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Developing an Educational Program for Tracheostomy Care

Joy Onuoha
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Joy Onuoha

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Review Committee
Dr. Cassandra Taylor, Committee Chairperson, Nursing Faculty
Dr. Jennifer Nixon, Committee Member, Nursing Faculty
Dr. Sue Bell, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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MS, University of Maryland School of Nursing, 2013

BS, University of Maryland School of Nursing, 2003

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Medical-surgical nurses at the project site demonstrated a knowledge deficit regarding the care of adult patients with a tracheostomy. Such knowledge deficits could expose patients to higher risks for infection, bedsores, prolonged hospital stays, increased costs, increased caregiver burden, and death. The purpose of this project was to develop an educational program to improve nurses' knowledge and confidence in the provision of evidence-based tracheostomy care to answer the question if the content of an evidence-based educational program developed to improve nurses' knowledge and confidence in managing adult patients with tracheostomy on a medical-surgical floor would meet the expectations of a panel of content experts. Bandura's self-efficacy and social learning theories provided theoretical guidance for the project. Five local nurse practitioners served as content experts and made recommendations about how the program could be improved, as well as suggestions relating to the wording of and the time allowed for the simulation aspect of the program. Content experts used a 5-point Likert-scale survey to evaluate the education at the completion of the program. Results showed that all reviewers strongly agreed that the content of the program was relevant, was based on the best available evidence, and was well organized and easy to follow. This project may promote positive change on the medical-surgical floor by improving providers' knowledge, skills, and confidence in the provision of care based on the best available evidence, which may lead to improvements in the quality of care provided to tracheostomized patients.

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Dedication

The project is dedicated to my father, the late Mr. Anthony Chigbundu, who was my main source of inspiration, encouragement, and love.

And to my husband, Emmanuel Onuoha, without whose unconditional love, patience, and support my dream would not have become a reality.

I also dedicate this project to all nurses who devote themselves to provide evidence-based care to tracheostomized patients. You are heroes in our health care systems; thank you all for what you do.

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My success in this DNP program and project has only been possible as a result of the grace and strength granted to me by my Lord Jesus Christ. All things are possible through Christ who strengthens me.

Special thanks to you, Dr. Cassandra Taylor, for your considerable amount of support and guidance in the process of developing this project. You spent time directing and guiding me throughout the entire DNP project journey, and I thank you from the bottom of my heart.

My sincerest gratitude goes to my precious family led by my husband, Emmanuel Onuoha and my friend Ada Irobi. Their love, prayers, and support were endless, and they empowered me and were there for me during the most difficult times and gave me the energy to accomplish my lifetime goal. To my children, Blessing Opara, Michael Onuoha, Glory Onuoha, Miracle Onuoha, Amen Onuoha, and Faith Onuoha; and my grandchildren, Chiamaka Opara, Chukwuka Opara, Udoka Opara, and Chisom Opara. I look forward to spending more time with you and having more fun together.

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Section 1: Nature of the Project

Introduction

The placement of a tracheostomy tube is a procedure that is increasingly performed in intensive care units (ICUs) for various reasons, including bypassing an obstructed upper airway, removing or clearing secretions from the airways, establishing long-term mechanical ventilation, and transporting oxygen to the lungs in a safe way. About 25% of people admitted to an ICU will require a tracheostomy tube for ventilator support over the long term (Casserly, Lang, Fenton, & Walsh, 2007). Presently, there are approximately 6.5 million U.S. citizens living with a tracheostomy (Yelverton et al., 2015). In spite of the high prevalence of tracheostomy, care provision to patients living with a tracheostomy has been described as a "high-risk, low incidence nursing skill" that is commonly taught through the transmission of anecdotal knowledge from one nurse to another (Smith-Miller, 2006, p. 222). There is substantial evidence that nurses working outside the ICU have inadequate knowledge, skills, and competence in the provision of tracheostomy care (Hasanvand & Abedi, 2016; Paul, 2010; Yelverton et al., 2015).

The problem of knowledge, skills, and competency deficits related to tracheostomy care needs to be addressed to improve the safety and quality of care provided to patients living with a tracheostomy. Therefore, the purpose of this project was to develop an educational program focusing on improving nurses' knowledge, skills, and self-confidence in the provision of tracheostomy care.

This educational program developed for this project has the potential to begin a new movement toward evidence-based practice (EBP) at the practicum site due to its

emphasis on a standardized protocol for management of tracheostomy based on existing guideline recommendations. Moreover, the program is focused on improving the knowledge, skills, and confidence/competence of the nurses taking care of patients living with a tracheostomy. This project has the potential to promote positive social change through reduced morbidity and mortality related to the provision of inadequate tracheostomy care.

Problem Statement

The practice problem is that staff nurses have demonstrated inadequate knowledge, skills, and confidence in the provision of care to patients living with a tracheostomy as observed during yearly competency evaluations. Additionally, the nurses are not providing care based on recommended guidelines. For instance, the nurses are currently performing tracheostomy care by instilling a normal saline bullet into the ostomy to break mucus, despite evidence showing that the practice is not safe (Nance-Floyd, 2011). Moreover, the nurses are making decisions relating to tracheostomy care individually without following the recommended practice. Furthermore, they are not keeping required supplies in patient rooms to intervene promptly when a tracheostomy tube becomes dislodged.

The problem at the medical-surgical unit in this suburban hospital can be attributed to lack of educational interventions for nurses. Currently, nurses are not obliged to take formal training on tracheostomy care and, as a result, they typically provide such care based on anecdotal knowledge that they received during nursing school or from their preceptors when they were initially hired. It has also been observed during

annual competency evaluations of tracheostomy care that more than 70% of the nurses on the medical-surgical floor at the practicum site are not following evidence-based and recommended guidelines when providing tracheostomy care. If this poor practice is not addressed, it could result in patients developing tracheostomy complications.

The practice problem has been confirmed in the current literature relating to the provision of tracheostomy care by nurses. A systematic review of literature conducted by Paul (2010) confirmed a lack of adequate knowledge and skills in the provision of tracheostomy care. The practice problem was particularly evident among nurses working in nonspecialized areas. These nurses were unable to competently perform all of the aspects of tracheostomy care, including resuscitation, stoma care, and suctioning, in addition to having inadequate knowledge relating to the use of appropriate equipment. The findings demonstrated the need for the development and implementation of an educational intervention to address the identified practice problem. It is important that tracheostomy care is provided by competent staff, given that improper care can lead to catastrophic complications.

Proper tracheostomy care is essential. There is evidence to suggest that adequate management of tracheotomies can lead to increased patient comfort, diminish the need for sedation, reduce the incidence of laryngeal injury, expedite weaning from the ventilator, and reduce length of stay in the hospital (Dorton, Lintzenich, & Evans, 2014). Therefore, proper tracheostomy care can be of benefit to patients, health care providers, institutions, and the society at large. Conversely, poorly performed tracheostomy care

may lead to increased complications and increased length of hospital stay (Cox et al., 2004; Tsakiridis et al., 2012).

Currently, there are about 6.5 million people living with a tracheostomy in the United States (Yelverton et al., 2015). A national survey in the United States found that more than 90% of tracheostomy patients experienced a catastrophic event 1 week following surgery (Das et al., 2012). The complications were both short term (infection, tube obstruction, hemorrhage, and accidental decannulation), and long term (failure to decannulate, development of granulation tissue, and upper airway obstruction). Most of these complications involve potentially preventable deficits in family education and nursing care (Das et al., 2012).

There is also substantial mortality related to complications that develop as a result of poor tracheostomy care. Das et al. (2012) estimated that there are about 1,000 catastrophic events and 500 deaths related to tracheostomies in the United States on an annual basis. The mortality rate may be an underestimate, given that there are tracheotomy-related deaths of which health care providers are not aware. A previous study reported a high mortality rate (28.6%) among tracheostomy patients during their hospitalizations (Cox et al., 2004). That study took place several years ago, and the death rate may have reduced with time due to improvements in technology; however, the estimate showed that there are a substantial number of patients who experience catastrophic complications and mortality related to poor tracheostomy care.

Besides increased morbidity and mortality, tracheostomies have been associated with increased financial expenses. Average hospital charges associated with

tracheostomy total $265,499 per patient (Healthcare Cost and Utilization Project, 2009). Poor provision of tracheostomy care has been associated with greater financial burden due to increased indirect expenditures. A review of 47 court cases found that the median verdict award relating to poor tracheostomy care was $2,000,000, and nurses were the second most common defendants (Farida et al., 2016). These findings give a glimpse of the financial implications of the provision of poor tracheostomy care. Improving nurses' skills, knowledge, and competence in the delivery of tracheostomy care has the potential to prevent complications, reduce the mortality rate, and decrease both directly and indirectly related financial expenditures.

Purpose Statement

The purpose of the evidence-based project was to develop an educational program to address a gap in practice by providing tracheostomy care education for nursing staff working on the medical-surgical floor of a suburban hospital. The gap in practice involves the provision of care that is not based on the best available evidence. The focus of the multimodal educational program is on improving nurses' knowledge, skills, and confidence in the provision of tracheostomy care while emphasizing the use of evidence-based guidelines. Nurses must have adequate knowledge, skills, and confidence to provide tracheostomy care effectively (Maraş et al., 2017). Therefore, the educational program focuses on enabling nurses to deliver effective tracheostomy care by improving knowledge and skills. This project may be beneficial to patients and health care providers through reduced financial burden and decreased morbidity and mortality rates.

Project Question

The project question was the following: Does the content of an evidence-based educational program developed to improve nurses' knowledge and confidence in managing adult patients with tracheostomy on a medical-surgical floor meet the expectations of a panel of content experts? The population (P), intervention (I), comparison (C), and outcome (O) format was used to develop the project question. The population includes nurses providing tracheotomy care, the intervention is the educational program, and the outcome measures include knowledge, skills, and confidence.

Nature of the Doctoral Project

The first source of evidence for this project was a literature review. The need for this project was confirmed at the national level by various studies evaluating nurses' knowledge, skills, and confidence in tracheostomy care (Dorton et al., 2014; Paul, 2010; Yelverton et al., 2015). As a result, I aimed at developing an educational intervention on the topic of tracheostomy care on the medical-surgical floor of this suburban hospital.

The educational program focused on the principles of tracheostomy care, with the inclusion of the provision of education to patients prior to discharge. The program was developed in a multimodal format so as to address the various aspects of tracheostomy care. The program has various elements, including didactic and simulation-based formats. Didactic methods including PowerPoint presentations were developed to present the educational material. The module will be used to provide evidence-based education on tracheostomy care, prevention of complications, and provision of patient education.

Educational videos will also be used to demonstrate best practices in suctioning the airway to remove secretions, cleaning around the tracheal opening, and changing the tracheostomy ties. Videos demonstrating best practices in tracheostomy care will be uploaded on the website of the hospital so that the content can be available to nurses anytime.

Another element of the educational program will be simulation-based training (SBT). The SBT component will address how to take care of the skin surrounding the tracheostomy and how to suction the tube. The component will also be used to address communication skills required in tracheostomy care. The scenarios in the SBT will depict a real-life context that could be encountered at the practicum site. The learning objectives will be stated at the beginning of each component of the educational program (Appendix A).

The educational program addresses all aspects of tracheostomy care provided by nurses, including the provision of self-management education to patients. The latest guidelines for the provision of care to adults with a tracheostomy will be used. The guidelines describe the best processes for tracheostomy procedures, including frequency of suctioning, aseptic techniques, choice of catheters, humidification, stoma care, and other aspects of patient care (Mitchell et al., 2013).

The second source of evidence for the development of this project was input from a team of five local nursing experts in tracheostomy care. The experts were contacted through e-mails and phone calls and were asked to review the content of the program.

The feedback received was used to improve the content and relevance of the educational program.

Significance

Stakeholders are all those individuals who might be affected in one way or another by the outcomes of a project (Zaccagnini & White, 2011). There are both direct and ancillary stakeholders for this project. The direct stakeholders include the nurses providing tracheostomy care, myself as the Doctor of Nursing Practice (DNP) candidate (project leader), the unit nurse educator, the unit manager, the clinical nurse leader, and hospital administrators. Ancillary stakeholders include the Nursing Practice Council (NPC), the Unit Shared Governance Council members (SGCM), health insurers, respiratory therapists, evidence-based committee members, outpatient clinic nurses, and members of the community who may benefit from improved safety and quality of care provided to patients living with a tracheostomy.

The evidence-based project has the potential to make a significant contribution to nursing. The focus of the project is bridging the gap between research evidence and practice by enhancing nurses' knowledge and skills while promoting adherence to the best available evidence-based practice for tracheostomy care. It is my hope as the project leader that no tracheostomy patient will leave the hospital having received suboptimal care provided by a nurse following the implementation of the intervention. There is firm evidence demonstrating that tracheostomy care can be improved through educational interventions focusing on knowledge and implementation of evidence-based practices (Paul, 2010; Pritchett et al., 2016; Yelverton et al., 2015).

The design for the current project provides opportunities for transferability of the intervention to other health care centers serving a similar patient population. This evidence-based educational intervention could be repeated in various health care settings to promote practice change in the provision of care to patients living with a tracheostomy. Additionally, a similar project could be developed to evaluate the effectiveness of the program in promoting acquisition and maintenance of new knowledge and skills. Replication of the project in similar settings will give more patients an opportunity to receive safe and effective care relating to tracheostomy.

The project has the potential to promote positive social change. Nurses are charged with the responsibility of providing safe and effective care to tracheostomy patients. However, in order to provide effective and safe care, nurses must be provided with knowledge and skills base so that they are able to perform the various tracheostomy management procedures (Casserly et al., 2007). Therefore, the educational intervention has the potential to impact the professional lives of the nurses working at the hospital by improving their knowledge and keeping them abreast of best practices in tracheostomy care. There is also a likelihood of improved nurse satisfaction and retention following the implementation of the project. According to Stones, Hughes, and Daily (2008), nurses are more motivated and satisfied when they work in a culture that values and promotes the safety of the patient. When nurses are satisfied with the work they perform (i.e., evidence-based tracheostomy care), they are more confident in the care they provide and therefore have more positive work relationships.

Potential implications of this project for positive social change in the lives of patients living with a tracheostomy are huge. Having patients return to their families and communities without tracheostomy complications while having adequate self-management education will be the biggest positive impact of the project. This project may contribute to the prevention of disability and injuries attributed to poor tracheostomy care. Consequently, it may promote improved quality of life, reduced hospital readmissions, decreased costs associated with medical errors, and a decline in mortality rates related to the provision of care not based on EBP.

Summary

Section 1 provided a discussion of the practice problem relating to the poor provision of care to patients with a tracheostomy and described the overall nature of the DNP project. The gap in practice is that nurses are not following the recommended guidelines for the provision of care to patients living with a tracheostomy. The purpose of this project was to develop an educational intervention to address nurses' knowledge and skill deficits in a medical-surgical unit at a suburban hospital. The clinical question guiding this project was the following: Does an educational program based on evidence-based practice improve nurses' knowledge and confidence in managing adult patients with tracheostomy in a medical-surgical unit? The next section provides an overview of the present evidence in the literature supporting the development of the educational module.

Section 2: Background and Context

Introduction

The practice problem is that staff nurses working at the practicum site have demonstrated inadequate knowledge, skills, and confidence in the provision of care to patients with tracheostomies as observed during yearly competencies. Additionally, the nurses are not providing care based on the recommended evidence-based guidelines. The purpose of the evidence-based project is to develop an educational program to address the gap in practice by providing tracheostomy care education for the nursing staff working on the medical-surgical floor in a suburb hospital. Section 2 presents a discussion of the theoretical models that will guide the development of the educational program. The section also discusses the relevance of the project to nursing, the role of the DNP candidate and concludes with a summary.

Concepts, Models, and Theories

The day-to-day practice of the nursing profession is grounded and guided by the various constructs and concepts found in a broad range of multidisciplinary theories. The use of a theory offers structure and promotes nursing as a profession (Melnyk, & Fineout-Overholt, 2011). The self-efficacy and the social learning theories of Bandura were chosen to provide the theoretical guidance for this study. The theories were selected due to their focus on observing and modeling behaviors and reactions of individuals. A basic tenet of the self-efficacy theory is that people with a high level of self-efficacy have a higher likelihood of performing a particular behavior in which they perceive themselves to be competent in comparison to those with a lower level of self-efficacy (Bandura,

1997). Applying this argument to the current project, it can be argued that nurses with a high level of self-efficacy are likely to provide tracheostomy care based on the best available evidence.

Self-efficacy is described as the beliefs of individuals in their abilities to produce desired levels of performance that exercises influence on events that impact on their lives (Bandura, 1997). A high level of self-efficacy enhances individual accomplishments and wellbeing in various ways. Individuals with a high level of self-assurance in their capabilities are likely to approach a difficult task as a challenge to be learned instead of a personal threat to be avoided. They set challenging goals to be achieved and maintain their commitment even when faced with failure. They attribute failure to lack of skills and knowledge, and endeavor to acquire them. On the contrary, individuals who doubt their capabilities are likely to shy away from difficult tasks that they view as threats. When they encounter difficult tasks, they tend to dwell on their deficiencies (Bandura, 1997). By increasing the nurses' knowledge and skills, the DNP candidate hopes that the nurses will feel confident and motivated to provide care based on the best available evidence.

According to Bandura (1994), self-efficacy can be derived from four main sources; physiological state, performance accomplishments, vicarious experiences, and verbal persuasion. The aim of this project is to improve the knowledge and efficacy of nurses providing care to tracheostomized patients. This self-efficacy will be accomplished through verbal persuasion, performance appraisal, emotional arousal, and integration of new practice into the culture of the organization.

On the other hand, the Bandura's (1977) social learning theory maintained that people learn and change their behavior through human interaction, dialogue, observation, and direct experiences. Contact with the environment provides the apprentice with stimuli and influences that impact the learning process. People learn through their senses and their behavior is affected by personal factors and changes in the environment (Bandura, 1994). A multimodal educational program will be developed to enable the nurses to learn through observation (videos), imitation, and modeling (demonstrations). A major principle that correlates to the proposed EBP project is that people are likely to be receptive to the demonstrated behavior that leads to outcomes that are valued by them (Bandura, 1977). Nurses on the medical-surgical floor in this local suburban hospital have a professional responsibility to offer safe and quality-assured care to tracheostomized patients, and it is expected that they will be receptive to the concept of EBP.

Relevance to Practice Nursing Practice

A search for existing literature was carried out through PubMed, CINAHL, Google Scholar, and Cochrane database. The keywords used in the search process included: education, interventions, nurse, evidence-based practice, tracheostomy, care, patient, clinical practice guidelines, and effectiveness. Boolean operators (OR, AND) and truncation literature search techniques were used to broaden or narrow down the search outcomes. The literature search was limited to studies available in the English language. All study designs including systematic reviews, meta-analyses, randomized controlled trials, descriptive quantitative studies, and quasi-experimental design focusing on the

provision of care to tracheostomized adults were eligible. Exclusion criteria included studies not available in English language, those involving children, and those not focusing on the provision of tracheostomy care.

Existing Scholarship and Current State of Practice

Tracheostomy is one of the oldest and most frequently carried out operational procedure among critically ill patients, with records of its performance dating as old as the ancient Egyptian times (Sittig & Pringnitz,2001). The modern practice is based on Toye and Weinstein's (1967) technique of introducing a cannula into the tracheal lumen (Szmuk et al., 2008). The technique has been refined further to reflect the current tracheostomy techniques. The modern day tracheostomy involves creating a stoma or an opening to allow ventilation. The opening is commonly maintained by inserting a tracheostomy tube and is an increasingly performed procedure among adults in ICUs for reasons such as upper airway obstruction and prolonged endotracheal intubation. Tracheostomy involving adults can be carried out at the bedside in the ICU or in an operating room (Dorton, Lintzenich, & Evans, 2014).

There is substantial evidence that a multidisciplinary approach and the use of standard tracheostomy care guidelines results in a reduction of the morbidity and mortality associated with poor tracheostomy care (Yelverton et al., 2015). Likewise, management of the tracheostomized patient based on the best evidence both in the inpatient and outpatient setting has a substantial impact on the quality of life. This management requires provision of education to the patient as well as the family members,

knowledge on the various types of tubes and their functioning, monitoring the changes in the tube, and regular troubleshooting (Mitchell et al., 2013).

Though the tracheostomy procedure is commonly carried out by the surgical teams, preoperative and postoperative care is generally provided by nurses or primary care providers in various hospital units. The care includes weaning the patient, deciding when the patient may benefit from a different tracheostomy tube, determining when the patient should have the tube removed, cleaning the tracheostomy, and evaluating tracheostomy-related complications (Mitchell et al., 2013). In addition, a nurse is responsible for the day-to-day provision of care to patients with tracheostomies.

Unfortunately, most of the nurses and other non-surgeon care providers have limited knowledge on the best practices for the provision of tracheostomy care (Paul, 2010; Yelverton et al., 2015). The problem can be attributed to a lack of formal education interventions designed to improve tracheostomy care. The deficiency in knowledge potentially creates practitioners who have limited ability to take care of tracheostomized patients effectively. A survey carried out by Casserly, Lang, Fenton, and Walsh (2007) found that health care providers, including nurses, had inadequate knowledge about tracheostomy care.

Likewise, prospective studies by Dorton, Lintzenich, and Evans (2014) and Pritchett et al. (2016) reported low confidence and comfort levels in the provision of tracheostomy care. Nurses in the two studies were not comfortable and confident when managing airway obstructions and replacing the different types of tracheostomy tube parts. Another problem that was identified related to lack of consistency in the provision

of care, an issue attributed to lack of knowledge and non-adherence to guideline recommendations. According to Farida et al. (2016), the lack of knowledge of the best practice can lead to nursing staff making individual decisions regarding tracheostomy care resulting in detrimental complications. Preventing the complications requires adequate knowledge, skills, and competence (Dorton, Lintzenich, & Evans, 2014), suggesting a strong need for the development and implementation of an evidence-based educational intervention for nurses providing tracheostomy care.

On the other hand, Clec'h et al. (2007) and Martinez et al. (2009) have shown that having a tracheostomy tube at the time of discharge from the ICU is a predictor of early mortality. The two studies concluded that suboptimal care and provision of education to patients could be the main reasons for the increased risk of mortality. Another issue that has been identified in the existing literature is the evident variations in care and management of tracheostomized patients between and within health care centers (Mitchell et al., 2013; Nance-Floyd, 2011). For instance, some hospitals still instill normal saline to loosen tracheal secretions despite the presence of evidence showing that this is a risky procedure (Nance-Floyd, 2011). The deficiency in knowledge and variation in practice have been observed on the medical surgical floor in this community hospital, and there is a need for effective interventions to address the problem.

Development of an educational intervention is one of the cost-effective evidence-based approaches that have been used to address the identified practice problem. Various primary research studies have established the effectiveness of developing a dedicated tracheostomy care educational program in improving tracheostomy practice (Cetto et al.,

2011, Pandian et al., 2014, Sodhi et al., 2014, Yelverton et al., 2015). A quasi-experimental study by Sodhi et al found that an educational program targeting nurses was effective in decreasing complications and readmission rates to patients with a tracheostomy. Likewise, randomized controlled trials (RCTs) by Cetto et al. (2011) and Pandian et al. (2014) found that standardized care protocols to guide tracheostomy care were useful in predicting both successful and unsuccessful decannulation. The standardized protocols also led to improvements in communication, reduced variations in practice, and enhanced patient safety.

The Yelverton et al. (2015) quasi-experimental study focused on provider-related outcomes. The researchers found that a multimodal educational program on general tracheostomy care principles was effective in improving provider knowledge, skills, and level of confidence in tracheostomy care. Therefore, the educational program is likely to advance nursing practice by addressing variations in practice, improving adherence to guideline use, and improving nurses' knowledge and skills in tracheostomy care.

Morris, Whitmer, and McIntosh (2013) placed indications for tracheostomy tubes into four major categories; airway obstruction, ventilation, secretions, and airway protection. Patients with paralyzed vocal cords, those with abnormal airway anatomy, or those with tumors within the airway form the first category. The second category was for patients requiring long-term mechanical ventilation due to chronic respiratory failure or those who cannot sustain respiratory functions without assistance. Studies have been carried out to establish the optimal interval from orotracheal intubation, but no firm conclusion has been made due to mixed findings related to different populations of

patients (Hsu et al., 2005; Masoudifar, Aghadavoudi, & Nasrollahi, 2012). The third category involved patients who are unable to manage secretions thus requiring a tracheostomy. The fourth category was composed of patients with an inefficient cough or swallowing mechanism and those who are unable to protect their airway (Morris, Whitmer, & McIntosh, 2013).

Immediate postoperative priority of care is ensuring that the tracheostomy tube is securely in place (Mitchell et al., 2013). Routine care and timely management of postoperative complications can be enabled by making sure that there are proper equipment and supplies readily available. The consensus statement by the American Academy of Otolaryngology Head formed the basis for the content of the educational program relating to postoperative care (Mitchell et al., 2013). The guidelines were developed by a multidisciplinary panel of experts in the provision of care to patients with tracheostomies. The panel members reached consensus on 77 statements addressing changes in tracheostomy tube, communication devices, and specific needs of patients or care providers, management of complications, and requirements for decannulation. The guidelines have been selected owing to a shortage of RCTs addressing postoperative care, possibly due to challenges in study design or potential ethical concerns.

The educational program will also be used to address the role of nurses in the provision of education to patients. Patients and their family members or caregivers should be taught how to perform basic tracheostomy care (Morris, Whitmer, & McIntosh, 2013). They should know the importance of changing the tubes, cleansing the opening, and cleaning or replacing the cannula or tracheostomy holder ties. The consensus statements

by the American Academy of Otolaryngology Head recommend that patients and their caregivers should learn and practice cleaning the tracheostomy before discharge (Mitchell et al., 2013). They should also be given a checklist of supplies that the patient should have at any given time. In addition, they should know how to respond in case of an emergency. The evidence will solve the problem of practice variation and provision of care based on individual preferences and traditions rather than best available research evidence. There is firm evidence that a standardized approach to tracheostomy care leads to improved patient safety and a reduction in complications and mortality rates (Mitchell et al., 2013).

Local Background and Context

Zaccagnini and White (2011) assert that a needs assessment is carried out to identify the gap between the current and the ideal situation, and involves a consideration of clinical requirements. This project focused on a clearly unmet need to improve nurses' knowledge, skills, and confidence in providing tracheostomy care. The need for the educational intervention was established through a conversation held with the nursing educator, assistant manager, and manager of the medical-surgical unit. Debates relating to the poor provision of tracheostomy care emerged during an internal meeting for debriefing after the conclusion of yearly competency testing. Concerns were raised that nurses were making tracheostomy care decisions individually without following the recommended practice. It became evident that the problem was due to lack of formal educational programs and lack of knowledge among nurses about the current guideline recommendations for the provision of care to patients living with a tracheostomy.

The educational program is focused on nurses working in a medical and surgical unit within a 54-bed acute care hospital located in Northeastern state of the United States. On average, the daily census of the selected units is between 40 and 50 patients with a total of 24 nurses. There are about 8 to 10 patients with a tracheostomy in any given day and the units accommodate a broad range of surgical patients. The mission of the hospital is to provide patients with care of utmost safety and quality. The objective of the educational program is congruent with the mission of the organization. The objective is to improve knowledge, skills, and competence of the nurses in the provision of evidence-based care to tracheostomized patients, thereby providing a safer environment for patients by reducing morbidity associated with poor tracheostomy care.

The strategic vision is promoting a healthy community by providing comprehensive, continuous, and high quality care to all patients seeking care in the hospital. This project is in line with the vision of the hospital because it promotes adoption of evidence-based guidelines in the provision of tracheostomy care to reduce practice variations and enable nurses to make clinical decisions based on the best available evidence.

Role of the DNP Student

The DNP student has worked as a nurse for the past 10 years, and has chosen the path of tracheostomy care as a prospective holder of the highest degree in nursing. The student intends to take part in providing policy direction in the area of tracheostomy care with an objective of reducing practice variation and encouraging nurses to provide care based on the best available evidence. As the project developer, it is the student's

responsibility to ensure that the project is developed in a systematic manner using the best available evidence. The student is responsible for the development of the educational module to be administered to the nurses working at the local community hospital.

The student's role as the project leader is to empower the nurses working on the medical surgical floor in the suburban hospital in the application of EBP in the management of tracheostomized patients. It is important for the nurses to understand how to utilize research evidence to improve the safety and care provided to patients. The project site has many staff nurses who are making decisions based on individual preferences and anecdotal information rather than on the basis of the best scientific evidence and the needs of the patients. Therefore, the motivation is to empower and enhance nursing practice through education to nurses who are not aware of the EBP in the provision of care to tracheostomized patients. There is no bias that would negatively impact the development of the project. The student's assumption is that nurses working at the suburban hospital are willing to provide the best care to the patients, and will, therefore, support this project to improve their knowledge and skills in tracheostomy care.

Role of the Project Team

An interdisciplinary team of professionals from within and outside the health care organization was selected to act as mentors for the development of this project. Potential benefits of involving stakeholders from both within and outside the health care organization include gaining support, sparking interest, and identifying dedicated champions to spearhead the project through the development and implementation phases

(Powell & Vagias, 2010). Each member of the team brought their knowledge and expertise in the development of the educational program in an attempt to address the practice problem at the project site.

The members of the project team included; educators, respiratory therapist, nurse manager, and staff nurses who provide tracheostomy care. The role of the project leader was to create the required materials for the educational program. On the other hand, the program director acted as the leader of the team and a reviewer of the content of the program. The nursing officer stated her expectations of the program and will be responsible for disseminating data about the outcomes of the educational program on tracheostomy care. Five local nursing experts were responsible for reviewing the educational module by completing a five point Likert scale questionnaire containing seven questions focusing on the content and the relevance of the educational program (Appendix B). The practice nurses were invited to take part in the curriculum development and review process. The nurses were required to express their expectations of the program and state what they would like to learn to meet their needs at the practicum site.

The interdisciplinary project team members were introduced to the existing evidence during the first meeting. The project leader consolidated and summarized the evidence in a power point format which will be presented during the meeting. Each member of the team received a copy of program to review the content of the educational module and provide feedback. Bandura's social learning theory was discussed with the

project team. The theory provided the conceptual framework for the development of this educational program.

Summary

Section 2 presented a discussion of the theoretical models used to guide the development of the educational module. The gap in practice is the provision of care that is not based on the best available evidence. The planning and development of the educational program was guided by the social learning and self-efficacy theories of Bandura. The section also evaluated the relevance of the proposed project to nursing practice and the role of the DNP student and project team in the development of the project. The educational program was developed at a medical-surgical/cardiac unit in a community hospital in Maryland. It is expected that the educational program for the nurses will lead to the adoption of EBP care, improved care delivery resulting in improved patient outcomes, and reduced in hospital-related healthcare costs. The next section presents the practice-focused questions and an analysis and synthesis of the existing evidence to support the proposed project.

Section 3: Collection and Analysis of Evidence

Introduction

The practice problem is that staff nurses have demonstrated inadequate knowledge, skills, and confidence in the provision of care to patients living with a tracheostomy as observed during yearly competencies testing. The purpose of this evidence-based project was to develop an educational program to address the gap in practice by providing tracheostomy care education for the nursing staff working on the medical-surgical floor of a suburban hospital. There is evidence that educational programs are effective in reducing variation in practice and improving practitioners' skills, knowledge, and confidence in the management of adults with a tracheostomy. The program developed for this project may promote positive social change through the delivery of high-quality, safe care to tracheostomized patients. The contents of this section have been organized around various subsections focusing on introductory material, the practice-focused question, sources of evidence, the project design, and protection of human subjects. Section 3 concludes with a brief summary.

Practice-Focused Question

The practice problem is that staff nurses have demonstrated inadequate knowledge, skills, and confidence in the provision of care to patients living with a tracheostomy as observed during yearly competency evaluations. The gap in practice is that nurses are not following the recommended guidelines for management of tracheostomy. There is also variation in practice, in that each nurse is making decisions relating to tracheostomy care individually without taking best-practice guidelines into

consideration. Nurses providing care to patients with a tracheostomy must have adequate knowledge to do so effectively (Casserly et al., 2007). However, at the medical-surgical site, there are no formal education programs offered to nurses regarding tracheostomy care. Resulting deficiencies in knowledge and skills lower the health care providers' levels of confidence, consequently reducing their ability to effectively care for adults with tracheostomies.

Therefore, the primary purpose of this project was to plan and develop a comprehensive educational program with an objective of teaching the nurses about evidence-based practices in tracheostomy care. The practice-focused question for this project was the following: Does the content of an evidence-based educational program developed to improve nurses' knowledge and confidence in managing adult patients with tracheostomy on a medical-surgical floor meet the expectations of a panel of content experts? It is expected that the educational program will improve the knowledge, skills, and confidence of the nurses, leading to an improved ability to provide safe, high-quality care to people with tracheostomies.

Operational Definitions

Tracheostomy: An opening that is made in the front of the neck so that a tube can be put into the trachea to assist a person in breathing (Morris et al., 2013).

Tracheostomy care: Suctioning the airway to remove secretions, changing tracheostomy ties, and cleaning around the stoma (Dorton et al., 2014).

Evidence-based practice: The integration of clinical expertise, best research evidence, and patient values and needs to make decisions relating to the provision of care to the patient (Sackett, 1997).

Registered nurse: A person who has received specialized nursing education and possesses a valid license from a state authority to take care of patients with various health conditions.

Sources of Evidence

The first source of evidence used to address the practice problem was the literature review. The need for this project was confirmed at the local and national levels by various studies evaluating the provision of care to people with a tracheostomy (Dorton et al., 2014; Paul, 2010; Yelverton et al., 2015). Existing evidence indicated that adopting a standardized multidisciplinary approach to tracheostomy care leads to reduction in morbidity and mortality rates associated with poor tracheostomy care. Evidence-based guidelines developed by the AAO-HNS guided the development of the educational program. AAO-HNS is the world's largest professional association representing specialists caring for the nose, ear, throat, and related structures of the head and neck (AAO-HNS, 2017). The guidelines were developed by a multidisciplinary panel of experts on the provision of care to patients with tracheostomies, as discussed in detail in the previous section.

Another source of evidence for the development of the educational module was input from local experts. Local experts in tracheostomy care were contacted through e-mails followed by phone calls. Their role was reviewing the content of the educational

program developed based on the literature review to determine its applicability to the practice problem. The panel consisted of five experts in tracheostomy care with high-level credentials such as advanced practice registered nurse. Their feedback was used to improve the content of the educational program.

I met with the panel members, who assisted in critically reviewing and assessing the specific concepts and content of the educational module based on the best available evidence on tracheostomy care. The purpose of the content validation process was to determine whether the contents contained in the educational program were relevant to the identified practice problem (Polit & Beck, 2006). According to Polit and Beck (2006), content validation mandates exceptional experts, good items, clear instructions, and strong conceptual work. The contents of the program were endorsed by a team of five local nurses with high-level credentials such as master's preparation or advanced practice nurse certification.

The focus of the meeting was on various features of the educational program, including its purpose and relevance to EBP, as well as the potential effects of the program on nurses' skills, knowledge, and patient outcomes. It was imperative that the content of the educational program was relevant to the practice problem and the needs of the nurses. I used the feedback received from the five local experts to improve the content of the educational program.

Protection of Human Subjects

I sought Institutional Review Board (IRB) approval prior to the development and endorsement of the educational program. The IRB review and approval process ensured

that all ethical principles guiding research were taken into consideration. The IRB approval number (02-09-18-0428527). No local expert was coerced to take part in the content validation process, and panel participants were informed that they had the right to withdraw at any time.

Analysis and Synthesis

Implementation Plan

The purpose of the evidence-based project was to develop an educational program to address the gap in practice by providing tracheostomy care education for the nursing staff working on the medical-surgical floor of a suburban hospital. Various deliverables needed to be developed so that the program could be ready for implementation. The deliverables included PowerPoint presentations, educational videos, and booklets on evidence-based tracheostomy care. The content of the educational material was supported with the best available scientific evidence and was modified based on the feedback received from the content reviewers.

Pretest questionnaires will be administered prior to the implementation of the program. The pretest will give baseline information relating to the knowledge, skills, and confidence of the nurses taking care of tracheostomized patients (Appendices C & D). Afterward, weekly classes will be held to cover the content of the module for nurses working in various shifts. The presentations will address procedures relating to tracheostomy care, and the educators will emphasize the importance of EBP.

I will make use of PowerPoint presentations, simulation, demonstrations, and videos of best practices in tracheostomy care to facilitate learning. The schedule for the

program will be designed to allow the nurses to learn, discuss, demonstrate, return demonstrate, and exercise newly acquired knowledge and skills relating to tracheostomy care. It is important to highlight that the implementation plan is provisional and might change as the program unfolds. Nonetheless, it will offer a starting point for the educators responsible for implementation of this program. I will not be responsible for the delivery of classes; this will be the responsibility of the clinical educators at the project site.

Evaluation Plan

Evaluating the effects of a practice change is an essential yet an often overlooked step in the process of EBP (Hodges & Videto, 2011). The outcomes of the educational program will be indicative of its impact on the health care facility. Melnyk and Fineout-Overholt (2011) recommended measuring outcomes to establish the contribution of an evidence-based project. The content review of the program is part of the evaluation plan. This aspect of the evaluation plan will be based on the reports of the five local nursing experts who will be responsible for reviewing the content of the program. Feedback provided by the reviewers will be analyzed and used to improve and modify the content of the program. Another preferred evaluation approach for the program is the administration of a pretest and a posttest. The pretest will allow the educators to establish participants' baseline knowledge and confidence as well as determine changes at the end of the workshop. Comparing baseline and the post implementation scores should enable the project team to determine the effectiveness of the program. I will not be responsible for execution of this aspect of project evaluation.

Summary

In this section discussed the project question and presented an analysis of the sources of the evidence obtained to support the proposed project. Existing evidence indicates that nurses' knowledge gap hinders their ability to translate research evidence at the bedside when caring for tracheostomy patients. Insufficient knowledge has created a gap in nursing practice because nurses do not have the skills and knowledge necessary to deliver efficient and cost-effective care to tracheostomy patients. The above problem can be addressed through the development of an educational program to improve nurses' knowledge and skills in providing care to tracheostomy patients based on the best available evidence. In the next section, I discuss the results and the implications of the educational program for nursing practice and future research.

Section 4: Findings, Discussions, and Implications

Introduction

The purpose of this evidence-based project was to develop an educational program to address a gap in practice by providing tracheostomy care education for the nursing staff working on the medical-surgical floor of a suburban hospital. The gap in practice involves the provision of care that is not based on the best available evidence. The practice focused question was the following: Does the content of an evidence-based educational program developed to improve nurses' knowledge and confidence in managing adult patients with tracheostomy on a medical-surgical floor meet the expectations of a panel of content experts? The multifaceted educational program was designed through the use of resources available on the Internet or at the project site. The content of the educational program was reviewed by a team of five local nursing experts as described in the previous section. The purpose of this section is to discuss findings and the implications following the review of the program by the five local nursing experts.

Findings

Upon receiving official approval from the university's Institutional Review Board (IRB), I commenced the process of developing the educational intervention. Five local nursing experts working with the institution were approached and asked for their voluntary professional participation in reviewing the content of the educational program. During the meetings, the staff educational manual, approved proposal, and objectives of the educational program were discussed. The meeting focused on various aspects of content, time, and overall contribution of the project to tracheostomy care provided by

the nurses at this medical-surgical unit. The local nursing experts agreed that the educational program was likely to meet the needs of the practice nurses regarding the provision of care to adult patients with tracheostomy. The content of the program was termed as appropriate, given that I had consulted various guideline recommendations on the management of patients with a tracheostomy. The reviewers also made some suggestions on how the content of the program could be further tailored to meet the needs of the nurses.

With regard to the process aspects, the five local nursing experts discussed the use of Bandura's social learning theory to guide the future execution of the program. I discussed the relevance of Bandura's theory and its appropriateness for the project. The reviewers agreed that Bandura's theory provided exemplary guidance and would make future execution of the program possible. The incorporation of the self-efficacy concept made the educational intervention theoretically sound. Another aspect of the educational program that was discussed during the meeting was time constraints. The reviewers agreed that the practice nurses could effectively receive the content of the educational intervention on tracheostomy care within the time constraints of the project.

Lastly, the meeting included a discussion of the relevance of the educational program and its possible impact on the practice of nurses providing care to patients with tracheostomy. The project team agreed that the implementation of the educational program will have the potential to promote positive practice change at the practicum site, in that it emphasized the provision of tracheostomy care supported by the best available evidence and consistent with the clinical experience of the nurses and the needs of the

patients. The reviewers also made suggestions on how the program could be made more relevant to the needs of the organization; I noted their feedback on a piece of paper. I later revised the program and took it back to the reviewers during our third meeting, and they all agreed that the content of the program was relevant and appropriate.

Content Review

The evaluation of the program was carried out using a 5-point Likert scale response format: 1 = *strongly disagree*, 2 = *disagree*, 3 = *uncertain*, 4 = *agree*, and 5 = *strongly agree* (Appendix A). The majority of the feedback from the members of the project team was positive. They appreciated the fact that I had organized the program well, using an easy-to-follow format. They valued the fact that I was knowledgeable about the topic and the inclusion of evidence-based guidance in the tracheostomy education manual.

All of the content reviewers strongly agreed with the first five questions (Table 1). Three of them were okay with the content of the program and did not make recommendations for improving the project. However, the other two reviewers requested some changes in wording and asked for more time for the simulation aspect of the deliverables. Their rationale in making this request was that it was necessary to give the nurses adequate practice time for the simulation. Their comments were reviewed and later incorporated into the program.

Table 1

Content Validation Process

Question	Likert-scale response "5" (Validators $N = 5$)	Mean
Was the content of the educational program organized and easy to follow?	100%	5
Was the educational program based on the best available evidence?	100%	5
Does the educational intervention meet the stated goals?	100%	5
Was participation encouraged?	100%	5
Would you consider the meetings productive?	100%	5

Educational Program

The educational program focuses on the principles of tracheostomy care. The educational program will be delivered through video modules, PowerPoint presentations, simulation-based training, group discussions, and case scenarios. The contents of the educational program were discussed with I, and it was agreed that the entire project will take around a month to complete. Weekly meetings will be held, and participation will be mandatory, given that this will be a quality improvement project.

The educational intervention will be delivered on a weekly basis, and the first week will focus on understanding tracheostomy and identifying the indications for tracheostomy. The second week will focus on proper procedures for suctioning. Existing guidelines require suctioning to be done when the patient is unable to clear the airway, and a complete assessment should be carried out to determine the need for suctioning (Mitchell et al., 2013). The third week will focus on humidifying secretions, hydrating the patient, and providing postoperative care. The last week will focus on the provision of education to nurses on practices such as changing tracheostomy tubes, cleaning the inner cannula, suctioning, and cleansing the stoma, among other aspects of tracheostomy care (Appendix B).

Implications

A critical review of the content of the educational program by the project team showed that the educational program is foundationally strong and has the potential to promote positive practice change at the practicum site. This is because the educational program was designed based on the best available evidence and was strengthened by the use of an appropriate theory to provide the conceptual framework. The program format is also adaptable to varying didactic content, and this makes it applicable to other settings with similar practice problems. Within this project, best available evidence on tracheostomy care by nurses will be translated into clinical practice to promote practice change in the medical-surgical unit. Translation of credible research evidence into practice is one of the core bases of the DNP program (American Association of Colleges of Nursing [AACN], 2006).

At the individual level, the project is likely to make a difference in the practice of each nurse providing tracheostomy care at the hospital. Nurses may feel more confident and skilled when providing care to tracheostomized patients, and as a result, the quality of care provided at the facility will improve. Improvements in the quality of care provided to tracheostomized patients will lead to benefits in the community settings. Improved care will lead to reduced disabilities and injuries related to tracheostomy complications. The implication at the system level is the development of policies to promote the use of evidence-based guidelines in the management of tracheostomy care. Healthcare facilities should review their procedures for the provision of care to tracheostomized patients and update them in line with the current guidelines for tracheostomy care. Similar programs can also be developed to educate providers about the most recent evidence for tracheostomy care.

Social Change

The educational intervention can impact the professional lives of the nurses working at the hospital by improving their knowledge and keeping them abreast of the best practice in tracheostomy care. There is also a likelihood of improved nurse satisfaction and retention following the implementation of the project. According to Stones, Hughes, and Daily (2008), nurses are more motivated and satisfied when they work in a culture that values and promotes the safety of the patient.

Potential implications for positive social change in the lives of patients living with a tracheostomy are huge. Having patients return to their families and communities without tracheostomy complications while having adequate self-management education

will be the biggest positive impact of the project. This may contribute to the prevention of disability and injuries attributed to poor tracheostomy care. Consequently, patients may experience improved quality of life, reduced hospital readmissions, decreased costs of medical errors, and a decline in mortality rates related to the provision of care not based on EBP. The project's implications for social change are consistent with the institutional mission of Walden University, which is to transform students into scholar-practitioners so that they can effect positive social change (Walden University, 2017).

Future Research

One of the DNP essentials is that doctorally prepared nurses should be in a position to implement quality improvement programs to bring change at the organizational level. The doctorate-prepared nurse, in this case, has a role to play in translating, implementing, and evaluating the translation of research evidence into clinical practice (AACN, 2006). I am planning to follow up the implementation of this educational program upon graduating to ensure that the identified practice problem is addressed. The implementation process will allow the application of the best available research evidence to solve the practice problem, demonstrating the accomplishment of the third DNP essential, which relates to the translation of research into practice (AACN, 2006).

Recommendations

The purpose of this project was to develop an educational program to address the knowledge and skills deficit of nurses providing tracheostomy care at a medical-surgical unit in a suburban hospital. Future implementation of the program is recommended so as

to address the knowledge gap and reduce practice variations by facilitating the adoption of EBP in tracheostomy care. The implementation will require more than one deliverable to capture all of the nurses in the unit. Deliverables that were handed over to the facility included PowerPoint presentations, educational videos, and booklets on evidence-based tracheostomy care.

The content of the educational materials was supported by the best available scientific evidence and was modified based on the feedback provided by the reviewers. The simulation aspect of the deliverable will be presented in four sections. Simulation Day 1 has three sections; five nurses are scheduled to attend simulation while seven nurses and the clinical nurse leaders (CNLs) and assistant nurse managers (ANMs) cover the unit. Subsequent simulation days will have the same pattern, and by the end of Day 3, all nurses are expected to have completed the simulation. Simulation Day 4 was added to capture nurses who may need more time for hands-on activities in the simulation lab or who are not able to attend Simulation Days 1 through 3.

The evaluation plan is to administer pretest and posttest questionnaires to assess providers' knowledge and attitudes toward the use of evidence-based practices in providing tracheostomy care. There is also a need to make observations and carry out an audit of the nurses' practices in providing care to tracheostomized adults to make sure that their practice is in line with best practices. Pretest questionnaires will give baseline information regarding the knowledge and confidence of nurses concerning evidence-based practices for tracheostomy care. The educational program will also be evaluated

using the Donna Wright model. There will be peer-to-peer evaluation whereby the nurses will observe each other when performing tracheostomy care.

To meet the needs of all nurses working in the medical-surgical unit, there may be two educational sessions each week to cover both day and night shifts. A discussion with the project team highlighted the need for project participation to be compulsory. There were concerns that if some nurses never took part in the project, there would be no significant changes in practice. The planning team members invited the nursing education department, and a final decision was made to incorporate tracheostomy simulation into the mandatory year competency so that nurses could remain abreast of the changes taking place in the field. Long-term goals relating to patient outcomes include reducing complications such as laryngeal injury, improving patient comfort, and reducing length of hospital stay. Data from patient outcomes will be tracked through the use of patient charts.

Contribution of the Doctoral Project Team

An interdisciplinary team of professionals played a crucial role in the development of this project. Each member of the team brought knowledge and expertise in the development of the educational program aimed at addressing the practice problem at the facility. As the project leader, I created the required materials for the educational program while the program director acted as the leader of the project team and together with other team members reviewed the content of this program and offered suggestions on how the content of the program could be improved. The unit nurse manager stated her expectations of the program, which were taken into account when it was developed.

Providers taking care of tracheostomized patients were also invited to take part in curriculum development by sharing their concerns regarding the practice and stating their expectations of the project.

Strengths and Limitations

This capstone project has several strengths and limitations. The first strength is that the educational program will advance nursing practice because nurses providing tracheostomy care at the bedside require up-to-date evidence of the most effective interventions to guide decision making. It is expected that there will be improved provision of tracheostomy care to patients by nurses following their active participation in the development of the educational plan. Active engagement of the practice nurses as well as the development of project champions in the hospital units will facilitate the implementation and eventually the sustainability of the new practice.

A second strength is that the educational program has been conceptualized and developed through the use of theory and research evidence. A comprehensive review of the literature was conducted, and it validated an educational intervention as a suitable way of improving the knowledge and skills of nurses providing care to tracheostomy patients. The use of theory and research evidence shows the ability of the project leader to apply research evidence to solve practice problems leading to improved health outcomes. The second strength is congruent with the third DNP essential as outlined by AACN 2006.

A major limitation of this DNP project is that it is yet to be implemented into a real practice setting and validated through a review of outcomes. Nevertheless, I plan to

follow up the implementation of the project at the practicum site following graduation from Walden University. According to Zaccagnini and White (2017), transition of research evidence into practice is one of the core competencies expected of a doctorate-prepared nurse.

Availability of financial resources to ensure successful implementation of the project could pose a limitation on the implementation of the educational intervention. There is a need for resources such as an advanced nurse practitioner to administer the educational programs, equipment for simulation-based training, and time for the nurses to attend the training programs. A recommendation is to seek top management support to ensure successful funding of the implementation process.

Section 5: Dissemination Plan

Dissemination of scholarly endeavors and outcomes is one of the core professional obligations of a doctorally prepared nurse (Chism, 2016). I plan to share the outcomes of the project with the nurses at the practicum site, the management, and other essential stakeholders following the implementation of the educational program. According to Zaccagnini and White (2017), dissemination of nursing outcomes is done for two major reasons: (a) to share findings with the academic community and key stakeholders and (b) to communicate findings to other nurses in similar practice settings. It is important to share the outcomes of evidence-based projects to improve nursing practice by facilitating the development of new patient treatment protocols or guidelines (Dreher & Glasgow, 2017). Effective dissemination of scholarly nursing findings relies on both written and nonwritten means of communication.

The gold-standard method of disseminating research findings is publication in a peer-reviewed journal (Edwards, 2015). According to Oerman and Hays (2016), a researcher should be able to identify the most appropriate peer-reviewed journal based on the target audience and patient population. I plan to submit my abstract for acceptance to the *Journal for Nurses in Professional Development*. I selected this journal because of the kind of articles that are frequently published within it. Focusing on the provision of an educational intervention to promote professional development for nurses providing tracheostomy care, there is likelihood that the program will be well received by nurse preceptors and change agents in the nursing profession.

I have also selected the journal because of its wide coverage, which will make it possible for the findings of this project to be accessed by other nurses providing tracheostomy care. Edwards (2015) asserted that for the findings of a research project to reach the broadest possible audience, they should be published in a journal. This makes it possible for anyone carrying out a literature search to be able to locate the findings. I feel that improving tracheostomy care is a crucial nursing issue across the globe; thus, there is a need to improve access to evidence-based solutions for low quality tracheostomy care.

The second approach to disseminating DNP scholarly findings is to use oral podium presentations. The outcomes of the project will be shared with nurses and other stakeholders during an internal meeting. A major advantage of oral podium presentations is that they allow the speaker to involve the audience in sharing opinions and experiences (Edwards, 2015). Oral presentations would allow the project team to share with stakeholders about their experiences and challenges encountered in the implementation process. I would also like to collaborate with other healthcare providers so as to close the gap between research evidence and tracheostomy practice.

Analysis of Self

The DNP program provided me with an opportunity to focus on various health care outcomes from a unique point of view. Nursing is viewed as a profession of transformational leaders, care providers, and patient educators (Joseph & Huber, 2015; Swihart, 2009). I have grown as a nursing scholar, leader, and practitioner. During my DNP course at Walden, I came to fully comprehend the various roles of nursing leaders and the diverse skills they need to be successful. As a result, I have a better understanding

of the role of doctorally prepared nurses in promoting practice change than I had when I enrolled in this program. In this section, I present an analysis of myself in relation to my roles as a scholar, project developer, and nurse practitioner while drawing a connection between the project experience and my long-term professional goals.

As a Scholar

Scholarly growth is essential to continued professional development for a nurse. Doctorate-prepared nurses are expected to demonstrate an increase in knowledge as it relates to closing the gap between research evidence and practice (Chism, 2016). A study by Al-Hussami (2009) found that nurses who took part in continuing learning had higher levels of professional commitment compared to those who did not take part in continuing education. The process of continuous education has enhanced my understanding of research processes, concepts of quality improvement programs, leadership roles, and health care management. The DNP project afforded me an opportunity to understand and apply various theories, including Bandura's social learning theory, to provide a framework for practice change. The project also required an analysis of existing research to support the evidence-based nursing project.

My DNP journey has been challenging at times; I have needed to keep pushing myself to keep moving, but reaching my ultimate goal has been worth it. My writing skills improved significantly in completing the write-up for this scholarly project. I also gained competency in prioritizing secondary data. There is a huge amount of data available on the Internet from various sources including newspapers, magazines, journal articles, websites, and books, and my current experience has taught me that one has to

prioritize these sources of information because it is not practically possible to analyze all of them. Another contribution of this project was the formation of a critical mindset as a scholar. I have been able to identify strengths and limitations of this project. I certainly acknowledge that my DNP journey has contributed to my scholarly growth by raising my level of competence and self-confidence as a scholar.

As Project Developer

The process of designing and refining the educational program provided me with insights on project development in a healthcare organization. I learned about some of the formalities that are there when one is developing a training program for nursing staff. I also developed relationships with top management and the five local nursing experts, most of whom I did not work with on a daily basis. Interactions with these stakeholders provided me with an opportunity to hone my communication and presentation skills as I endeavored to convince them of the need for this project. Project leadership calls for clear and effective communication regarding aims, responsibility, performance, and expected outcomes. According to the Project Management Institute (2013) report, one in every five projects fails because of ineffective communication. Therefore, a project manager has to maximize the effectiveness of his or her communication skills to be successful.

Holding meetings with the five local nursing experts and the nursing leaders was an amazing experience. It gave me a chance to witness firsthand the impact of stakeholders on a project. I learned about the importance of meeting the expectations of stakeholders. Their positive criticism and ideas guided most of the decisions I made. For

instance, they helped me in identifying and clarifying my focus on the role of nurses in providing care to tracheostomized adult patients.

As a Practitioner

Utilization of the best available evidence to solve practice problems in increasingly complex situations is the hallmark of scholarly nursing practice (White & Dudley-Brown, 2012). Even though I was familiar with the concept of EBP before enrolling in the DNP degree program at Walden University, the program laid emphasis on the importance of providing care supported by the best available scientific evidence and care that is consistent with the needs of patients and professional competence of the nurse. I am able to seek the best available evidence and apply it in my practice. My critical analysis skills as a practitioner have improved due to the emphasis of EBP on the provision of treatment that works. For instance, I have been able to convince some nurses to abandon the practice of instilling normal saline bullet into the ostomy to break mucus because it has been found to be unsafe.

I have developed skills and proficiency throughout the DNP program and practicum experience that will assist me in functioning as a nurse leader. The DNP program is designed to prepare graduates to provide leadership for EBP (AACN, 2006). Through the development of the educational program, I have become a versatile nurse practitioner, equipped with essential knowledge to obtain, analyze, and apply evidence-based data to bring positive practice change and improve patient outcomes. As a result, I have achieved self-improvement, and my confidence as a doctorally prepared nurse has

significantly increased. I feel that my DNP journey has adequately prepared me for my future roles as an advocate for EBP at my workplace and other health care organizations.

Tracheostomy Care and Future Professional Development

There is a huge amount of work that needs to be done in the area of tracheostomy care at my practicum site and other health care organizations. Currently, nurses at my workplace are not obliged to take formal training on tracheostomy care, and as a result, care is commonly provided based on anecdotal knowledge that nurses received during nursing school or from preceptors when they were initially hired. There is a substantial number of patients who experience catastrophic events and mortality due to the provision of poor tracheostomy care (Des et al., 2012). I am convinced that the implementation of the educational program at the practicum site will have a positive effect on the wellbeing of tracheostomized patients by facilitating the provision of EBP care. The knowledge acquired through this DNP journey will be useful in my future endeavors as an advocate for EBP at the bedside. I intend to continue actively taking part in quality improvement initiatives at my workplace in an attempt to improve practice and patient outcomes.

Summary

Though the project will not be executed during my DNP course, the process of designing and developing the educational program gave me scholarly knowledge and skills to promote practice change by implementing evidence-based quality improvement programs in health care settings. The need for the project is evident, and by working hand in hand with the head nurse and other key stakeholders, I will design a suitable timeline to ensure the success of the program. It is anticipated that improving the

knowledge and competency of nurses in tracheostomy care will lead to improved patient outcomes and reduced hospital readmissions due to poor care. The DNP program has prepared me fully adopt the roles of an advanced nurse practitioner as demonstrated by the development of an evidence-based and theory-driven educational program aimed at improving nursing skills and reducing practice variation in the provision of care to tracheostomized adult patients.

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Appendix A: Educational Module Content

Learning objectives

After successful completion of this educational program, the participants will be able to:

Objectives

1. Describe preparation required prior to receiving newly admitted tracheostomy patients to the floor.
2. Ensure correct emergency airway kit at patient bedside at all times
3. Recognize signs and symptoms of respiratory distress in a tracheostomy patient and how to intervene during emergency.
4. Demonstrate proper tracheostomy suctioning, site care, dressing change, and collar tie replacement.
5. Determine appropriateness of changing inner cannula

Teaching Plan for tracheostomy care

Session Title objective	**Content Outline**	**Teaching methods, instructional media**	**Presenter**	**Evaluation Donna Wright model of evaluation**
Objectives in operational form	List each topic area and provide a description outline of the content to be presented	Describe teaching method to be used. (Must reflect knowledge of adult learning principles	List presenter and contact hours per session	Describe the extent of learning achievement of objectives pre-posttest objectives
Participants will be able to: 1.Describe preparation required prior to receiving newly admitted tracheostomy patients to the floor	(a) Ensure the patient has assigned room (b) The wall suction is functional (c) Notify respiratory therapist for room set up	Power point presentation and didactic	Hospital educators and Clinical nurse leaders.	Demonstration and return demonstration (Donna Wright)
2. List proper supplies required for tracheostomy management	(a) Obturator, functional suction catheters, yankauer, gloves, normal saline, suction canister set up, tracheostomy dressing kit, protective eye wear, and disposable bag.	Power point And simulation	Unit hospital educator and unit clinical nurse leaders	Self-assessment by Donna Wright
3. Recognize signs and symptoms of respiratory distress in a tracheostomy patient and how to intervene during emergency	(a) Respiratory assessment (b) what are indications for suctioning (c) What is tracheostomy emergency and nurses intervention (rapid response team)	Demonstration Simulation Return demonstration	Unit hospital educator Medical-surgical Clinical nurse leaders	Pair review (Donna Wright) Return demonstration
4. Demonstrate proper tracheostomy suctioning, site care, dressing change, and collar tie replacement.	(a) Educate the patient prior to suctioning (b) Suction following evidence based recommended guideline	Simulation, Demonstration And return demonstration	Unit hospital educator Medical-surgical Clinical nurse leaders	Pair review (Donna Wright) Return demonstration
	(c) Perform site care, dressing change and collar tie replacement based on evidence-based protocol.	Simulation, Demonstration And return demonstration	Unit hospital educator Medical-surgical Clinical nurse leaders	Donna wright Model

Educational Program Plan

Objectives At the end of this educational experience, nurses should:	**Content Outline**	**Evidence**	**Presentation method**	**Evaluation method**
Understand tracheostomy	-Define tracheostomy -Discuss indications for tracheostomy: ventilation, airway obstruction, airway protection, and secretions	Morris, Whitmer, and McIntosh (2013)	-Power point presentation -Group discussions	Pretest/ posttest
Understand the appropriate use of suctioning	An overview of suctioning practices - Suctioning should be done when the patient is unable to clear the airway -Its timing should not be on a predetermined schedule but tailored to the needs of the patients -A complete assessment should be carried to establish the need for suctioning	-Mitchell et al. (2013) -Morris, Whitmer, and McIntosh (2013) - Yelverton et al. (2015)	-Power point presentations - video modules -Simulation training	Pretest/ Posttest
Understand proper suctioning technique	-Discuss how to hyper-oxygenate patients and the rationale -Discuss proper technique for open suctioning -Discuss proper technique for closed suctioning	-Morris, Whitmer, and -McIntosh (2013) -Nance-Floyd (2011)	Power point presentations -video modules -Simulation based training -Case scenarios	Pretest/ posttest
Understand how to liquefy secretions	-Discuss how to humidify secretions and hydrate the patients (normal saline bullets should be used to loosen tracheal secretions)	-Nance-Floyd (2011)	-Power point presentations -Video modules -Simulation based training	Pretest/ posttest
Provide postoperative care	-Discuss how to ensure that the tracheostomy tube is securely in place -Discuss prompt management of postoperative complications -Discuss equipment and supplies required for postoperative care -Discuss cleaning and replacement of cannula -Discuss cleaning and inspection of the stoma -Discuss the replacement of tracheostomy ties	-Mitchell et al. (2013) -Morris, Whitmer, and McIntosh (2013) -Pandian et al. (2014)	-Power point presentations -Video modules -Simulation based training	Pretest/ posttest
Provide patient education	-Patients should be taught how to perform basic care of tracheostomy including: a) Changing tracheostomy tubes as scheduled b) Cleaning or replacing the inner cannula c) Cleansing the stoma d) Replacing the tracheostomy holder or ties e) How and when to suction -Discuss how to assess patients and caregivers prior to discharge to ensure they have adequate skills and competence - They should be informed of the: -Size, length, and type of tracheostomy tube -How to identify signs of respiratory distress -What to do in case of emergency	Mitchell et al. (2013) -Morris, Whitmer, and McIntosh (2013) -Nance-Floyd (2011)	-Power point presentations -Video modules -Simulation based training	Pretest/ Posttest

Appendix B: Survey Questions

Scale: SD=Strongly Disagree D=Disagree U=Uncertain A=Agree SA=Strongly Agree

1=SD 2=D 3=UC 4=A SA=5

1. Was the content of the educational program organized and easy to follow?
2. Was the educational program based on the best available evidence?
3. Does the educational intervention meet the stated goals?
4. Was participation encouraged?
5. Would you consider the meetings productive?
6. What did you like most about the educational program?
7. What aspect of the education could be improved?

Appendix C: Tracheostomy Confidence Pre- and Postassessment Survey Instrument

Course: Tracheostomy Care
Participant number: _____
Gender: Male or Female
Years of experience performing tracheostomy care: _____
Highest Education Level:

Diploma Program
Associate Degree
Bachelors of Science in Nursing (BSN)
Masters of Science in Nursing (MSN)

Please circle the number that best describes your confidence in performing the following tasks
1 = Not confident at all, 2 = little confident, 3 = somehow confident, 4 = mostly confident, 5 = very confident

1 Selecting and ensuring correct equipment are at patient bedside at all times
2 Differentiating between cuffed and non-cuffed tracheostomy tubes
3 Determining appropriateness of suctioning
4 Selecting appropriate size of the catheter for suctioning
5 Performing suctioning
6 Determining appropriateness of changing inner cannula
7 Know how to change tracheostomy collar
8 Managing emergency situation on accidental decannulation
9 Know how to initiate airway emergency
10 Know how and where to document trachea care

Appendix D: Knowledge Questionnaire

SECTION-A

ITEM RELATED TO GENERAL INFORMATION REGARDING TRACHEA

1) Trachea is known as
a) Hypopharynx.
b) Wind pipe
c) Voice box
d) Epiglottis
2) Trachea extends downward to level of the
a) 5th thoracic
b) 6th thoracic
c) 7th thoracic
d) 8th thoracic
3) Trachea approximately measures
a) 10 to 11 cm
b) 18 to 20 cm
c) 24 to 30 cm
d) 32 to 40 cm
4) Number of hyaline cartilage is present in trachea
a) 5 to 10
b) 10 to 16
c) 16 to 20
d) 20 to 30
5) Important function of trachea
a) Speech
b) Hearing
c) Passage of food.
d) Cough reflex

SECTION –B

ITEMS RELATED TO KNOWLEDGE REGARDING TRACHEOSTOMY

6) Tracheostomy refer to
a) Indwelling tube inserted into the trachea
b) Indwelling tube inserted into the mouth
c) Indwelling tube inserted into the stomach
d) Indwelling tube inserted into the pharynx
7) Types of tracheostomy are
a) Permanent or temporary
b) Local or routine
c) Colostomy and ileostomy
d) Direct or indirect

8) For long term disease which type of tracheostomy is used
a) Short term
b) Long term
c) Routine
d) Local
9) When tracheostomy necessary for
a) Endo-tracheal tube cannot inserted
b) Contraindication in sever burn
c) Laryngeal obstruction
d) All above
10) Indication for tracheostomy is
a) Urinary obstruction
b) Obstruction in airway
c) Obstruction in esophagus
d) Obstruction in gall bladder

SECTION –C

ITEMS RELATED TO TRACHEOSTOMY TUBE.
11) Tracheostomy tube is usually made up of
a) Zinc
b) Copper
c) Plastic
d) Glass
12) Size of tracheostomy tube used for adults
a) 4 to 5 mm
b) 6 to 9 mm
c) 10 to 12 mm
d) 12 to 14 mm
13) Tracheostomy tube depend on
a) Inner diameter
b) Length and inner diameter in millimeter
c) Centimeter
d) gauze
14) Parts of tracheostomy tube are
a) Outer cannula
b) Inner cannula
c) Cuff
d) All of the above
15) Cuff inflation pressure should not exceed more than
a) 20mm of Hg
b) 30mm of Hg
c) 40mm of Hg
d) 50mm of Hg

SECTION –D

ITEMS RELATED TO TRACHEOSTOMY CARE.

16) Patients relatives should be explain before tracheostomy regarding
a) In ability to laugh
b) In ability to cough
c) In ability to walk
d) In ability to talk

17) Position given in inserting tracheostomy tube
a) Prone position
b) Supine position & head extended
c) Chest-knee position
d) Dorsal position

18) Which site chest the chest expansion after inflate the cuff of tracheostomy tube
a) Unilateral side
b) Bilateral side
c) Anterior side
d) Posterior side

19) Administer narcotics and analgesic drugs precautionly because it will cause
a) Hypoxemia
b) Fever
c) Legs pain
d) Shoulder pain

20) Suture material are used in tie the tracheal cartilage
a) Catgut
b) Nylon
c) Silk
d) Metal clips

21) Before doing tracheostomy care assess the condition of stoma
a) Redness
b) Speech
c) Hearing
d) Passage of food

22) Technique used in tracheostomy procedure
a) Clean technique
b) Unhygienic technique
c) Local technique
d) Aseptic technique

23) Solution used to clean the tracheostomy site is
a) Zidex solution
b) Hydrogen peroxide
c) Sodium hypochloride
d) Potassium paramagnet

24) Tape securely loose in the stoma
a) 5 finger loose
b) 4 finger loose
c) 2 finger loose
d) 1 finger loose
25) Cleaning of fresh stoma should be performed every
a) Every 4 hours
b) Every 8 hours
c) Every 24 hours
d) Every 48 hours
SECTION-E:
ITEMS REGARDING TRACHEOSTOMY SUCTIONING
26) Size of suction catheter used for adult
a) 6 or 8 French
b) 10 or 12 French
c) 14 or16 French
d) 20 or 22 French
27) Suctioning should not be continued for more then
a) 10 second
b) 15 second
c) 20 second
d) 25 second
28) Purpose of suctioning
a) Maintain patient airway
b) Stimulate cough reflex
c) Prevent infection
d) All of the above
29) Prior suction is in tracheostomy suctioning
a) Ear secretion
b) Nasal secretion
c) Oral secretion
d) Tracheal secretion

SECTION-E

ITEMS RELATED TO NURSING RESPONSIBILITY IN TRACHEOSTOMY CARE
30) Why hand washing is essential is before and after the procedure
a) Reduce the contamination of the article
b) Reduce risk of cross infection
c) Reduce risk of infection to patient
d) Reduce risk of infection to nurse

31) Indication of respiratory difficulty are
a) Nasal breath
b) Restlessness cyanosis
c) Intercostals retraction
d) All the above
32) Best position given to aid in breathing
a) Fowler's position
b) Supine position
c) Lateral position
d) Lithotomic position
33) Observe patient constantly for
a) Tube displacement
b) Fever
c) Headache
d) Abdominal pain
34) Special precaution by the nurse while giving tube feeding
a) Inflate cuff or at least 1 hour after feeding
b) Deflate cuff
c) Inflate cuff
d) All of the above
35) Cuff deflation is preformed to remove
a) Tracheal secretion
b) Humidifier
c) Oxygen administration
d) Vaginal secretion
36) Cuff pressure should be monitored every
a) 6 Hour
b) 12 Hour
c) 24 Hour
d) 48 Hour
37) During the first day of tracheostomy, the trachea should be suction every
a) Half hourly
b) One hourly
c) Two hourly
d) Four hourly
38) Kept ready the instrument if decannulation occur
a) Obturator
b) Inner cannula
c) Pilot
d) Cuff
Source: Marykutty (2012).