THE IMPACT OF THE BREASTFEEDING EDUCATION AND TRAINING PROGRAM ON PERINATAL NURSES' KNOWLEDGE AND PRACTICES AND THE HOSPITAL'S EXCLUSIVE BREASTFEEDING RATE

BY

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Abstract

Background: Breast milk is proven to be a reliable source of valuable nutrition for newborns and infants. Breastfeeding has so many benefits, not only for the baby's growth and development, but also for the mother's health and well-being. But most mothers are not exclusively breastfeeding or are not breastfeeding long enough as recommended. **Purpose:** This DNP project aims to evaluate the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate. **Design Methods:** A cross-sectional quantitative research methodology was used among perinatal nurses (n=45). Correlational research design was used to show whether an association exists between two variables – breastfeeding education and training program (independent) and perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate (dependent). **Conclusion:** The project had a positive impact on perinatal nurses' knowledge and practices as shown by improved post-test scores compared with their pretest scores. The younger perinatal nurses in the age group of 20-30, with 0–6 years of nursing experience, and 0–6 years of perinatal nursing experience were the groups that were highly and significantly changed by the project. Lastly, the findings showed that there was no statistical significance in the hospital's exclusive breastfeeding rates three months after it was conducted. **Implication to nursing practice:** Perinatal nurses' education and training underpins quality care. Therefore, providing nurses with continuing education and skills training ensures application of evidence-based practices for successful breastfeeding.

Keywords: Breastfeeding, Breastfeeding education, Exclusive breastfeeding, Perinatal nurses

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Chapter One: Background

Introduction

One of the effective ways to ensure child health and survival is breastfeeding. Breast milk is proven to be a reliable source of valuable nutrition for newborns and infants. Not only is it safe and clean, but it also has antibodies which protect infants from many common childhood illnesses. The short- and long-term medical and neurodevelopmental advantages of breastfeeding make breastfeeding, or the provision of human milk, a public health imperative (Meek & Noble, 2022).

Breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to diabetes later in life (World Health Organization, 2023). Breastfed babies have a lower risk of asthma and sudden infant death syndrome (SIDS) and are less likely to have ear and stomach infections (Centers for Disease Control and Prevention, 2023). Exclusive breastfeeding for more than ninety days is associated with protection against childhood morbidity and given the protective effect of breastfeeding on adverse health effects in infants, policymakers should prioritize policies that support, promote and protect exclusive breastfeeding (Murphy et al., 2023).

Breastfeeding has so many benefits, not only for the baby's growth and development, but also for the mother's health and well-being. In a systematic review and meta-analysis of 22 studies, women who ever lactated had a 27% lower risk of maternal type 2 diabetes mellitus compared to women who never lactated (relative risk [RR] 0.73 [95% confidence interval [CI] 0.65, 0.83]) (Pinho-Gomes et al., 2021). Women who breastfeed also have a reduced risk of breast and ovarian cancers (World Health Organization, 2023). Type 2 diabetes and high blood pressure are less common among women who breastfeed (Centers for Disease Control and

Prevention, 2023). In a comprehensive literature review by Tucker & O'Malley (2022), exclusive breastfeeding increases the mother's self-efficacy and provides protection from symptoms of postpartum depression.

Identification of the Problem

The United States Dietary Guidelines for Americans 2020-2025 recommend that infants be exclusively breastfed for about the first six months with continued breastfeeding while introducing proper supplementary foods for one year or longer (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2020). The American Academy of Pediatrics (Meek & Noble, 2022) recommends exclusive breastfeeding for approximately six months after birth and continued breastfeeding, along with proper supplementary food introduced at about six months, as long as mutually desired by mother and child for two years or beyond. These recommendations are consistent with those of the World Health Organization (WHO) (Meek & Noble, 2022). Although most infants receive some breast milk, most are not exclusively breastfeeding or continuing to breastfeed as long as recommended (Centers for Disease Control and Prevention, 2023). Among infants born in 2019, most (83.2%) started out receiving some breast milk, and 78.6% were receiving any breast milk in one month (Centers for Disease Control and Prevention, 2022). At six months, 55.8% of infants received any breast milk and 24.9% received breast milk exclusively (Centers for Disease Control and Prevention, 2022). At twelve months, only 35.9% of infants received any breast milk.

In New Jersey, breastfeeding rates among infants born in 2019 reported that: ever breastfed 82.5%, breastfeeding at six months 55.4%, breastfeeding at twelve months 33.8%, exclusive breastfeeding through three months 41.2, exclusive breastfeeding through six months 23.5%, breastfed infants receiving formula before two days of age 25.2% (Centers for Disease

Control and Prevention, 2022). The New Jersey Department of Health's Division of Family Health Services calls on all medical providers to implement evidence-based practices to promote and support breastfeeding (New Jersey State Health Assessment Data, 2023).

Knowledge of, attitudes toward, and, ultimately, perceptions of breastfeeding differ among and between physicians, midwives, and nurses who provide care to childbearing women (Quinn & Tanis, 2020). The difference can potentially affect the education and support that professionals in each discipline provide to women, specifically during the immediate postpartum period (Quinn & Tanis, 2020). Breastfeeding women could be provided with incorrect or inconsistent information. Nurses could have a lack of knowledge or poor understanding of the need for and importance of breastfeeding. Nurses' personal or familial experiences could contribute to the nurses' breastfeeding knowledge, attitude, and practices, and to the hospital not achieving or sustaining higher exclusive breastfeeding rates. Implementing consistent breastfeeding information and evidence-based practices in birth hospitals or centers could improve breastfeeding initiation, duration, and exclusivity and the hospital's exclusive breastfeeding rate.

Purpose

The purpose of this study is to evaluate the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate.

Problem Statement

What is the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate?

P – Perinatal Nurses

I – Breastfeeding Education & Training Program

C – Compare perinatal nurses' breastfeeding knowledge & practices & the hospital's exclusive breastfeeding rate before and after the intervention

O – Improved perinatal nurses' breastfeeding knowledge and practices & increased in hospital's exclusive breastfeeding rate

T – 3 months

Variables:

The breastfeeding education & training program is the independent variable and the perinatal nurses' breastfeeding knowledge and practices, and the hospital's exclusive breastfeeding rate are the dependent variables.

Operational Definition of Terms

After the intervention – the period after the breastfeeding education and training program is provided to the perinatal nurses (post-test).

Before the intervention – the period before the breastfeeding education and training program is provided to the perinatal nurses (pre-test).

Breastfeeding (BF) – the process of feeding a mother's breast milk to her infant, either directly from the breast or by expressing (pumping out) the milk from the breast and bottle-feeding it to the infant (National Institutes of Health, 2017).

Breastfeeding Education & Training Program – professional education includes any program that improves the knowledge, skills, attitudes, or behaviors of health care providers in relation to the importance of breastfeeding, the physiology and management of lactation, or the need for breastfeeding counseling for mothers (Centers for Disease Control and Prevention, 2013). Breastfeeding education programs can be provided in person or online and can range from

1-hour lectures to intensive courses that last several weeks (Centers for Disease Control and Prevention, 2013). Building skills to help health care providers deal with even routine lactation problems takes a combination of extensive formal instruction and practical experience (Centers for Disease Control and Prevention, 2013). Breastfeeding education needs to incorporate practical breastfeeding skills, not just theoretical training (Mulcahy et al., 2022).

Exclusive breastfeeding (EBF) – when an infant receives only breast milk, no other liquids or solids are given – not even water, except for oral rehydration solution, or drops/syrups of vitamins, minerals, or medicines (World Health Organization, 2016).

Exclusive breastfeeding rate – the hospital's exclusive breastfeeding rate of infants during their entire hospital stay.

Knowledge – the fact or condition of knowing something with familiarity gained through experience or association (Merriam-Webster, 2024).

Perinatal nurses provide care and support for women and their families before, during, and after childbirth; provide education and resources about pregnancy and childbirth, and help oversee the mother and child during pregnancy, childbirth, and postpartum to ensure the health of both (Nursing Theory, 2023).

Practices – actual performance or application (Merriam-Webster, 2024).

Significance of Project for Nursing and Healthcare

The breastfeeding benefits for infants are well documented in the literature. However, the positive impacts of breastfeeding on mothers are not widely communicated. Improving communication strategies of beneficial aspects of breastfeeding not only for the child but also for the mother may increase rates of breastfeeding initiation and improve duration of breastfeeding (Tschiderer et al., 2022). Problems or discomforts when breastfeeding may be encountered.

Therefore, mothers may need support and help. The mother's decision to exclusively breastfeed can be influenced by several factors and the mother's success in doing so can be greatly influenced by the support she receives for breastfeeding. Mothers who are experiencing difficulties with breastfeeding are not satisfied and decide to stop breastfeeding early (Seabela et al., 2023). Intervention efforts should focus on educating mothers to overcome the barriers and difficulties they meet and bring them back in control.

Nurses play a vital role in protecting the health of mothers and infants by supporting breastfeeding worldwide. Adequately trained nurses serve as frontliners in promoting breastfeeding and aiding mothers cope with the challenges of breastfeeding. There is an urgent need to improve breastfeeding knowledge and training among nurses. Mulcahy et al. (2022) concluded that there is a need for high quality research evidence to improve the design and delivery of skills-based breastfeeding education for healthcare professionals.

Through this DNP project, support from nurses can be provided to women and their families, which can play a critical role in influencing women's decision to start and to keep breastfeeding. Adequate, up-to-date, and continuous breastfeeding education and training provided to nurses and other healthcare professionals are imperative to effectively help women achieve their breastfeeding goals and to improve breastfeeding rates. Nurses can also be involved in routinely monitoring policies and programs to evaluate breastfeeding practices and outcomes.

DNP Project Essentials

Essential I: Scientific Underpinnings for Practice

The Plan-Do-Study-Act (PDSA) Cycle will be used and involves four stages to start the change. By using a systematic approach and using evidence, the education and training program will be developed. A DNP graduate is a change agent who can involve other key stakeholders in

finding the problem, setting the goal, and planning the action. This could include staff from all shifts, increasing staff involvement and buy-in.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Having leadership knowledge and skills is essential to start and develop quality improvement projects, such as the breastfeeding education and training program for perinatal nurses. The program will enhance the competencies of perinatal nurses. A DNP graduate also needs to evaluate whether the goals to improve the knowledge and practices of perinatal nurses are improved and whether lactation support to postpartum women to achieve their breastfeeding goals is increased. In doing so, the program can be sustained or dissolved.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Use analytic methods to critically appraise existing literature and other evidence to find and implement the best evidence for practice. Design and evaluate a quality improvement project to conduct a breastfeeding education and training program for perinatal nurses to support breastfeeding mothers to be successful.

Essential V: Health Care Policy for Advocacy in Health Care

This DNP project can start change by increasing public awareness of the importance of breastfeeding. This can be a call to action in urging political leaders, policymakers, hospital leaders, and funders to protect breastfeeding mothers and to invest in nurses and other healthcare professionals. By providing comprehensive and specialized breastfeeding training and continuing education and by giving adequate staffing to ensure providing enough time to support breastfeeding, the legislation will protect the rights of these breastfeeding women and infants.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

To address the barriers experienced by breastfeeding women, adequate education and training should be provided to nurses and other healthcare professionals. In doing so, successful breastfeeding can change and improve the health of two of the most vulnerable population, the postpartum women, and their newborns.

Summary

Breastfeeding has lifelong health benefits to both mothers and infants. Breastfeeding strongly changes patient outcomes, healthcare costs, and thus the economy. With this steady decline in breastfeeding and exclusive breastfeeding rates, a stronger system of support is needed for breastfeeding families to reach their breastfeeding goals (Centers for Disease Control and Prevention, 2022). By naming the benefits of breastfeeding and by finding the barriers to successful breastfeeding, a suitable intervention could be developed and adapted to provide evidence-based breastfeeding support to women who choose to breastfeed. Nurses truly play a vital role in providing breastfeeding women with this much needed support.

Chapter Two: Review of Literature

Introduction

Chapter two presents a literature review that supported breastfeeding knowledge and practices of health care providers, improving exclusive breastfeeding rates, and implementing staff education. The review was organized beginning with the search description, discussion of resources, and followed by the theoretical framework for the project. A thorough review of literature was performed utilizing CINAHL and ProQuest. *Breastfeeding promotion, intervention for successful breastfeeding, barriers to successful breastfeeding,* and *tools to measure breastfeeding knowledge and practices of healthcare providers* were used as keywords. After searching and finding the articles, they were screened by limiting the publication year from 2017 to 2023. A review of articles was conducted to show applicability to the DNP project, followed by an abstract review. Full-text access requested for the abstracts that will support the EBP (Evidence Based Practice) question. Articles found to support the EBP question were then added to the reference list. Four research articles were included for the literature review. See the reference below for the complete list of evidence.

Theoretical Framework

The Plan-Do-Study-Act (PDSA) method is a way to test the changes created by a quality improvement project implementation (Agency for Healthcare Research and Quality, 2024). In using the PDSA cycle, you develop a plan to test the change (Plan), carry out the test (Do), observe, analyze, and learn from the test (Study), and decide what modifications, if any, to make for the next cycle (Act) (Appendix A). Following the prescribed four steps guides the thinking process into breaking down the task into steps and then evaluating the outcome, improving on it, and testing it again (Agency for Healthcare Research and Quality, 2024).

Plan: First step, analysis of current problems of declining exclusive breastfeeding rates and inconsistent breastfeeding information from perinatal nurses. Plan to design and conduct the breastfeeding education and training program for perinatal nurses. Pretests will be taken by perinatal nurses who give consent to participate.

Do: Second step, the program will be conducted. A 1-hour presentation to provide updated knowledge and evidence-based practices to support breastfeeding mothers in the hospital will be presented to perinatal nurses. Monitoring to ensure that the Ten Steps to Successful Breastfeeding are practiced.

Study: Third step, after implementation, post-test will be taken by the same perinatal nurses who took the pre-test and attended the breastfeeding and training program. The results will be analyzed as to how well the intervention achieved the desired goal.

Act: Lastly, a conclusion will be made. If it did not work, what can be done differently to address it? If it did work, will it be ready to be disseminated to change breastfeeding practices? Regular updates on how the unit is doing are essential. This includes how the breastfeeding practices are improving, and the hospital's exclusive breastfeeding rate is increasing. Changes and adjustments can be made as the need arises, then the PDSA cycle can be repeated.

By planning and implementing on a small scale like our unit, innovative ideas and effective practices can be advanced to a larger scale to make changes in system-level practices to improve breastfeeding support. Evidence can be generated by using PDSA to prove best practices at a smaller level before bringing it up to a larger level.

Literature Review

Nurses play a key role in the promotion and in the success of breastfeeding among pregnant and postpartum women. Nurses are the frontline advocates of breastfeeding. Nurses can

support mothers and babies in the health facilities and in the community. Nurses can influence women in making their decisions to breastfeed and their desire to continue breastfeeding. Women still turn to nurses as their primary source of valid and credible health information, so they need in depth knowledge and skills on breastfeeding and lactation. However, studies have found that some nurses lack the knowledge and skills to help breastfeeding women when they encounter problems. Filling the gap in knowledge and improving the skills and attitudes of the healthcare providers through education and training, may have a significant impact on supporting breastfeeding women.

According to the Surgeon General's Call to Action to Support Breastfeeding (Centers for Disease Control and Prevention, 2023), two of the obstacles that mothers encounter when they try to breastfeed are lack of up-to-date instruction and information from healthcare professionals, and hospital practices that make it hard to get started with successful breastfeeding. Pre-service and continuing education for breastfeeding-related topics ensures that mothers receive, and use correct and evidence-based information (World Health Organization (WHO) and United Nations Children's Fund (UNICEF), 2021). Limited opportunities for training are often reported by many midwives and nurses, especially those caring for vulnerable small and sick newborns (World Health Organization (WHO) and United Nations Children's Fund (UNICEF), 2021). All midwives and nurses have a valuable role in supporting the health of mothers, infants, and children through protecting, promoting, and supporting breastfeeding (World Health Organization (WHO) and United Nations Children's Fund (UNICEF), 2021). Government leaders, policymakers, managers, implementers, and funders are urged to value this role and invest in providing midwives and nurses with the time to provide quality care (World Health Organization (WHO) and United Nations Children's Fund (UNICEF), 2021).

The review done by Mulcahy et al. (2022) aimed to identify, analyze, and evaluate studies on breastfeeding skills education for health care professionals. The authors concluded that the review could be used to inform future development of skills-based training for students and qualified healthcare professionals, to improve breastfeeding support for families (Mulcahy et al., 2022). Breastfeeding education needs to incorporate practical breastfeeding skills, not just theoretical training (Mulcahy et al., 2022). Educational interventions, delivered by knowledgeable multidisciplinary facilitators, that incorporated practical and/or observational element(s) with theoretical learning were relatively successful at achieving desired learning outcomes (Mulcahy et al., 2022). There is a growing awareness of the benefits of breastfeeding and an increased recognition of the importance of continued professional development, therefore, breastfeeding educational interventions need to take a multimodal approach, that enables healthcare professionals to challenge pre-existing attitudes relating to breastfeeding; gain up to date skills-based competencies and adopt evidence-based practices when supporting breastfeeding families (Mulcahy et al., 2022).

A systematic review was done by Wang et al. (2022) that aimed to find, summarize, and critically analyze the available literature to evaluate the effects of midwife breastfeeding training programs on the midwives' knowledge, attitude, and practice (KAP) towards breastfeeding and breastfeeding initiation, duration, and rates among postnatal mothers. Following the implementation of a breastfeeding training program for midwives, mothers had significantly longer durations of exclusive breastfeeding ($p < 0.05$), fewer breastfeeding challenges ($p < 0.05$) (e.g. breast milk insufficiency), and higher satisfaction with breastfeeding counseling ($p < 0.01$), and fewer infants received breast milk substitutes in their first week of life without medical reasons ($p < 0.05$) in the intervention group compared with the control group (Wang et al., 2022).

However, no significant effects were seen on the initiation and rates of breastfeeding after implementation of the programs (Wang et al., 2022). Authors suggest that future breastfeeding training programs should incorporate counseling skills alongside breastfeeding knowledge and skills training (Wang et al., 2022).

A cross-sectional study was done by Dubik et al. (2021) that evaluated breastfeeding competencies, training, barriers, and satisfaction of breastfeeding educational experiences among nurses and midwives providing maternal and child health services at various primary healthcare facilities in Sagnarigu Municipality, Ghana. Breastfeeding education is critical in improving healthcare professionals' competencies in providing breastfeeding care to mothers (Dubik et al., 2021). Having breastfeeding programs and policies that will improve nurses' and midwives' knowledge and competencies in breastfeeding and continuous breastfeeding training are recommended. This will lead to providing the necessary support to breastfeeding mothers and to improving the rates of exclusive breastfeeding.

A systematic review was conducted by Sandhi et al. (2023), from the thirty-three quasi-experimental studies among nursing students, midwifery students, and medical students, the students who received educational interventions had significantly higher scores in breastfeeding knowledge, more positive attitudes towards breastfeeding, and higher scores for breastfeeding skills. Breastfeeding educational interventions effectively improve the breastfeeding knowledge, attitudes, and skills of undergraduate nursing, midwifery, and medical students, and incorporating clinical practicums in interventions is important (Sandhi et al., 2023). The authors concluded that breastfeeding education programs are necessary to prepare healthcare students to address the breastfeeding needs of families (Sandhi et al., 2023).

Summary

The literature review presents that lack of breastfeeding knowledge is one of the greatest barriers to successful breastfeeding, but there is no best approach to resolve it. The goal of a strong and consistent education of perinatal nurses is to provide a supportive environment that will help breastfeeding mothers to be successful.

Chapter Three: Methodology

Introduction

Chapter three gives an outline of the proposed research methodology and design to be applied in the study. Information on population samples, with the inclusion and exclusion criteria if there are any, will also be included. Furthermore, the procedure for how the data will be collected, which includes the setting, the instruments with their reliability and validity, and the request for permission to use if needed, will also be explained. Information on how to protect human subjects will also be described in this chapter. Lastly, methods of data analysis, a crucial part of the DNP project, will be provided.

Design

This was a quality improvement project that used a particular group of perinatal nurses who took a pre-test and a post-test to evaluate the impact of the breastfeeding education and training program on their knowledge and practices. Correlational research design was used to find whether an association exists between two variables – breastfeeding education and training program (independent) and perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate (dependent).

Methods

A cross-sectional quantitative research methodology was used to find out the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate at a moderate-size acute care community hospital in suburban New Jersey.

External validity pertains to the generalizability of the results obtained (Terry, 2018). Threats to external validity can be reduced by clearly defining the population and specifying the

characteristics and criteria of the target population. Choosing the proper sampling method can also minimize threats to external validity. In this study, data was collected from all perinatal nurses who agreed to participate in the DNP project.

Population Sample Size

The participants were recruited by a convenience sample. The sample size calculator (Calculator.net, 2024) was used to compute the minimum number of necessary samples to meet the desired statistical constraints. For a population size of 50, with a confidence level of 95%, margin of error 5%, a population proportion of 50%, the sample size is 45. This means 45 or more measurements/surveys are needed to have a confidence level of 95% so that the real value is within ±5% of the measured/surveyed value.

Population Inclusion Criteria

All perinatal nurses employed at a comprehensive medical center in Somerville, NJ, who gave their consent to participate in the quality improvement project, were eligible.

Setting

This project was conducted in a perinatal unit featuring seven labor and delivery rooms and twenty private postpartum rooms at Robert Wood Johnson University Hospital Somerset (RWJUH Somerset) in Somerville, New Jersey, a 361-bed regional hospital in Central New Jersey. The hospital's IRB review approval was obtained. No identifying factors for the organization were published.

Project Plan

An e-mail invitation to participate in the DNP quality improvement project was sent to all perinatal nurses and an information session on the proposed DNP quality improvement project was held at one of the perinatal unit's staff meetings (Appendix B). Consent to participate was

distributed to all perinatal nurses interested in participating (Appendix C). Basic demographic data was collected including age, years of nursing experience, and years of perinatal nursing experience before the pre-test (Appendix D). Participants took the pretest using the Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) (Appendix E).

Participants attended a 1-hour Breastfeeding Education and Training Program led by the primary investigator. A PowerPoint presentation of breastfeeding knowledge and evidence-based practices for nurses to support breastfeeding mothers was presented and link attached, Breastfeeding Education and Training Program edited-2.pptx. Upon completion of the program, participant learning outcomes were: (1) to understand how nurses can support breastfeeding, (2) to understand the Evidence-based "Bundle" (Appendix F), (3) to understand the Ten Steps to Successful Breastfeeding (Appendix G), (4) to apply evidence-based practices to support breastfeeding, and (5) to use practical tips for maintaining breastmilk supply. After the presentation, the primary investigator opened the floor for any suggestion and discussion. After the intervention, participants took the post-test which has the same set of breastfeeding questions as the pretest (Appendix H).

All data collected as part of this project was stored in a safe and secure location and only the principal investigator had access to the data. The completed pretest and post-test were given to the principal investigator, were scored, and were entered into the statistical software for analysis on a personal password protected computer. This data will be destroyed when this project is completed or when the data is no longer needed by the investigator.

Instruments

The Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) scale were used to assess the breastfeeding knowledge and practice deficits. The learning needs of the perinatal nurses were identified, and the effectiveness of the breastfeeding education and training program was evaluated using these tools. The NFA was a 21-item questionnaire rated on a 5-point Likert scale of 1 = "strongly disagree" to 5 = "strongly agree", asking participants' opinion on 1) benefits of skin-to-skin contact between mother and newborn, 2) indicators of effective suckling, 3) practices that interfere with newborn feeding ability. Item numbers 18, 19, 20, and 21 were reverse scored to minimize response bias and have a possible total score of 105 with higher scores reflecting greater knowledge (Creedy et al., 2008). The BIP was a case scenario, and a 12-item scale rated on a 5-point Likert scale from 1 = "unlikely" to 5 = "highly likely". Respondents were asked to report the likelihood of the baby being able to find the nipple and feed effectively within the first hour of birth. Item numbers 23, 25, 27, 30,31, and 34 were reverse scored with a possible total score of 60 and higher scores reflect better practice (Creedy et al., 2008).

Creedy et al. (2008) tested the psychometric properties of these two new scales, the Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) scale, to assess midwives' breastfeeding knowledge and practices specific to breastfeeding initiation. To enhance content validity, NFA and BIP items were informed by a critical review of the research literature and midwifery texts (Creedy et al., 2008). Generated items and ideal answers were reviewed by an expert panel of eleven members consisting of six midwives (three of whom were International Board-Certified Lactation Consultants), a researcher, educator and lactation consultant in private practice, a pediatrician involved in clinical research, a lactation consultant/medical scientist and a lactation consultant/speech therapist (Creedy et al., 2008).

Cronbach's alpha coefficients demonstrate adequate internal consistency for the NFA ($\alpha = 0.87$) and BIP ($\alpha = 0.74$) (Creedy et al., 2008). When Pereira et al. (2023) used the Newborn Feeding Ability (NFA) questionnaire, Cronbach's alpha of 0.801 was obtained.

The Newborn Feeding Ability (NFA) questionnaire and the Breastfeeding Initiation Practices (BIP) scale were obtained from an article published under license by Biomed Central Ltd. which is an Open Access article distributed under the terms of the Creative Commons Attribution License, link attached https://creativecommons.org/licenses/by/4.0/. Obtaining permission to reuse this article is not needed (Creedy et al., 2008).

Protection of Human Subjects

Approval for the DNP project implementation was obtained from the hospital and institution review boards. Consent from the participants was obtained prior to data collection by answering yes or no to participate. Data collection was limited to answering the breastfeeding questionnaire and was reported in aggregate to minimize the risk to participants. No participant was identified individually to keep confidentiality.

Each participant had a random 5-digit identification number placed on the upper left-hand corner of the consent form, pre-test, and post-test for data tracking. Participation in this project was anonymous. No identifiable factors were noted. Participant's identity was not revealed through the way data and findings were reported. Participation was voluntary and may be withdrawn at any time.

There was no risk associated with the participants in this project. The potential benefits of participation were improving the breastfeeding knowledge and practices of perinatal nurses to support breastfeeding mothers and increasing the hospital's exclusive breastfeeding rate.

Data Analysis

Data was coded and analyzed using the latest Statistical Package for the Social Science (SPSS) version. Graphs were used to present the participants' descriptive statistics of baseline characteristics. Basic demographic information of the participants was analyzed using descriptive statistics; mean, standard deviation, and range. Age was categorized into four groups (20–30 years, 31–40 years, 41–50 years, 51+ years). Years of nursing experience were categorized into four groups (0-6 years, 7–13 years, 14–19 years, 20+ years). Years of perinatal unit experience were categorized into four groups (0-6 years, 7–13 years, 14–19 years, 20+ years). ANOVAs were used to compare the means of the four groups based on age, years of nursing experience, and years of perinatal unit experience.

A paired t-test was used to compare mean breastfeeding knowledge scores of the same group of perinatal nurses before and after the intervention. A two-sample proportion test was used to evaluate the hospital's three-month average exclusive breastfeeding rates pre- and post-intervention. The p value of <0.05 was used to find statistical significance.

Summary

Chapter three presented the method and research design used to conduct the quality improvement project in evaluating the impact of the Breastfeeding Education and Training Program on perinatal nurses' knowledge and practices and the hospital's breastfeeding rate. The setting, sample size, procedure for data collection, instruments and data analysis were introduced. All the ethical criteria such as informed consent, confidentiality, and anonymity to ensure the participants' honesty when answering the questions and protection from any emotional or physical harm.

Chapter Four: Results

Introduction

Chapter four presents the results obtained from the demographic survey to show the basic information of the characteristics of the participants, like age, years of nursing experience, and years of perinatal unit experience, and how these factors affected the perinatal nurses' breastfeeding knowledge and practices. Most importantly, this chapter presents the impact of the breastfeeding training program by showing the results of the pretest and post-test taken by the perinatal nurses, and the hospital's exclusive breastfeeding rates before and after the quality improvement project was conducted.

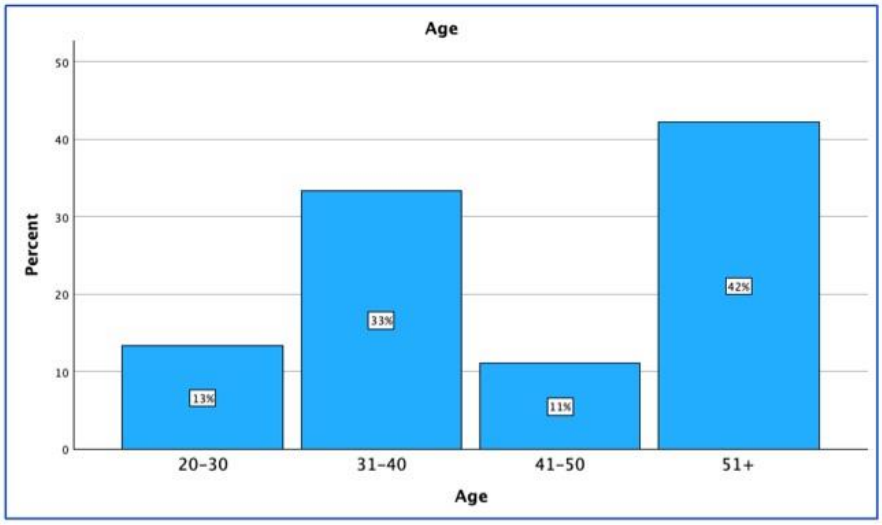
Descriptive Statistical Results

Forty-five perinatal nurses attended the Breastfeeding Education and Training Program. The response rate for pretest (n=45) and post-test (n=45). For the descriptive statistical results, the baseline characteristics of the participants were presented in clear tables. Age was categorized into four groups: (1) 20–30 years, (2) 31–40 years, (3) 41–50 years, and (4) 51+ years. Years of nursing experience were categorized into four groups: (1) 0–6 years, (2) 7–13 years, (3) 14–19 years, and (4) 20+ years. Years of perinatal unit experience were categorized into four groups: (1) 0–6 years, (2) 7–13 years, (3) 14–19 years, and (4) 20+ years.

Based on age, most of the participants, 42.2% (n=19), were 51+ years old, while the minority of the participants, 11.1% (n=5), were 41–50 years old. In Figure 1, the demographics are shown to address the age of the participants.

Figure 1

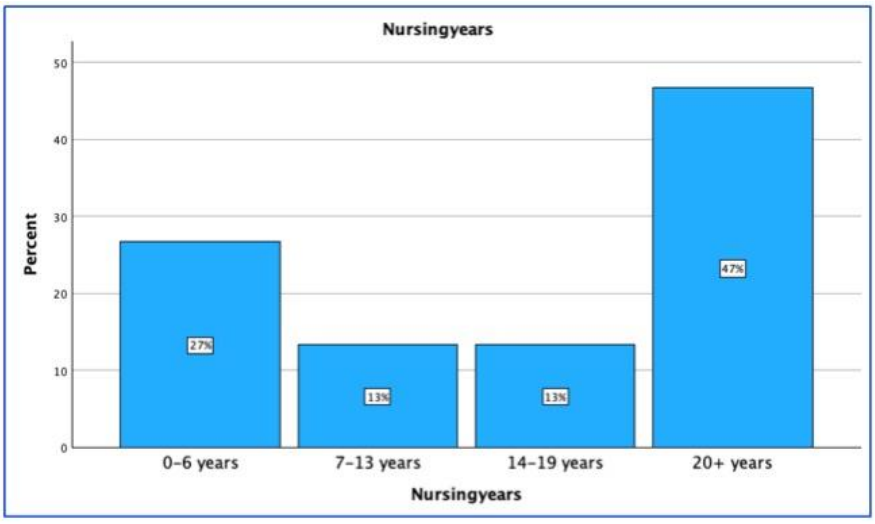
Age Bar Chart



Based on years of nursing experience, most of the participants, 46.7% (n=21), have 20+ years of nursing experience, while the minority, 13.3% (n=6) were tied between the two groups with 7–13 years and 14–19 years of nursing experience. In Figure 2, the breakdown of years of nursing experience is shown**.**

Figure 2

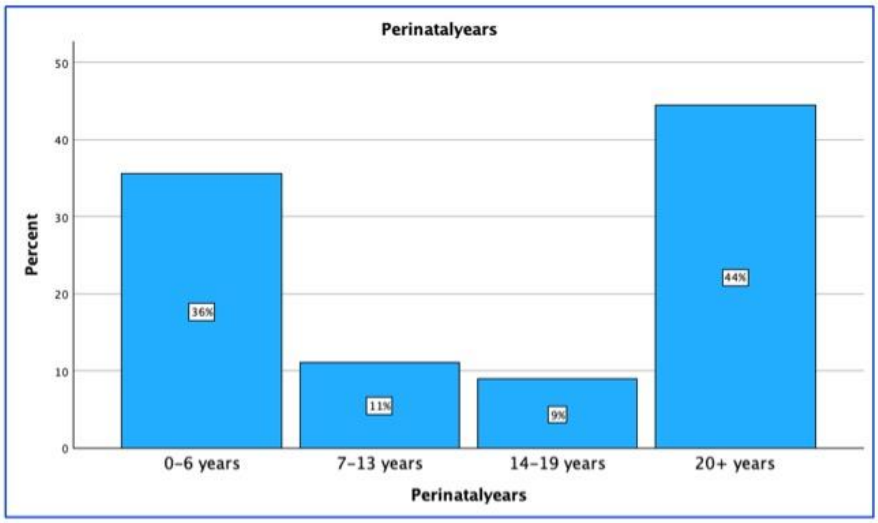
Nursing Years Bar Chart



Lastly, based on the years of perinatal nursing experience, most of the participants, 44.4% (n=20), have 20+ years of perinatal nursing experience, while the minority, 8.9% (n=4), have 14–19 years of perinatal nursing experience. In Figure 3, the breakdown of the years of perinatal nursing experience is shown.

Figure 3

Perinatal Years Bar Chart



Inferential Statistics

For the inferential statistical results, the same perinatal nurses participated in a pretest and a post-test to produce quantitative evidence for quality improvement measurements. Forty-five nurses participated in the pretest and post-test. The difference between the pretest and the post-test scores was calculated by simply subtracting the pretest scores from the post-test score using the formula “post-test – pretest” for each test and for each participant, creating the “difference_scoreNFA” and “difference_scoreBIP” variables. A positive number showed a positive change or improvement between the pretest and post-test scores. **Figure 4** describes the

frequencies of the score differences in the NFA test, while **Figure 5** describes the score differences in the BIP test.

Figure 4

Difference Score NFA

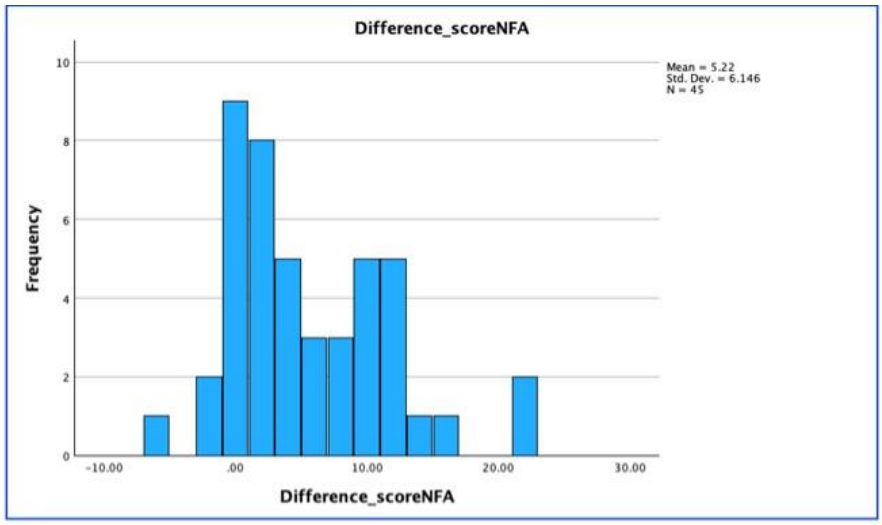
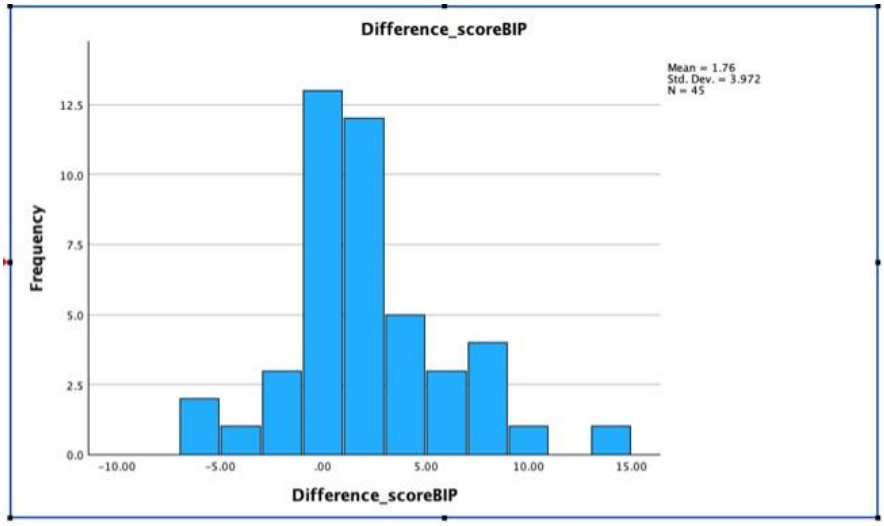


Figure 5

Difference Score BIP



After calculating the score differences, a paired samples t-test was used to statistically analyze whether the mean difference between the pretest and post-test scores was significant. The paired samples t-test provided the p-value or probability value that indicated whether the observed difference between the means occurred by random chance or not (McLeod, 2023). Paired samples statistics for NFA were shown in **Figure 6** and the paired samples test for NFA is shown in **Figure 7**. Paired samples statistics for BIP are shown in **Figure 8** and the paired samples test for BIP is shown in **Figure 9.** The "Sig. (one-sided)" column on the paired samples t-tests revealed (<.001) for the NFA test and (.002) for the BIP test. A sig. value or p-value of <0.05 concluded that the differences between the pretest and the post-test for both the NFA and BIP tests were statistically significant.

Figure 6

Paired Samples Statistics for NFA

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PosttestNFA	94.36	45	11.802	1.759
	PretestNFA	89.13	45	11.942	1.780

Figure 7

Paired Samples Test for NFA

Paired Samples Test

		Paired Differences					Significance	
		Mean	Std. Deviation	Std. Error Mean	t	df	One-Sided p	Two-Sided p
Pair 1	PosttestNFA – PretestNFA	5.222	6.146	.916	5.70	44	<.001	<.001

Figure 8

Paired Samples Statistics for BIP

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PosttestBIP	48.98	45	5.582	.832
	PretestBIP	47.22	45	5.992	.893

Figure 9

Paired Samples Test for BIP

Paired Samples Test

		Paired Differences					Significance	
		Mean	Std. Deviation	Std. Error Mean	t	df	One-Sided p	Two-Sided p
Pair 1	PosttestBIP – PretestBIP	1.756	3.972	.592	2.965	44	.002	.005

The one-way ANOVA test was used to compare the average performance on the pretest and post-test of the four groups based on age, years of nursing experience, and years of perinatal experience. **Figure 10** shows the one-way ANOVA descriptives and **Figure 11** shows the statistical significance based on age. Based on age, the difference in NFA scores was (F = 1.800, sig = .162), so it was not statistically significant, while the difference in BIP scores was (F = 5.323, sig = .003), concluding that it was statistically significant, with the 20-30 years age group reaching the highest mean BIP score.

Figure 10

One-way ANOVA based on age descriptives

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Difference_ScoreNFA	20–30	6	6.50	4.037	1.648	2.26	10.74	2	11
	31–40	15	7.40	8.034	2.074	2.95	11.85	-2	22
	41–50	5	6.20	3.834	1.715	1.44	10.96	1	11
	51+	19	2.84	4.856	1.114	.50	5.18	-6	12
	Total	45	5.22	6.146	.916	3.38	7.07	-6	22
Difference_ScoreBIP	20–30	6	7.00	5.138	2.098	1.61	12.39	1	14
	31–40	15	1.33	2.743	.708	-.19	2.85	-3	8
	41–50	5	.40	3.912	1.749	-4.46	5.26	-6	4
	51+	19	.79	3.343	.767	-.82	2.40	-6	8
	Total	45	1.76	3.972	.592	.56	2.95	-6	14

Figure 11

One-way ANOVA based on age

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Difference_ScoreNFA	Between Groups	193.351	3	64.450	1.800	.162
	Within Groups	1468.426	41	35.815		
	Total	1661.778	44			
Difference_ScoreBIP	Between Groups	194.620	3	64.873	5.323	.003
	Within Groups	499.691	41	12.188		
	Total	694.311	44			

Based on years of nursing experience, **Figure 12** shows the one-way ANOVA descriptives and **Figure 13** shows the statistical significance. The difference in NFA scores was (F = 1.837, Sig = .156), while the difference in BIP scores was (F = 3.069, Sig = .038). The years of nursing experience were not statistically significant to perinatal nurses' NFA scores, but statistically significant to their BIP scores, with the 0–6 years of nursing experience group reaching the highest mean score of 4.5.

Figure 12

One-way ANOVA based on years of nursing experience descriptives

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Difference_ScoreNFA	0–6 years	12	8.08	6.360	1.836	4.04	12.12	–2	22
	7–13 years	6	7.00	9.529	3.890	–3.00	17.00	0	22
	14–19 years	6	4.33	5.125	2.092	–1.05	9.71	–1	12
	20+ years	21	3.33	4.662	1.017	1.21	5.46	–6	11
	Total	45	5.22	6.146	.916	3.38	7.07	–6	22
Difference_ScoreBIP	0–6 years	12	4.50	5.436	1.569	1.05	7.95	–6	14
	7–13 years	6	.67	1.506	.615	–.91	2.25	–1	3
	14–19 years	6	1.50	4.231	1.727	–2.94	5.94	–3	8
	20+ years	21	.57	2.657	.580	–.64	1.78	–6	6
	Total	45	1.76	3.972	.592	.56	2.95	–6	14

Figure 13

One-way ANOVA based on nursing years

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Difference_ScoreNFA	Between Groups	196.861	3	65.620	1.837	.156
	Within Groups	1464.917	41	35.730		
	Total	1661.778	44			
Difference_ScoreBIP	Between Groups	127.335	3	42.445	3.069	.038
	Within Groups	566.976	41	13.829		
	Total	694.311	44			

Based on years of perinatal nursing experience, **Figure 14** shows the one-way ANOVA descriptives and **Figure 15** shows the statistical significance. The difference in NFA scores was (F = 2.471, Sig = .075), while the difference in BIP scores was (F = 3.477, Sig = .024). The years of perinatal nursing experience were not statistically significant to perinatal nurses' NFA scores, but statistically significant to their BIP scores, with the 0–6 years of perinatal nursing experience group reaching the highest mean score of 4.1250.

Figure 14

One-way ANOVA based on years of perinatal nursing experience descriptives

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Difference_scoreNFA	0-6 years	16	8.3750	6.93662	1.73415	4.6787	12.0713	-2.00	22.00
	7-13 years	5	4.0000	6.78233	3.03315	-4.4214	12.4214	.00	16.00
	14-19 years	4	4.5000	5.19615	2.59808	-3.7682	12.7682	1.00	12.00
	20+ years	20	3.1500	4.70470	1.05200	.9481	5.3519	-6.00	11.00
	Total	45	5.2222	6.14554	.91612	3.3759	7.0685	-6.00	22.00
Difference_scoreBIP	0-6 years	16	4.1250	4.96488	1.24122	1.4794	6.7706	-6.00	14.00
	7-13 years	5	.8000	1.64317	.73485	-1.2403	2.8403	-1.00	3.00
	14-19 years	4	.0000	3.55903	1.77951	-5.6632	5.6632	-3.00	5.00
	20+ years	20	.4500	2.66508	.59593	-.7973	1.6973	-6.00	6.00
	Total	45	1.7556	3.97238	.59217	.5621	2.9490	-6.00	14.00

Figure 15

One-way ANOVA based on years of perinatal nursing experience

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Difference_scoreNFA	Between Groups	254.478	3	84.826	2.471	.075
	Within Groups	1407.300	41	34.324		
	Total	1661.778	44			
Difference_scoreBIP	Between Groups	140.811	3	46.937	3.477	.024
	Within Groups	553.500	41	13.500		
	Total	694.311	44			

Paired samples t-test was also done to show any difference in the hospital's exclusive breastfeeding rates before and after the intervention. **Figure 16** shows the paired samples statistics, while **figure 17** shows the statistical significance. The difference in breastfeeding rate was (t = .173, p = .439), so it was not statistically significant during August, September, and October, after the project was conducted.

Figure 16

Paired Samples Statistics on Breastfeeding Rates

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PosttestBFRate	28.1333	3	4.69716	2.71191
	PreTestBFRate	28.5000	3	1.05830	.61101

Figure 17

Paired Samples Test on Breastfeeding Rates

Paired Samples Test

		Paired Differences					Significance	
		Mean	Std. Deviation	Std. Error Mean	t	df	One-Sided p	Two-Sided p
Pair 1	PosttestBFRate - PreTestBFRate	-.36667	3.66379	2.11529	-.173	2	.439	.878

Summary

To summarize, a thorough analysis of the data collected was done, results were obtained, and statistical significance was revealed. First, in the perinatal nurses' pretest and post-test scores, the positive value in the difference score showed a higher post-test score compared to the pretest score. The p-value for the NFA test and for the BIP test showed that the difference between the pretest and the post-test was statistically significant, concluding that the Breastfeeding Education and Training Program had a positive impact on perinatal nurses' knowledge and practices. Second, the results also revealed that age, years of nursing experience, and years of perinatal nursing experience were statistically significant and have a profound influence on perinatal nurses' breastfeeding knowledge and practices in supporting breastfeeding mothers. The younger perinatal nurses in the age group of 20-30, with 0–6 years of nursing experience, and 0–6 years of perinatal nursing experience were the groups that were highly and

significantly changed by the project, concluding that these groups are more receptive to new knowledge and changes in practice. Lastly, the findings showed that there was no statistical significance in the hospital's exclusive breastfeeding rates within August, September, and October, after the project was conducted. Having continuous and consistent education and training, healthcare providers become well-versed in breastfeeding and apply evidence-based practices to provide accurate information and support to breastfeeding mothers.

Chapter Five: Discussion

Introduction

Chapter five analyzes and discusses the summary of findings in the context of the literature discussed in Chapter two. This chapter also provides the interpretation of the results and the project's significance in resolving the research problem, "What is the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate?'. In addition, this chapter shows the project's limitations, reflects on the implications for nursing practice, and integrates the proper DNP essentials. Lastly, recommendations for further study were also presented in this chapter.

Discussion

Nurses' roles in promoting and supporting breastfeeding are greatly influenced by the nurses' breastfeeding knowledge and practices. However, nurses may not have sufficient knowledge and skills. Based on the findings, providing education and training was statistically significant in improving the perinatal nurses' post-test scores. Knowledgeable and well-trained perinatal nurses are equipped to educate mothers about the benefits of breastfeeding and to help mothers cope with breastfeeding challenges. These findings are supported by the study done by Mulcahy et al. (2022) that breastfeeding education needs to incorporate practical breastfeeding skills and not just theoretical training. Furthermore, educational interventions, delivered by knowledgeable multidisciplinary facilitators, that incorporated practical and/or observational element(s) with theoretical learning were relatively successful at achieving desired learning outcomes (Mulcahy et al., 2022). The importance of perinatal nurses providing breastfeeding education should be prioritized to provide the necessary support to mothers in their breastfeeding journey. These findings are consistent with the cross-sectional study done by Dubik et al. (2021)

among nurses and midwives providing maternal and child health services at various primary healthcare facilities in Sagnarigu Municipality, Ghana. Dubik et al. (2021) concluded that breastfeeding education is critical in improving healthcare professionals' competencies in providing breastfeeding care to mothers. Lastly, breastfeeding educational interventions effectively improve the breastfeeding knowledge, attitudes, and skills of undergraduate nursing, midwifery, and medical students, and incorporating clinical practicums in interventions is important (Sandhi et al., 2023). During the Breastfeeding Education and Training Program, perinatal nurses were provided with breastfeeding knowledge and evidence-based practices focused on the importance of skin to skin and early initiation of breastfeeding. Emphasis was also given on common breastfeeding challenges and practical tips on supporting milk supply to improve breastfeeding duration as recommended. In conclusion, Sandhi et al. (2023) emphasized that it is vital to enhance nurses' skills to promote and provide breastfeeding education and support to the populations they serve.

Limitations

While the DNP project yielded valuable findings, it is important to acknowledge some limitations that may affect the generalizability of the findings. First, the smaller sample size (n=45). As a quality improvement project in a seven-bed labor and delivery and twenty-bed postpartum department, with a population size of fifty nurses, thirty-four nurses were recruited initially. Perinatal nurses verbalized their willingness to participate in the QI project, but due to the high number of patients and high volume of nurses on vacation leave, especially during summer, scheduling the class became challenging. Second, the need to extend time in obtaining samples. More classes were conducted as census permitted and staff became available until the

final sample of forty-five nurses was collected. Lastly, the in-person Breastfeeding Education and Training Program was labor extensive and time consuming.

Implications for practice

Building a strong and respectful relationship between perinatal nurses and breastfeeding mothers needs to be developed to provide the most current evidence-based practices to support their breastfeeding journey. Paid mandatory annual breastfeeding education and training for nurses would encourage more perinatal nurses to be more engaged and involved. Greater consideration needs to be given to creating a breastfeeding task force consisting of neonatologists, obstetricians, lactation consultants, nurse educators, nurse leaders, and perinatal nurses from the three areas – Labor & Delivery, Maternity, and Special Care Nursery. The task force will review breastfeeding policies and protocols regularly, check its strict implementation, and apply breastfeeding algorithms to guide clinical decision-making on breastfeeding.

DNP Essentials

DNP Essentials are integrated in this quality improvement project as a requirement of the DNP program. In Essential 1, a DNP graduate is a change agent who can involve other key stakeholders in identifying the problem, setting the goal, and planning the action. In Essential II, a DNP graduate geared with leadership knowledge and skills can start and develop quality improvement projects, such as the breastfeeding education and training program for perinatal nurses. Using analytic methods to critically appraise existing literature and other evidence to figure out and implement the best evidence for practice in breastfeeding fulfills Essential III. For Essential V, A DNP-prepared nurse leader can take part in writing a breastfeeding policy brief to introduce policy level interventions to empower breastfeeding mothers and perinatal nurses to achieve the goal of exclusive breastfeeding. This policy brief can be sent to policymakers,

community leaders, and other healthcare professionals involved in policymaking to value the roles of nurses and to invest in allocating funds for nurses' education and training. Lastly, for Essential VII, to address the barriers experienced by breastfeeding women, adequate education and training should be provided for nurses and other healthcare professionals. In doing so, successful breastfeeding can change and improve the health of two of the most vulnerable population, the postpartum women, and their newborns.

Recommendations

Based on the results of the quality improvement project, the following recommendations are offered: (1) Providing a mandatory annual breastfeeding education and training for perinatal nurses delivered by knowledgeable multidisciplinary educators; (2) Using different forms of teaching styles to facilitate long-term breastfeeding success; (3) Finding innovative ways of capturing learning and change in practices to ensure the necessary resources, time, and funding to provide breastfeeding education for perinatal nurses and other healthcare professionals; (4) Future development of skills-based training for nursing students and qualified perinatal nurses to improve breastfeeding support to mothers and their families; (5) Future researchers may conduct parallel study using other variables in dealing with the perinatal nurses' breastfeeding knowledge and practices.

Conclusion

This quality improvement project highlighted that perinatal nurses play a valuable role in supporting breastfeeding initiation and longevity. Perinatal nurses equipped with proper education and training show higher levels of breastfeeding knowledge and increased confidence in educating breastfeeding mothers. Meanwhile, the study findings revealed that the

Breastfeeding Education and Training Program was not statistically significant during the three-month period after it was conducted.

In the healthcare industry where knowledge is power, nurses should have the most up-to-date education and should apply the evidence-based practices which are proven to be invaluable for the success of breastfeeding. With the increased recognition of the importance of ongoing professional development and growing awareness of the benefits of breastfeeding, any intervention promoting breastfeeding should be seen as a unique quality initiative as this measure can greatly impact patient outcomes. Dissemination tools, services, and platforms have evolved so much through time and finding the best method that would innovatively disseminate the results of this quality improvement project is particularly important. Lastly, when everybody comes together and systems of care align to support breastfeeding, barriers and challenges are better addressed, so that families benefit from supportive environments and successfully achieve their breastfeeding goals. Most importantly, these actions aid in improving the health of two of the most vulnerable populations, mothers and their newborns.

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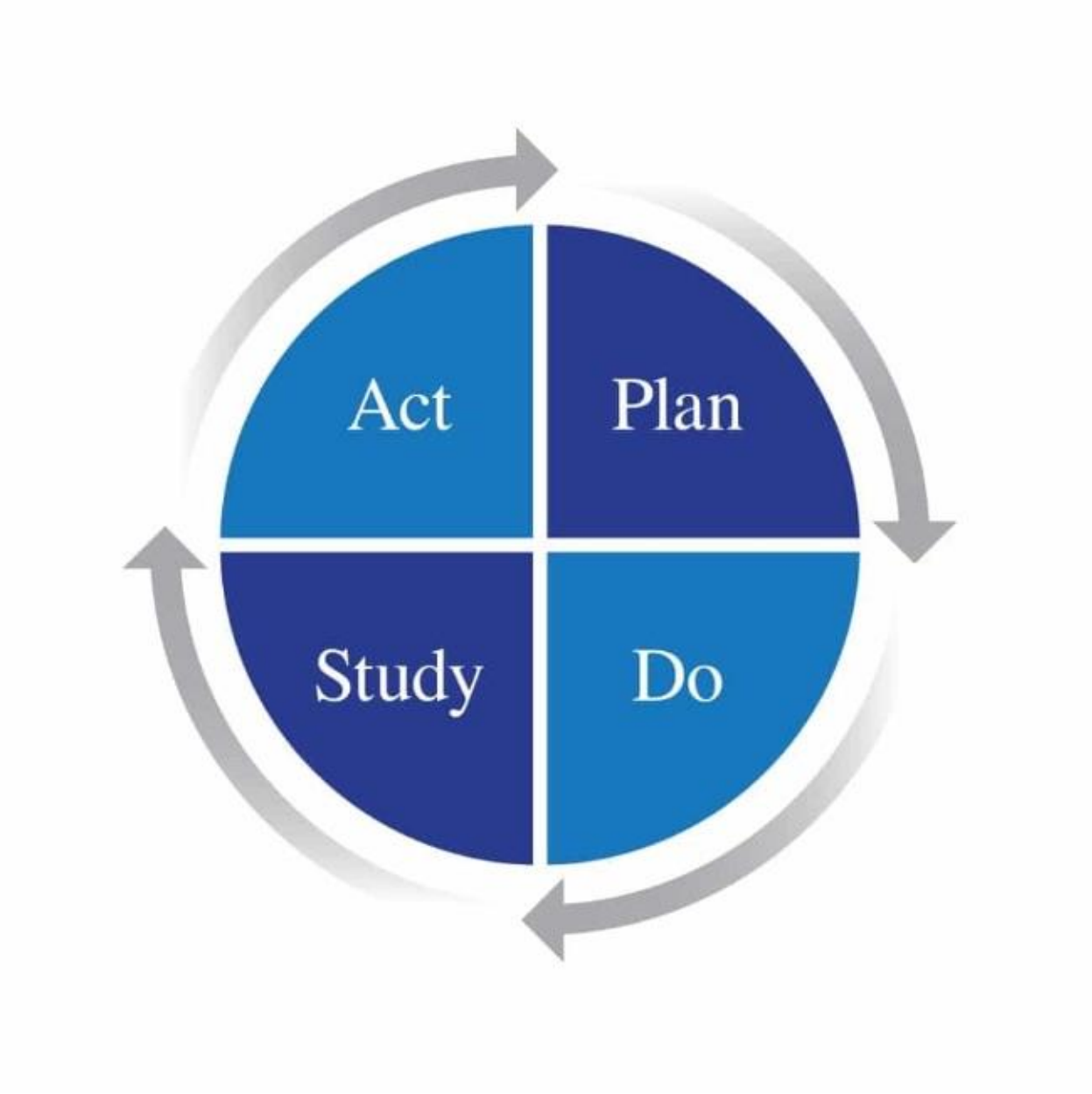
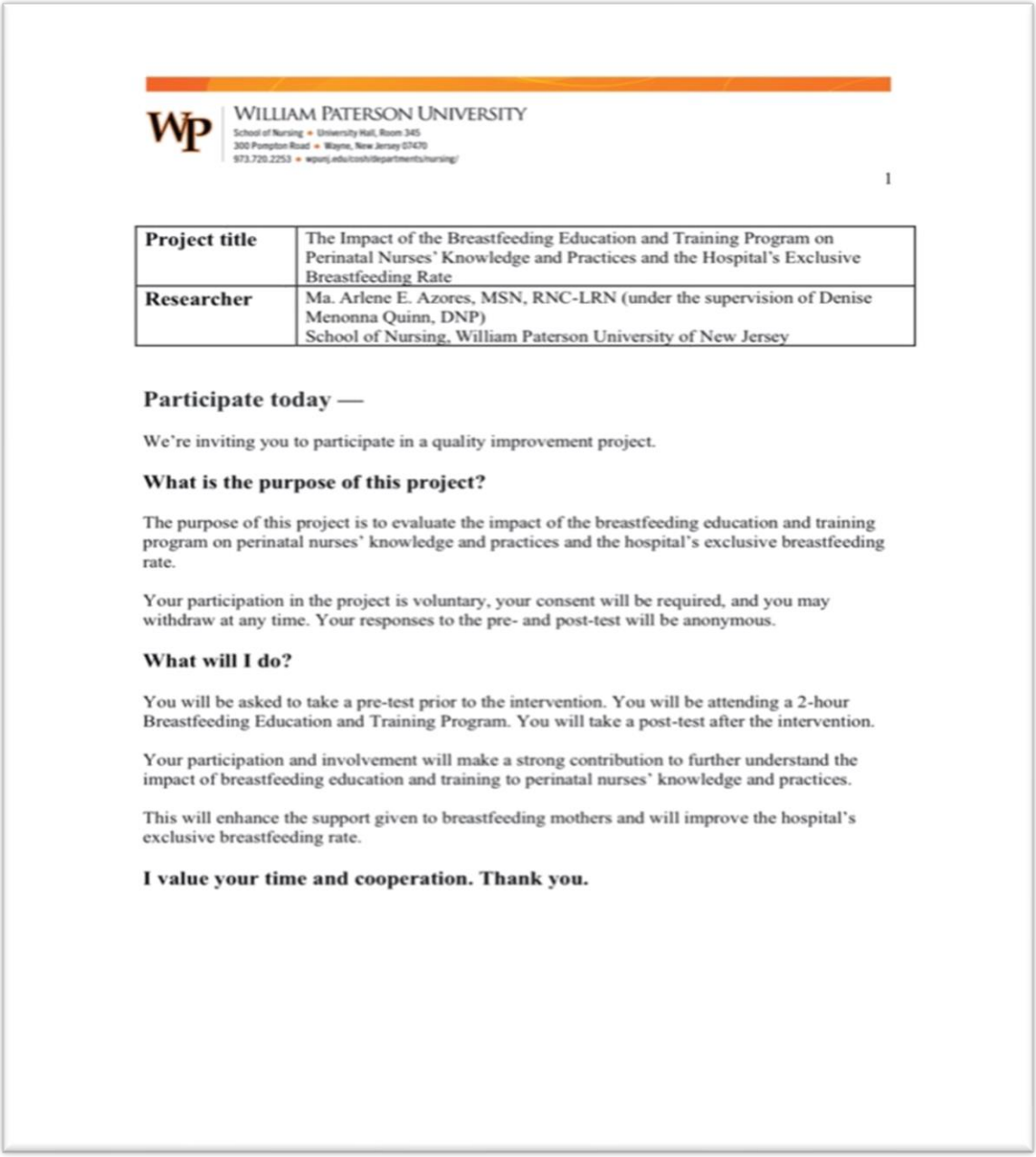
Appendix A

PDSA Cycle



Appendix B

Project Recruitment and Promotion



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1

Project title	The Impact of the Breastfeeding Education and Training Program on Perinatal Nurses' Knowledge and Practices and the Hospital's Exclusive Breastfeeding Rate
Researcher	Ma. Arlene E. Azores, MSN, RNC-LRN (under the supervision of Denise Menonna Quinn, DNP) School of Nursing, William Paterson University of New Jersey

Participate today —

We're inviting you to participate in a quality improvement project.

What is the purpose of this project?

The purpose of this project is to evaluate the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate.

Your participation in the project is voluntary, your consent will be required, and you may withdraw at any time. Your responses to the pre- and post-test will be anonymous.

What will I do?

You will be asked to take a pre-test prior to the intervention. You will be attending a 2-hour Breastfeeding Education and Training Program. You will take a post-test after the intervention.

Your participation and involvement will make a strong contribution to further understand the impact of breastfeeding education and training to perinatal nurses' knowledge and practices.

This will enhance the support given to breastfeeding mothers and will improve the hospital's exclusive breastfeeding rate.

I value your time and cooperation. Thank you.

Appendix C

Consent to Participate page 1-2

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973.720.2253 • wpunj.edu/coshdepartments/nursing/

Project Title: The Impact of the Breastfeeding Education and Training Program on Perinatal Nurses' Knowledge and Practices and the Hospital's Exclusive Breastfeeding Rate.

Principal Investigator: Ma. Arlene E. Azores, MSN, RNC-LRN

Investigator's Phone Number: 908-3925635

Protocol Approval Date:

IRB Contact Phone Number: 973-7202852

The purpose of this quality improvement project is to evaluate the impact of the breastfeeding education and training program on perinatal nurses' knowledge and practices and the hospital's exclusive breastfeeding rate. It is being conducted to fulfill the requirements of the above-named course.

I am being asked to participate in this quality improvement project because I am a registered nurse, and I may be eligible to participate. My decision whether to participate in this project or not will not affect my current or future relationship with William Paterson University of New Jersey or this hospital.

There is no risk associated with me participating in this project. Benefits of my participation are improving the breastfeeding knowledge and practices of perinatal nurses to support breastfeeding mothers and to improve the hospital's exclusive breastfeeding rate and I accept them.

I can agree or disagree to participate and give my consent by answering **yes** or **no** at the end of this form. If yes, I will receive a random 5-digit identification number that will be placed on the left upper hand corner of the consent form, pre-test, and post-test for data tracking. I will be asked to complete a pre-test; attend a 2-hour breastfeeding education and training; and lastly, complete a post-test.

I understand that any data collected as part of this project will be stored in a safe and secure location, and that this data will be destroyed when this project is completed or when the data is no longer needed by the investigator.

I understand that I will be an anonymous participant in this study, that no one, including the investigators will be able to connect my responses to me. I understand that my identity will not be revealed in any way through the way that data and findings are reported. To protect my identity, I will not write my name on this document.

I understand that my participation is voluntary, and I may withdraw my participation at any time. If I feel that I have not been treated according to the descriptions in this form as a project participant, I may contact the Institutional Review Board (IRB) at William Paterson University of New Jersey at 973-7202852 or RWJUH Somerset Institutional Review Board (IRB) Chair John Bucek, MD at 908-243-8652.

I understand that by providing consent for this project, I am also providing consent for my anonymized responses to be included in datasets that may be used in the future the investigator of this project or other investigators for research related to the purpose of this research project.

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By providing consent for this project, I am also confirming that I am at least 18 years old.

Consent:

___ Yes. I give my consent to participate in this quality improvement project.

___ No. I do not want to participate.

Appendix D

Demographic Survey

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Demographic Survey

If you agree to participate, please encircle your answer.

1. **Age**
   a. 20-30 years old
   b. 31-40 years old
   c. 51+ years old

2. **Years of nursing experience**
   a. 0-6 years
   b. 7-13 years
   c. 14-19 years
   d. 20+ years

3. **Years of perinatal nursing experience**
   a. 0-6 years
   b. 7-13 years
   c. 14-19 years
   d. 20+ years

Appendix E

Pre-test pages 1-6

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Newborn Feeding Ability Questionnaire (Creedy et al., 2008)

(Pre-test)

This questionnaire asks about newborn feeding ability.

Please circle the number ⓪ beside your answer.

What is your opinion regarding the following statement about newborn suckling ability

1 A normal full term infant is born with instinctive reflex ability to breastfeed effectively?

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

A healthy newborn baby *(who is not sedated by any drugs)* kept in continuous skin-to-skin contact with the mother immediately after birth,

2 Will develop predictable, coordinated feeding behaviors within minutes of birth

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

3 Can instinctively find the nipple without help and attach correctly to the breast

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

4 Will be guided to the nipple by their sense of smell

1 strongly disagree **2** disagree **3** not sure **4**agree **5** strongly agree

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What is your opinion regarding the benefits of continuous skin-to-skin contact for newborn babies and their mother?

5 Skin–to-skin contact is important to help stabilize newborn breathing

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

6 A newborn's heart rate is stabilized by skin–to-skin contact

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

7 Skin–to-skin contact is important to prevent heat loss in newborn babies

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

8 A newborn's blood sugar levels are stabilized by skin–to-skin contact

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

9 Skin-to skin contact helps the flow of colostrum after birth

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

10 Uninterrupted skin-to-skin contact immediately after birth is important for newborn breastfeeding performance

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

11 A mother is more likely to accept and feel warm toward her baby if skin-to skin contact happens immediately after birth

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

12 Hours of continuous skin-to-skin contact can help a newborn baby learn to feed

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

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To know the baby is getting colostrum at the first breastfeed, it is important that:

13 Midwives and mothers can hear the baby swallowing colostrum

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

14 Midwives and mothers can see the baby swallowing

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

What is your opinion regarding the statement that:

15 Separation of a newborn from the mother at birth can cause harmful stress to the baby

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

16 Birth trauma may interfere with the proper coordination of an infant's natural sucking reflexes

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

17 Interrupting skin-to-skin contact within 15-20 minutes of delivery seriously disturbs the suckling reflexes for correct attachment

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

18 *There is no time immediately after delivery to allow uninterrupted skin-to-skin contact until the first breastfeed

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

19 *Prevention of heat loss by wrapping the baby is of higher priority than skin-to-skin contact to initiate feeding behaviors.

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

20 *Time required for skin-to-skin contact to breastfeed interferes with completion of required legal documentation

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

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21 *Most mothers want to be cleaned up immediately after delivery rather than hold their baby

1 strongly disagree **2** disagree **3** not sure **4** agree **5** strongly agree

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Breastfeeding Initiation Practice Scale (Creedy et al., 2008)

(Pre-test)

This questionnaire presents a scenario and asks about your practice assisting women with the first breastfeed. You are the midwife attending the woman, at the time of initiation of the first breastfeed.

Please answer the following questions (circle the number ⓪ beside YOUR answer OR write your answer in the space _____ provided)

SCENARIO

Chloe is a 20 year old 38 week gestation primipara.

Antenatally well, attended antenatal classes, plans to breastfeed.

Uneventful 10 hour labor, given pethidine 100 mg IMI 3 hours prior to birth.

Spontaneous Vertex Delivery (SVD) of a live healthy female infant Apgars 8:9,

weight 3320 grams requiring no medical intervention. Intact perineum.

Chloe's mother is keen to find out how much the baby weighs.

Parents consented to routine newborn vitamin K and hepatitis B injections for baby.

22 How would you view the likelihood of Chloe's baby attaching correctly to the breast without assistance within the first hour of birth

1 most unlikely **2** unlikely **3** likely **4** quite likely **5** highly likely

Provided no medical intervention was needed for Chloe or her baby, in this situation, I would:

23 *Routinely suction the baby at birth before giving to Chloe

1 never **2** occasionally **3** sometimes **4** mostly **5** always

24 Help Chloe hold her naked baby skin-to-skin

1 never **2** occasionally **3** sometimes **4** mostly **5** always

25 *Dry and wrap the baby before giving to the parents

1 never **2** occasionally **3** sometimes **4** mostly **5** always

26 Place baby skin-to-skin on Chloe's chest, dry the baby and cover with a warm towel

1 never **2** occasionally **3** sometimes **4** mostly **5** always

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27 *Place the baby under a radiant heater for assessment, weighting and measuring before the first breastfeed attempt

1 never **2** occasionally **3** sometimes **4** mostly **5** always

28 Encourage Chloe and the family to watch for signs of baby's readiness to feed

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29 Other (*what would you do?*

_____

To assist Chloe with the first breastfeed I would:

30 *"Put the baby on" the breast for her

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31 *Teach Chloe how to position and attach baby for optimal breastfeeding

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32 Encourage Chloe to take time to allow the baby to self attach with minimal assistance and explain a newborn's natural ability to breastfeed

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33 Ask Chloe what she would like to do and explain the natural feeding ability of a newborn

1 never **2** occasionally **3** sometimes **4** mostly **5** always

34 *Wait until Chloe is showered and able to sit up comfortably before offering assistance

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35 Other *(what would you do?)*

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* Reverse scored items

Creedy, D.K., Cantrill, R.M. & Cooke, M. Assessing midwives' breastfeeding knowledge: Properties of the Newborn Feeding Ability questionnaire and Breastfeeding Initiation Practices scale. *Int Breastfeed J* **3**, 7 (2008). https://doi.org/10.1186/1746-4358-3-7

Appendix F

Evidence-based Bundle

Appendix G

The Ten Steps to Successful Breastfeeding

Appendix H

Post-test pages 1-6

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