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Staff education program: Increasing nursing knowledge of exclusive breastfeeding

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This is to certify that the doctoral study by

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Abstract

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by

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MSNE, Medical University of South Carolina, 2009

Project Submitted Partial Fulfillment

of the Requirements for the Degree of

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Abstract

In the initial postpartum period, exclusive breastfeeding (EBF) improves women's and children's health status and outcomes. Gaps in nursing practice that decrease the rate of EBF during hospitalization at this site were identified by the lactation consultant using a standard chart audit during the last two years. The purpose of this Doctor of Nursing Practice education project was to provide a comprehensive education program that included the purpose, philosophy, nursing practice, and evaluation tools for increasing the EBF rates to meet the Joint Commission's standard of improvement for perinatal care core measures. A formal educational program that included didactic and hands on skills labs increased the knowledge and self-efficacy of perinatal nurses regarding best practice for exclusive breastfeeding. Using the analysis, design, development, implementation, and evaluation model, the education program had both didactic instruction and a one-hour skills lab experience. Based on post program survey results, 90% of participants reported increased knowledge and self-efficacy with plans to change future practice based on the information gained during the online program and the hands-on skills lab. This educational intervention has the potential to address the gaps in practice identified in the audits. As the percentage of exclusively breastfed infants in the hospital increases, exclusive breastfeeding rates should also increase for the recommended 6 months. The increased EBF should result in the social change of improved maternal and child bonding and improved infant and child health.

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Section 1: Nature of the Project

Introduction

The World Health Organization (WHO) and the American Academy of Pediatrics (AAP) recommend babies breastfeed exclusively for the first six months of life. Public health data indicate that if 90% of infants were breastfed exclusively for six months, the United States would save $13 billion annually through reduced healthcare costs (Radzyminski & Callistor, 2015). The benefits of exclusive breastfeeding for infants include the reduced incidence of allergies, asthma, infectious diarrhea, and malocclusion (Victoria et al., 2016). The benefits for the mother include the decreased incidence of breast and ovarian cancer, a rapid return to prepregnancy weight, and increased maternal-fetal bonding (CDC 2016a). The WHO Global Breastfeeding Score Card (2017) shows that only 40% of infants are exclusively breastfed globally. Only 23 countries have rates of over 60%. In 2015, the exclusive breastfeeding rate at six months in the United States was 24.9% (CDC, 2017a). In the Southern state that was the focus of this project, it was 24.4% (CDC 2017a).

A review of the literature conducted by Radzyminski and Callister (2015) showed that the key determinants of the maternal decision to breastfeed include maternal knowledge, personal support, and educational interventions provided by healthcare providers at birth. In this project, I addressed the nursing practice gaps noted during routine quality data collection for exclusive breastfeeding practices. My goal was to provide a comprehensive breastfeeding educational program that updated the nurses' knowledge and addressed specific barriers to implementing best practice guidelines. A

change in nursing practice can support the goal of EBF during hospitalization and beyond, thus promoting the positive social change of optimal health practices for maternal and infant health.

Problem Statement

The Healthy People 2020 goal of EBF until six months of age is 25.5%. The percentage of infants meeting this recommendation in the United States was 24.9% in 2015 (CDC 2017a). In the Southern state that was the focus of this project, it was 24.4% (CDC 2017a). In July 2019, the Women's Centers from two community hospitals merged to form one large unit. Both of the units had internal audits for exclusive breastfeeding rates over the last two years. The level of comfort with interventions that support exclusive breastfeeding during hospitalization was different for the two hospitals. According to the director of the study site, nursing practices that required change included skin-to-skin contact, rooming-in of mother and infant, and appropriate, medically indicated supplementation.

The chart audit collection began in January 2018. The chart audit consisted of Baby Friendly questions that were specific to the practices that support the breastfeeding mother at delivery and during hospitalization. Practices that enhance the expectation of exclusive breastfeeding within an environment that supports the mother's informed choice of feeding her infant include immediate and sustained skin-to-skin contact at birth and keeping the mother and infant together continuously throughout hospitalization (WHO 2016). Visits by the lactation consultant during hospitalization also increased the percentage of women who exclusively breastfed during their hospitalization (WHO

2016). In a study by Chantry et al. (2014), infants who received breastmilk substitute supplementation during hospitalization had a decreased rate of duration of breastfeeding at six months of life.

Nurses' knowledge and attitudes about breastfeeding predict actual supportive behaviors (Radzyminski and Callister, 2015). Radzyminski and Callister (2015) conducted a qualitative study with 53 healthcare professionals that provided care to breastfeeding women and their infants. The study resulted in four themes: understanding the benefits of breastfeeding, gaps between the knowledge of benefits and actual clinical practice, lack of assessment and therapeutic skills, and understanding how healthcare providers can help patients with barriers to breastfeeding. Breastfeeding support is consistent with the competencies and roles of the perinatal nurse (AWHONN, 2021).

Identified gaps in nursing practice that are not supportive of breastfeeding mothers included delayed skin-to-skin contact (SSC), supplementation without a medical indication, and the separation of the mother and infant for routine screening exams. The Breastfeeding Committee on the units consisted of the unit director, the unit managers, the IBCLC manager, the DNP student, and nurses from the labor and delivery, postpartum, and nursery units. The DNP student designed a staff education program that addressed the knowledge deficits noted during the chart audits. Educational interventions focused on practices that increase the success rate of EBF during hospitalization.

Purpose Statement

During the DNP education project, I created a comprehensive education program that included the purpose, philosophy, nursing practices, and evaluation tools required to

increase the exclusive breastfeeding rates during hospitalization. I addressed the practice gaps and barriers identified during the audit process. The guiding practice-focused question was: Will a formal educational program increase the knowledge and self-efficacy of perinatal nurses regarding practices that increase exclusive breastfeeding rates?

This educational intervention had the potential to address the gaps identified in the audits which included delayed skin-to-skin contact, supplementation with breastmilk substitutes without medical indication, the use of artificial nipples, and the separation of mothers and infants for routine screening exams. I addressed the gaps in practice through an educational program that included a pretest, a posttest, a one hour skills lab, and four hours of orientation with the lactation consultant.

Nature of the Doctoral Project

The project was an educational intervention, and I followed the recommendations of Walden's DNP Manual (2017). The educational model I chose to meet The Joint Commission's Perinatal Care Core Measure for exclusive breastfeeding is the analysis, design, development, implementation, and evaluation (ADDIE) model. The ADDIE model has five essential components to develop educational programs (Jeffery et al., 2015). I have discussed these elements under the concepts, models, and processes portion of Section two.

The educational program was assigned to all current staff on the Women's Health Unit. A pretest was administered before the educational program. A posttest was administered when the participants had completed the entire program. The breastfeeding

committee analyzed the results of the two tests to evaluate that learning had occurred. Staff members completed the self-efficacy tool at the end of the education session. After the participant completed the education and the skills lab, the staff member spent four hours with the lactation consultant to reinforce the learned concepts.

Educational programs designed to address practice gaps include planned evaluation strategies built into the implementation timeline. Evaluations validate the initial need for interventions, the effectiveness of the interventions, and the expected outcomes for the program (CDC's Healthy Community Programs, n.d.). I used the Kirkpatrick model (2019) for the evaluation of this educational program. I discuss this model in Section two. I used formative evaluation during the adoption of the program and best practice interventions. I evaluated the effectiveness of interventions at regular intervals and used them to adjust the program as recommended in the Centers for Disease Control (CDC)'s Healthy Communities Program (CDC's Healthy Communities Program, n.d.).

EBF during hospitalization increases the rate of infants' EBF through the first six months of life (WHO 2016). Interventions recommended in the WHO guidelines increase the percentage of infants that are ever breastfed in the United States (WHO 2016). The best practice interventions include skin-to-skin contact within five minutes of birth, infant rooming in with the mother, supplementation with breastmilk substitutes only if medically indicated, and consultation with an International Board-Certified Lactation Consultant (IBCLC) (WHO 2016).

The Joint Commission (TJC) established Perinatal Care Core Measures for all hospitals undergoing accreditation. EBF rate improvement is one of those core measures. The United States Breastfeeding Committee (2013) provides specific interventions that encourage breastfeeding. These interventions include SSC at birth, breastfeeding within the first hour of life, keeping the mother and infant together, and providing adequate breastfeeding support at discharge. All of these interventions are influenced by the actions of the perinatal nurse. Research on factors that influence EBF and duration demonstrated a two-fold increase in the incidence and duration of EBF after discharge when EBF is achieved during hospitalization (Radzyminski and Callister, 2015).

During the prenatal period, women receive information on the benefits of breastfeeding for themselves and their infants. This education is a part of routine prenatal care visits. Reenforcement of breastfeeding information in the form of pamphlets and web-based resources is an excellent resource for mothers. When women are admitted to the hospital for delivery, the labor and delivery nurse initiates conversations with the patient on the benefits of breastfeeding and the interventions offered to assist with the first breastfeed. These interventions include SSC, breastfeeding on demand, avoiding artificial nipples, and keeping the mother and infant together during the entire hospitalization (United States Breastfeeding Committee 2013).

Bedside perinatal nurses are critical to the process of educating and supporting women with breastfeeding immediately after birth and during their relatively brief postpartum stay (Aurbach 1979). SSC immediately after birth increases the success rate of breastfeeding initiation and accelerates the infant's physiologic status change to

extrauterine life (Burgio et al., 2016). SSC, unless medically contraindicated, is a priority in all deliveries.

EBF during hospitalization increased the duration of EBF at discharge, three months, and six months in patients that had cesarean section births (Guala et al., 2017). Research on spontaneous vaginal deliveries, operative vaginal deliveries, and cesarean sections demonstrated SSC to be beneficial to breastfeeding initiation (Lau et al., 2017). McFadden et al. (2017) published a Cochrane review on the effects of breastfeeding support interventions on EBF and any breastfeeding at four weeks, six weeks, and six months. The most effective intervention was education and support in the postpartum period and after discharge. Face-to-face support was more effective than telephone contact. Antenatal education was not as effective as postnatal education in increasing breastfeeding initiation and duration (McFadden et al., 2017). Educational interventions by trained lactation counselors, IBCLCs, providers, and peers all increased the initiation and duration of any and EBF (McFadden et al., 2017).

Significance

Public health data indicate if 90% of infants were breastfed exclusively for six months, the United States would save $13 billion annually through reduced healthcare costs (Radzyminski and Callistor, 2015). The benefits of EBF include the decreased number and length of stays for infants, decreased long-term health conditions such as obesity, diabetes, and cancer, and the increased disease-free state of individuals over the next 20 to 30 years (American Academy of Pediatricians [AAP], 2015). The decreased

healthcare costs for infants and children in the form of reduced morbidity due to the benefits of breastfeeding is a long-term benefit of EBF for six months (AAP 2015).

Nursing's influence on the mother's successful breastfeeding experience can affect the health of future generations, decreasing infant mortality and morbidity and the incidence of chronic diseases such as obesity, hypertension, and diabetes (Victora et al., 2016). Nursing interventions include: education on the benefits of EBF, SSC maintained at least one hour after birth or until after the initial breastfeed, nursing assistance with obtaining latch, and consultation with an IBCLC (Registered Nurses' Association of Ontario 2003).

The benefits to nursing practice include improving the knowledge and competencies of perinatal nurses in breastfeeding support. This nursing practice is consistent with the Surgeon General's call for action in 2011: "there are few opportunities for future physicians and nurses to obtain education and training on breastfeeding and the information in medical and nursing textbooks is often incomplete, inconsistent, and inaccurate" (United States Department of Health and Human Services [USDHHS], 2011, p. XX). Through this project, I supported nursing and physician practice by providing evidence-based education on best practice guidelines.

Summary

The Healthy People 2020 goal of EBF until six months of age is 25.5%. The percentage of infants meeting this recommendation in the United States was 24.9% in 2015. In the Southern state that was the focus of this project, it was 22.8% (Healthy People 2017a). The purpose of this DNP education project was to provide a

comprehensive education program that included the purpose, philosophy, nursing practice, and evaluation tools required to increase the rate of exclusive breastfeeding rates during hospitalization. This program addressed the practice gaps and barriers identified during the audit process. The guiding practice-focused question was: Will a formal educational program increase the knowledge and self-efficacy rating of perinatal nurses? The education program addressed the gaps in knowledge that were identified in the pre-education questionnaire. The post-education questionnaire results demonstrated a 10% increase in the knowledge level of the participants.

Section 2 will include additional information on the background and context for the DNP project. The breastfeeding committee discussed the evaluation model in detail with related objectives and measurements of successful implementation of the education program.

Section 2: Background and Context

Introduction

The benefits of exclusive breastfeeding for infants include the reduced childhood incidence of allergies, asthma, infectious diarrhea, and malocclusion (Victoria et al., 2016). The benefits for the mother include the decreased incidence of breast and ovarian cancer, a rapid return to prepregnancy weight, and increased maternal-child bonding (CDC 2016a). According to The WHO Global Breastfeeding Score Card (2017), only 40% of infants are exclusively breastfed, and only 23 countries have breastfeeding rates of more than 60%. In 2015, EBF at six months in the United States was 24.9% (CDC, 2017a). In the Southern state that was the focus of this project, it was 24.4% (CDC 2017a).

The Joint Commission (TJC) has established Perinatal Care Core Measures for all facilities that treat women and children. One of the core measures includes nursing practices that encourage EBF during hospitalization (TJC, 2018). In this project, I addressed the nursing practice gaps noted during the hospital's data collection for EBF practices. This education project aimed to provide a comprehensive breastfeeding education program to update the nurses' knowledge and address specific barriers to implementing best practice guidelines. A change in nursing practice can support the goal of EBF during hospitalization and beyond, thus promoting the positive social change of optimal health practices for maternal and infant health. The guiding practice-focused question was: Will a formal educational program increase the knowledge and self-efficacy of perinatal nurses regarding best practices for exclusive breastfeeding?

Using the ADDIE model for development, the education program provided the participants with the information needed for the perinatal care core measure of increased EBF. I evaluated the effects of the education with the Kirkpatrick model. The concepts unique to this project were EBF, SSC, and the restriction of nipples or teats during the establishment of breastfeeding. These concepts are discussed in the next section. The relevance to nursing practice reviews the existing scholarship on EBF and the current research. Strategies that have worked in the past were reviewed and implemented. Local background information on the practice issue is discussed in the next section. The final section reviews the role of the DNP student in the process.

Concepts, Models, and Theories

ADDIE Model

I used the ADDIE model (Jeffery, Longo, and Nienaber 2015) to develop my staff education project. This instructional design model has been used in the military, industry, and healthcare environments since 1975. The elements of this model include Analysis, Design, Development, Implementation, and Evaluation. The analysis consisted of a detailed examination of the practice issue. Research involved auditing patient records, surveys, interviews of stakeholders, and literature reviews (Lee et al., 2017). The design portion of the model included reviewing the information contained within the analysis and using it to form objectives for the program. Development used the objectives to develop an educational program to address practice issues identified during analysis. During the implementation stage, the Certified Nurse Specialist (CNS) provided the

educational program to the intended recipients. The committee used formative evaluation to adjust the program during each stage of the process.

Yee Fun Chow (2018) reports the need for identification of the intended audience during the first stage of the ADDIE model, analysis. During analysis, I used current breastfeeding rates, chart documentation reviews, and communication with the unit IBCLC to identify processes and knowledge deficits that indicated the need for further education. The design portion of the model included specific objectives that the committee addressed during program development. During design, the committee used the information learned from the analysis to form objectives and goals for participants. The committee reviewed current literature for best practice guidelines. The model's development portion identified best practice guidelines from the existing literature. The CNS implemented the program within the learning management system used by the staff members in the women's health unit of the facility. This program was assigned to all team members. After completion of the program, the team members worked with one of the LCs for 4 hours. Evaluation of the program included the pre-test and post-test results, the self-efficacy questionnaire, and planned chart audits within the six months after the project was complete. This project evaluated the level of increased knowledge associated with the program by using a pre-test and a post-test. Self-efficacy was evaluated using a standard Likert scale. Evaluating behavior changes and changes in the rate of exclusive breastfeeding were beyond the scope of the project.

Kirkpatrick Model of Evaluation

The Kirkpatrick model of evaluation has four levels. The levels are reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2019). The first level of assessment, reaction, concentrates on the perception of the targeted audience. How do learners perceive the learning activity? This level is a measure of how much the learners liked or disliked a program or learning activity. Scales include learner satisfaction levels, open-ended questions, and the Likert Scale. I used a Likert-style scale to evaluate the learner's satisfaction with the program presented (Kirkpatrick and Kirkpatrick 2019).

The next level of evaluation is the learning level. Evaluation measures changes in knowledge, skills, behaviors, and attitudes associated with the learning activity. Learning may be evaluated through quizzes, case studies, or simulation (Kirkpatrick and Kirkpatrick 2019). I used a pretest and post-test to measure the level of learning that occurred from the computer-assisted instruction program.

The third level of evaluation is behavior. The behavior level evaluates the effect of the educational program on an individual's behavior. This level of assessment required direct observation of the learner (Kirkpatrick and Kirkpatrick 2019). The evaluation of behavior was beyond the scope of this project to evaluate the behavior of the individuals. Before the education program, I administered an anonymous questionnaire to all staff members. Staff members were assigned a random code for each survey. After the 4-hour orientation with the IBCLC, the committee asked the staff to complete the questionnaire again. The questions were specific to the participant's feelings of self-efficacy and how

the program affected their practice. The unit will use this information for future educational program design.

The final level of evaluation is the results level. The results evaluation is the final product. Results measure the program's level of success using patient outcomes (Kirkpatrick and Kirkpatrick 2019). This level of assessment is beyond the scope of this project to evaluate the patient outcomes.

Concepts

Several concepts were significant to this project. The first concept is EBF, which is recommended for the first six months of life. Infants that are exclusively breastfed receive no food or nourishment other than breastmilk. When breastfeeding is delayed due to mother or infant factors, supplementation should be with breastmilk (WHO 2016). If breastmilk substitutes are used, supplementation for medical indications should use an appropriate amount to prevent the stretching of the infant's stomach. Breastmilk supplementation should occur using methods that do not include high-flow nipples and bottles. Some of the options include cup feeding, finger feeding with an orogastric tube, spoon-feeding, and the use of low-flow nipples with a bottle (WHO 2016). This recommendation results in numerous health benefits for the mother and the infant and decreases the disruption of the establishment of an adequate milk supply (WHO 2016).

The second concept is skin-to-skin (SSC). SSC is contact between the infant and a caregiver without barriers such as clothes or blankets. A diaper is acceptable and does not interfere with the bonding process. Infants should not wear hats. The nurse should

place a warm blanket over the infant and mother during this time. If the mother cannot provide SSC, the father or another individual may be substituted (WHO 2016).

The third concept, restriction of artificial nipples or teats, implies no bottles or pacifiers used during the establishment of breastfeeding, which takes about two weeks. Medically indicated supplementation must use a bottle with a low-flow nipple, a cup, a spoon, an orogastric feeding tube, or a syringe (WHO 2016). Medical indications for the use of artificial nipples include hypoglycemia, painful procedures such as circumcision, infant weight loss, hyperbilirubinemia, or prolonged separation of the mother and infant (WHO 2016).

Relevance to Nursing Practice

The Journal of Obstetrical and Gynecological Nursing (JOGN) published a position statement by the Association of Women's Health, Obstetrical, and Neonatal Nurses (AWHONN) on the nurse's role in the care of breastfeeding mothers. The nurse's role includes preparing, educating, encouraging, and supporting breastfeeding women (AWHONN 2016). Perinatal nurses have the knowledge and expertise necessary to guide mothers and infants in the essential task of initiating breastfeeding (AWHONN 2016).

Nurses who take care of women in labor must have the education and background necessary to support them as they establish the healthy behavior of breastfeeding (AWHONN 2016). When nurses discuss the benefits of breastfeeding with them, women are more receptive to initiate and continue breastfeeding (AWHONN 2016). Prenatal visits are opportunities to introduce breastfeeding concepts to women (WHO 2016). The

labor and delivery nurse should review information with the patient and ask the patient about feeding preferences (AWHONN 2016).

In 2013, the Centers for Disease Control (CDC) reported the U.S. infant mortality rate was 5.96/1000 live births (2014). The infant mortality rates in the state where the project was completed were 6.87/1000 live births (2014). It is necessary to examine the risk factors for infant mortality to understand the differences. Risk factors include race, age, mode of delivery, parity, body mass index (BMI), and tobacco use (Brown et al., 2014). Social factors include paternal attitudes, maternal education level, maternal support system, and maternal intention. Behavioral factors that interfere with EBF include pacifier use, breastmilk substitute supplementation, and artificial nipples (Brown et al., 2014).

Non-Hispanic Black women had an infant mortality rate of 11.01/1000 live births in 2013 (U.S. Census Bureau, 2017). This rate is more than twice that of non-Hispanic Whites (5.06/1000) and Hispanics (5.0/1000). The current population of non-Hispanic Blacks in the United States is 13.3%; it is 27.5% in the state where the project was completed (U.S. Census Bureau, 2017). Interventions to increase EBF should be culturally sensitive to this population.

The U.S. Census Bureau (2017) reported age as a significant deterrent for EBF. Women between 20 and 29 years of age are less likely to breastfeed than women over 30. Interventions targeted at this age group would include education specific to the short-term and long-term benefits of breastfeeding. This age group may be receptive to information on the socioeconomic benefits of breastfeeding due to developmental tasks relevant to

them. This population is receptive to education programs presented through technology such as phone applications and social media.

Low socioeconomic status is another risk factor. While the 2016 U.S. population poverty level was 12.7% this state's poverty rate was 15.3% of the population living at or below the federal poverty level. Education status level is another indicator, with higher education levels associated with higher EBF rates. The percentage of college graduates among residents in this state was 26.5%, while the national rate was 30.3% (CDC 2016).

Breastfeeding has benefits for mothers and infants. As recommended by the WHO (2016), providers are the first contact with the mother. Providers should introduce the benefits of breastfeeding during prenatal visits. Pamphlets and web-based resources will reinforce this information at each visit beginning in the second trimester. Early introduction of information can encourage the mother to make an informed decision to initiate a healthy behavior (Gurka et al., 2014). When education is delayed, there may not be enough time to change the behavior or thought processes (Gurka et al., 2014). In a study by Piro and Ahmed (2020), women who were provided two hours of antenatal education on the benefits of breastfeeding during prenatal visits were more likely to report a higher self-efficacy score. The authors also noted higher scores on a basic knowledge test after the education sessions (Piro and Ahmed 2020).

Postnatal community support includes breastfeeding support groups, home nurse visits, and pediatrician education on the benefits of continued breastfeeding (Perez-Escamilla et al, 2016). These interventions increase the duration of any and exclusive

breastfeeding after discharge to home with face-to-face contact for education resulting in an increased impact on duration compared with phone calls (McFadden et al., 2017).

Factors that result in early cessation of breastfeeding include income at or below the poverty level, the early use of pacifiers, and a lack of social support (WHO 2018). Vaginal deliveries and planned pregnancies have the highest incidence of early breastfeeding initiation, but antenatal breastfeeding education was the best predictor of duration (Yilmaz et al., 2017). Antenatal education on breastfeeding by providers, including the future health benefits of breastfeeding to mothers and infants, increased breastfeeding initiation and duration (Burgio et al., 2016).

The labor and delivery nurse will ensure SSC is initiated at birth or when the mother and newborn are stable. SSC maintained for at least the first hour of life or until the initial breastfeeding is completed is recommended (WHO 2016). During the initial SSC, safety measures are taken to maintain infant safety due to the risk of sudden changes in the infant's status. Healthcare workers trained in the care of the newborn must monitor the infant during SSC (AWHONN 2016).

The postpartum nurse continues to support the mother and infant dyad to establish breastfeeding. When used to encourage continued breastfeeding during the hospital stay and beyond, SSC effectively establishes breastfeeding (AWHONN 2016). The postpartum nurse re-enforces the information provided to the mother on the benefits of breastfeeding, establishing breastfeeding routines, and medically indicated supplementation methods (AWHONN 2016).

Local Background and Context

The local background and context section reviews the results of the audits performed over the past two years in this community hospital. Through audits performed by the Lactation consultant, practices that do not support breastfeeding were identified that were specific to this unit. These practices included delayed SSC, the infant transfer to newborn or level two nursery for transition, the separation of the mother and infant for routine screenings and testing, supplementation with breastmilk substitutes that are not medically indicated, and the delay of lactation support for new mothers or those experiencing difficulties while in the hospital. Implementation of the proposed education program provided perinatal nurses with knowledge of evidence-based practices for breastfeeding to fill this gap in practice.

EBF has multiple benefits for mothers and infants. This patient population has many characteristics that decrease the rate of EBF until the recommended six months of age. The factors include African American race, low socio-economic status, lower level of attained education, and marital status. The patient population in this community hospital had an elevated risk for early discontinuation of EBF. Health complications that could be decreased by following EBF guidelines include diabetes, obesity, allergies, asthma, and cancer (CDC 2016a).

SSC is beneficial to mothers and infants. During SSC, the mother's body temperature adjusts to warm the infant. The infant is calmed from listening to the mother's heartbeat, normalizing heart rate and respiration (AWHONN 2016). The mother's benefits from SSC include increased maternal/infant bonding, exclusive and

extended breastfeeding, increased confidence in the ability to breastfeed, and reduced symptoms of depression in the postpartum period (AWHONN 2016).

The breastfeeding task force was formed to address the low levels of EBF noted by the LC during the chart audits. Behaviors that decreased the rate of EBF during hospitalization were feedings with breastmilk substitutes using bottles and artificial nipples, delayed SSC, and separation during hospitalization. During the breastfeeding task force meetings, members were asked to brainstorm ideas for interventions to increase the current EBF rate from 25%. A review of the chart audit results highlighted the need for a staff education program to address the gaps in practice.

Role of the DNP Student

I participated as an active member of the breastfeeding task force on the unit. The task force was formed to address the low levels of EBF noted by the LC during the chart audits. During the chart audits, the LC noted several behaviors that decreased the rate of EBF during hospitalization. The first was supplementation of feedings with breastmilk substitutes using bottles and artificial nipples. Delayed SSC between the mother and infant and separation during hospitalization were also significant risk factors for discontinuing or interrupting EBF.

As a member of the project team, I assisted with the design, development, implementation, and evaluation of the educational module required by the staff. I reviewed clinical practice guidelines on breastfeeding and the care of the perinatal patient. I worked with the clinical education staff and the Lactation Consultant (LC) to

include evidence-based practice information on EBF benefits and behaviors that increase the exclusivity and duration of EBF during hospitalization.

The evaluation portion of the education included a pre-education and post-education knowledge survey. The L.C. and the staff member evaluated the four-hour session with the Lactation Consultant. After completing orientation with the lactation consultant, the staff member completed a self-evaluation that reflected their reported self-efficacy.

I was responsible for compiling the testing results and self-evaluation of the staff members. The results were presented to the breastfeeding task force at the end of the evaluation period. The task force reviewed the education module and made changes that included a one-hour skills lab to address the deficits that were noted. I have been working in perinatal nursing for many years, and my passion for breastfeeding may be considered a bias. The incorporation of other team members was essential to moderate my views.

Summary

EBF is recommended for the first six months of life. Perinatal nurses are essential resources for women during their peripartum experience. Preparing, assisting, educating, and supporting women as they establish breastfeeding are tasks within the scope of practice for nurses in this setting. The basic nursing education program does not offer a comprehensive course on breastfeeding. My project covered breastfeeding basics and allowed perinatal nurses to practice their skills while supporting women initiating breastfeeding during the immediate postpartum period. Staff education was the first step toward the goal of increasing the rates of EBF during hospitalization.

The following section includes the design, development, and implementation of the staff education program. The program objectives and goals, and evaluation methods were discussed using the Kirkpatrick model. Although it is not within this project's scope, I have shared the ongoing evaluation tools used to track the rate of EBF during hospitalization, SSC rates, supplementation with breastmilk substitutes, and the rate of rooming-in before and after implementation of the staff education program.

Section 3: Collection and Analysis of Evidence

Introduction

WHO and UNICEF recommend EBF until six months of age. Exclusive breastfeeding in the initial postpartum period increases the health status and outcomes of women and children. The Joint Commission (TJC) Perinatal Care Core Measures re-enforce the benefits of exclusive breastfeeding during hospitalization (TJC 2017). The gaps in nursing practice that decrease the rate of EBF during hospitalization were identified by the lactation consultant using a standard chart audit during the last two years.

The purpose of this DNP education project was to provide a comprehensive education program that included the purpose, philosophy, nursing practice, and evaluation tools needed to increase the EBF rates to meet the Joint Commission's standard of improvement for perinatal care core measures. This program addressed the practice gaps and barriers identified during the audit evaluation process. The guiding practice-focused question was: "Will a formal educational program increase the knowledge and self-efficacy of perinatal nurses regarding best practice for exclusive breastfeeding?"

This educational intervention has the potential to address the gaps in practice identified in the audits. As the percentage of exclusively breastfed infants in the hospital increases, exclusive breastfeeding (EBF) rates for the recommended six months should also increase. The increased EBF should result in the social change of decreased infant mortality and morbidity rates (CDC 2016a).

Sources of Evidence

Analysis of practice data began when the lactation consultant on the unit performed chart audits to determine the barriers to EBF. Research revealed that mothers who chose exclusive breastfeeding as a feeding plan could not do this during their hospitalization due to four identified nursing practices. Nursing practices that negatively impacted the EBF outcome included: interruption of SSC at birth, the separation of mother and infant during hospitalization, supplementation with breastmilk substitutes using artificial nipples or bottles without medical indication, and the lack of early, consistent visits from a lactation consultant or International Board-Certified Lactation Consultant (IBCLC). Factors that increased the success rate of EBF included immediate and sustained skin-to-skin contact at birth, breastfeeding within the first hour of life, patient education on practices that increased breastfeeding success, and early IBCLC visitation.

Before participation in the educational program, nurses were informed of the objectives and goals of the program. This program was a mandatory education module on the women and children's services unit. All staff members were required to participate in the education as part of the hospital's quality improvement process. The program was composed of a computer-assisted instruction module with a knowledge check before and after completion. Management also required staff to spend four hours with the lactation consultant to reinforce the learned concepts. The program will become part of the standard orientation for the women's unit staff members.

The education portion of the program was developed in conjunction with the

lactation consultant and perinatal nurse educator using the IBCLC education program. Emphasis was placed on the gaps in practice that became evident through the chart audits. Implementation began as soon as the program development was completed. Staff members were assigned to the program via the learning management system at the hospital. Each staff member was assigned a number for matching purposes so that individual names would not be collected. The program included a pretest and a posttest to evaluate that learning had occurred. The lactation consultant contacted staff members to complete the learning module and schedule four hours with one of the three lactation consultants. Evaluation of the program will be ongoing, with chart audits continuing throughout 2021, but the results are outside this project's scope.

The program included a formative evaluation of the program and adjustments to the educational program plan as required. The Kirkpatrick model of evaluation was used to determine the effectiveness of the interventions. The Kirkpatrick model includes four levels of assessment: Reaction, Learning, Behavior, and Results (Jeffery, et al, 2016). Level 1 is reaction, which measures the learner's satisfaction with the educational activity (Jeffery et al., 2016). Participants completed the hospital's standard continuing education evaluation form immediately after completing the program. This evaluation form used the Likert Scale to determine the learner's level of satisfaction with the presented program.

Level 2 is learning, which measures the modification of knowledge and skills after completing the learning activity (Jeffery et al., 2016). This level of evaluation was obtained via pretests and posttests. This evaluation verified that the learner received the information which resulted in a change in knowledge, skill, or behavior (Jeffery et al,

2016).

Level 3 is behavior. Level 3 evaluates the program's effect on individual behavior. The staff spent four hours with the LC after successful completion of the instructional portion of the program. Self-efficacy was measured by administration of a self-assessment tool developed by the me and approved by the breastfeeding task force committee. The Likert scale tool evaluated the staff member's commitment to changes in practice.

Level 4 is results, Level 4 measures the program's effect on patient outcomes (Jeffery et al. 2016). While this was outside the scope of this study, chart audits continued after the education was completed to assess nursing practice behaviors. Patient satisfaction scores are another measure of the results of the program. An outside source measures patient satisfaction scores.

Protections

This project did not involve patient care. The hospital required participants to complete the education, as part of the quality improvement process. The committee informed staff of the purpose of the education and how their identities will be protected through the use of a standard informed consent supplied by the internal review board. All participants used a unique identifier of their choosing to compare the pretest/posttest knowledge gain. The self-efficacy scale was anonymous. This proposal was sent to the Walden IRB for approval. Approval was granted at the study site by the internal nursing research council (IRB protocol number 09-14-20-0629852).

Analysis and Synthesis

I performed a literature search using the MESH terms: *breastfeeding, breastfeeding support, breastfeeding education, staff education, self-efficacy tools, nurse education, nurse training,* and *professional education*. This yielded 9,529 articles. The modified search produced scholarly articles within the past eight years, narrowing the results to 952 articles.

An extensive review of the literature yielded sufficient evidence of the need for an educational program to increase the knowledge base of perinatal nurses responsible for supporting mothers and infants as they learn to breastfeed. In a study by Folker-Maglaya et al. (2018), perinatal nurses reported feeling unprepared to support breastfeeding mothers during their short hospital stay. Nursing education programs during undergraduate courses only provided the basic anatomy and physiology of breastfeeding without emphasizing the methods of support required for new mothers.

Burgio et al. (2016) reported the need for increased emphasis on the benefits of breastfeeding and the support of breastfeeding women during medical training for providers. Their survey found that women who received support and education from their providers were more likely to breastfeed exclusively for the recommended six months. Providers reported feeling unprepared to assist women with breastfeeding support based on their educational experiences.

AWHONN position statement on breastfeeding (2014) emphasizes the importance of support for the breastfeeding dyad by perinatal nurses with specific training to their role. The perinatal nurse should have the knowledge and skills required to support

women during antenatal, perinatal, and postnatal periods with education and assistance about initiating breastfeeding and the benefits of exclusive breastfeeding for the first six months of life (AWHONN 2014). Perinatal nurses should be knowledgeable about the interventions that increase the initiation and duration of breastfeeding. These interventions include skin-to-skin contact, rooming-in, no supplementation with formula, and the availability of support after discharge through family members and community support groups.

This proposal was an educational program outlining evidence-based practice for the care of breastfeeding mothers and infants. The program introduced the basics of nursing care of the breastfeeding dyad during the perinatal period. Evidence-based practice interventions included immediate and sustained skin-to-skin contact, rooming-in, no supplementation of formula without a medical indication, and early access to an IBCLC or lactation counselor. The program's objectives included an increased understanding of maternal and infant breastfeeding benefits, evidence-based practices that improve the initiation and duration of exclusive breastfeeding during hospitalization and beyond, and the support role of the perinatal nurse.

Section 4: Findings and Recommendations

Introduction

WHO and AAP recommend babies breastfeed exclusively for the first six months of life. Public health data indicate that if 90% of infants were breastfed exclusively for six months, the United States would save $13 billion annually through reduced healthcare costs (Radzyminski and Callistor, 2015). The benefits of exclusive breastfeeding for infants include the reduced incidence of allergies, asthma, infectious diarrhea, and malocclusion (Victoria et al., 2016). The benefits for the mother include the decreased incidence of breast and ovarian cancer, a rapid return to prepregnancy weight, and increased maternal-infant bonding (CDC 2016A). The Baby-Friendly Hospital Initiative was designed to increase the current rate of infants that were ever breastfed to the Healthy People 2020 goal of 81.9 %.

A review of the literature conducted by Radzyminski and Callister (2015) showed that the key determinants of the maternal decision to breastfeed include maternal knowledge, personal support, and educational interventions provided by healthcare providers at birth. Nursing practice gaps were identified with a Baby Friendly questionnaire that assessed the nurses' current knowledge of Baby-Friendly criteria and standards that support exclusive breastfeeding.

The purpose of this education project was to evaluate the current knowledge of staff members and then target training activities that highlighted areas of knowledge deficits across the women's health unit. After reviewing the survey results, the committee developed a comprehensive breastfeeding educational program to update the nurses'

knowledge and address specific barriers to implementing Baby-Friendly Certification guidelines. A simulation lab followed the online education program. The skills lab included skills designed to support mothers during hospitalization as they begin to breastfeed. The nurses completed the Baby Friendly knowledge survey (Appendix A) after the education program was completed. Using the data collected before and after the educational program, the results were compared.

The staff members completed an evaluation using a Likert scale form. The Likert scale evaluated the staff member's level of self-efficacy, any planned changes to their current practice, and their current level of knowledge about breastfeeding guidelines (Appendix B).

In the findings and implications section, a review of the process is outlined, including the initial survey and the post-education program survey. The education program objectives are reviewed with the results of the post-education surveys. Carolina Global Breastfeeding Initiative (CGBI) designed the empower program to assist institutions with the baby-friendly initiative certification process. The empower program provided the evaluation tools for specific competencies that were required for the education program. After the education program, the staff completed a second survey to verify that learning had occurred.

The initial survey results were used to design the education program and included specific knowledge deficits identified through the survey. The project team used the empower program to create the education intervention posted to the learning management system. This program was adapted from the CGBI's Empower Program for Breastfeeding

(CGBI, 2017). The training included information critical to the site's plan for Baby Friendly Recertification for 2021.

The strengths of this project included using a standard Baby Friendly survey sample to evaluate the current level of knowledge within the nursing staff. The survey included the questions asked by the baby friendly team during the recertification survey. The women's unit was required to participate in the education program due to the hospital requirements for baby friendly recertification. The majority of the nurses on this unit had participated in baby friendly surveys in the past.

The limitations of the project included the small number of completed surveys returned, the departure of the CNS on the unit, and the use of a study that included multiple choice answers, making the compilation of results difficult. After the education and skills lab were completed, only 10 of 35 surveys were returned. I had to change the project site from the original one due to changes wrought by the COVID-19 pandemic.

Findings and Implications

The education program was designed after evaluating the deficits noted from the pre-test questionnaire. The skills lab stations addressed the specific knowledge deficits identified. The project team decided to use the empower program to develop the education intervention that would address the knowledge deficits noted from the initial survey results. This program was adapted from the Carolina Global Breastfeeding Institute's Empower Program for Breastfeeding (CGBI 2017). The site's plan for Baby Friendly recertification included the training provided through this education program.

The survey was a standard form used by Baby Friendly USA to screen care providers for the accepted practices used in baby friendly institutions (Appendix A). Eighty staff members were asked to complete the initial survey. The committee received 17 out of 80 surveys. Knowledge deficits included: education of patients for feeding choice, exclusive breastfeeding, benefits of breastfeeding for women and infants, artificial nipple use, and the requirement for breastmilk substitute preparation education for all patients (Table 1).

The breastfeeding committee assigned an education module on breastfeeding and the Baby Friendly initiative to all staff members. After completion, the staff members participated in a skills lab that focused on the six skills noted as deficient in the pre-education survey. The unit IBCLCs, the nurse educator, and I staffed the stations at the skills lab. The stations included hand expression of breastmilk, breast pump set up and use, alternative feeding methods for medically indicated supplementation, breastmilk substitute preparation and storage, safety issues related to infant feeding and sleep, and documentation of care expectations. Each station included storyboards, demonstrations, and hands-on practice for the staff. Staff members signed up for the lab in 1-hour increments. The committee sent the original questionnaire (Appendix A) and self-efficacy survey (Appendix B) to all skills lab participants after completing all six stations. Only 11 of the 17 original participants completed the post-education questionnaire and self-efficacy survey.

Results

Forty-five participants were assigned to complete the education program through the facility's learning management system (LMS) which consisted of a power point presentation designed to address the specific knowledge deficits found during the pre-education survey. Thirty-five participants completed the education and attended the one-hour skills lab. Eleven participants completed the post-education survey and self-efficacy form. Improvements in knowledge scores were noted in all areas of the questionnaire compared with the pre-education questionnaire results. The benefits of breastfeeding, the importance of immediate and sustained skin-to-skin contact for healthy mothers and infants, the need to teach mothers hand expression, and the safe preparation and storage of breastmilk substitutes indicators all demonstrated 100% accuracy on post-testing (Table 1). Self-efficacy ratings were 100% *strongly agree* or *agree* on the postsurvey (Table 2).

Table 1

Knowledge Assessment

Indicators	#Participants	Breastfeeding Benefits	Breastmilk hand expression	Preparation of breastmilk supplements	Supplementation methods
Pre-Education Survey	17	12	10	9	9
Post education survey	11	11	11	11	11

Table 2

Assessment of Self-efficacy

Indicators	# Participants	Strongly Agree	Agree	Disagree	Strongly Disagree
Pre-education Self-Efficacy Screening for level of comfort with breastfeeding support	17	9	3	3	2
Post-education Self-efficacy screening for level of comfort with breastfeeding support	11	10	1	0	0

Unanticipated Events

During the timeframe of my project, I have experienced many interruptions and setbacks. My initial project was designed to assist an institution with navigating the Baby Friendly Certification process. After multiple delays, the coordinator for the Baby Friendly process resigned from her position. The committee assigned to this project had to reconvene and adjust the timeline for obtaining Baby Friendly Certification. One of the two units was closed, and the committee decided to delay the certification process by 18 months. After 18 months, the committee began to meet again. The institution ultimately chose not to pursue Baby Friendly certification at this time.

My project then changed to monitoring exclusive breastfeeding rates and the effects of staff education on these rates. This change was in response to the Joint Commission Perinatal Care Core Measure that requires continuous improvement and monitoring of breastfeeding rates. After six months, I left this site, right before the COVID-19 pandemic began. I could not continue my work on the project at this institution due to changes in leadership and goals on the unit.

I obtained a preceptor at a different institution that was willing to work with me on this project. This Baby-Friendly institution was due for recertification this year. After receiving the Internal Review Board approval of the updates, I worked with the unit educator to evaluate the current level of knowledge of the unit staff.

This small study supports the need for additional education on breastfeeding for perinatal nurses and providers. Patient education needs to start early in the prenatal environment. Studies on feeding choice validate the recommendation that education should reinforce breastfeeding recommendations during every prenatal visit. The hospital care of peripartum patients should include breastfeeding benefits, skin-to-skin contact benefits, breastfeeding positions, and methods used to maintain the breast milk supply when mothers and infants are separated.

Institutions should have a breastfeeding education program incorporated into the orientation plan for peripartum nurses. Evidence-based practice for successful exclusive breastfeeding for the recommended six months supports the use of perinatal and peripartum education for patients and perinatal nurses. The lack of education on

breastfeeding from their healthcare provider was the highest risk for not initiating breastfeeding at birth (Gurka et al., 2014).

Breastfeeding is considered a public health issue for many reasons (Brown, 2017). Societal support of breastfeeding has enabled the creation of multiple breastfeeding support aspects within communities. Breastfeeding education should emphasize the health benefits for infants and moms due to the potential savings in healthcare expenses. A review of the impact of societal involvement that increases the number of exclusively breastfed babies includes investment in healthcare services for women who choose to breastfeed but have difficulty. Social awareness can promote the health benefits of breastfeeding and support women's right to select breastfeeding through changes to local, state, and national laws. Supporting the rights of mothers to choose the method of feeding for their infant and the control of marketing ploys by the breastmilk substitute industry are examples of community support (Brown A, 2017).

Recommendations

My recommendations include using multiple education modalities to ensure that perinatal care providers have the information needed to care for their patients. Using various modalities increases the retention of information. Providers should be required to participate in annual education program hours. Medical schools should initiate provider education on the care of the breastfeeding dyad during the instruction provided on women and infants' health. Schools of nursing should tailor nursing education to meet the needs of this patient population using the latest evidence-based practices.

Hospitals and communities must provide resources to assist mothers separated from their breastfed infants due to medical necessity. Hospital-grade electric breast pumps made available to mothers in the hospital and at discharge can ensure the maintenance of an adequate milk supply. A home visit or follow up with an IBCLC could be beneficial to ensure the mother and infant are adapting to the breastfeeding routine.

Contribution of the Doctoral Project Team

The doctoral project team consisted of the me, the unit's CNS, the three IBCLC members, the director of nursing, and the unit manager. This team met monthly during the initial project planning, then weekly after the results had been reviewed. The team was responsible for designing and implementing the education program. After implementation, the group met to evaluate the results and disseminate them within the organization.

The initial survey results were used to design an education module assigned in the facility's LMS for all staff on the Women's, Infants, and Children's units. After completion, the team members were required to attend a skills lab with hands-on experiences that addressed the deficits noted during the survey. After completing the skills lab, the participants completed the Baby Friendly survey a second time. This survey was collected and reviewed by the breastfeeding committee. The second survey results demonstrated an increased understanding of the benefits of breastfeeding for women and children, the technique used for breastmilk hand-expression, alternative feeding methods, and required patient education on the preparation and storage of breastmilk substitutes (Table 1).

Strengths and Limitations of the Project

The strengths of this project included using a standardized Baby Friendly survey questionnaire, the participation requirement within the unit, and the experience level of the project team. Limitations included the small number of initial surveys returned, staffing shortages within the Women's Health Unit, and the prolonged interval between the education program and the follow-up questionnaire.

The initial survey was used to evaluate the knowledge deficits that were specific to this unit. The group then addressed the deficiencies through an online educational presentation and a one-hour skills lab. Due to the plan for Baby-Friendly recertification this year, the staff members are required to have 10 hours of breastfeeding education. This program provided two hours of that education. One of the limitations of this project was the poor participation of the perinatal nurses. The committee solicited eighty initial surveys. Only 17 were completed and returned. The skills lab had 35 participants, but only 11 surveys were completed and returned. Another limitation was the planned resignation of the unit educator. She transferred to another unit two weeks after the last skills lab was completed. The skills lab had participants from the postpartum unit, labor and delivery, and the nursery. The participants were not separated into groups based on their specialties. The presence of multiple viewpoints made some information more difficult to teach due to the different requirements for mothers and infants on each unit.

Section 5: Dissemination Plan

In Section 5, I will describe my plans for disseminating the education program within the study entity. Plans for dissemination include annual competency evaluations of Baby Friendly guidelines, audits of documentation requirements, and use of the program for the orientation of new employees. I plan to submit a poster to my state's AWHONN organization. Other units interested in expanding their knowledge of breastfeeding can use the information to increase the understanding of perinatal nurses. Institutions can also use the data to encourage nursing programs to include this information in their curriculum.

Analysis of Self

During my journey, I have experienced multiple setbacks. My original project included the evaluation of my institution’s journey to becoming Baby-Friendly certified. My thoughts on this project were disorganized, and I had difficulty establishing the specific criteria that I wanted to evaluate. When the institution decided not to pursue the certification, I had to reevaluate the direction of the focus of my project. The change in my project changed my focus on the need for education on the importance of breastfeeding. During my research, I became more focused on the deficit of breastfeeding education provided during the standard nursing and medical education programs.

The information I found on the benefits of breastfeeding, the process of establishing breastfeeding, and mothers' education about breastfeeding inspired me to focus my education project on this topic. Nurses on women’s health units obtain much of their information on these subjects from the preceptors on their units. Many nurses bring

their own experiences with breastfeeding into their practice. The program I designed includes specific details on breastfeeding practices that lead to patient success.

Personal biases can affect all aspects of professional decisions. My personal experiences with breastfeeding included difficulty with latch and supply with my first child, which resulted in early supplementation and discontinuation of breastfeeding at two months. My second child was in the Level 3 neonatal intensive care unit (NICU) for 17 days. Although the nurses encouraged breastfeeding, the process of supplying breastmilk to them was complex without the continuous support required to establish and continue my milk supply. I never breastfed my third child due to the previous negative experiences with the first two children.

My breastfeeding difficulties led me to seek interventions that would increase the knowledge and comfort of my patients while establishing exclusive breastfeeding. The knowledge gained from reviewing evidence-based practices on exclusive breastfeeding has culminated in the educational program for this project. The knowledge has benefited my patients during the initial postpartum period as I have established procedures that encourage early and exclusive breastfeeding.

Summary

The AACN (2006) guides advanced nursing practices. The first essential is the use of scientific underpinnings for practice. During my project, I reviewed the research available on the benefits of exclusive breastfeeding and its effects on the health of women and infants. The breastfeeding committee created an educational program for the perinatal nurses on the unit. Using evidence-based interventions, I designed an

educational program for the nurses on the women's health unit that addressed the team's specific needs based on the initial survey of knowledge deficits. The educational program was assigned to the unit staff members on the hospital's learning management system. The educational program was completed and followed by a skills lab that addressed the specific knowledge deficits noted during the analysis of the pre-test questionnaire. After the education, the skills lab portion was assigned for the participants to put their new knowledge into practice.

The analysis of the post-education questionnaires was completed. All previously noted knowledge deficits had improved scores. The survey results (Table one) included five of the educational objectives. Participants correctly answered the questions on the benefits of breastfeeding, skin-to-skin contact, alternative feeding methods for supplementation, and the preparation and storage of breastmilk substitutes.

Formal nursing education provides only the basic information required to care for women during the peripartum period. Most nursing programs do not include breastfeeding information is not in the curriculum. Information obtained during clinical experiences does not meet the basic requirements for breastfeeding support. I would propose that nursing and medical curriculum include breastfeeding support information due to the benefits of breastfeeding to the health of future generations,

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Appendix A: Baby Friendly Survey

1. **List four benefits of breastfeeding for mothers and/or babies.**

1. _____

2. _____

3. _____

4. _____

2. **True or False -** it is important for all pregnant women to receive information about the benefits of breastfeeding and make a fully informed choice.

3. True or False - it is important that all pregnant women receive education about how to manage breastfeeding to prepare them for breastfeeding.

4. **Why is skin-to-skin important? Can choose more than one answer.**

☐ Regulates temperature of mother and/or infant
☐ Facilitates initiation of breastfeeding
☐ Has positive impact on mother-infant bonding
☐ Calms mother and/or baby
☐ Regulates heartbeat and/or breathing
☐ Regulates infant blood glucose levels, reducing risk for hypoglycemia
☐ Other evidence-based reason: _____

Follow up with this question:
5. When should skin-to-skin be initiated after vaginal delivery? And, after cesarean delivery? Can choose more than one answer.

☐ Immediately (within 5 minutes) after vaginal birth, unless there are medical problems
☐ As soon as the mother is responsive and alert following a cesarean birth unless there are medical problems
☐ Has positive impact on mother-infant bonding
☐ To prepare them for breastfeeding

Follow up with this question:
6. How long should skin-to-skin last in the immediate postpartum period? Can choose more than one answer.

☐ As long as the mother wishes
☐ At least until completion of the first breastfeeding, and at least one hour for a baby who is fed formula

7. Why is correct positioning and attachment important for breastfeeding? Can choose more than one answer.

☐ Supports efficient milk transfer
☐ Supports sufficient milk supply
☐ Reduces risk of nipple soreness

8. **Why is it recommended that all breastfeeding mothers are taught to express their milk by hand? Can choose more than one answer.**

☐ Help baby to attach
☐ Relieve engorgement
☐ Treat a blocked duct
☐ More effective method of expressing colostrum
☐ May be more effective than pumping
☐ Other evidence-based reason: _____

9. Why is it important that mothers with babies in the NICU be advised to express their milk as soon as possible after delivery? Can choose more than one answer.

☐ Provide colostrum for the baby
☐ Stimulate milk supply
☐Treat a blocked duct
☐ Relieve engorgement

Follow up with this question:
How often should mothers with babies in the NICU be advised to express their milk? Fill in blank.
☐ At least ____ times in 24 hours

10. **What is the importance of avoiding supplementation of breastfed babies with formula when not clinically indicated? Can choose more than one answer.**

☐ Decreased breastfeeding leads to reduced milk supply
☐ Mother loses confidence in breastfeeding
☐ Allergic sensitization of baby
☐ Other evidence-based reason: _____

11. **Why is rooming-in important for breastfeeding? Can choose more than one answer.**

☐ Mother learns feeding cues
☐ Mother learns how to handle and comfort her baby
☐ Supports feeding on demand
☐ Baby learns to recognize his or her mother
☐ Other evidence-based reason: _____

12. **Why is cue-based feeding important for successful breastfeeding? Can choose more than one answer.**

☐ Supports appropriate milk supply
☐ Reduces risk of engorgement
☐ Helps the baby feel satisfied
☐ Other evidence-based reason: _____

13. **Why should artificial nipples and pacifiers be avoided during the establishment of breastfeeding? Can choose more than one answer.**

☐ May make it more difficult for baby to attach to the breast
☐ Interferes with cue-based feeding, leading to decreased milk supply
☐ Supports appropriate milk supply
☐ Reduces risk of engorgement

14. **Do you teach mothers how to position and attach their babies for breastfeeding?**
☐ Yes ☐ No

15. **Do you teach mothers how to hand express breast milk?**
☐ Yes ☐ No

16. **True or False. Listed is the correct way to teach a mother to hand express. Can choose more than one answer.**

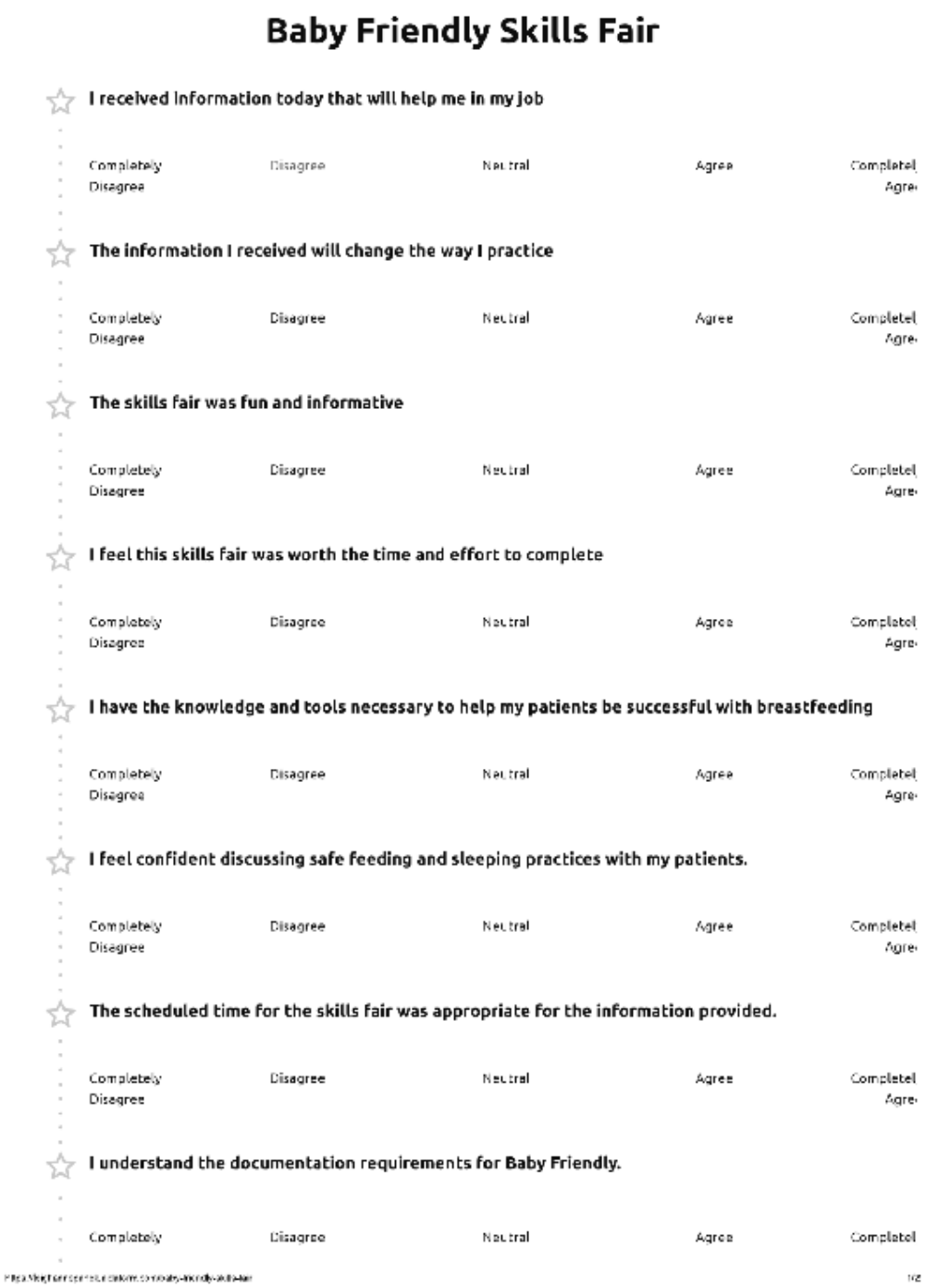
1. Stimulate the breast with massage and nipple stimulation.
2. *Gently grasp the breast with the thumb and forefinger at the approximate location of where the baby's lips would be located for a correct latch and press the breast back toward the chest wall.

   *Use the forefinger and thumb to gently compress toward the nipple in a steady rhythm, without sliding the fingers along the skin.
3. Milk may take a few minutes to flow.
4. Rotate fingers around the breast to express all quadrants of both breasts.

17. **Please describe what important information mothers who are feeding formula need to know in order to safely prepare formula and feed their babies.**

☐ Safe storage
☐ Safe handling
☐ Appropriate reconstitution
☐ Appropriate hygiene
☐ Accuracy of measurement of ingredients
☐ Cleaning of utensils and equipment
☐ Appropriate feeding methods

Appendix B: Baby Friendly Skills Fair Questionnaire



Baby Friendly Skills Fair

I received information today that will help me in my job

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

The information I received will change the way I practice

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

The skills fair was fun and informative

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

I feel this skills fair was worth the time and effort to complete

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

I have the knowledge and tools necessary to help my patients be successful with breastfeeding

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

I feel confident discussing safe feeding and sleeping practices with my patients.

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

The scheduled time for the skills fair was appropriate for the information provided.

Completely Disagree | Disagree | Neutral | Agree | Completely Agree

I understand the documentation requirements for Baby Friendly.

Completely Disagree | Disagree | Neutral | Agree | Completely