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Periodic Skills Education to Improve Competency in New Nurses

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
2020

Abstract

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MS, Walden University, 2017

BS, State University of New York at Stony Brook, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

On entry into the nursing profession, new graduate nurses (NGNs) possess some knowledge and skills competency but self-report learning gaps in various areas. Experienced nurses have reported that new nurses do not always have knowledge and competency in essential nursing skills. Undergraduate nursing programs and organization orientation programs provide valuable foundational knowledge but are sometimes limited in providing multiple exposures to content. Lagging skills acquisition contributes to self-doubt, lack of confidence and high attrition among NGNs. There is little data in the literature about the provision of supplemental education to new nurses immediately after orientation, and this doctor of nursing practice project seeks to address that gap in practice. The practice-focused question assessed the effect of supplemental education sessions on knowledge and competence among new nurses. Benner's novice to expert model and Duchscher's stages of transition theory and transition shock model provided the framework for exploring competency acquisition among new nurses. The analyze, design, develop, implement, and evaluate model provided direction for the development of an evidence-based educational activity to address the nurses' learning needs. Evidence from the literature guided this project. Data to answer the project question were derived through analysis of pretest and posttest responses from 23 NGNs. Results of a paired *t* test comparing NGN pretest and posttest scores ($t = -14.323$, $df = 22$, $p = <.001$) indicated that the educational intervention led to clinically significant increases in knowledge. The education program promoted social change by improving nursing knowledge self-confidence and competence, thereby facilitating easier transition to practice.

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Dedication

I would like to dedicate this DNP project to my family. To my mother, Alva, who instilled the value of hard work and dedication in me and an appreciation of excellence plus a love for reading. To my husband, Sherwin, who provides continuous and unending support and never complained during this process. To my son, Zayvion, who is my inspiration, I hope you are inspired by mommy. To my uncles and aunts who modeled educational excellence and instilled a love for academics in me. To my siblings, thank you for your love and support during the most trying times. Thank you all for your love patience and direction and for supporting my dream. I thank God for the strength, ability, perseverance, and courage he gave me to embark on this journey and to see it through to the end.

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Section 1: Nature of the Project

Introduction

The challenges faced by new graduate nurses (NGNs) transitioning to the new role of professional nurse are well documented. Irrespective of educational background, specific nursing program, or undergraduate clinical experience, NGNs are reportedly plagued by transition issues related to idealistic expectations and anticipations that are not compatible with reality (Murray, Sundin, & Cope, 2019). As they struggle to reconcile the realities of nursing with their expectations, feelings of inadequacy unpreparedness and lack of confidence emerge (Cheng, Tsai, Chang, & Liou, 2014; Edwards, Carrier, & Hawker, 2019; Murray et al., 2019). Negative emotions and lack of self-belief may hinder the role-transition process for the new nurse.

Nurses are recognized as a vital part of healthcare delivery globally (Wilson, Harwood, & Oudshoorn, 2015), yet there is a struggle to keep them at the bedside. The realities for NGNs include caring for very sick patients with increasing acuity (Missen, McKenna, Beauchamp, & Larkins, 2016) with limited staffing resources and support. Some NGNs believe that their undergraduate programs do not adequately prepare them to function in the real-life setting (McCalla-Graham & De Gagne, 2015), and research suggests that there are real and perceived deficiencies in skills competency among NGNs entering the profession (Missen et al., 2016; Murray et al., 2019).

The need for improvement in the transition process for NGNs may necessitate the introduction of additional knowledge and skills education beyond undergraduate nursing programs, nursing orientations, or traditional cohort-based transition programs.

Supporting new graduates in this manner can improve their knowledge and abilities while translating to improved delivery of patient care, more collaborative work environments, and better patient outcomes. The doctoral project may result in positive social change for new nurses who traditionally struggle upon entry to practice. The additional support from an educational and emotional standpoint can improve the transition process for the new nurse. Section 1 will contain a discussion of the problem statement, purpose, nature of the doctoral project, and significance of the project.

Problem Statement

New graduate nurses do not always possess the technical or clinical skills required for their new role (Missen et al., 2016; Murray et al., 2019). Nursing programs vary widely in the way they provide skills training (Kemery & Morrell, 2019; Terry, Terry, Moloney, & Bowtell, 2018), and healthcare facilities cannot therefore expect a standard level of skills competency in NGNs. After graduation and orientation, new nurses still struggle to perform clinical skills adeptly because of lack of knowledge and insufficient practice or exposure (Missen et al., 2016). The challenge of adjusting to their new role, coupled with inadequate skills competency, engenders feelings of self-doubt (Duchscher & Windey, 2018), which can lead to anxiety and decreased confidence, resulting in delayed care, medical errors, and adverse patient outcomes (Cheng et al., 2014; Sparacino, 2016).

The knowledge and skills competency problem aligns with Benner's novice to expert theory (Benner, 2001). Benner's theory posits that skills acquisition is not a simple process but one that requires a progression through multiple (Benner, 2001).

Current industry practice involves the use of NGN orientation programs and nurse residencies as transition support mechanisms (Cline, La Frentz, Fellman, Summers, & Brassil, 2018; Smith, Rubinson, Echtenkamp, Brostoff, & McCarthy, 2016; Walsh, 2018). Although these initiatives improve the NGN transition process, challenges persist. Nurse educators are responsible for preparing new nurses at the organization for clinical practice (Sparacino, 2016). The learning needs self-reported by new nurses after orientation signal a possible gap in practice.

The orientation regimen for NGNs at the organization involves a 2-week classroom review of policies and procedures, followed by 8 to 10 weeks working alongside a preceptor in the clinical setting, the duration depending on the area of practice. During the 2-week orientation totaling 70 hours in the classroom, less than 10% of the time is dedicated to skills competency instruction. Throughout clinical orientation, the preceptor verifies the new nurse's competency in various skills when they are performed under supervision. The new nurse, however, is not guaranteed multiple exposures to any given skill as opportunities to practice depend on patient assignments while working with the preceptor. Ultimately, the NGN at the organization may complete orientation with minimal exposure to certain skills.

A nurse residency program is an evidence-based approach to supporting NGNs (Cline et al., 2018). Organizations may use commercially available nurse residency programs or develop unique internal programs to meet their specific local needs (Cline et al., 2018; Smith et al., 2016; Walsh, 2018). Although nurse residency programs are useful in developing some aptitude necessary for smooth role transition, they are

sometimes geared more toward role development and coping skills for nurses than toward clinical skill enhancement (Cline et al., 2018; Smith et al., 2016). The Casey-Fink Graduate Nurse Experience Survey (University of Colorado Hospital, 2006) is completed by nurse residents at the facility on the first day of their residency program. Survey responses from previous nurse residency cohorts support their desire for additional knowledge and skills training in various areas.

Significance of the Project to Nursing and Healthcare

The primary focus of the supplemental education initiative was to disseminate knowledge among nurses to improve competence and transform NGN transition to practice. Skills competency deficiencies contribute to some of the challenges experienced by new nurses, and they impact patient care, patient outcomes, and patient satisfaction negatively (Lengetti et al., 2018; Walsh, 2018). When new nurses struggle to achieve competence, they experience reduced self-confidence and self-efficacy, which translates to increased intention to leave the profession, high attrition rates, and nursing shortages (Cheng et al., 2014; Park, 2018). Experienced nurses feel burdened when they work with new nurses who are not competent or confident in performing basic and advanced skills. Relationships among new and experienced nurses may be strained, resulting in discomfort in the environment of care (Missen et al., 2016). The doctor of nursing practice (DNP) staff educaiton program should contribute to increasd knowledge and competency of new nurses, foster smooth socialization to practice, and lead to higher retention rates. Increased competency can lead to improved patient care and better health outcomes for patients.

Purpose

The meaningful gap in practice that this doctoral project addressed is the need for postorientation supplemental education in selected clinical skills areas. Most attempts at improving NGN transition to practice pertain to the implementation of various preceptor-based orientation programs or 12-month nurse residency programs (Edwards et al., 2019; Hussein, Salamonson, Everett, Hu, & Ramjan, 2019; Murray et al., 2019). Although these evidence-based methods are useful in improving some aspects of practice transition, most fall short in addressing the absence of ongoing knowledge and skills education for NGNs beyond orientation. Continuing education is key to improving nursing knowledge and competency (Cuvelier, 2018; Hardenberg, Rana, & Tori, 2019; Norris, New, & Hinsberg, 2019).

Guiding Practice-Focused Question

The guiding practice-focused question was as follows: Will periodic supplemental education improve new graduate nurse knowledge and competence, when compared to their knowledge and competence at baseline?

Meaningful Gap in Practice

The doctoral staff-education project addressed the meaningful gap in practice by introducing an educational program to improve NGN knowledge and competency of clinical skills after their orientation. New nurses begin their first professional nursing job without adequate preparation in some basic and advanced skills (Brown & Crookes, 2016; Missen et al., 2016). Hospital orientation programs and nurse residencies provide useful training, mentorship, and guidance for the initial transition period (Edwards et al.,

2019; Hussein et al., 2019) but do not address the ongoing education needs of new nurses, especially for skills competence after they have completed orientation. The doctoral project addressed this gap in practice by administering an education session during month 6 of the nurses' tenure to reinforce knowledge gained previously in the classroom and clinical setting. Periodic education sessions have been useful in increasing nursing knowledge and skills competence (Öztürk et al., 2015). The results of this staff education project can help to inform onboarding processes for new nurses and their continuing education beyond orientation.

Nature of the Doctoral Project

Sources of evidence for this doctoral project included peer-reviewed journal articles from the Walden University Library related to new graduate transition challenges, new graduate skills knowledge and competency, as well as methods of improving knowledge and competency. The American Nurses' Association (ANA) in its position statement of November 2014 noted that professional role competence is a reasonable expectation of the registered nurse and that the nursing profession has the responsibility for shaping and guiding processes that lead to nurse competence (ANA, 2014). The Education Department, University of the State of New York's 2000 report on nurse competency highlighted the need for continuing competence among professionals and endorsed continuing education and reexamination among the acceptable means of maintaining competence. The validated and reliable Casey-Fink Graduate Nurse Experience Survey (University of Colorado Hospital, 2006) embedded in the vendor-

created nurse residency program at the organization supplied aggregate anonymous and de-identified baseline data about learning needs self-reported by previous cohorts.

Approach

A pretest-posttest design was used for the education project, consisting of in-classroom didactic content designed to address one of the reported areas of skill deficiency among new nurses at the facility. The educational content was used to address learning needs identified through aggregated self-reports that rank the skills the nurse residents are most uncomfortable performing. The pretest responses indicated baseline knowledge and skills competence levels for the group, while the posttest responses were used to assess changes in knowledge and competence after the educational intervention.

The didactic educational content was delivered by a nurse educator during the nurse residency seminar via a 60-minute face-to-face presentation. Participants were given a paper handout of the slides for review and note-taking during the presentation. Participants were encouraged to ask questions throughout the presentation.

Anonymous online 20-item multiple choice pretests and posttests were administered in the classroom immediately prior to and following the educational activity. The anonymous de-identified pretest and posttest response data were delivered to me by the organization. The de-identified data were entered into a computer spreadsheet on a password protected computer. The de-identified data of pretest and posttest responses and scores were analyzed using a commercial statistical analysis program to determine the impact of the educational activity on the nurses' knowledge.

Concise Statement of Purpose

The doctoral staff education project was geared towards increasing nursing knowledge in an area of learning need reported by new nurses. Increases in nursing knowledge and competence related to clinical skills may redound to decreases in transition shock and support the journey of the new nurse beyond Benner's novice phase (Cheng et al., 2014; Murray et al., 2019). Although new nurses may acquire skills during clinical orientation, the learning process is sometimes inhibited by concerns for patient safety. Limited exposure and insufficient skills education may result in new nurses ending orientation without gaining full knowledge and competence in certain areas. During the staff education session, new nurses have an opportunity to gain needed knowledge and review the nursing skills in a safe space where there is no risk of harming patients (Cuvelier, 2018).

At an organizational level, if the staff education project is associated with improvements in knowledge and competence among new nurses, nursing leaders may support similar programs in the future and thereby contribute to a new nursing culture of guiding and supporting new nurses (Edwards et al., 2019). The educational intervention may facilitate the nurse's progression along Benner's spectrum from novice to expert, alleviate some transition challenges, and improve NGNs' ability to deliver patient care comfortably (Mellor & Gregoric, 2019; Murray et al., 2019). As nurses become more confident in their abilities and new role, their intention to remain in the profession may increase, resulting in less attrition and decreased nursing shortages (Cheng et al., 2014; Edwards et al., 2019).

Significance

When NGNs fail to transition smoothly to practice, the impact is felt by numerous stakeholders at the local and systemic level. Stakeholders for this project are nurse administrators, financial executives, nurse educators, recruiters, NGNs, bedside experienced nurses, and patients. The proposed education sessions can be advantageous to stakeholders as new nurses gain knowledge and expand their functionality in the clinical area, leading to a positive work environment and improved patient outcomes. As knowledge and competence increase among the nurses, clinical stress and attrition should decrease, thereby reducing staff shortages (Cheng et al., 2014). Financial gains may result from increased nurse longevity and decreased costs associated with rehiring and retraining nurses (Cheng et al., 2014; Lengetti et al., 2018).

Potential Contributions to Nursing Practice

Benner and Duchscher support skills acquisition over time, especially for new nurses (as cited in Murray et al., 2019). Education sessions after orientation may be useful in supporting the lagging process of skills acquisition and augmenting knowledge gained in the early stages of independent practice. This DNP staff education project can improve nursing knowledge and facilitate skills acquisition beyond the novice and beginner phases for the new nurse (see Murray et al., 2019).

The widely held effects of transition shock include self-doubt, lack of confidence, fear, burnout, and anxiety (Duchscher & Windey, 2018). New graduates may not meet their own expectations about competence and might feel inadequately prepared to care for patients (Cheng et al., 2014). Negative emotions and perceived knowledge deficits

can propel them to leave the profession (Cheng et al., 2014). Skills acquisition is a complicated process that usually requires more than one exposure to educational content (Ozturk et al., 2014), but traditional onboarding methods do not always meet this condition. This DNP staff education project provides supplementary education to new nurses after orientation at the facility to improve their skills knowledge, competence, self confidence, efficacy, and role transition. The increase in knowledge and improved competence can lead to decreased errors and ultimately reduced attrition and turnover (Lengetti et al., 2018; Park, 2018). The DNP staff education project can improve nursing practice by facilitating growth in NGNs, empowering them to deliver adequate nursing care, improving their socialization to the profession, and helping them to remain in the profession beyond 12 months.

Social Change

This DNP staff education project can contribute to social change through the dissemination of education to increase knowledge and transform nursing practice. The proposed supplemental instruction can assist the new nurses in transitioning to practice by decreasing stress related to lacking knowledge and competence in skill performance (see Cheng et al., 2014). Missen et al. (2016) noted that experienced nurses perceive additional burdens related to educating new nurses in the clinical setting because of new nurses' lack of clinical knowledge. Improved competence in clinical skill performance may improve the interactions between experienced nurses and the NGNs.

Another potential benefit of the proposed DNP project is the creation of a safe space where new nurses can acknowledge their perceived deficiencies and explore and

review their skills in a supportive environment (see Brown & Crookes, 2016). Many new nurses feel the need to feign confidence and knowledge in the clinical setting, a practice that may lead to medical errors and poor patient outcomes (Lengetti et al., 2018). The educational sessions can allow NGNs to comfortably work on improving knowledge without the risk of patient harm.

Summary

One of the challenges faced by NGNs as they try to acclimate to the role of registered professional nurse is a knowledge deficit related to certain clinical skills. The knowledge deficit negatively affects their confidence level and can lead to discouragement, low self belief, and frustration (Duchscher & Windey, 2018). As a result, some NGNs choose to leave the profession before the end of their first year, contributing to high attrition rates and nursing shortages (Cheng et al., 2014). The gap in practice that I sought to address was the absence of continuing skills education beyond orientation for NGNs. Through this DNP staff education project, I sought to determine the impact of a supplemental education session on NGN knowledge and competence.

The project had a pretest-education-posttest format where the nurses' test responses helped in the determination of their knowledge and competence before and after the educational intervention. Stakeholders can benefit as nurse knowledge and competence improve faciliting socialization to practice, resulting in increased retention and cost savings. Nursing practice changes in onboarding and supporting NGNs can lead to the development of nursing environments that are nurturing and welcoming. In

Section 2, I present concepts, models, and theories, relevance to nursing practice, local background and context, and the roles of myself and project team.

Section 2: Background and Context

Introduction

NGNs do not transition seamlessly to professional practice because of knowledge deficits, which result in the development of other challenges (Duchscher & Windey, 2018; Edwards et al., 2019; McCalla-Graham & De Gagne, 2015). NGNs have reported feeling out of their comfort zone and experiencing fear, panic, and being overwhelmed (Mellor & Gregoric, 2019). According to Mellor and Gregoric (2019), "The comfort zone is a behavioral state where an individual operates in an anxiety-neutral condition" (p. 563). When NGNs operate outside of their comfort zone, they experience anxiety, which can affect functionality. Comfort is achieved by nurses when they feel prepared and competent to function in their role (Mellor & Gregoric, 2019). Competence in nursing is difficult to define, but it involves a nurse's personal self-assessment of knowledge and plans for improvement in areas of deficiency (Wilson et al., 2015). It follows that for nurses perceiving knowledge deficiencies, comfort can be achieved when knowledge gaps are addressed through educational interventions.

National and international nursing shortages are caused by increasing demand and an inadequate supply of nurses. Shortages are exacerbated by high rates of attrition among new graduate nurses (Cheng et al., 2014; Edwards et al., 2019; McCalla-Graham & De Gagne, 2015). Increased knowledge and competency in NGNs improve their confidence in the clinical setting and decrease intention to leave (Cheng et al., 2014). Interventions that increase nurse knowledge and skills can result in decreased shortages and reduced costs.

The purpose of this DNP staff education project was to improve the knowledge and competence of NGNs by providing supplemental education in areas of learning need. The guiding practice-focused question was as follows: Will periodic supplemental education improve new graduate nurse knowledge and competence, when compared to their knowledge and competence at baseline? In Section 2 of this project, I explore the theoretical framework for this study, relevance to nursing practice and to the local context, and the roles of myself and the project team.

Concepts, Models, and Theories

Benner's 2001 novice to expert model and Duchscher's 2008 stages of transition theory and transition shock model provided the framework for exploring the lived experiences of NGNs during the early stages of their career. Instructional design of the education content was guided by the analysis, design, development, implementation, and evaluation (ADDIE) model (White, Dudley-Brown, & Terhaar, 2016), and evidence-based instruction methods were incorporated to address the needs of different types of learners from various generations in the group. The effectiveness of the DNP staff education project depends on understanding the unique challenges faced by new nurses as they strive to grow from novice to expert, while dealing with the negative emotions engendered by transition shock.

Benner's Novice to Expert Model

Benner's (2001) novice to expert model provides guidelines for nurse educators to understand how new nurses acquire skills and what educational interventions are best suited to each stage of skills acquisition. Benner's groundbreaking model suggested that

skills acquisition is a process that moves through the novice, advanced beginner, competent, proficient, and expert stages. Beginners have no experience of the situations in which they are expected to perform; as a result, they are taught objective and rule-governed behavior (Benner, 2001). The beginner, therefore, functions based on limited knowledge and tends to be inflexible. Advanced beginners have dealt with enough real situations to identify recurring meaningful components that inform marginally acceptable performance (Benner, 2001).

The advanced beginner is familiar with the components such as signs and symptoms of patient distress and only needs to be guided on how to recognize them and apply specific actions to individual patients exhibiting those components. According to Benner (2001), the competent nurse is aware of long-range plans for the patient and sees their actions as contributing to those goals. Nurses at the competency stage benefit from learning activities that focus on planning, decision making, and coordination of patient care (Benner, 2001). The proficient nurse has learned from experience what typical events can be expected in a situation and is therefore able to anticipate and plan for such eventualities (Benner, 2001). Case studies are effective tools for teaching the proficient nurse. Nurses can grasp the situation and extract relevant data even when presented with some irrelevant details (Benner, 2001). The expert nurse has enormous experience and can grasp situations intuitively, make clinical judgements, and manage complex scenarios easily (Benner, 2001). Evaluation of the expert nurse may be difficult, but Benner suggested an interpretive approach with qualitative strategies that allows the expert to extract context and meaning.

The participants in this DNP staff education project had less than 6 months experience and aligned with the advanced beginner in their ability to demonstrate basic levels of performance while requiring occasional supportive cues (see Murray et al., 2019). Generally, expertise is achieved when theoretical knowledge is transformed into practical knowledge, and competency expands with increased education and exposure (Murray et al., 2019). Exposure can occur through education material, simulation, or clinical situations. The educational intervention will be interjected at the stage where these nurses are already exposed through educational material during orientation and to clinical situations during clinical orientation or independent practice. For this project, the NGNs received additional exposure through the delivery of supplementary educational content on the subjects with a skills review component.

Duchscher's Stages of Transition Theory and Transition Shock Model

Duchscher's stages of transition theory posits that new nurses move through three phases of professional role transition, doing, being, and knowing, during the first 12 months of working as a nurse (as cited in Murray et al., 2019). The early phase, doing, is characterized by the new nurse adjusting to new roles and responsibilities, accommodating new routines for practice and learning, and performing new skills and tasks. The new practitioner is constantly challenged to perform skills that may not be supported by their entry level skills and knowledge (Duchscher & Windey, 2018). The NGN should be supported through this phase by mentorship, predictable schedules, and limited exposure to complex patients (Duchscher & Windey, 2018). The NGN may be fearful of being deemed incompetent or of losing credibility in the eyes of other nurses

(Duchscher & Windey, 2018). Empowering the new nurse through educational activities and peer support may help them to navigate through this phase.

In the being stage, the nurse becomes more comfortable in their role as they advance in thinking, knowledge level, and skill competency. The unpredictability of the profession, however, will present situations where feelings of incompetence, inadequacy, exhaustion, disappointment, and frustration return. (Duchscher & Windey, 2018). Successful transition through the being phase is facilitated when through clarification and confirmation of their thoughts and actions (Duchscher & Windey, 2018). Educational sessions that allow nurses to practice in simulated settings can allow for the feedback and guidance they need at the being stage.

At the knowing stage, the nurse is able to step back and consider what they have learned so far, where it will take them in the future, and how they are unique and different from other practitioners (Duchscher & Windey, 2018). They are growing in confidence and can answer questions instead of always asking them and have time and energy to assist others (Duchscher & Windey, 2018). Transition in the knowing phase is enabled through advancement of their level of practice, sharing their experiences, and beginning to mentor nursing students and new nurses (Duchscher & Windey, 2018). At the knowing phase, the new nurse begins to look outward and focus on how they can help other new nurses to transition or how they can become a resource on the unit.

Transition shock is a theoretical construct that portrays the experience of new nurses as they manage relationships, roles, responsibilities, and expectations in the new professional practice setting (Duchscher & Windey, 2018). Nursing leaders who

understand the concept of transition shock can design programs and supports to meet the unique needs of the NGN during the first year of practice and beyond. The overarching theme of Benner's 2001 model and Duchscher's 2008 theory is that new nurses face unique challenges and need support to function effectively.

The supplementary educational content was delivered during the period that coincides with the advanced beginner phase when the nurses were transitioning from doing to being (see Benner, 2001; Duchscher & Windey, 2018; Murray et al., 2019). Based on Benner's 2001 model and Duchscher's 2008 theory, the intervention was well timed to reinforce the nurses' existing knowledge while providing an opportunity for validation of their practice.

The ADDIE Model

The ADDIE model is a five-fold framework that covers the steps in the instructional design process (Hsu, Lee-Hsieh, Turton, & Cheng, 2014) and aligned well with this doctoral staff education project. The five stages of assessment, design, development, implementation, and evaluation (ADDIE), mirror the steps for planning, implementing, and evaluating an educational offering. The assessment stage is used to determine the learning needs formally or informally (White et al., 2016). In this project, the nurses' anonymous de-identified Casey Fink Graduate Nurse Experience Survey (University of Colorado Hospital, 2006) responses informed the topic of the educational intervention. Design of the instruction followed, with the development of learning objectives and selection of instructional approaches, relevant material, and media. The presentation was developed in consideration of adult learning concepts, learning styles,

and the generations represented in the class (see Chicca & Shellenbarger, 2018). The educational material was designed with a focus on evidence-based practice and incorporated the facility policies and procedures (see White et al., 2016). The expert panel reviewed the instructional material and provided guidance for revision as needed. The nurse educator, a member of the expert panel, delivered the content as per the instructional design in a face-to-face format. Evaluation was conducted using an online pretest and posttest along with an online Student Satisfaction and Self-Confidence in Learning questionnaire (see National League of Nursing, 2005).

Clarification of Terms

The following terms are defined as used in the doctoral project:

Blood product transfusion: An intravenous infusion of a blood product to "restore oxygen-carrying capacity, replenish intravascular volume, or prevent or control hemorrhage" (Carman, Uhlenbrock, & McClintock, 2018)

Clinical skill: An action performed by nurses involved in direct patient care which may impact the patient's clinical outcome in a measurable way (Missen et al., 2016).

Competence: For the purposes of this DNP staff education project is defined as the ability to achieve a score of 80 to 100 percent when skills knowledge is tested.

New graduate registered nurse: A nurse hired with less than 12 months of employment experience (see Cheng et al., 2014).

Relevance to Nursing Practice

The process of moving from nursing student to newly graduated registered nurse is not seamless, and the challenges experienced during this transition have led to high

attrition rates for new nurses. The shortage of nursing staff in the United States and worldwide is well documented (McCalla-Graham & De Gagne, 2015) with one estimate suggesting that registered nurse shortages in the United States will reach 340,000 by 2020 (Cheng et al., 2014), while another suggests that by 2022 1.1 million additional nurses would be needed (Hussein et al., 2019). Turnover of nursing staff contributes to shortages which increase work demands on nursing staff. The result is a cycle of dissatisfaction, burnout, frustration and continuous attrition among other nurses (Cheng et al., 2014). NGNs are caught in the cycle as they seek support and try to make lasting connections in settings that are dynamic and unstable.

Nurse attrition impacts patient outcomes as it contributes to more new nurses delivering care at the bedside with minimal clinical experience and technical skills (Lengetti, et al., 2018). The lack of experience in new nurses and the challenges they face in adjusting to the new roles result in poor time management and prioritization of care, delayed care, medical errors and patient harm (Hussein et al., 2019; McCalla-Graham & De Gagne, 2015; Mellor & Gregoric, 2019). The financial implications of nurse attrition are significant for stakeholders, the cost of recruiting new graduate nurse could be as much as $41,000, while other costs related to missed care or errors, preceptor exhaustion and decreased unit morale exist, but have not been quantified (Cheng et al., 2014). The DNP staff education project providing supplemental education for the NGN after orientation can facilitate an increase in competence, confidence and job satisfaction. Further, the educational intervention can contribute to improved nurse retention, decreased nursing shortages, and reduced direct and indirect costs.

Brief History and Scholarship

According to research, skills competency levels of NGNs vary at the time of assuming their new nurse role (Kemery & Morrell, 2019; Missen et al., 2016; Park, 2018; Terry et al., 2018). NGNs experience transition shock because of feelings of unpreparedness and perceptions of their own lack of competence in clinical settings (Duchscher & Windey, 2018). Various strategies have been applied to improve competence and address the factors that contribute to transition shock (Edwards et al., 2019). Multi-dimensional strategies must be applied to solving this longstanding problem.

Nursing school instructors are aware of the transition issues experienced by new nurses and have examined their programs and made changes in how they prepare new nurses and equip them for assuming the new role. Some benefits have been associated with intensive senior year skills training classes and increased nurturing and coaching by faculty (Ozturk et al., 2015; Sparacino, 2016). Some nursing programs have utilized a competency-based model of didactic and clinical instruction, to introduce students to the concept of skills competency applied in the clinical setting and incorporated into patient care (Sparacino, 2016). Another pre-graduation strategy used to promote early acclimatization of nursing students, is a nurse externship program where students work the shift of their assigned mentor for 1 to 2 months (White K. , 2019).

Nurse residency programs are used to address nurse transition from a different angle, by providing cohort-style group seminars to support new hire NGNs over a 12-month period, with focused curricular content (Cline et al., 2018; Smith et al., 2016;

Walsh, 2018). The Institute of Medicine (IOM) in its 2010 groundbreaking report on *The Future of Nursing* recommended the implementation of nurse residency programs for nurses entering practice (Stout, Short, Aldrich, Clintron, & Provencio-Vasquez, 2015).

Nurse residency programs can be internally created, vendor-acquired, or a hybrid of both, with general foci on helping the NGN develop critical skills necessary to function in the new role (Smith et al., 2016; Walsh, 2018). These residency programs typically provide support to new nurses with periodic meetings of set cohorts with the delivery of educational content on critical thinking, stress management, leadership skills, inter-professional communication, care coordination, professional role transition and evidence-based practice (Smith et. al., 2016). Some nurse residency programs incorporate clinical skills education and reported improved expertise among the nurses as a result (Smith et. al., 2016). The vendor-created nurse residency curriculum utilized by the facility does not include a clinical skills education component.

NGNs tend to function outside their comfort zone for varying amounts of time. Some new graduates are able to overcome their feelings of discomfort and proceed to deliver care, however, others struggle with insecurity, inadequacy and loneliness (Mellor & Gregoric, 2019). New nurses become more comfortable as they communicate more with experienced nurses, develop relationships with them and use them as resources in unfamiliar situations (Mellor & Gregoric, 2019). Complete reliance on experienced colleagues may not always be a viable option since staffing challenges or patient acuity render other staff members unavailable. Experienced nurses report feeling burdened by having to provide extra support to new nurses (Missen et al., 2016). The supplemental

education program will provide another forum and opportunity for nurses to gain knowledge and improve their independent practice.

Current State and Recommendation

Education is a useful method of addressing actual or perceived skills deficiencies among nurses. Park (2018), examined the effects of an intensive clinical skills course on senior nursing students' self-confidence and clinical competence and found that clinical competence in core nursing skills improved significantly among the experimental group, compared to the control group (Park, 2018). Kardong-Edgren and Oermann (2019), found that research indicated that practicing nurses did not always retain the ability to perform critical psychomotor skills safely after initial learning. They further found that new theories such as skill development theory, cognitive load theory, deliberate practice through mastery learning, overlearning and spaced learning, could be useful in preparing learners to perform skills safely (Kardong-Edgren & Oermann, 2019). Most of these theories recommended strategies such as instructional design that allows for re-dosing the education after initial learning, and opportunities to review content over time (Kardong-Edgren & Oermann, 2019). The educational intervention represented re-dosing of previously learned skills, and skill review to concretize critical procedure steps.

According to McCalla and De Gagne, (2015), clinical skills education and opportunities for skills performance while being observed are essential to improving comfort and skills competency among nurses (McCalla-Graham & De Gagne, 2015). When nurses are educated, they feel more confident (Norris et al., 2019), better prepared (McCalla-Graham & De Gagne, 2015), and more comfortable (Mellor & Gregoric, 2019)

in the clinical setting. The DNP staff education intervention provided education and opportunities for skill review in the classroom setting. Both components should serve to improve the nurses' comfort level and confidence in performing the skills with patients in the future.

According to the literature, NGNs need supplemental education on clinical skills and opportunities to review those skills in as safe environment where they can receive feedback (McCalla-Graham & De Gagne, 2015; Mellor & Gregoric, 2019). When this happens, NGNs feel supported, knowledgeable, comfortable and confident in performing their role (Murray et al., 2019). Decreased stress, anxiety, self-doubt, frustration and dissatisfaction leads to their growth as nurses and they stay in the profession longer and contribute to its growth and expansion. The recommendation is for the implementation of supplemental education sessions with didactic content and skill review components to meet knowledge deficits identified by new nurses.

Strategies and Standard Practices

The socialization of new nurses to the profession and to professional practice is well studied. Traditional concepts such as nursing school clinicals in acute care settings, nurse externships and preceptor-based orientations continue to play a part in role development for the NGN (Lengetti et al., 2018; Mellor & Gregoric, 2019; Missen et al., 2016; Ozturk et al., 2015). The IOM recommended in 2010 that healthcare administrators implement nurse residency programs to help s evolve into their role successfully (Stout et al., 2015), and although some facilities have had these programs for over a decade, others facilities are only now implementing them.

Vendor-created nurse residency progams usually present a standardized curriculum, however, incorporating unique features to meet the specific needs of individual facilities is recommended (Cline et al., 2018; Walsh, 2018). For this DNP staff education project, NGNs were supported through the facility's usual preceptor-based orientation and continued in the nurse residency program. They received supplemental supplemental education to meet the skills education needs they previously identified.

Advancing Nursing Practice

To advance nursing practice in the management of the patient receiving high-risk therapies such as blood product administration, the DNP staff education program covered the importance of consistent safe evidence-based nursing care, and the critical steps in managing these patients. Twenty-one million blood components are administered each year in the United States, and nurses play a major part in risk assessment and continuous monitoring for changes in the status of their patients (Carman et al., 2018). The DNP education project advances nursing practice by providing supplemental education to NGNs who care for patients receiving this high-risk therapy. Nursing practice will improve as these nurses become more proficient practitioners and deliver high quality care to their patients.

Nursing practice related to the onboarding, training and support of new nurses will be advanced as new strategies such as this DNP educational intervention after orientation, are applied. As new methods of supporting nurses are introduced into the workplace, new nurses will emerge from their first year of practice as competent,

knowledgeable, hand confident nurses who will deliver appropriate patient care to improve patient outcomes and patient satisfaction.

Currently, the onboarding process for NGNs at the organization involves classroom and preceptor-based orientation, with recent transition-support through the newly established nurse residency program. In the first 6 months after completing orientation, there is little supplemental education specific to clinical skills offered to the NGNs. This doctoral project addressed the practice gap by introducing an educational program to improve NGN knowledge and competency of clinical skills after the completion of their orientation.

Local Background and Context

NGN competency levels have been an issue at the facility, skills competency levels of NGNs vary based on the nursing school attended and the program they graduated from (Nurse Educator, personal communication, December 3, 2019). NGN skills levels also differ based on the site of their nursing school clinicals, assigned adjunct clinical professor and exposure to nursing skills in a nurse externship or senior nursing practicum (Nurse Educator, personal communication, December 3, 2019). Nurses who are exposed to the clinical setting during nursing school, as previous employees or as nurse externs, tend to have greater skills competency than nurses who did not share those experiences.

Historically, aggregate NGN data from nurses at the facility supports the need for further knowledge and skills education beyond their classroom and preceptor-led orientation. Data from the Casey-Fink Graduate Nurse Experience Surveys (University

of Colorado Hospital, 2006) completed by the nurse residents as part of the nurse residency program revealed that on aggregate, new nurse confidence levels with high-risk therapies such as blood product administration at the facility were below the national benchmark. The national benchmark represents a mean of all the vendor's nurse residency participants nationwide. Based on the nurse educator observations, preceptor feedback and self-reported perceptions of NGN skills competency level, there was a need for supplemental education on blood product administration at the facility.

Institutional Context

The healthcare facility associated with this DNP staff education project is in an urban area and serves a diverse patient population. New nurses hired to the facility are mainly sourced from seven nearby nursing schools, with most being bachelor's prepared. The facility is in partnership with many of the nearby nursing schools and provides opportunities for clinical rotations for their students, a nurse externship program and nurse mentors for students. The facility's mission statement includes its commitment to community partnerships and education for its staff members, patients, and the communities it serves.

State and Regulatory Context

The office of the Mayor of New York City initiated a program to support city hospitals in the development of nurse residency programs. The organization associated with this DNP staff education project recently implemented a nurse residency program through that initiative along with over 25 other hospitals in the city. The vendor-created

nurse residency curriculum was obtained through the Mayor's initiative at no cost to the organization.

The New York State Education Department's 2000 memorandum on competency included support of the need for continuing competence among professionals. Guidelines included in the memorandum outline that competence may be maintained through continuing education, periodic re-examination, educational outreach and review of local activities (The State Education Department - The State University of New York, 2000).

The Joint Commission (TJC) through reviews of transfusion errors in healthcare found that lack of appropriate orientation and training of nurses was a root causes of some errors (The Joint Commission, 1999). A TJC sentinel event alert contains suggestions for the prevention of errors including appropriate training of nurses to perform the appropriate patient blood tests, properly identify the blood sample and patient, monitor patient and intervene appropriately if they develop a transfusion reaction and ensure informed consent is obtained (The Joint Commission, 1999).

Role of the DNP Student

As a DNP student, nurse educator, and member of the nurse residency advisory board at the organization, I am charged with seeking the educational interest of nurses. As a nurse educator and orientation manager, I receive feedback from new nurses and preceptors about the competence of nurses in training. As a member of the nurse residency advisory board I have access to aggregate data showing nurse residents' perception of their ability to perform skills competently. Based on historical feedback from new nurses, preceptors and other nurse educators, I detected a learning gap and

identified the monthly nurse residency seminars as an appropriate forum for the delivery of supplemental educational content.

AACN's DNP Essentials I, II and VIII contain mandates for the DNP-prepared nurse to embrace scientific underpinnings of practice, develop organizational and systems leadership for quality improvement and systems thinking and advance nursing practice (Zaccagnini & White, 2014). The DNP staff education project allowed for the incorporation of scientific concepts as I utilized evidence-based education strategies to improve nurse competence in caring for patients receiving high risk therapies such as blood product administration. Organizational and systems leadership skills emerged through problem identification, literature review, planning and implementation of the educational intervention. This project advanced nursing practice through the education of nurses which empowered them to function effectively, with confidence and competence to improve their patient's health outcomes.

I served as content expert and collaborated with an expert panel to create a PowerPoint presentation covering the evidence-based critical aspects of caring for patients receiving high risk therapies such as blood product transfusions. I worked with the expert panel to refine the educational content and reviewed the content with the nurse educator who delivered the presentation. I obtained anonymous questionnaire, pretest and posttest result information from the organization and analyzed the data using appropriate software.

Role of the Project Team

The project team consisted of three nurse educators at the facility. The team was selected based on their experience in nursing education and expertise in planning and implementing education programs. The panel members were asked to assist in developing and evaluating the educational content for suitability to the setting and audience, accuracy, evidence-based practice and alignment with the facility's policies and procedures. The expert panelists evaluated the educational content and volunteered to deliver the content and manage the administration of the pretest and posttest.

Summary

New nurses struggle for acceptance into their new role as professional nurse, and are plagued by feelings of self-doubt, discomfort, inadequacy, and anxiety. Gaps in knowledge and skill contribute to some of these unique challenges NGNs face daily. Nurse educators must be prepared to provide additional support to NGNs wherever possible to smooth the transition process for them. The DNP staff education project proposed the addition of skills education sessions to monthly nurse residency seminars to increase knowledge and competency among NGNs. Section 3 contains a review of sources of evidence used to address the practice focused question, processes used to gather evidence, design of the project and methods of data analysis.

Section 3: Collection and Analysis of the Evidence

Introduction

When newly graduated nursing students begin to work independently as registered professional nurses, they perceive knowledge gaps and deficiencies in clinical skills. This perception impacts their ability to transition to practice, embrace their new role, and deliver effective and appropriate patient care. Benner's (2001) novice to expert model provides a framework through which nurse educators can understand how learners acquire new skills. As the NGN progresses from beginner to advanced beginner, they move from performing tasks by rote memory to being aware of the implications of those tasks on patient outcomes (Benner, 2001). Duchscher, through the 2008 transition shock theory, illuminated the effects of the emotional and relational experiences of the NGN and identified appropriate interventions to ease transition to practice (Duchscher & Windey, 2018). The problem that was addressed by this DNP staff education project is the NGN's need for more education than is provided to them through traditional orientation or nurse residency programs.

NGNs at the organization have experiences like those noted in the literature; they self-reported clinical skills deficiencies in high risk therapies, such as blood product transfusion, through anonymous surveys. The DNP staff education project allowed me to develop an educational program for NGNs at the facility about performing high risk therapies such as blood product transfusion. Section 3 contains a review of the sources of evidence used to address the practice-focused question, processes used to gather the evidence, the design of the project, and the methods of data analysis.

Practice-Focused Question

The gap in practice this DNP staff education project addressed was the absence of supplemental education for new nurses in the period immediately following the end of their preceptor-led orientation. The guiding practice-focused question was as follows: Will periodic supplemental education improve knowledge and competence, when compared to their knowledge and competence at baseline?

New nurses at the facility have self-reported deficiencies in their knowledge of some key clinical skills, such as blood product transfusion management. Lagging skills acquisition is a phenomenon previously studied by Benner (2001) and illustrated in the novice to expert model. As a result of skills competency deficiencies, new nurses experience transition shock and fail to move smoothly through the stages of transition, leading to frustration, dissatisfaction, feelings of inadequacy, and increased attrition. (Duchscher & Windey, 2018). Traditional preceptor-led orientation programs and an emerging nurse residency programs have been used to facilitate the role-transition process at the organization. Despite these interventions transition shock and lagging skills acquisition persist (Mellor & Gregoric, 2019; Missen et al., 2016). Table 1 shows the nurse resident cohort aggregate self-reported competency level. New nurses need more support through education and skills review in the months immediately following their orientation.

Table 1
Nurse Resident Cohort Aggregate Self-Reported Competency Levels

Nurse residency cohort	Group mean at facility	National benchmark mean *N* = 17,866
Cohort 1 (*n* = 17)	2.24	2.43
Cohort 2 (*n* = 16)	2.27	2.42

The purpose of the DNP staff education project was to lead the development of a supplemental educational program to increase NGN knowledge and competence in executing high-risk therapies, such as blood product administration. Nurses play a critical part in preparing blood products and monitoring the patient who is receiving a blood product transfusion. Without the appropriate skills, complications and deterioration in the patient may be missed, leading to adverse outcomes (Carman et al., 2018). The DNP staff education program can improve nurse knowledge and competency, which may result in improved patient care and outcomes and increased NGN confidence, intention to stay, and retention to the profession.

Sources of Evidence

An extensive literature search was conducted to obtain data supporting the existence of the problem, proposed interventions, and potential outcomes. Peer-reviewed journal articles were retrieved and organized into sections related to new graduate competency level, skills acquisition, transition to practice challenges, and educational strategies for improving skills competency. Evidence was obtained from databases such

as Cochrane, PubMed, CINAHL, and Medline, and other information was retrieved from regulatory and accrediting organizations and governmental sources. Key terms used for the literature search included *new graduate nurse, new nurse challenges, nurse competence, nursing skills, increasing competency, novice nurse, education, increasing nursing knowledge, perceived nurse competence,* and *nurse confidence*. The evidence revealed challenges faced by NGNs as they tried to achieve competency and progress from new practitioners to experts. The evidence further provided a framework for designing the educational intervention and evaluating deidentified data to determine the impact of education on improving NGN knowledge and competency in selected areas.

Archival and Operational Data

Nurse resident aggregate group responses to Casey-Fink New Graduate Experience Surveys (University of Colorado Hospital, 2006) were used to establish the learning needs self-reported by new nurses at their first residency seminar. The nurse residents completed anonymous electronic assessment through the nurse residency program vendor that linked them to an online version of the survey. One section of the survey asked nurse residents to select the top three skills they were uncomfortable performing from a list of 20 skills. Their responses were reported to the facility as a group a mean score alongside a national benchmark mean score of nurse residents nationally. The data were useful in identifying learning needs of s within the organization.

The data were retrieved from self-reports by the nurse residents who completed the surveys by logging into the nurse residency vendor's website with their protected

credentials; the vendor does not report individual responses to the organization, only group aggregates. The anonymous survey response data were accessible to the nurse residency coordinator at the facility and members of the nurse residency advisory board.

Participants

Participants for this staff education project were 23 registered nurses employed as new graduate staff nurses at the facility and enrolled in the nurse residency program. The nurses were randomly selected based on the timing of their monthly seminars, which aligned with the proposed data collection period for the DNP project. Participants were apprised of this staff education project on the day of data collection and informed about processes for handling all de-identified data and tests to protect confidentiality and provide anonymity.

Procedures

The method for collection and analysis of data generated for this DNP project aligned with Walden University's Institutional Review Board (IRB) as set forth in the Manual for Staff Education, and approval from Walden University IRB and the organization's IRB was obtained. Tools used to collect data for this project included anonymous pretests, anonymous posttests (see Appendix A), and anonymous Student Satisfaction and Confidence in Learning questionnaires (see Appendix B). A coding system was used to link participants' pretest and posttest scores. A list of 40 random computed generated codes was circulated among participants who were instructed to select a code and delete it from the list. To preserve anonymity, the participants applied

the code and not their name to the pretest and posttest. The code selected by individual participants was not recorded by the organization nor communicated to me.

The anonymous pretest was completed online by the participants via a link provided to them before the educational presentation. Participants were given 30 minutes to complete the pretest. The anonymous pretest was used to measure the nurses' baseline knowledge of blood product transfusion before the educational presentation. An anonymous posttest was completed online by the participants via a link provided to them after the educational presentation. The anonymous posttest was used to measure knowledge acquisition. Participants were given 30 minutes to complete the posttest. The organization provided the pretest and posttest response information to me for retrospective analysis. No identifying data were collected or recorded from participants during the pretest or posttest.

The pretest and posttest questions were the same. Test items were created to align with the educational presentation and the organization's standard of nursing practice for the administration of blood products. The expert panel reviewed and approved all test questions.

After the educational presentation and posttest, participants were asked to complete an online anonymous student satisfaction and confidence in learning, which is a validated tool designed by the National League of Nursing to measure student's level of satisfaction and confidence in learning. The organization provided the anonymous survey response information to me for retrospective analysis. The procedure for

administering and retrieving anonymous evaluation material was designed, managed, and coordinated by the organization to maintain participant anonymity.

The 23 nurse residents were educated during an interactive face-to-face educational presentation (see Appendix C) delivered by a nurse educator at the organization who served as a member of the expert panel. The material was presented with the use of an electronic visual aid, and participants were engaged in question and answer segments and mini case discussions. The key steps in administering blood transfusions and monitoring and managing the patient receiving blood transfusions were emphasized. This educational segment was useful in reinforcing previous knowledge among the nurses and equipping them with new knowledge to inform more competent practice.

Protections

Walden University IRB approval, organization IRB approval, and site agreement were obtained before the project commenced. The project complied with the IRB at the project site and Walden IRB guidelines for staff education projects outlined in the manual for staff education. The Walden IRB approval number for this project is 07-07-20-0528244. Before the collection of test and questionnaire responses, participants were given the consent form for anonymous questionnaires outlining that participation was voluntary, they could change their mind at a later date, their responses would be collected anonymously, and they were free to contact Walden with any questions or concerns relating to the project. The education was delivered on a general basis to the entire cohort without direct specific link to any individual nurse (see Heflin, DeMeo, Nagler, &

Hockenberry, 2016). Pretests and posttests were completed anonymously using a coding system to match pretest and posttest results. The organization provided anonymous test and questionnaire response data with no participant identifiers.

Analysis and Synthesis

An electronic spreadsheet was used to record and organize the data collected for this DNP project. IBM Statistical Package for the Social Sciences (SPSS) Version 25 was used to analyze mean pretest and posttest scores, standard deviation and determine if the differences between pretest and posttest scores were clinically significant. Simple descriptive statistics will be used to analyze participant responses to the student satisfaction and self confidence in learning questionnaire to identify percentage of satisfaction and levels of self-confidence reported after the educational presentation.

Summary

Providing supplemental education for NGNs beyond their orientation is necessary for empowering them to practice confidently and safely, while managing their time, thinking critically, and collaborating with others in the clinical setting. Disseminating knowledge through education for nurses at the end of their orientation may address the gap in practice, improve competency and change nursing practice. Section 3 contained a review of sources of evidence addressing the practice gap, data collection procedures, protection of participants and analysis and synthesis of the data. In section 4 the findings and recommendations for the DNP project will be discussed.

Section 4: Findings and Recommendations

Introduction

New nurses face numerous challenges as they work to assimilate to their new profession with its varying roles, responsibilities, and expectations. Lagging skills acquisition contributes to feelings of incompetence and inadequacy among NGNs (Cheng et al. 2014; Cline et al., 2018; McCalla-Graham & De Gagne, 2015; Murray et al., 2019) and although orientation programs and nurse residency programs are useful to some extent (Hussein et al., 2019; Mellor & Gregoric, 2019; Walsh, 2018), the problems persist, and many NGNs do not believe they know enough.

New nurses hired in the local setting self-reported feelings of incompetence related to the performance of high-risk skills and therapies, including blood transfusion administration and management. The identified gap in practice was the absence of supplemental education for new nurses at the end of their orientation and within the first 12 months when they are still acquiring critical skills and competencies (Murray et al., 2019). The guiding practice-focused question for this DNP project was as follows: Will periodic supplemental education improve knowledge and competence, when compared to their knowledge and competence at baseline? The purpose of this doctoral project was to disseminate knowledge to improve NGN competence and change clinical practice.

The evidence for this project was acquired through the collection of pretest and posttest data. An anonymous online pretest was completed by participants to assess their baseline knowledge about blood transfusion administration and management before the educational intervention. An anonymous online posttest was completed by participants to

assess knowledge uptake after the educational intervention. Participants entered their randomly assigned code to their pretest and posttest so that the data were deidentified. The pretest and posttest score data were organized in an electronic spreadsheet with each row containing the participant's unique random code, their pretest score, and their posttest score. A paired sample *t* test was performed using SPSS Version 25 to evaluate for an increase in knowledge after the educational presentation about blood transfusion administration and management. Participants completed an anonymous online student satisfaction and confidence in learning questionnaire administered to gauge their satisfaction with the educational content and self-confidence in learning. The participants were not asked to enter their code on the questionnaire. The response data were organized in an electronic spreadsheet, with one question per row and the participants' scores in columns. Participants selected a response to each question according to the Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Each question was analyzed using simple statistics to assess the percentage of agreement or disagreement among the group of participants.

Findings and Implications

There were 23 nurses who participated in the staff education program and completed the pretest and posttest. Pretest scores ranged from 60 to 85, while posttest scores ranged from 80 to 100. Based on the data, 100% of participants demonstrated knowledge uptake with no apparent regression in learning (Table 2). The defined competency level for the DNP project was a score of 80 or greater on the knowledge assessment. At the baseline, 17% of participants demonstrated competence while 83%

did not. After the educational intervention, the data showed an 83% increase in competency among participants. One hundred percent of the nurses achieved a score of 80 or greater on the posttest, and 52% achieved the maximum score of 100 points.

Table 2

Blood Transfusion Pretest and Posttest Scores

Pretest scores	Posttest scores	Percentage change in scores
75	95	26.7
65	100	53.8
80	95	18.8
75	95	26.7
70	95	35.7
65	100	53.8
70	100	42.9
80	100	25.0
80	95	18.8
70	95	35.7
70	100	42.9
65	100	53.8
65	100	53.8
70	100	42.9
60	85	41.7
60	100	66.7
85	100	17.6
75	85	13.3
70	80	14.3
70	100	42.9
65	95	46.2
60	90	50.0
75	100	33.3

The pretest mean score of 70.43, median score of 70, and modal score of 70 (Table 3) fall outside of the defined competency range. In contrast, the posttest mean score of 95.87, median score of 100, and modal score of 100 fall well within the defined

competency range. The participants' mean test scores after the educational intervention increased by 36 %.

Table 3

Paired Samples Statistics Blood Transfusion Pretest and Posttest

	Mean	Median	Mode	*N*	Std. Deviation	Std. Error Mean
Pretest	70.43	70	70	23	6.894	1.438
Posttest	95.87	100	100	23	5.771	1.203

A paired sample *t* test was performed using SPSS to determine if there was a clinically significant difference between the pretest and posttest scores. A paired sample *t* test assesses the same group of people two or more times and compares the mean scores achieved by the group at each instance (Gray, Grove, & Sutherland, 2017). Statistical significance in a paired sample *t* test is determined by assessing the *p*-value, which can range from 1 to 100%. Lower *p* values indicate a lower likelihood that the differences in data occurred by chance. A *p* value of 0.05 (5%) or less is usually accepted to mean that the data are valid (Gray et al., 2017).

For this staff education project, the difference between each participant's pretest and posttest scores was used in the paired *t* test (see Table 4.) An examination of pretest scores ($M = 70.43$, $SD = 6.894$) revealed that the nurses had a fair baseline knowledge of blood transfusion administration and management. A review of the posttest data ($M = 95.87$, $SD = 5.771$) revealed an increase in the participants' knowledge on blood transfusion administration and management. The results of further analyses indicated that differences between participants' pretest and posttest scores were clinically

significant, implying that the educational activity impacted the nurses' knowledge (t = -14.323, df = 22, p = <.001).

The result from analysis of the paired samples t test provided evidence to support the association of the educational intervention with a change in the participants' posttest performance. The paired samples t test result of a p value <.001 supports the validity of the data and that the changes in participant test scores did not occur by chance.

Table 4

Paired Samples Test

	Paired differences							
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	*t*	*df*	Sig. 2-tailed
Pretest-Posttest	-25.435	8.516	1.776	-29.118	-21.752	-14.323	22	.000

The anonymous student satisfaction and self confidence in learning questionnaire was administered to gauge participants' views about the quality of the educational presentation and their feelings about how the presentation contributed to their self-confidence. The anonymous questionnaire was administered at the end of the educational presentation and after the participants completed the posttest. Questions 1 to 5 of the questionnaire addressed the participant's satisfaction with the current learning. Based on an analysis of responses in this section, 87% of participants *agreed* or *strongly agreed*

that the teaching methods and material used during the educational presentation were helpful and effective (see Table 5).

Table 5

Participant Satisfaction in Learning

Question	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
#1. The teaching methods used in this education session were helpful and effective	14	6	1	1	1
# 4. The teaching material used in this education session were motivating and helped me to learn	14	6	1	1	1

Items 6 to 13 of the survey addressed participants' self-confidence in learning, and Items 6, 7 and 8 specifically gauged how they felt the education would affect their skills mastery and performance in the clinical setting. An analysis of the survey responses in this section revealed that 91% of the respondents were confident that the educational session would allow them to master the content. Analysis of the data also shows strong self-confidence among 91% of the participants in performing blood product transfusions in the clinical setting (see Table 6). The student's perception of their competency aligned with the actual increases in their competency observed through analysis of the posttest data.

Table 6

Participant Self-Confidence in Learning

Question	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
# 6. I am confident that I am mastering the content for the education session that my instructors presented to me	13	8	0	1	1
#7. I am confident that this education session covered critical content necessary for the mastery of the nursing skill	14	7	0	1	1
#8. I am confident that I am developing the skills and obtaining the required knowledge from this education session to perform necessary tasks in a clinical setting	14	7	0	1	1

Based on an analysis of the data generated by the DNP education project to disseminate knowledge and change nursing practice, nurses experienced an increase in knowledge and confidence after the educational intervention. With the increased competence and confidence, NGNs can feel empowered to own their practice, deliver safe patient care, and contribute to the team in the clinical setting. Positive social change can result from improved interactions between experienced nurses and new nurses at the facility. The organization can also reap financial benefits related to increased retention of new nurses, reduced attrition, and fewer shortages of nursing staff.

Recommendations

The recommendation is that nurse leaders at the organization adopt a similar model to provide supplemental education to address NGN self-reported areas of learning

need. Since new nurses are typically assigned to cohorts that meet monthly for nurse residency seminars, the forum for delivering supplemental education already exists. The nurse residency advisory committee should provide aggregate learning need data to the department of nursing education so that evidence-based education content can be developed to facilitate the dissemination of content to improve nurse knowledge and change nursing practice.

Contribution of the Doctoral Project Team

I conducted the project in collaboration with members of an expert panel which included three nurse educators at an acute care hospital in an urban setting. Panel members were involved in the development of the evidence-based education content, pre and posttests and in presenting the educational material to the participants. The project team was granted organization approval to proceed with the staff education project.

DNP Student

The role of the DNP student for this DNP staff education project was to serve as content expert regarding blood transfusion administration and management. I led in the development of realistic and measurable learning objectives and collaborated with an expert panel to create a Microsoft PowerPoint presentation covering the evidence-based critical aspects of caring for patients receiving blood product transfusions. In collaboration with the expert panel, I created pretest and posttest questions. I obtained the anonymous deidentified pretest and posttest response data from the organization and analyzed the data using appropriate software. I conducted a debrief meeting with the expert panel to review aggregate data emerging from the pretest and posttest responses,

and formulated panel recommendations for future dissemination of knowledge to transform nursing practice in the organization. The panel's recommendations will be discussed with the Chief Nursing Officer and the Chief Learning Officer at the facility.

Strengths and Limitations

One strength of the DNP staff education project was its development based on learning gaps identified by new nurses who self-reported discomfort in performing some essential nursing skills. Nursing education operates on the principles of identifying learning needs, developing and implementing educational interventions and evaluation. The project team also represents a strength of the project as team members contributed valuable experience, knowledge and insight to guide the program development give feedback and assess the activities on an ongoing basis.

Limitations of the project include the failure to collect demographic data from participants. The DNP student decided against collecting demographic data because they were considered irrelevant to the project in its current design. The participants had similar hire dates and comparable levels of nursing experience. Demographic data such as ethnicity, age and sex were not considered pertinent. Another limitation was the sample size of 23 nurses. In an organization with over 1,000 nurses, a sample size of at least 10 percent may have been a more accurate representation.

Section 5: Dissemination Plan

The Microsoft PowerPoint presentation developed in collaboration with an expert panel is an example of educational content that may be created to assist in the dissemination of knowledge to nurses in the organization to improve competency and change clinical practice. Participant NGNs demonstrated a clinically significant increase in knowledge regarding blood transfusions after the educational intervention, and self-reported improved confidence and competence in performing the skill.

The findings of this project will be disseminated to stakeholders in a stepwise manner, beginning with a presentation at the monthly nursing education department meeting. The data will then be presented to members of the nurse residency advisory board. Board members include nurse managers, local bargaining unit representatives, and nurse educators. The final presentation of the data will be done at the senior nursing leadership meeting attended by the chief nursing officer, chief learning officer, nursing divisional vice presidents, nursing directors, nurse managers, assistant nurse managers, advance practice registered nurses, and some invited nursing students.

Analysis of Self

As the project manager, I journeyed through the steps of problem identification, literature review program planning, implementation, and finally evaluation, which resulted in tremendous professional growth for me. Throughout this experience, I have developed many of the doctor of nursing practice essentials proffered by the American Association of Colleges in Nursing, especially clinical scholarship, evidence-based practice, interprofessional collaboration, systems thinking, and nursing science (see

Zaccagnini & White, 2014). In the role of project leader, I was able to develop leadership skills in managing the expert panel and working with them through program development through to evaluation.

As a nurse leader, I was able to initiate social change by developing an educational program to increase nursing knowledge and improve their transition to the nursing profession. I was also able to indirectly impact patient care through the dissemination of knowledge to increase nurse competency and change nursing practice.

As a scholar, I used analytic methods to critically appraise existing literature to select the highest levels of evidence to support the existence of the gap in practice and inform the intervention to address the practice gap. I also organized the literature, managed and synthesized the anonymous data, and translated the evidence to inform future nursing practice.

As a DNP student, I was able to act as a change agent through the project, which has served to expand my perspectives, develop my systems-wide approach to problem solution, instilled the importance of collaboration, and highlighted the need for teamwork. As a future nurse leader, I will use these newly developed skills and abilities to navigate through the nursing hierarchy and effect changes.

Summary

The aim of the DNP staff education project was to disseminate knowledge through an educational intervention to improve nurse competency and clinical practice. New nurses enter the profession with varying levels of knowledge and competency, and lagging skills acquisition contributes to feelings of incompetence and fear (Cheng et al.,

2014; Edwards et al., 2019; Murray et al., 2019). The goal of the study was to assess the impact of supplemental education for nurses after they have completed orientation. The project goal was accomplished by educating the nurses about blood transfusion administration and management and evaluating knowledge uptake through the analysis of their pretest and posttest responses. The Walden University Manual for Staff Education and the ADDIE model (White et al., 2016) were used to direct the development of this staff education program.

The project findings support the introduction of supplemental education segments into monthly nurse residency seminars to address learning gaps among new nurses. Education sessions provided at the end of the NGN orientation reinforce the nurses' learning from previous classroom and clinical orientation.

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Appendix A: Pretest/Posttest

Blood Transfusion Management

Pretest/Posttest

INSTRUCTIONS: Select correct response

1. The following are indications for blood product transfusion EXCEPT:
    a. Some autoimmune diseases
    b. Symptomatic anemia
    c. Cardiac dysrhythmias
    d. Blood loss due to acute bleeding

2. The following blood product is transfused to treat thrombocytopenia
    a. Whole Blood
    b. Fresh Frozen Plasma
    c. Packed Red Blood Cells (PRBC)
    d. Platelets
3. The following triggers an immune response to blood received]
    a. Antigen
    b. Plasma
    c. Antibody
    d. Rh Factor
4. The universal blood donor has what blood type?
    a. AB negative
    b. O negative
    c. AB positive
    d. O positive
5. The test which is performed to determine a recipient's compatibility to a specified unit of blood is?
    a. Type and screen
    b. Type and cross
    c. Antibody testing
    d. Complete blood count (CBC)
6. The following should be verified before the nurse requests blood from the blood bank, EXCEPT?
    a. Valid order
    b. Patient signed, informed consent
    c. IV access, at least 24 gauge
    d. Vital signs

7. Two registered nurses (RNs) must verify all EXCEPT the following at the patient's bedside before beginning a transfusion
    a. Patient ID using 2 identifiers
    b. Blood unit #
    c. Blood Type & Blood Expiry Date
    d. Patient nutrition order

8. The standard blood administration "Y" tubing should be primed using which IV fluid?
    a. 0.45% sodium chloride (1/2 normal saline)
    b. Ringers Lactate
    c. 0.90% sodium chloride (normal saline)
    d. D5W
9. Blood products should be administered via the IV pump using which setting?
    a. Basic Infusion
    b. Guardrail blood transfusion
    c. Guardrail drugs
    d. Medicated drips
10. The following blood product may be administered to a patient with acquired coagulation factor deficiency:
    a. Cryoprecipitate
    b. Fresh Frozen Plasma
    c. Packed Red Blood Cells (PRBC)
    d. Platelets
11. After the initiation of a blood product transfusion, the nurse must remain with the patient for the initial?
    a. 30 minutes
    b. 20 minutes
    c. 15 minutes
    d. 7.5 minutes
12. If a blood transfusion is being cancelled, the unit of PRBC must be returned to the blood bank within?
    a. 15 minutes
    b. 4 hours
    c. 30 minutes
    d. 1 hour

14. You suspect that your patient is experiencing an allergic reaction while receiving a blood transfusion. Your first action should be?
    a. Administer antihistamines as prescribed
    b. Stop the transfusion
    c. Notify the LIP
    d. Call the blood bank
15. Which of the following should NOT be done if your patient is experiencing a blood transfusion reaction?
    a. Return remaining blood and blood tubing to blood bank
    b. Retain the IV with normal saline infusing at a slow rate
    c. Collect blood sample and send to blood bank
    d. Send first urine sample to the blood bank
16. You have just completed a PRBC transfusion for your 65-year-old female patient. She complains of shortness of breath, and you auscultate crackles at her lung bases. You suspect your patient has developed?
    a. Transfusion related lung injury (TRALI)
    b. An allergic reaction
    c. Transfusion associated circulatory overload (TACO)
    d. Sepsis
17. The LIP has ordered a Fresh Frozen Plasma (FFP) transfusion for your patient. You will gather all the following EXCEPT?
    a. Standard unfiltered IV Tubing (single spike)
    b. 0.9% sodium chloride (normal saline)
    c. Alcohol swabs
    d. Standard filtered "Y" tubing (double spike)
18. The LIP has ordered an FFP transfusion for your patient. Which of the following lab findings will you evaluate to confirm that your patient needs the ordered intervention?
    a. Hgb
    b. Hct
    c. INR
    d. Hgb A1c
19. A filter is required when transfusing which of the following blood products?
    a. Packed red blood cells (PRBC)
    b. Fresh frozen plasma (FFP)
    c. Platelets
    d. All of the above
20. Patients who receive a transfusion of the incorrect blood type will develop which type of transfusion reaction?
    a. Hemolytic reaction
    b. Transfusion related lung injury
    c. Febrile reaction
    d. Allergic reaction

Blood Transfusion Pretest/Posttest

Answer Key

1. C
2. D
3. A
4. B
5. B
6. C
7. D
8. C
9. B
10. A
11. C
12. C
13. B
14. B
15. D
16. C
17. A
18. C
19. D
20. A

Appendix B: Student Satisfaction and Self-Confidence in Learning and Permission Letter

Student Satisfaction and Self-Confidence in Learning

Instructions: This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your education activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs.

Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

CIRCLE:

1 = STRONGLY DISAGREE with the statement

2 = DISAGREE with the statement

3 = UNDECIDED - you neither agree or disagree with the statement

4 = AGREE with the statement

5 = STRONGLY AGREE with the statement

Satisfaction with Current Learning	**SD 1**	**D 2**	**UN 3**	**A 4**	**SA 5**
1. The teaching methods used in this education session were helpful and effective.					
2. The education session provided me with a variety of learning materials and activities to promote my learning of the curriculum.					
3. I enjoyed how my instructor taught the education session.					
4. The teaching materials used in this education session were motivating and helped me to learn.					
5. The way my instructor(s) taught the education session was suitable to the way I learn.					
Self-confidence in Learning	**SD 1**	**D 2**	**UN 3**	**A 4**	**SA 5**
6. I am confident that I am mastering the content of the education session that my instructors presented to me.					
7. I am confident that this education session covered critical content necessary for the mastery of the nursing skill.					
8. I am confident that I am developing the skills and obtaining the required knowledge from this education session to perform necessary tasks in a clinical setting					
9. The instructor(s) used helpful resources to teach the content.					
10. It is my responsibility as the student to learn what I need to know from this education session.					
11. I know how to get help when I do not understand the concepts covered in education session					
12. I know how to use learning activities to increase my knowledge of critical aspects of these skills					
13. It is the instructor's responsibility to tell me what I need to learn from the content during class time.					

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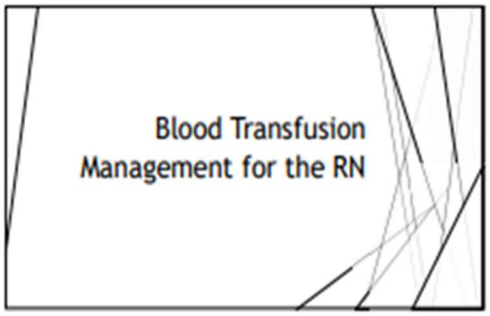
Appendix C: Staff Education Presentation



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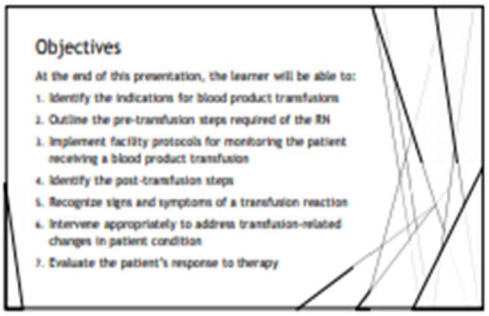

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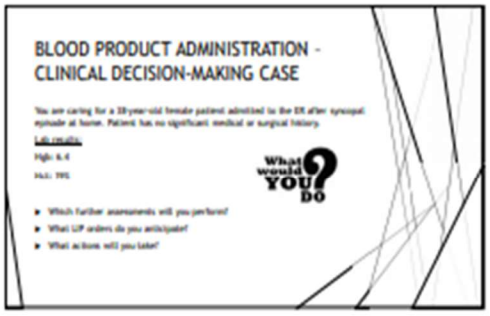

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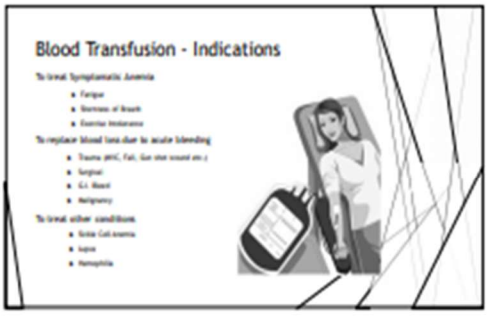

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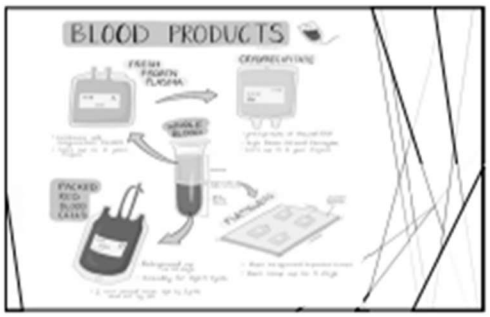

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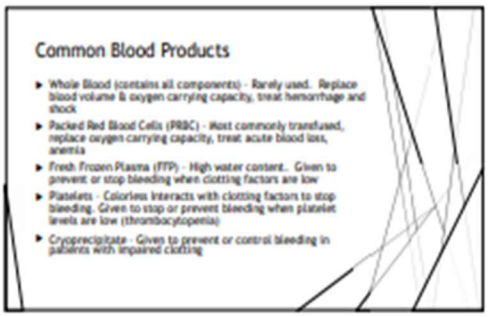


6

Blood Groups

- The ABO **blood group** system involves two **antigens** and two **antibodies** found in human **blood**
- The two **antigens** are **antigen A** and **antigen B**
- The two **antibodies** are **antibody A** and **antibody B**
- The **antigens** are present on the red **blood** cells and the **antibodies** in the serum.

7

Blood Groups

Blood group antigens play a role in recognizing foreign cells in the bloodstream.
Blood group antibodies are protein molecules produced by the immune system to remove foreign antigens.

If a person with blood type A receives a blood transfusion from blood type B:

- the recipient's immune system will recognize the type B cells as foreign
- The recipient's immune system will mount an immune response.

Antibodies against type B blood cells (anti-B antibodies) will be made, which attack and destroy the type B blood cells.

8

ABO Compatibility

There are four main blood types. Giving blood to or receiving blood from certain blood types may cause an immune reaction called ABO incompatibility.

ABO Blood Groups

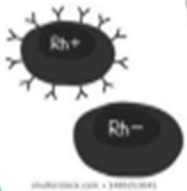
	Antigen A	Antigen B	Antigens A + B	Neither A or B
Antigens (on RBC)				
Antibody (in plasma)	Anti-B Antibody	Anti-A Antibody	Neither Antibody	Both Antibodies
Blood Type	**Type A** Cannot have B or AB blood. Can have A or O blood.	**Type B** Cannot have A or AB blood. Can have B or O blood.	**Type AB** Can have any type of blood. Is the universal recipient.	**Type O** Can only have O blood. Is the universal donor.

9

Rh Factor

A protein your blood either has or doesn't.

- If you have it, you're positive (more common)
- If you don't, you're negative



Rh incompatibility between pregnant mother and fetus may cause certain problems.

10

ABO Compatibility

- Who is the universal donor?
- Who is the universal recipient?
- What do the - and + mean?

11

Compatibility Testing

- Quick test to determine ABO and Rh type
- During an emergency, O-negative blood can be given to most blood types
  - O-negative is the universal donor
  - AB+ is the universal recipient

12

Compatibility Testing

Type & Screen

Determines patient's blood group & Rh type

Type & Cross

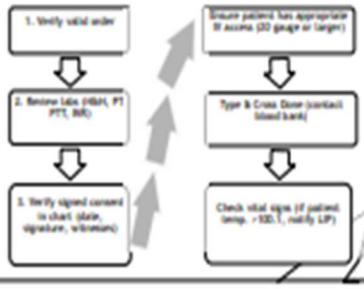
Determines blood group & Rh type,

Cross matches patient's blood with a selected unit of blood in preparation for transfusion

Done when the patient is likely to need blood

13

Nursing Management Pre-transfusion



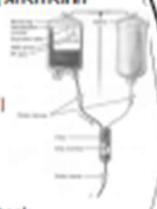
14

Nursing Management Pre-transfusion

Gather supplies:

- 0.9% Sodium Chloride (NS only!!)
- Blood Y-tubing with filter
- IV Pump
- Alcohol swabs

Order & collect blood from blood bank



15

Nursing Management Pre-transfusion

2 Registered Nurses must verify the following:

- ___Valid Order
- ___Consent in chart (signed, dated, witnessed)
- ___Type & Screen/Type & Cross
- ___2 patient identifiers (Name, DOB, MR#) - *double check* against:
  - LIP order
  - Blood transfusion request form
  - Blood product
  - Blood product slip

16

Nursing Management Pre-transfusion

Each nurse independently verifies on the bedside:

- Patient: Name, DOB, MR#
- Blood Unit #,
- Blood Type,
- Unit Expiry Date,
- Time issued by Blood bank (administer in 3-4 hours).

NOTE:

If unit is not being transfused for any reason, RETURN TO BLOOD BANK WITHIN 30 MINUTES of removing from blood bank!!

DO NOT store in unit refrigerator!!

17

VERIFY, VERIFY, VERIFY

****Use barcode scanning if available on your unit.**

****Most reactions occur because of mis-labelling or verification failures!!**

18

Blood Product Transfusion Administration & Monitoring

- Patient Education (indication, when to call the nurse)
- Obtain vital signs (notify LIP of any abnormals/deviations from baseline)
- Flush "Y"tubing with NS, clamp roller clamps.

19

Blood Product Transfusion Administration & Monitoring

- Invert blood product gently to mix cells (do not shake)
- Spike blood bag (open clamp)
- Program IV pump via guardrails

- Begin transfusion (remain with patient for the first 15 minutes)

20

Blood Product Transfusion Administration & Monitoring

- Re-check vitals at 15 minutes
- Assess for signs & symptoms of reaction in patient
- Infusion must be completed in 4 hours

What will prompt you to call the LIP?

21

Blood Product Transfusion Administration & Monitoring

CRITICAL POINTS

- Monitor for signs and symptoms of transfusion reaction
- Infuse over the ordered period
- Plan ahead, blood cannot be kept out of the refrigerator for more than 30 minutes
- Do not hang blood products for more than 4 hours

22

Blood Product Transfusion - Post-Transfusion

- Flush IV site with normal saline
- Dispose of tubing and blood bag in biohazard bag
- Obtain post-transfusion vital signs
- Perform head to toe assessment (include lung sounds)
- Documentation

23

Blood Product Transfusion - Post-Transfusion

<u>If additional unit(s) ordered</u>:

- Administered diuretic if ordered
- Prime new BLOOD Y-tubing with new NS bag
- Order and retrieve new unit from blood bank
- Repeat 2 RN checks
- Vital Signs as per protocol
- Repeat procedure for administration and ending

24

Administering Fresh Frozen Plasma (FFP)

CONTAINS: All clotting factors except platelets, fibrinogen, albumin, protein C etc..

INDICATION: Coagulation factor deficiencies, Warfarin reversal (if vitamin K is inadequate), DIC treatment

PREPARATION: Stored at -30 degrees Celsius, thawed in a water bath.

25

Administering Fresh Frozen Plasma (FFP)

ADMINISTRATION:

- Safety checks as for blood transfusion
- Administer immediately after thawing (over 1-1.5 hours)
- Volume 200 ml to 250 ml
- Utilize filter (standard y-tubing blood transfusion set)
- Rate 200 ml/hour or slower if indicated

26

Administering Platelets

CONTAINS: Platelets

INDICATION: Thrombocytopenia (low platelet level) Normal: 150,000-400,000

PREPARATION: Single donor or random donor pooled

27

Administering Platelets

ADMINISTRATION:

- All RN Safety checks
- May be administered rapidly over 30 minutes (unless contraindicated)
- Infuse within 4 hours of release from blood bank
- Utilize filter (standard y-tubing blood transfusion set)

28

Administering Cryoprecipitate

CONTAINS: High concentrations of coagulation factor VIII, coagulation factor XIII, and fibrinogen

INDICATION: Replenish fibrinogen in patients with acquired coagulopathy (liver transplant, trauma, OB hemorrhage)

PREPARATION: Prepared from FFP, thawed

NOTE: No pathogen deactivation - risk of transmitting blood borne pathogens

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Administering Cryoprecipitate

ADMINISTRATION:

- Administer immediately after thawing.
- All RN Safety checks
- May be administered rapidly over 30 min- 1 hour (unless contraindicated)
- Infuse within 4 hours of release from blood bank
- Utilize filter (in standard y-tubing blood transfusion set)

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Blood Product Administration - Clinical Decision-Making Case

You are administering a unit of PRBC to a patient for treatment of Hb/H 7.6/20. While monitoring the patient for the first 15 minutes at the bedside, he complains of itching and back pain.

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Transfusion Reaction

- Adverse reaction to blood therapy
- Ranges from mild symptoms to life threatening
- Can be acute or delayed

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Transfusion Reaction - S&S

Abnormal responses include

- hives
- itching
- fever greater than 1 C above the temperature at the start of transfusion
- chills
- hypotension
- dyspnea.

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Transfusion Reaction - Types

- Febrile (most common)
  - Sensitization to donor WBC, platelets or plasma proteins
- Allergic (mild reaction to severe anaphylaxis)
  - Hypersensitivity to donor plasma proteins
- Hemolytic (life-threatening)
  - Patient received incorrect blood type

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Transfusion Reaction - Types

- TACO - Transfusion Associated Circulatory overload (elderly, cardiac abnormalities)
  - Too much fluid given too quickly
- TRALI (Transfusion-related acute lung injury)
  - Non-cardiogenic pulmonary edema
- Sepsis
  - Bacterially infected components

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Transfusion Reaction - Interventions

1. Immediately stop transfusion
2. Notify LIP and blood bank
3. Maintain IV with normal saline infusion at slow rate (e.g. 10ml/hr)
4. Return blood and blood tubing to blood bank with blood transfusion reaction form

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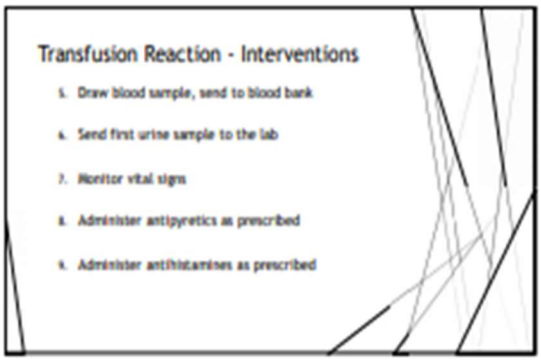
Transfusion Reaction - Interventions
5. Draw blood sample, send to blood bank
6. Send first urine sample to the lab
7. Monitor vital signs
8. Administer antipyretics as prescribed
9. Administer antihistamines as prescribed

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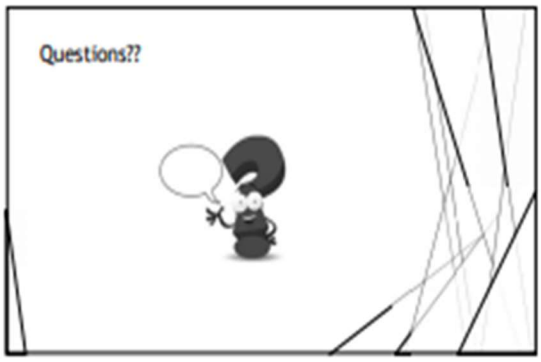
Questions??

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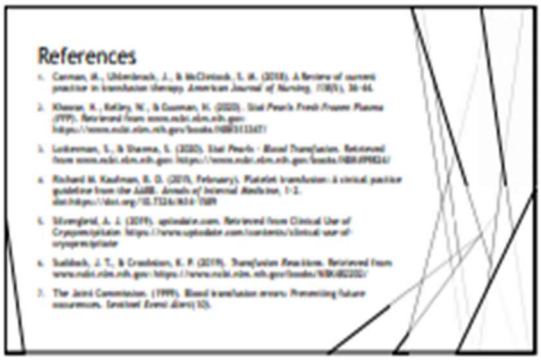
References

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