific knowledge and skills on a specialist unit are more likely to survive stroke, return home and become independent (Watkins et al., 2012). Alberts, Hampel, and Range (2000) noted that one study showed 66% of the hospitals surveyed did not have stroke protocols and 82% did not have rapid response teams for patients experiencing acute stroke. Carlsson et al. (2010) noted in their study that a stroke unit's educational strategy was based on the multidisciplinary team, coordinated multidisciplinary teamwork, and regular programs for education and training of staff. All members of an interprofessional stroke team play a pivotal role in the assessment and management of stroke patients throughout the continuum from prevention through acute care, rehabilitation, long-term care, and return to the community (Green et al., 2011). According to Fonarow et al. (2013) studies suggest that the wide variations in conformity may reflect differences in training, guideline familiarity, active engagement of hospital administration in quality improvement efforts, and implementation of tools and systems to ensure that recommended care is provided.

Edwards (2006) noted that the National Clinical Guidelines for Stroke indicated that patients should be cared for by staff who have expertise in stroke rehabilitation and access to relevant educational programs. Training delivery methods for educational programs include a combination of theoretical and practical sessions. Interactive workshops alone or in combination with other interventions were shown to be most

effective (Edwards, 2006). A positive tool during educational components was the use of case studies. Case studies are a valuable device in an educator's tool-box (Thompson, 2011). Case studies help learners strengthen their critical thinking and problem-solving skills in a safe learning environment (Thompson, 2011). Case studies enhance learners' understanding of disease process, improve their decision-making ability, and develop their clinical judgment (Sprang, 2010).

Lindsay et al. (2005) noted that initiatives such as regionalization of stroke care, guideline development, and quality improvement efforts have been established in an attempt to increase system responsiveness and optimize patient outcomes following a stroke. Blonder et al. (2007) noted that, from a socioeconomic perspective, family members bear a significant burden of care for disabled stroke patients; interventions that support care-giving partners and marital viability will be of educational benefit not only to the couple, but to the extended family and the community. Technological advances of telehealth in stroke care and education continue to evolve rapidly, especially in addressing the older population (Allen, Hazelett, Palmer, Jarjoura, Wickstrom, Weinhardt, & Counsell, 2003). Considine and McGillivray (2010) used a pretest and posttest design for their study on emergency department nursing management in the role of acute stroke. Watkins et al. (2012) noted that it is imperative for all stroke units' staff members to be well trained, knowledgeable, and competent. This is why education on stroke is the key to success in this quality improvement project. Stroke guidelines describe the nurse's role in providing information and education regarding healthy lifestyle behaviors (Lawrence, Kerr, Watson, Jackson, & Brownlee, 2009).

Implementation of Stroke Programs

Organized stroke care using evidence-based protocols and interdisciplinary teams has demonstrated a reduction in stroke mortality, morbidity, hospital costs, and the need for long-term care (Schwamm et al., 2005). The coordinated, specialized care given in stroke units has been shown to improve outcomes for patients (Catangui & Slark, 2012). Collaborative work within multidisciplinary teams is integral to the good results achieved by stroke units. A team of professionals with expertise in stroke care developed a training program aimed at all health professionals (Catangui & Slark, 2012). The goal was for members of the stroke team to teach each professional involved in patient care a 3-day program aimed at aspects of stroke patient care, acute physiological and rehabilitation. Catangui and Slark (2012) noted that seven courses had run from December, 2009 to August, 2011. The seven courses proved to be successful in providing staff with the knowledge of care for stroke patients, improving collaboration, and enhancing working practices. Considine and McGillvray (2010) identified ways to improve emergency nursing care of acute stroke by increasing the use of evidence regarding prevention of early complications. Clayton (2014) noted that clustering stroke patients in general medical units with nursing staff trained in stroke care would likely improve patient outcomes more than what is achieved in general medical units with nurses with no specialized training. When patients are treated in either a dedicated stroke unit or clustered stroke unit, they are more likely to survive the stroke, regain independence, and return home compared with patients who were not treated with specialized care (Stroke Unit Trialists' Collaboration, 2013).

Background and Context

History of Stroke Care

Stroke can be defined as the sudden development of a focal neurological deficit, which is caused by thrombotic or embolic arterial occlusion (ischemic stroke) or by rupture of an artery in the brain or subarachnoid space (hemorrhagic stroke) (Internet Stroke Center, 2014). Approximately 87% of all strokes are ischemic in origin, and the others are hemorrhagic (Alspach, 2013). Stroke incidence is on the rise in the United States. Stroke is a complex, challenging, and costly disease. Stroke is a condition associated with a high incidence of mortality and often leaves a substantial proportion of survivors with significant physical, cognitive and psychological impairments (Catangul & Slark, 2012). Although some survive stroke without any disability, a sizeable portion require post-acute care (O'Brien, Xue, Ingersoll, & Kelly, 2013). Women account for about 6 in 10 stroke deaths (Stroke Organization, 2015). Kavanagh et al. (2006) noted that classic signs and symptoms of stroke include sudden numbness or weakness of the face, arm, or leg, especially on one side of the body; sudden confusion; difficulty seeing with one or both eyes; sudden difficulty walking; and sudden severe headaches with no known cause. Stroke patients can experience long-term functional and cognitive deficits, some of which are potentially avoidable; other patients who experience signs and symptoms of stroke may recover completely with appropriate care (Kavanagh, Connolly, & Cohen, 2006). A 5-year study by the National Institute of Neurological Disorders and Stroke established the clinical efficacy of intravenous recombinant tissue plasminogen activator (rtPA) when it is administered (0.9mg/kg) within 3 hours of the onset of stroke symptoms (Alspach, 2013). More recent results from a series of ongoing study trials

suggest that rtPA may be effective for up to 4.5 hours after symptoms onset in select patients, possibly widening the therapeutic window for thrombolysis to benefit even more victims of stroke (Alspach, 2013). The ASA spends more than any other organization except the federal government on stroke research and programs (Schwamm et al., 2010). Since 1949, the AHA/ASA has funded more than $3.1 billion of cardiovascular disease and stroke research (Schwamm et al., 2010). At this time, many hospitals are participating in more than one stroke quality-improvement program, including the ASA's GWTG Stroke (Schwamm et al., 2010). The demonstration of representativeness of GWTG Stroke is an important milestone given the increasing importance given in studying real world populations to determine the presence disparities in health care delivery among patient subgroups (i.e., racial and ethnic minorities, women, the elderly and socioeconomically disadvantaged individuals) that are often underrepresented in scientific studies (Reeves et al., 2012). Although hypertension is the most significant risk factor for stroke, atrial fibrillation and smoking contribute substantially to the risk factors of stroke (Alspach, 2013). More stroke victims are surviving and requiring well-coordinated services (Morrison, 2005). Nurses need to know the most effective methods of education for patients who have experienced stroke and their families (Cameron, 2013). To assist in ensuring adequate care for stroke patients, the Brain Attack Coalition (BAC) has proposed two levels of hospitals for the treatment of stroke patients: primary stroke centers (PSCs) and comprehensive stroke centers (CSCs) (Leifer et al., 2011). Compared to 20 years ago when a movement on stroke management was common, improvement in mortality after stroke has led to efforts to provide better care to patients

after stroke to prevent secondary events and improve quality of life (Fitzpatrick & Dawber, 2008). Health awareness and promotion are an important aspects of nursing practice.

Nurses have an important role to play in providing information and advice on lifestyle risk factors for stroke. However, patients report receiving little information or no information at all (Lawrence et al., 2009). Lawrence et al. (2009) noted that stroke nurses require improved access to continuing professional development with regard to prevention of stroke. Nurses also require easy access to information that supports evidence-based practice.

Conceptual Models, Theoretical Frameworks

The evidence-based practice model that was used for this quality improvement program was Rosswurn and Larrabee's. Rosswurm and Larrabee developed a model with a six-step process to facilitate a shift from traditional and intuition-driven practice to evidence-based practice (Hodges & Videto, 2011). There are six steps in the Rosswurm and Larrabee's model that help to facilitate change: (a) assessing the need for change in practice by comparing internal data with external data; (b) linking the problem with interventions and outcomes (standard interventions, if possible); (c) synthesizing the best evidence (research and contextual evidence); (d) designing a change in practice; (e) implementing and evaluating the change in practice including processes and outcomes; and (f) integrating and maintaining the change in practice using diffusion strategies.

By using this evidence-based practice model, this quality improvement program was able to integrate systematically new approaches to practice and address change with

the implementation of educational programs on stroke. In addition, this model facilitated movement through the six steps to make positive change in relationship to the identified stroke topic. After identifying the need for stroke education within the practicum organization, the identified problem with current evidenced-based practice guidelines and outcomes for future patients and nursing staff was addressed. By synthesizing current literature to find best practices, the end result was a change in practice that identified and implemented results through this educational program. The final result was to implement, evaluate, and integrate the final program into the practice of the organization. The use of this evidence-based practice model could help to improve patient outcomes by reducing strokes within the organization and/or by promoting stroke awareness and education. The utilization of the Rosswurm and Larrabee's model was the framework to assist in developing an educational program that focused on best practices.

Summary

Considerable evidence supports the existence in relationship to incidence, mortality, and morbidity to strokes. The literature supports how the content and delivery of educational programs to nursing staff about strokes and stroke units are needed to impact their practice on patient outcomes. Enhanced education and a development of future training programs can make for a difference in the future area of stroke care. By utilizing the best evidence-based practice available, a stroke quality improvement program can create a deep sense of meaningful use in regards to leading a successful educational program for nurses to learn and grow in regards to the area of stroke. This educational program was vital in providing education to expand on the knowledge base

area in this specialty of nursing. Section 3 explains how this educational program was developed, assessed, and implemented.

Section 3: Approach

Stroke is a devastating disease. The evidence shows that stroke survivors have a better chance of rehabilitation and increased independence if they are treated by staff with stroke-specific knowledge and skills (Owen, 2015). The purpose of this quality improvement program was to develop a nursing stroke education program to educate nurses about stroke. This section presents the foundation of determining whether a GWTG Stroke program in a medical-surgical telemetry unit increased nursing knowledge of stroke. Rosswurm and Larrabee's model was used for this quality improvement program. Fifty medical-surgical nurses from a stroke telemetry unit were invited to participate in the voluntary educational program. Nursing knowledge was assessed before and after the educational program to evaluate for increased knowledge regarding stroke and stroke management. An impact evaluation using a 15-question pretest and posttest was used to assess the knowledge outcomes. A summative program evaluation was performed to assess the overall quality of the program and identify whether it met the defined goals, purpose, and objectives.

Approach and Rationale

The project approach for this quality improvement program was a pretest and posttest design to answer the proposed project question of whether a GWTG Stroke program in a stroke medical-surgical telemetry unit increased knowledge of stroke. Considine and McGillivray (2010) used a pretest/posttest design when studying a guideline for emergency department nursing management of acute stroke. Considine and McGillivray (2010) found a significant improvement in triage decisions based on the

evidence-based practice of improving nursing care of acute stroke in an emergency department. O'Toole et al. (2011) noted that despite the knowledge advances of the past few decades for stroke prevention, treatment, and rehabilitation strategies, only a small percentage of individuals experiencing stroke symptoms receive the recommended treatment in the crucial hours after symptoms onset. O'Toole et al. (2011) noted that barriers to securing timely and effective treatment include public awareness of stroke symptoms and the need for timely treatment. This includes education to professionals such as 911 responders, emergency medical services staff, hospital emergency department staff, and acute stroke care team members in hospitals. The Stroke Association's vision is a world in which all those affected by stroke get the support they need (Owen, 2015).

In a recent Stroke Association study, 85% of stroke survivors said that nurses they came into contact with did not understand the impact of stroke on their daily lives; for health professionals this is mainly due to lack of specialist stroke training, which is not mandatory in the community or home care setting (Owen, 2015). Several resources are required to implement training programs including finances, time, adequate staffing levels, and equipment (Edwards, 2006). The evidence-based practice model that was used for this quality improvement project was Rosswurn and Larrabee's. Rosswurm and Larrabee developed a model with a six-step process to facilitate a shift from traditional and intuition-driven practice to evidence-based practice (Hodges & Videto, 2011). There are six steps in the Rosswurm and Larrabee model that help to facilitate change: (a) assessing the need for change in practice by comparing internal data with external data;

(b) linking the problem with interventions and outcomes (standard interventions, if possible); (c) synthesizing the best evidence (research and contextual evidence); (d) designing a change in practice; (e) implementing and evaluating the change in practice including processes and outcomes; and (f) integrating and maintaining the change in practice using diffusion strategies.

Project Design/Methods

The project design was a quality improvement program using a pretest and a posttest based on evidence from GWTG Stroke. The program director developed a nursing stroke educational program to educate nurses to gain or maintain best practice knowledge. The program director developed instruments to complete the quality improvement program (Appendix B & C). Appendix B contains the pretest and posttest. Appendix C includes the program evaluation and characteristics of the participants. The educational program lasted 1 hour. The program consisted of 15 minutes to complete the pretest, 25 minutes to allow for the educational program on GWTG Stroke information, 5 minutes for questions and answers, and 15 minutes to complete the posttest. The quality improvement program was evaluated via an impact evaluation. The results from the pretest were tallied and compared to the results of the posttest to determine a percent change in knowledge after the educational program. The participants had the opportunity to complete a program evaluation that assessed the overall quality of the program to identify whether it met the defined goals, purpose, and objectives of the program. The desired outcome was to improve nurses' knowledge about stroke. No certification of completion was provided due to confidentiality of the quality improvement program.

Population and Sampling

The target population for this quality improvement project included 50 medical-surgical nurses from a stroke medical-surgical telemetry unit. The registered nurses had educational backgrounds ranging from diploma degrees in nursing to master's degrees in nursing. Approximately 4% of the nurses had an associate's degree or lower in nursing while 96% had a bachelor's degree or higher. The nurses invited to participate in the quality improvement program had over 200 years of experience in nursing. The ages for the nurses ranged from 18 to over 60 years. The nurses working the medical-surgical telemetry unit work as part of an interdisciplinary team of professionals including nurses, neurologists, primary care attending physicians, certified nursing assistants, dietary staff, social workers, case managers, physical therapists, occupational therapists, rehabilitation nurses, speech language therapists, volunteers, and clinical nurse specialists. The sample for this quality improvement program was a convenience sample. Convenience sampling involves using a group that is easy to access (Hodges & Videto, 2011). The convenience sampling size for this quality improvement program included 50 medical-surgical nurses from a medical-surgical telemetry unit that cares for stroke patients. The data collection process involved subjective data, so confidentiality was maintained by assigning random numbers (1, 2, 3, etc.) to participants. As the participants entered the room, they were provided with a number. These random numbers were placed on the pretest and posttest by the participants (Appendix B).

The practicum organization is located in a major metropolitan area and is a Level 2 trauma center that has approximately 325 beds. The identified unit for this quality

improvement program was the designated stroke unit for the organization. The stroke unit is a 39-bed medical-surgical telemetry and observational unit. The unit serves the majority of stroke patients who are admitted to the facility unless they are critically ill and admitted to the intensive care unit. The number of patients admitted to the intensive care unit is less than 10% of the 500 stroke patients served each year at the organization. The practicum organization cares for approximately 500 stroke patients each year. The population of patients for this medical-surgical telemetry unit includes patients from both a rural and urban setting.

Data Collection

Data collection is the precise, systematic gathering of information relevant to the research purpose or specific objectives, questions, or hypotheses of a study (Grove & Burns, 2009). The data collection for this quality improvement project involved steps, procedures, and strategies for gathering and analyzing the data. The process started with obtaining institutional review board (IRB) approval from the practicum organization as well as from Walden University's IRB. The Walden University approval number for the IRB is 10-01-15-0173135. Once approval was obtained, a meeting was scheduled on November 2, 2015 to meet with the nursing director of the medical-surgical telemetry unit who was provided with a copy of the project proposal by the program director.

The practicum organization's medical-surgical telemetry nurses were provided with a flyer (Appendix A) by the nursing director of the unit offering the nurses a chance to participate in the voluntary educational program. A flyer was also posted in the break room on the medical-surgical unit by the nursing director inviting the nurses to

participate in the voluntary educational program (Appendix A). The flyer invited the participants to a stroke class focusing on improving nurses' knowledge of stroke with GWTG Stroke program. The nursing director explained that participation in the educational program was voluntary and no disciplinary action would occur due to lack of participation. Consent for the educational program was obtained on the day of the educational program. Consent was obtained by implication (i.e., if the participant showed up and completed the pretest/posttest).

The educational program was offered on November 24, 2015 for a total of three 1-hour sessions. The participants could attend the educational program during work time. The participants could withdraw from the educational program at any time during the educational program without penalty. The right to withdraw from the educational program at any time during the educational program was explained at the start of the educational program by the program director. A 15-question paper pretest and posttest was created based on a current GWTG best practice guidelines (Appendix B).

The pretest and posttest was validated by the education manager, the vice president of nursing, and the senior director of nursing at the practicum organization. The vice president of nursing is an expert in tool development having been an educational leader for over 30 years within the health care system. The pretest and posttest was multiple choice. The data collection process involved participants answers questions, so confidentiality was maintained by using random numbers (1, 2, 3, etc.) assigned to participants. As the participants entered the classroom, they were provided with a number (1, 2, 3, etc.) by the program director. The random numbers were placed on the pretest

and posttest by the participants. The program director collected the pretest and posttest and attached them according to the corresponding random number (1, 2, 3, etc.) after the completion of the educational program. All testing items remained in the program director's personal briefcase during the educational program. The educational program lasted approximately 1-hour in the room offered by the practicum organization. The educational program was provided by the program director. The educational session allowed 15 minutes for the pretest. Then the educational material was presented by oral lecture for approximately 25 minutes. Finally, 15 minutes was allowed for the posttest. A question and answer session was held during the last 5 minutes of the educational program. The goal was to assess for percent improvement from the pretest to posttest. The long-term plan was to conduct the quality improvement program on a quarterly basis if the program proved to be successful.

Educational Intervention

The educational intervention consisted of a student developed GWTG Stroke educational program using generally known elements of GWTG Stroke information. The educational intervention lasted for 1-hour. The program allowed for 15 minutes to complete the pre-test, 25 minutes for the lecture presentation, 5 minutes for a question and answer session and 15 minutes to complete the post-test. The educational program was conducted by the program director. The educational program consisted of a lecture presentation focusing on the objectives of defining stroke, understanding risk factors contributing to stroke, understanding Joint Commission Stroke Certification, and understanding the need for stroke education.

Instrumentation

Stroke Quiz

A 15-question paper pretest and posttest was created based on current GWTG best practice guidelines (Appendix B). Results were scored on simple percentage based on the number of correct answers from the pretest and the posttest. The pretest and posttest covered GWTG Stroke best practice information that was covered during the lecture. The tests were scored on a scale of 0 % (poor) 100% (excellent). Each question was worth 6 points. The desired passing score for the posttest was 80 %. The higher the score, the better the results. The lower the score, the worse the results. The desired outcome was for nursing staff to increase their knowledge level of stroke from the educational program. A comparison of the pretest and the posttest scores would indicate whether the participants improved from the pretest to the posttest.

Demographic Questionnaire

Characteristics of the participants were collected for data analysis purposes. The characteristics included gender, race, age, years of nursing experience, and educational degree (Appendix C). This information was obtained to describe the sample used for the quality improvement program. The data were collected and tallied after the educational program. An Excel table was created using the program director's personal computer.

Program Evaluation Survey

A program evaluation survey was conducted to determine whether the program met its objectives, goals, and purpose of the educational program (Appendix C). The program evaluation survey also included a comments section to indicate the strengths and weaknesses of the quality improvement program or provide any other comments the

participants wanted to share with the program director. The data were collected and tallied after the educational program. An Excel table was created using the program director's personal computer. All of the questions for the stroke class program evaluation were scored on a 1-5 scale. The highest score was 5 (fully met), and the lowest score was 1 (not met at all). The tool helped to identify whether the educational program met its objectives, goals, and purpose based on the feedback from the program participants. Higher scores on the program evaluation indicated that the program met the objectives, goals, and purpose. Lower scores indicated that the program did not met the objectives, goals, and purpose.

Protection of Human Subjects

The pretest and posttest was given and confidentiality was provided to participants of the educational program. When the participants attended the educational session no identifying information was collected. Consent was obtained by implication (i.e., if the participant showed up and they completed the pre-test/post-test). The participants were given a random number (1, 2, 3, etc.) as they enter the room. This is the number that was placed on the pretest and posttest. The data from the pretest and posttest was stored in the nursing education department at the practicum organization in the education manager's office. The data was stored in a locked filing cabinet in a folder with the contents of the quality improvement program. Data from the project that was entered into the program director's personal computer to complete Excel tables was stored on a password-protected computer that is at the program director's home. The data will be stored for three years following the educational program. Only the education manager

and the program director will have access to the data. The education manager will have access to the final data because they will continue with the quality improvement program based on the results of the program.

Project Evaluation Plan

Impact Evaluation

The quality improvement program was measured by using impact data. A 15-question pretest and posttest was provided to the participants before and after each educational program. The data was obtained and calculated for each pretest and posttest question. The data indicates how the participants scored on the pretest and the posttest. The pretest and posttest was reviewed by assessing responses to each question to see if the quality improvement program should have explained a specific objective in more detail during the presentation. The pretest and posttest was reviewed by assessing responses to each question to see if a test question was asked in a way that the participant did not understand the question that was being asked of them.

Program Evaluation

A program evaluation survey was conducted to determine whether the program met its objectives, goals, and purpose. The participants had a chance to reflect on the educational program and complete a program evaluation survey at the completion of the educational program (Appendix C). The program was reviewed to determine if improvements needed to be made based upon the evaluation of the participants. The overall project evaluation plan for this quality improvement program will remain ongoing after implementation. If the program is adopted by the practicum organization the practicum organization will need to monitor the program processes, results, and

improvements related to changes in stroke care to keep current with evidence-based practices and current research. The program was evaluated for success in improving nursing knowledge about stroke. Ongoing evaluations and adjustments according to the assessments in the educational program enable a sustainable method of providing stroke education to nurses.

Summary

The project design was a quality improvement program. The project data collection method was designed as a pretest and posttest design and included obtaining scores from the pretest and posttest on 50 medical-surgical nurses from a medical-surgical telemetry unit that cares for stroke patients. The project evaluation was to determine if the quality improvement program improved nurses' knowledge of stroke. Section 4 provides a summary on the evaluation, findings, discussion, implications, strengths, limitations, and an analysis related to the implementation of this quality improvement program.

Section 4: Findings and Recommendations

Stroke is a significant cause of morbidity, disability, and death. Education of staff members is a key element in the successful delivery of stroke services (Watkins et al., 2012). The purpose of the quality improvement program was to increase nurses' knowledge of stroke though the development of a nursing stroke education program that could be a sustainable program for educating nurses in a stroke center. In this section I explain how the educational program of GWTG Stroke increased nurses' knowledge of stroke in a medical-surgical telemetry unit. For this project, 50 nurses from a medical-surgical telemetry unit that cared for stroke patients participated in the educational program. The data were collected using a pretest and posttest design. The primary objective of the project was to develop and implement a nursing stroke educational program. The results of the project showed that nurses increased their knowledge of stroke by 16.79 % after the educational program based on the scores of the pretest and posttest. The desired outcome was for the practicum organization to adopt an educational program as an ongoing learning opportunity for nursing staff in regards to stroke care, and this desired outcome was achieved because the educational program was effective at increasing nurses' knowledge.

Evaluation/Findings and Discussion

The purpose of the quality improvement program was to increase nurses' knowledge of stroke though development of a nursing stroke education program that could be a sustainable program for educating nurses in a stroke center. The purpose of the project question was to determine whether an educational program of GWTG Stroke

delivered to nurses in a medical-surgical telemetry unit increased nurses' knowledge of stroke. Education, clinical application, and ongoing maintenance of skills are necessary for successful learning and development of assessment expertise (Gocan & Fischer, 2008). Rosswurm and Larrabee's model was the framework to assist in developing an educational program that focused on best practices.

As part of this quality improvement program, three 1-hour educational sessions were held at the practicum organization. A total of 50 nurses from the medical-surgical telemetry unit attended one of the three different educational sessions held throughout the day. The demographic data showed the diverse group of nurses who attended the quality improvement program. The data indicates 47-females and 3-males participated in the quality improvement program. The races included White, African American, Hispanic, or other. The most common race was White. The data showed the average age range completing the quality improvement program. The age ranges included 18-29, 30-39, 40-49, 50-59, and greater than 60 years. The average age was 18-29. The nursing experience ranges included 0-5, 6-10, 11-15, 16-20, 21-30 and greater than 30 years. The average number of years of nursing experience was 16-20 years. The data also showed the average educational degree of program participants. The educational degrees included diploma, associate's, bachelor's, or master's. The most frequent educational degree was bachelor's. Table 1 presents the demographic data for the project.

Table 1
Demographic Information

Category	n=50	%
Gender		
Male	3	6%
Female	47	94%
Race		
White	35	70%
African American	10	20%
Hispanic	3	6%
Other	2	4%
Age Range		
18-29 years	24	48%
30-39 years	6	12%
40-49 years	12	24%
50-59 years	6	12%
60 + years	2	4%
Years of Nursing Experience		
0-5 years	14	28%
6-10 years	4	8%
11-15 years	8	16%
16-20 years	16	32%
21-30 years	6	12%
30 + years	2	4%
Educational Degree		
Diploma	2	4%
Associates Degree	0	0%
Bachelor's Degree	30	60%
Master's Degree	18	36%

The educational sessions consisted of generally known elements of GWTG Stroke. The educational intervention lasted 1-hour. The program included 15 minutes to complete the pretest, 30 minutes for a lecture presentation that allowed for a question and answer session, and 15 minutes to complete the posttest and evaluation survey. The educational program was conducted by the program director. The educational program consisted of a lecture presentation focusing on the objectives of defining stroke, understanding risk factors contributing to stroke, understanding Joint Commission Stroke Certification, and understanding the need for stroke education.

A 15-question paper pretest and posttest was created based on current GWTG best-practice guidelines (Appendix B). Results were scored on simple percentage based on the results from the pretest verses the posttest. The tests were scored on a scale of 0 % (poor) 100% (excellent). Each question was worth 6 points. The desired passing score for the posttest was 80%. The lowest pretest score was 46% and the highest pretest score was 100%. The average score of the pretest was 75.81%. The lowest posttest score was 82%, and the highest posttest score was 100%. The average score of the posttest was 92.6%. The desired outcome was for nursing staff to increase their knowledge level of stroke from the educational program. With the implementation of this quality improvement program, I found that the educational session improved the posttest scores by 16.79%.

I examined responses to the pretest and posttest to determine whether the quality improvement program should have explained a specific item in more detail during the presentation. I examined responses to each question to see if a question was asked in a way that the participants did not understand based on multiple participants missing the

same question. No test question was found to be missed more than another. The pretest and posttest was found to be a successful tool for this quality improvement project.

I conducted a program evaluation survey to determine whether the program met its objectives, goals, and purpose. (Appendix C). All of the questions for the stroke class program evaluation were scored on a 1-5 scale. The highest score was 5 (fully met), and the lowest score was 1 (not met at all). This tool helped to identify whether the educational program met its objectives, goals, and purpose. Higher scores on the program evaluation indicated that the program met the objectives, goals, and purpose. Lower scores indicated that the program did not met the objectives, goals, and purpose. More than 45 participants scored the questions on the program evaluation survey a 5, meaning the objectives, goals, and purpose were all met. No poor feedback was reported in the program evaluation survey. Table 2 shows the data related to the program evaluation survey questions. No additional comments were reported.

Table 2

Program Evaluation Survey

Program Evaluation Survey Questions n=50	5	4	3	2	1
How well did you achieve the following objectives?					
-Define Stroke	50				
-Understand Risk Factors Contributing to Stroke	48	2			
-Understand Joint Commission Stroke Certification	45	5			
-Understand the need for Stroke Education	45	5			
How effective was the presenter?	48	2			
Was the overall goal/purpose of the program met?	48	2			
How effective were the teaching methods?	47	3			
How well did the content relate to the program objectives?	49	1			
How relevant was the program in meeting your professional needs/interest?	47	3			
How well did the audiovisuals/handouts enhance your learning needs?	45	5			
How well did the physical facility suit your learning needs?	48	2			

The overall program was found to be successful. With an improvement of the test scores from pretest to posttest at 16.79%, the practicum organization had no hesitation in adopting this quality improvement project within their organization. The impact evaluation showed an increase in knoweldge, and the summative evaluation showed the program met its goals, purpose, and objectives; therefore, this quality improvement program may be used as an ongoing, sustainable program to educate nurses in a stroke

center about stroke. Due to the implementation of this quality improvement program, the practicum organization will be looking at all educational sessions that could benefit from policy and practice changes. Because the practicum organization will adopt this quality improvement program, the practicum organization will need to monitor the program's processes, results, and improvements related to changes in stroke care to keep abreast of evidence based-practices and current research.

Implications

The quality improvement program was found to be successful. Continuing professional development in the area of stroke can improve nurses' knowledge levels. Educating nurses appropriately can make positive change in the areas of policy, practice, research, and social change. In the area of policy, institutions need to comply with stroke certification criteria. By not following the identified criteria, nursing staff will not be knowledgeable about the policies and procedures associated with the GWTG Stroke program. Educators can guide the GWTG Stroke education in their organization so it provides an atmosphere conducive to learning.

In regards to practice, the treatment modalities are linked to evidence-based practices in the area of GWTG Stroke. The community will receive ongoing education to help decrease the severity of this health care disparity. Stroke centers review and revise policies, procedures, and protocols on an ongoing basis to ensure compliance with best-practices. The community will be receiving the best care for stroke and, this results in financial rewards related to the organization meeting stroke certification criteria by Joint Commission standards. In the area of research, evidence-based practices have shown that stroke-specific knowledge acquired from professional development can be implemented

in clinical practice. The desired outcome from this project was to improve nurses' knowledge of GWTG Stroke using a pretest/posttest design. Taking this education back to the nursing units could foster ongoing education for nursing staff to collaborate with other team members to make positive changes in the area of stroke. Future research could be conducted on both employee and patient perspectives in regards to education on GWTG Stroke.

Lastly, in the area of social change, stroke is currently the fifth leading cause of death in the United States. With stroke as a top priority in health care, the need for ongoing education regarding any aspect of stroke can make a huge difference. The treatment of stroke could be dramatically improved if this project were implemented to ensure nursing staff are knowledgeable of the GWTG Stroke program.

Strengths and Limitations of the Project

The original purpose of this quality improvement project was to develop a nursing educational program to educate nurses about stroke. Keeping with this focus, this quality improvement project set out to answer the identified question: Does a GWTG Stroke educational program in a medical-surgical telemetry unit increase nurses' knowledge of stroke? Data was collected from 50 medical-surgical telemetry nurses that cared for stroke patients. A strength of this quality improvement project was the number of participants that attended the educational sessions. The goal was to have 50 participants and this was achieved. A total of 75 nurses were invited to participate. Another strength related to this quality improvement project was answering the identified question related to the project.

A limitation of this quality improvement project is in regards to continuing education related to the GWTG Stroke program. Without ongoing follow-up how will nurses remember the material that was provided to them in the educational sessions? Additionally, how will the nursing staff become aware of any changes related to the GWTG Stroke program as new evidence-based practices are implemented in the program? Additional limitations of this project focused around time. Time played a factor in booking a room to complete the educational sessions. Booking a room took more than a month due to limited space availability within the practicum organization. Recommendations for anyone interested in working on future projects addressing similar topics and using similar methods should work closely with the practicum organizations educational department. Several times during the educational sessions the participants would reference hospital protocols surrounding stoke protocols that were not familiar to the program director. In addition, opening this type of educational session to all medical-surgical and medical-surgical telemetry nurses might be an option. A stroke can happen on any unit and the nurses from the medical-surgical telemetry unit are educated regarding GWTG Stroke while the nurses from the general medical-surgical units are not educated in regards to the GWTG Stroke program. The medical-surgical nurses could float to the medical-surgical telemetry units and possibly could make a difference in regards to a patient having a possible stroke. Additionally, having more time to teach the class to include additional content such as videos, educational activities, and hands on simulation might make the educational session more inviting than just a general pretest/posttest and lecture educational session.

Analysis of Self

As Scholar

The process of returning to school to complete a DNP, was not a part of my educational goals or future career path. As a graduate of a bachelor's degree program, a master's degree in nursing was my focus and I presumed my final destination on my educational path. I'll never forget the day I applied for a faculty position at a university and was told I would need a DNP to work for the institution. Although, the DNP degree was not my desired goal, I continued beyond the MSN to complete the DNP so that I can possibly teach as nursing faculty for a university someday.

When thinking about the word of scholar, I needed to look up the definition to make sure my long-term professional goals aligned with the definition. Scholar is defined as a person who has studied a subject for a long time and knows a lot about it; an intelligent and well-educated person who knows a particular subject well (Merriam-Webster Dictionary, 2015). By looking back on the knowledge learned throughout the program and from previous educational programs, I was able to use the knowledge and skills to develop and implement a project that was found to be successful. My willingness and determination has helped me to prevail as a scholar. I now have an enhanced appreciation for the skilled attention to detail that correlates with focusing on a specific project and finishing it to the end for a final positive outcome.

As Practitioner

As a current practitioner working as a nurse manager, this project has helped me to learn and grow in the area of communication and working with other disciplines. This project including the additional field experience hours have contributed to excellent

enhanced opportunities to observe experts in their preferred career field and how they communicate succinctly and effectively to make positive social change. Communication is a trait I always have strived to improve each year on my annual evaluations. A wise professor once told me communication is the key to success. Communication as a practitioner in my current position and with this project will remain a top priority as a future leader in health care.

As Project Manager

I have struggled with research in the past and had a certain level of hesitancy mostly due to the lack of understanding of the process. I suffered through many research classes in prior educational programs, especially in my bachelor's degree program that almost held me back from graduating. Completion of this project has given me the tools and the confidence to approach and tackle new adventures with an increased level of knowledge. Although I would not consider myself an expert by any means in the area of research, I have become more aware of the many tools and resources that are available to help researchers and know that the process is attainable with perseverance and assistance from mentors that are willing to help novice leaders understand the tricks behind the traits.

In my own practice area, I have become involved with committees revolving around patient experience. Currently I am working on the planning and implementation of a purposeful hourly rounding champion program. I am part of the patient experience team planning to implement a purposeful hourly rounding champion program within the healthcare system. The program will evaluate the current systems in place for purposeful

hourly rounding, the reasons behind the "why" we round hourly, the linking of patient satisfaction scores and simulation of role-modeling purposeful hourly rounding. My support and assistance in this program would not be much benefit without the education I have received from this DNP program.

Summary

The purpose of this quality improvement program was to develop a nursing educational program to educate nurses in a stroke center about stroke. The identified project question for this DNP project was to evaluate: Does a GWTG Stroke educational program in a medical-surgical telemetry unit increase nurses' knowledge of stroke? The data was collected by using a pretest and posttest design. This quality improvement program was found to be successful with a 16.79% increase on the scores after the pretest verses the posttest. The summative evaluation for the program evaluation found the program to be successful achieving the objectives, goals, and purpose. The desired outcome of this quality improvement project was for the practicum organization to adopt an educational program as an ongoing learning opportunity for nursing staff in regards to stroke care and this desired outcome was achieved since the educational program was effective at achieving knowledge and the program met its stated goals, purpose, and objectives. This quality improvement program is a simple change in practice that can easily be adopted within any practicum organization to assist with stroke education. Stroke certified facilities require nursing staff to complete four hours of continuing education in regards to stroke annually. This educational program can help organizations met part of the educational requirements for stroke education. This program was effective

in meetings its goals, purpose and objectives, therefore this project may be used as an ongoing, sustainable model for stroke center nursing education.

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Appendix A: Stroke Class Flyer

Target Audience: All Medical-Surgical Telemetry Unit Nurses (Attendance is Voluntary)

Stroke Class: Improving Nurse's Knowledge of Stroke with Get with The Guidelines (GWTG) Stroke Program

Presented by

James T. McDaniel, MSN, RN-BC, CHPN

Walden University DNP Student

Date: TBD

Time: 7am-8am, 12pm-1pm, 3pm-4pm

Location: TBD

Appendix B: Stroke Class Pretest & Posttest

Test # _____

Stroke Class (Pretest & Posttest)

1. What are the two main types of stroke? (Circle One)
    a. ischemic & hemorrhagic
    b. ischemic & TIA
    c. TIA & hemorrhagic
    d. none of the above

2. Who is more likely to suffer from a stroke? (Circle one)
    a. 65-year-old female with hypertension
    b. 33-year-old female on birth control
    c. 45-year-old African American male
    d. All of the above

3. Which of the following acronyms relay the signs and symptoms of stroke and appropriate actions to patients and the community? (Circle one)

    a. SLAP
    b. FAST
    c. PAST
    d. BASH

4. Stroke is the _____ leading cause of death in the United States? (Circle One)
    a. Second
    b. Third
    c. Forth
    d. Fifth

5. Name one of the most important pieces of information for the patient presenting with stroke like symptoms? (Circle One)
    a. Home medications
    b. Past medical history of stroke/TIA
    c. The date and time the patient was last known well
    d. Vital Signs and Finger Stick Blood Sugar

6. What is the current window of opportunity to treat ischemic stroke with thrombolytic? (Circle one)

a. 4.5 hours from last known “normal”.
b. 2 days from last known “normal”.
c. 3 hours from last known “normal”.
d. 8 hours from last known “normal”.

7. What is the one most significant diagnostic test used to determine stroke? (Circle one)
    a. Blood Draws
    b. EKG
    c. CT
    d. ABG

8. When discharging a patient home from the hospital with new onset of atrial fibrillation teaching should include? (Circle one)
    a. Use of statin medication
    b. Use of Coumadin or Warfarin
    c. Smoking Cessation and referral for counseling
    d. All of the above

9. When is the use of thrombolytics contraindicated? (Circle all that apply)
    a. Patient presents with having awoke with facial droop and CT positive for ischemic stroke
    b. Patient presents within 1 hour of symptom onset, CT positive for ischemic stroke with history of GI Bleed.
    c. Patient presents with having awoke with facial droop and CT negative for ischemic stroke.
    d. Patient presents within 2 hours of symptom onset and CT positive for ischemic stroke.

10. The primary signs and symptoms of stroke includes? (Circle one)
    a. Facial drooping
    b. Weakness of one or more extremity
    c. Difficulty speaking
    d. Sudden severe headache
    e. All of the above

11. Stroke care and related consequences such as missed time from work cost the United States an estimated? (Circle one)
    a. 12.5 billion

b. 21 billion
c. 38.6 billion
d. > 50 billion

12. Why should the participating organization pursue Stroke Certification? (Circle one)
    a. Financial rewards
    b. Treatment of stroke that is evidenced-based
    c. Community education is a requirement to maintain stroke certification
    d. All of the above

13. Approximately what percentage of strokes are ischemic in nature? (Circle one)
    a. 25%
    b. 49%
    c. 67%
    d. 87%

14. Which of the following are required nursing assessments/interventions/documentation? (Circle one)
    a. Bedside Swallow Study
    b. NIHSS
    c. Functional Screening Activity
    d. All of the above

15. The key risk factors for stroke include? (Circle one)
    a. High LDL Cholesterol, High BP, and Smoking
    b. Diabetes, High LDL Cholesterol, and Obesity
    c. High BP, Excessive ETOH use, and Poor Diet
    d. Smoking, Physical Inactivity, Obesity, and Diabetes

Appendix C: Stroke Class Program Evaluation Survey
Stroke Class Program Evaluation Survey
Presented Date & Time

_____
Presented by James T. McDaniel, MSN, RN-BC CHPN

1. How well did you achieve the following objectives?

	Please check the appropriate box.				
Objectives: Upon completion of this class participants will be able to:	**5 Fully met**	**4**	**3**	**2**	**1 Not at all**
• Define Stroke					
• Understand Risk Factors Contributing to Stroke					
• Understand Joint Commission Stroke Certification					
• Understand the need for Stroke Education					

2. How effective were the presenter(s)?

Presenter	**Most 5**	**4**	**3**	**2**	**Least 1**
James T. McDaniel, MSN, RN-BC CHPN					

3. Was the overall goal/purpose of the program met?
Very well 5 4 3 2 1 Poor

4. How effective were the teaching methods?
Very well 5 4 3 2 1 Poor

5. How well did the content relate to the program objectives?
Very well 5 4 3 2 1 Poor

6. How relevant was the program in meeting your professional needs/interest?
Very well 5 4 3 2 1 Poor

7. How well did the audiovisuals/handouts enhance your learning needs?
Very well 5 4 3 2 1 Poor

8. How well did the physical facility suit your learning needs?
Very well 5 4 3 2 1 Poor

9. **Additional Comments:**

_____

Characteristics of the Participants: (Circle One)

10. Gender
- **a. Male**
- **b. Female**

11. Race
- **a. White**
- **b. African American**
- **c. Hispanic**
- **d. Other (Please explain) _____**

12. Age Range
- **a. 18-29**
- **b. 30-39**
- **c. 40-49**
- **d. 50-59**
- **e. > 60**

13. Years of Nursing Experience
- **a. 0-5**
- **b. 6-10**
- **c. 11-15**
- **d. 16-20**
- **e. 21-30**
- **f. > 30**

14. Educational Degree
- **a. Diploma**
- **b. Associate's Degree**
- **c. Bachelor's Degree**
- **d. Master's Degree**
- **e. Other (Please explain) _____**