Facilitating Equitable Breastfeeding Among Black Women

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Notes from the Author

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Abstract

Exclusive human milk feeding is the preferred form of nutrition for infants from birth until six months due to the multiple nutritional and health benefits for mothers and their infants. Worldwide, breastfeeding goals fall below recommendations from the World Health Organization and Centers for Disease Control and Prevention. A significant disparity exists in exclusive breastmilk feeding rates in couplets of the Black race compared to the White race. In general, Black women and their infants experience an increased risk of poor health outcomes. The risks are exponential when coupled with the races' lower breastfeeding rates compared to their white counterparts. The project site's exclusive breastmilk feeding rates are below national, state, and organizational targets, and a disparity exists between White and Black race exclusive breastmilk feeding rates. The paper discusses implementing staff education using the World Health Organization's "Ten Steps to Successful Breastfeeding" (2018) to improve exclusive breastmilk (EBM) feeding rates in a postpartum unit. Over the 13 weeks, there was an improvement in the EBM feeding rate and a decrease in the Black/White EBM feeding disparity. The project notes the positive impact nursing staff in the postpartum setting have on reducing Black/White disparities in the first days of an infant's life which promotes Healthy NC 2030 Health Indicator 20, infant mortality rate. By reducing Black/White disparities in breastfeeding and improving EBM feeding rates, the health benefits of breastfeeding will hopefully translate directly to improving the health outcomes of Black mothers and their infants.

Keywords: breastfeeding, exclusive breastmilk feeding, racial disparities, the ten steps to successful breastfeeding

Table of Contents

Section I. Introduction

Background

The project partner is a private, not-for-profit healthcare system. The organization provides compassionate and high-quality healthcare using modern technology at its acute care hospital, urgent care centers, and other need-specific facilities ([redacted]2022a). The organization's mission is to utilize leadership skills and excellence to integrate patient care, education, and research to advance the health and well-being of North Carolinians ([redacted] 2022b).

The organization is a leader in newborn deliveries for Wake County and ranked as a high-performing maternity care hospital in 2021 ([redacted], 2022a; U.S. News and World Report, 2022). Many factors contribute to hospital ratings, such as exclusive breastmilk (EBM) feeding rates. Despite numerous achievements, the project site is one of the only organizations in the area that has not yet received any stars from the North Carolina Department of Health and Human Services (NCDHHS) North Carolina (NC) Maternity Center Breastfeeding-Friendly Designation (NCDHHS, 2021). Based on data collected from the electronic medical record (EMR), the EBM feeding rate at the organization at the beginning of the project was 44.1%, and the Black/White disparity of that measure was 15% (personal communication, March 8, 2022).

According to the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS) (2020), exclusive human milk feeding is the preferred form of nutrition for infants from birth until six months of life. In addition, the Centers for Disease Control and Prevention (CDC) states that breastfeeding has numerous evidence-based advantages for the infant, including a decreased risk of sudden infant death syndrome, obesity,

type one diabetes, and infections such as necrotizing enterocolitis (2021b). Mothers who breastfeed have a decreased risk of breast and ovarian cancer, type two diabetes, and high blood pressure (CDC, 2021b). In general, Black women and their infants experience an increased risk of poor health outcomes. The risks are exponential when coupled with the races' lower breastfeeding rates compared to their white counterparts. Thus, it is essential to specifically increase supportive breastfeeding measures among Black women (CDC, 2021b).

Organizational Needs Statement

After meeting with maternal-newborn and perinatal services managers in the Women's Center at the organization, it was identified that interventions to promote equitable nutrition and increase breastfeeding rates were needed. Providing unconscious bias education to staff exists as the organizations focus on embracing the organization's culture; however, there is a need to determine alternative interventions to address the current infant feeding method disparities. Implicit bias, racism, and discrimination in the delivery of healthcare services can prevent adequate education for women of color and result in poor outcomes for initiating and continuing EBM feeding in the Black population (North Carolina Institute of Medicine [NCIOM], 2020; Robinson et al., 2019). Interventions addressing these topics are essential to providing high-quality patient-centered care in the current climate.

The project partner has identified the need to improve the overall EBM feeding rates based on the organization's benchmark data reported to The Joint Commission on Accreditation of Healthcare Organizations (TJC) Perinatal Core Measure, PC-05. Yendro (2020) outlines that this measure is calculated by comparing babies' EBM fed from birth until discharge from the hospital out of the total full-term newborns discharged from the hospital, generally 24 to 72 hours from birth, based on the neonates' delivery type. This data excludes babies with medical or

situational abnormalities needing non-breastmilk supplementation and those in the Neonatal Intensive Care Unit. Babies provided donor breastmilk supplementation are documented as EBM fed (Yendro, 2020). The organization's exclusive breastfeeding rate at the beginning of the project was 44.1%, with a target of 50% (personal communication, March 21, 2022). TJC (2021) does not publish a numerical value for their PC-05 target but instead identifies it as an "increase in the rates," desiring a yearly improvement in reported EBM feeding rates.

The CDC reported the national EBM feeding rate in 2018 at seven days of the newborn's life to be 63.3% and at three months to be 46.9% (CDC, 2020; CDC, 2021a). The same year, NC's EBM feeding rate at three months of life was 42.5% (CDC, 2020). The hospital's current EBM feeding rate at discharge, one to three days after birth, at 44.1%, is significantly lower than the National EBM feeding rate at seven days of life (63.3%). In addition, the hospital's EBM feeding rate at the time of discharge (44.1%) is close to the EBM feeding rate at three months in NC (42.5%) and the US (46.9%). In a study completed by Bond et al. (2021), EBM feeding rates declined drastically between two and six months postpartum. Additionally, over ten percent of women studied discontinued breastfeeding one week after hospital discharge due to associated pain (Bond et al., 2021). Due to the early cessation of EBM feeding in the literature, this trend was found to be true of the EBM fed infants at the organization at the time of discharge. This suggests the organization has an EBM feeding rate at the time of hospital discharge below the rate of EBM feeding at one to three days of life in both the US and NC.

The Office of Disease Prevention and Health Promotion (ODPHP) (2019) reported the Healthy People 2020 target for formula supplementation at two days of life for intended EBM fed newborns to be 14.2%. The most recent data reported in 2017 by the state of NC for formula supplementation rate at two days of life in 2017 was 18.4% (CDC, 2020). Although the

organization does not report rates of intended EBM fed infants that received formula, data from the EMR demonstrates a significantly higher rate of overall non-EBM fed infants at the time of hospital discharge, between one to three days of life in both 2017 (49.6%) and 2020 (49.8%) (personal communication, March 8, 2022). This additional data highlights the need for increased interventions to support EBM feeding rates at the project site.

When considering the indication for a focus on racial disparities within EBM feeding rates, data from the EMR demonstrates that 15% more White infants were EBM fed at the time of hospital discharge than Black in 2021 (personal communication, March 8, 2022). The National Vital Statistic System reports a different but similar measure of mothers who initiate breastfeeding by race, which can be interpreted as the mother providing any amount of breastmilk to the infant (Chiang et al., 2021). Since breastfeeding initiation must occur to be included in the EBM fed population, racial disparities within these two rates should be similar, given the short time difference between the measurements. However, the National Vital Statistic System reports a difference of 11.9% more White mothers initiating breastfeeding than Black mothers; in NC, this difference was even more remarkable, at 13.8% (Chiang et al., 2021). In their scoping review, Robinson et al. (2019) found that Black women start and continue breastfeeding at a lower rate than other races. Although the disparity between Black and White couplets at the organization is comparable to the national average, the data demonstrate the presence of race-inequitable EBM feeding at both state and federal levels. This necessitates interventions focusing on facilitating equitable Black/White EBM feeding rates.

This project addresses the Healthy NC 2030 Health Indicator 20, infant mortality rate. Infant mortality serves as an indicator of overall community health. According to the NCIOM (2020), the current infant mortality rate is 6.8/1000, with a Black/White disparity of Black

infants being 2.4 times more likely to die. The Healthy NC 2030 target is to decrease the rate to 6.0/1000 with a 1.5 Black/White disparity ratio. In NC, babies born to Black mothers are more likely to die before their first birthday (NCIOM, 2020). The report notes that unequal care for mothers of color in the healthcare system may worsen birth outcomes. In addition, focusing on specifically improving Black infant mortality rates is appropriate, as the Black/White disparity ratio grew from 2010 to 2020, despite decreased overall infant mortality (NCIOM, 2020).

Problem Statement

Current data at the project site revealed that EBM feeding rates were below target, and Black/White EBM feeding inequities existed. Prior to the initiation of this project, the hospital began to focus on healthcare disparities directly related to women of color in a multidisciplinary forum of professionals known as the Perinatal Collaborative. The collaborative or organization had not addressed the racial inequalities related to EBM feeding rates to improve overall breastfeeding rates and decrease feeding disparities.

Purpose Statement

This project aimed to address one potential contributing factor to Black/White disparities in infant mortality and poor maternal outcomes by implementing innovative, evidence-based interventions to increase Black and overall EBM feeding in the inpatient postpartum setting. In doing so, the interventions promoted equitable opportunities for improved health outcomes for all couplets. In the long term, by disseminating the successful interventions at the project site, other hospital systems can implement these solutions to further decrease Black/White outcome disparities.

Section II. Evidence

Literature Review

A comprehensive literature review was conducted to discover evidence-based interventions to improve breastfeeding disparities. The evidence was thoroughly evaluated and organized by the quality of the evidence. The literature search strategy utilized databases specifically recommended for nursing research through Laupus Library at East Carolina University (ECU). These included the Cumulative Index of Nursing and Allied Health (CINAHL Complete), MEDLINE via PubMed, the UNC Cecil G. Sheps Center for Health Services Research AHRQ, Google Scholar, the World Health Organization (WHO) Institutional Repository for Information Sharing, and the Cochrane Database of Systematic Reviews via Ovid. Additional information was reviewed from government websites, including the CDC, NCIOM, ODPHP, USDA, U.S. Preventative Services Task Force (USPSTF), NCDHHS, and the WHO. Further literature was reviewed from accredited organizations, including the American Academy of Pediatrics (AAP), TJC, the U.S. Breastfeeding Committee, the American College of Obstetricians and Gynecology (ACOG), and Baby-Friendly USA. Lastly, project site information was reviewed on the organization's website.

Keyword search terms included breastfeeding, breastfeeding patterns, breastfeeding AND racial disparities, increasing breastfeeding AND Black, barriers to breastfeeding AND African American, choice to breastfeed AND African American AND racial disparities, implicit bias training AND maternal, cultural competence, implicit bias training in nurses, and increasing black breastfeeding. Search limits included the last five years, full-text, peer-reviewed, and English. Sentinel literature sources were not time-constrained and included. Three government organization documents outside the 2017-2022 timeframe were included due to their relevance

and the source currently being the best available. The search terms with limits yielded 191 journal articles. The level of evidence of the source was then considered utilizing the Melnyk & Fineout-Overholt (2019) model; therefore, only articles with level four evidence and above were included. Two sources out of the 191 articles were eliminated due to time constraints that were not appropriately filtered out by the database through the search limits. After reading all titles and abstracts for applicability to the project topic, 29 were retained and thoroughly reviewed. Of these articles, inclusion criteria included articles discussing EBM feeding, EBM feeding rates related to the black race, and interventions that included aspects of the "Ten Steps." Those excluded discussed interventions targeting EBM feeding in races other than black, infant feeding routes other than EBM feeding, and all articles unrelated to the project's intent of improving EBM feeding rates. In all, 19 were relevant and synthesized into the project. Additionally, 13 practice guidelines and position statements and one original research study were found to be relevant and were reviewed carefully, then incorporated into the project. The level of evidence of these sources was between Level I and Level IV.

Current State of Knowledge

The guidelines and position statements regarding breastmilk feeding written by ACOG (2018), the CDC (2020), the USDA & HHS (2020), and Meek et al. (2022) all align with the recommendation for infants to be EBM fed for the first six months of their life, then continue breastfeeding with the addition of nutritional food product until one year of life. The policy statement recently published by the AAP supports exclusive breastfeeding for six months, then continued breastfeeding as long as it is mutually desired for two years or beyond (Meek et al., 2022). TJC is a non-profit organization that provides accreditation to hospitals. EBM feeding rates are reported from hospital systems to TJC as part of their required Perinatal Care Measures

(PC-05); however, the current goal for EBM is non-specific and states “an increase in the rates” (TJC, 2021).

Current guidelines, position statements, and government reports, including ACOG (2018), the CDC (2021b), and Meek et al. (2022), emphasize the significance of supporting breastfeeding in Black infants due to the Black/White disparity demonstrated by breastfeeding initiation and continuation rates below the national average. In 2021, nationally, 84% of all infants were breastfed at least once, compared to only 76% of Black infants (CDC, 2021b). In a position statement, ACOG (2018) cites a 17.2% difference in breastfeeding initiation among Black and White women and highlights the need for equitable policies and practices that support all women receiving optimal breastfeeding support. Meek et al. (2022) assert that no Healthy People 2020 goals for breastfeeding were met among non-Hispanic Black couplets in the 2018 birth cohort and identified disparities in health outcomes linked to suboptimal breastfeeding rates in the Black population. In their review, Louis-Jacques & Stuebe (2020) expand on this metric to note that the Black breastfeeding disparity exists regardless of education status or income.

ACOG (2018), the CDC (2021b), and Meek et al. (2022) also recommend increasing hospital support to improve breastfeeding rates. Elite breastfeeding practices can be promoted within hospital settings by incorporating the global standard of the “Ten Steps to Successful Breastfeeding” and by enhancing breastfeeding education provided to new mothers by obstetricians, pediatricians, and nurses (CDC, 2021b). ACOG (2018) states that the “Ten Steps to Successful Breastfeeding” should be integrated into women’s care practices to increase the probability that a woman will begin, sustain, and reach her breastfeeding goals. Meek et al. (2022) have identified specific-targeted interventions such as the “Ten Steps to Successful

Breastfeeding," which have demonstrated improvement in the initiation and duration of breastfeeding among groups with lower rates, such as Black mothers.

Current Approaches to Solving Population Problem

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) "Ten Steps to Successful Breastfeeding" is the most widely recommended evidence-based intervention to improve breastfeeding rates and racial disparities, and is cited in multiple position statements, practice guidelines, and research articles reviewed in this paper (See Appendix A). The Ten Steps to Successful Breastfeeding was published in 1989 in a joint statement by WHO and UNICEF. The document identified a decline in breastfeeding due to various contributing factors and strongly urged those providing maternity care services to take responsibility for reviewing and improving current breastfeeding education, policies, and practices. The document provided healthcare facilities with a list of ten evidence-based steps organizations could take to implement their recommendation, known as the "Ten Steps to Successful Breastfeeding" (WHO & UNICEF, 1989). The "Ten Steps to Successful Breastfeeding" will be referred to as the "Ten Steps" for the remainder of this paper.

The "Ten Steps" state that all healthcare facilities that participate in the provision of maternity and newborn care should; (1) have a written breastfeeding policy that is well known to staff, (2) train all staff on the aforementioned policy, (3) educate all pregnant women about the importance and practice of breastfeeding, (4) assist mothers to begin breastfeeding within one hour of birth, and (5) provide breastfeeding demonstration and education regarding maintaining a milk supply when away from their newborn. Additionally, Step (6) is to nourish infants only with breastmilk unless there is a medical indication for supplementation, (7) ensure the mother shares a room with her infant during the entire hospitalization, (8) encourage the mother to feed

her baby on-demand, (9) eliminate the use of bottle nipples and pacifiers to calm the infant in breastfeeding infants, and (10) encourage the mothers breastfeeding success by providing her with support services and groups at the time of hospital discharge (WHO & UNICEF, 1989). These steps were recently updated in 2018 to promote feasibility for implementation, which included changes to Step one to address the importance of organizations complying with the "International Code of Marketing of Breast-milk Substitutes" as well as the requirement for internal organizational monitoring to ensure the "Ten Steps" model is sustained (World Health Organization [WHO], 2018, p. 7). Additional changes simplified step two, which generalized staff education to assess competency rather than implementing a specific education curriculum. Step five was updated to provide generalized education about solutions to common feeding issues, and Step nine was revised to counsel mothers on the risks accompanying the use of bottles, teats, and pacifiers rather than restricting their use (WHO, 2018).

Once a hospital successfully implements all "Ten Steps," they are eligible to apply for a designation known as the Baby-Friendly Hospital Initiative (BFHI). The BFHI initiative is a global initiative established in 1991 by UNICEF and WHO to encourage organizations to implement the "Ten Steps" and the *International Code of Marketing of Breastmilk-Substitutes* in maternity care centers (Baby-Friendly USA, 2021; WHO, 2018). The intervention and designation were grouped together in multiple articles and referred to as the "Ten Steps"/BFHI. It should be differentiated that the "Ten Steps" is an intervention, and BFHI is a designation (Baby-Friendly USA, 2021). The BFHI designation requires a hospital facility to complete all "Ten Steps" and allows for additional time and funding to enroll in the 4-D pathway comprised of Discovery, Development, Dissemination, and Designation and undergo an on-site assessment.

The literature review completed by Comess (2017) comprised 19 articles, and the meta-analysis conducted by Feltner et al. (2018) included 137 publications and ten systematic reviews. Both literature reviews supported improved breastfeeding outcomes in BFHI facilities. Additionally, Barraza et al. (2020) explained the correlation between the number of steps a facility implements and improved outcomes in mothers reaching their breastfeeding goals. According to Louis-Jacques et al. (2017), facilities that utilized the "Ten Steps" and earned a BFHI status typically experience higher exclusive breastmilk feeding for mothers with a lower socioeconomic status, which suggests the "Ten Steps" and BFHI designation can also reduce underlying socioeconomic disparities in breastfeeding outcomes.

Most other interventions included aspects of the "Ten Steps." Alternative interventions included hospital provider education, such as in Goncalves's (2017) secondary analysis of the Infant Feeding Survey in 2010, which proposed enhancing the knowledge of risk factors for unsuccessful exclusive breastmilk feeding and prioritizing interventions for those patients. In their review, Louis-Jacques et al. (2017) highlighted the importance of making referrals for follow-up visits for known barriers to EBM feeding before hospital discharge, such as for treating ankyloglossia. The literature review conducted by Feltner et al. (2018) identified that healthcare staff education without additional supportive breastfeeding interventions is ineffective in increasing breastfeeding initiation rates.

Chubb et al. (2022) demonstrated improvements in pre-implementation versus post-implementation assessment measurements of midwife awareness and bias after training was conducted on structural racism, implicit bias, and clinical care differences of Black and other minority ethnic groups. Of the participants, 98% of the midwives reported that the training provided them with innovative knowledge that would lead to personal practice changes (Chubb

et al., 2022). The systematic review completed by Ricks et al. (2021) identified that an educational session or a series of sessions effectively enlightened healthcare providers about their current bias and the basis of their racism. It provided tools the healthcare providers could apply to patient interactions. The review also identified that an entire cultural shift is needed to facilitate cultural humility in healthcare workers, which is a lifelong process involving reflection and broad-mindedness to learn and change practice with knowledge gained through patient encounters (Ricks et al., 2021). In her review, Narayan (2019) described strategies to reduce bias, such as stereotypic imaging, individualization, emotional regulation, partnership building, perspective-taking training, and habit-breaking practices that provided small improvements in mitigating healthcare providers' bias. Narayan (2019) recommended that the Harvard University Implicit Association Test (IAT) should not be used to diagnose implicit bias but could be used as an educational tool to determine that bias exists. The IAT is a web-based tool created by three scientists, Dr. Greenwald, Dr. Banaji, and Dr. Nosek, that measures possible associations between attitudes and beliefs that individuals may or may not be consciously aware of (Project Implicit, 2011a; Project Implicit, 2011b).

Other interventions reviewed by Asiodu et al. (2021) demonstrated the importance of improving patient education around breastfeeding that aligns with the "Ten Steps" through social media platforms. They also found that developing a hospital-sponsored peer-to-peer program was essential in Black communities. The longitudinal critical ethnographic approach by Asiodu et al. (2017) identified the significant role social, and partner support played in the continuation of EBM feeding. Asiodu et al. (2017) also acknowledged a reoccurring theme in the literature around the lack of breastfeeding support from healthcare providers for Black women, further identifying the importance of improving how the healthcare community supports this population.

Evidence to Support the Intervention

The "Ten Steps" recommendation is appropriate for the specific targeted population and partnering organization due to the intervention being most frequently implemented in hospitals. Additionally, the intervention targets improvement for the overall breastfeeding rates and racial disparities in breastfeeding rates, which both apply to the needs of the project site (Chiang et al., 2021). This data was demonstrated by one large study, the Promotion of Breastfeeding Intervention Trial (PROBIT), and by a recently reviewed statewide community health initiative, Community and Maternity Hospitals Advancing Maternity Practices (CHAMPS) (Kramer et al., 2001; Merewood et al., 2019; Merewood et al., 2022). PROBIT was a cluster-randomized controlled trial conducted from June 1996 to December 1997 to evaluate the difference in breastfeeding success of healthy couplets at hospitals implementing BFHI interventions compared to hospital sites that continued usual infant feeding practices. The 18-month trial with a one-year follow-up retained 16,491 couplets and determined that sites that implemented BFHI interventions were significantly more likely to be exclusively breastfed at three months (43.3% versus 6.4%), and the infants had a decrease in atopic eczema and gastrointestinal infections (Kramer et al., 2001).

The CHAMPS initiative was implemented in Mississippi, Louisiana, Tennessee, and Texas from 2014-2017 and utilized the "Ten Steps" as a community-based quality improvement initiative. Over 31 months, the African American and White breastfeeding initiation disparity decreased by 9.6 percentage points. Further, in Black couplets, breastfeeding initiation increased from 46% to 63%, and the exclusive breastfeeding rate increased from 19% to 31% (Merewood et al., 2019). The success of the CHAMPS initiative in Mississippi was recently reviewed and evaluated by Merewood et al. (2022). They found in the review that overall breastfeeding

initiation rates rose from 55% to 66%, and the number of hospitals that have obtained or are close to obtaining BFHI status grew from 15% to 90%. These outcomes demonstrate that the "Ten Steps" can improve breastfeeding initiation and EBM feeding and decrease racial disparities in breastfeeding.

At the project site, the most significant potential success of the "Ten Step" strategy resulted from collaborative discussions with the project site champions who were familiar with the "Ten Steps" and already contemplating utilizing this tool. The focus of the project was directed towards two of the "Ten Steps" that were not currently prioritized by the unit but would likely result in a significant impact: Step eight—supporting mothers to recognize and respond to their infant's cues for feeding and Step nine—counseling mothers on the risks of feeding bottles, teats, or pacifiers (WHO, 2018). In their implementation guide, WHO (2018) explains the importance of educating new mothers about newborn feeding cues. Recognizing these cues prevents infant distress and feeding difficulties, builds maternal confidence, and nurtures the dyad breastfeeding relationship. Additionally, WHO (2018) recommends that healthcare institutions should provide education to caution breastfeeding mothers on the use of bottles, teats, and pacifiers due to the potential to interfere with breastfeeding and proper oral formation. Pacifiers can conceal feeding cues, and if pacifiers replace suckling, it can reduce maternal breast stimulation resulting in decreased milk supply (WHO, 2018). This evidence demonstrates that steps eight and nine are practical to address simultaneously during the project implementation (WHO, 2018).

By assisting mothers in recognizing their infant's feeding cues, hospital staff can facilitate responsive feeding, which improves exclusive breastfeeding (WHO, 2018). The staff should engage in care that promotes the infant's proximity to its mother and identify and relay feeding

cues to the parents when observed. Patient education should result in mothers being able to identify at least two feeding cues and verbalize that the staff instructed them to feed their infant on demand (WHO, 2018). For step nine, the WHO (2018) recommends that if the mother utilizes expressed breastmilk to feed her infant, feeding routes such as cups, spoons, or bottles can be used. The WHO (2018) notes that staff should not use expressed breastmilk as an alternative to addressing feeding difficulties or a lack of breastfeeding education. Staff should educate the mother regarding the physiological difference between breastfeeding and sucking on a bottle or teat and the importance of breast stimulation to establish a proper breastmilk supply. Lastly, the WHO (2018) calls for staff to explain the appropriate hygiene care of pacifiers if used, but also bluntly states that the facility and its staff should not promote the use of bottles or teats. Baby-Friendly USA (2021) asserts that using a pacifier was identified as a possible intervention to reduce the risk of sudden infant death syndrome (SIDS). However, due to the potential effect a pacifier has on maternal milk production and preventing proper latching, the recommendation remains to delay the introduction of a pacifier until breastfeeding is well established (Baby-Friendly USA, 2021). The final strength of this intervention is that the WHO has outlined the "Ten Steps" into a well-defined process that can guide organizations to transition each step into actionable interventions.

Evidence-Based Practice Framework

The evidence-based practice framework applied to this project was the IOWA Model of Research-Based Practice, see Appendix B (Titler et al., 1994). This model utilizes a bottom-up approach, which allows changes to begin at the patient's bedside after identifying problems by nurses rather than the changes beginning at the management level. The framework identifies nurses' concerns as *Problem Focused Triggers,* those that develop from repetitive problems in

the clinical setting, or *Knowledge Focused Triggers,* which develop from newly available knowledge (Titler et al., 1994). This project was a Problem Focused Trigger due to EBM feeding rates remaining consistently low at the project site over the past few years and the relative historical awareness around the importance of increasing successful EBM feeding in hospitals being stable.

After identifying the type of trigger, the next step of the IOWA Model is reviewing available evidence to evaluate and critique it for use in practice (Titler et al., 1994). After determining that there is sufficient evidence to implement a change, the expected outcomes of the change should be clarified, and a plan should be in place to track and identify the results of the intervention. The evidence supporting this project was sufficient to support a practice change at the project site. The method that was used to collect data and track expected outcomes was EMR chart reviews which were compiled within an excel workbook.

Next, the design of the practice intervention should be determined as independent or multidisciplinary. This project was a multidisciplinary change, as it affects nurses in the mother-baby unit and newborn nursery, as well as lactation nurses and providers, including nurse practitioners, physician assistants, and physicians. The fourth step in the IOWA model is to pilot the change on a small unit before implementing it throughout the organization to ensure it is feasible to measure the change and make necessary alterations to the intervention during implementation (Titler et al., 1994). This change was only implemented in the postpartum unit at the project site and was reviewed throughout the process to identify areas for improvement.

Lastly, Titler et al. (1994) explain that the project should be evaluated not only for accomplishing the outlined objectives but also for the success of the implementation process before moving toward an organizational change. This project's outcomes and implementation

process were evaluated throughout implementation and again at the conclusion of the project before the dissemination of findings. Practice recommendations were advised during implementation as well as at the close of the project. Additional considerations in the IOWA model to improve staff buy-in include involving the unit nurses early in the change process to act as advocates for the project, incorporating staff feedback into the project, and encouraging staff participation in researched-based solutions to implementation challenges (Titler et al., 1994). These considerations were all incorporated into the project

Ethical Consideration and Protection of Human Subjects

The patient population that benefited from the project was considered vulnerable because they are breastfeeding mothers and infants. Infants lack autonomy; therefore, ethical considerations such as beneficence and justice must be considered for the intervention targeting an improvement in equitable EBM feeding rates. Providing the same education to all staff members, which, in turn, provided the same education to all couplets impacted by the project, ensured the intervention was equitable. There was no potential harm to any project participants, and no one in the target population was taken advantage of due to the use of de-identified data to evaluate the outcomes and success of the intervention.

To secure a partnership with the organization, an approval letter from the Director of Research was obtained (See Appendix C). To prepare for the formal project approval process, two courses were completed through the Collaborative Institutional Training Initiative (CITI) Program; Human Research-Group 2: Social/Behavioral Research Investigators and Key Personnel and Responsible Conduct of Research-Social and Behavioral Responsible Conduct of Research Course 1. After completing the CITI modules, a project proposal was developed and submitted to the organization's internal Institutional Review Board (IRB) for approval (See

Appendix D). Once the project was deemed as a Quality Improvement (QI) project by the organization, the DNP project course faculty reviewed the accuracy of the self-certification tool for submission into the University's Self-Certification Qualtrics survey. The tool was then completed, and the project was deemed to be a QI project by the university.

Section III. Project Design

Project Site and Population

This project was implemented in a postpartum unit in a large community hospital in central NC. This unit provides new mothers and their infants care immediately after vaginal or cesarean birth. The age of the patients on the unit ranges from 0 to 45 years old (personal communication, July 7, 2022). The patients represent a variety of races and ethnicities and have various levels of education and socioeconomic status. The primary participant focus was on the clinical nursing staff; however, support staff such as nursing assistants were involved as it is a collaborative model to care for new mothers. There are 72 nurses and 26 perinatal assistants on the unit (personal communication, July 7, 2022). All staff members are females.

Facilitators

Facilitators for this project included support from the management, leadership staff, lactation consultants at the project site, and the DNP project team. Additionally, the project site agreed upon the identified need for improvement and supported using the "Ten Steps" for the implementation plan. This project was feasible because of the support and success of past DNP projects being completed at this project site. The project was sustainable due to the planned continuation to complete additional steps of the "Ten Steps" process to achieve the NC Maternity Center Breastfeeding-Friendly Designation after the evaluation and completion of this DNP project implementation. Other facilitators include the formula shortage that began in 2020 after the Corona Virus Disease 2019 (COVID-19) pandemic, which resulted in supply chain issues (Abrams & Duggan, 2022). This shortage was then exacerbated in 2022 by major formula producers voluntarily recalling contaminated formulas. The shortage of infant supplement alternatives has increased support and focus for mothers to EBM feed their infants.

Barriers

Barriers to the project included healthcare provider misconceptions or personal preferences that may have interfered with the up-to-date, evidence-based education provided to the nursing staff. As a unit of healthcare providers that are all female, many staff members had children. Staff members have various lived experiences with EBM feeding, supplementing with formula, and using pacifiers and bottle nipples. Their experiences and misconceptions potentially served as barriers to implementing proper education due to the nurse or perinatal technician sharing personal preferences and experiences with new mothers. Additionally, the implementation plan requested staff to complete additional education by reviewing steps eight and nine of the "The Ten Steps" with every mother on admission and throughout their stay. After the staff members completed the education, documentation of the completed education was required (See Appendix I and J). These additional steps may have resulted in nurse and perinatal technician dissatisfaction due to the perception of additional workload due to increased patient education and documentation requirements. Lastly, encouraging more mothers to breastfeed likely resulted in more requests for breastfeeding assistance from staff. Therefore, staff spent more time in the patient's room, resulting in less provider availability and potential staff dissatisfaction.

Description of the Setting

The postpartum unit is a 50-bed locked unit in an acute care facility divided into two floors (personal communication, July 7, 2022). There are two 10-bed pods on the second floor and three 10-bed pods on the third floor. Each pod is equipped with a nurse's station. All rooms on the unit are private and are equipped with a newborn bed and breast pump. This project was

conducted in the inpatient setting, and the education by staff was only provided to admitted patients during the implementation timeframe.

Description of the Population

The target population comprised staff nurses and perinatal technicians providing direct patient care in the postpartum unit. These staff members are 17-65 years old with various races, ethnicities, and healthcare experiences (personal communication, July 20, 2022). The inclusion criteria were nurses and perinatal technicians of all ages and levels of experience who were currently employed by the organization or by a partnering staffing service. Those excluded included staff on leave and those who were not present during any of the educational sessions who were unable to view the video education. Characteristics that did not affect inclusion were personal preferences about breastfeeding, pacifier use, or bottle nipple use.

The patient population for whom the nursing staff provided education and care were the postpartum mothers, families, and their infants in the postpartum unit. The staff-to-patient education intervention inclusion criteria were mothers of all ages with a routine birth recovery and full-term, healthy infants with no apparent medical abnormalities. Those excluded included mothers who strongly preferred not to breastfeed, preterm infants or those with apparent medical abnormalities, and those in the Neonatal Intensive Care Unit (NICU) due to their complex medical needs. Characteristics that did not affect inclusion include parity, delivery route, or prior feeding route in a historical birth. Historically, the average length of stay for the couplet is between one and three days after giving birth.

Project Team

The project team consisted of a DNP student, a university DNP faculty member, the project site champions, the Women's and Children's Quality Improvement Coordinator, and the

organization's Director of Practice, Quality, and Research. The DNP student fulfilled the role of project leader and identified the project need, conducted the literature review, created a plan, and organized the project's implementation. Throughout the implementation, the project leader gathered and evaluated the data. At the conclusion of the project, the project leader presented and disseminated findings to the project partner, university, and the greater public. The DNP university faculty member served as an advisor and mentor to guide the project leader throughout all project phases. The project champions were the Perinatal Services Manager and the Clinical Nurse Manager of Three Women's, both Masters Prepared and certified Registered Nurses. The project champions provided the project leader with expertise in maternal and newborn practices, promoted staff engagement with the project, and addressed project site concerns. The Women's and Children's Quality Improvement Coordinator assisted the project leader in acquiring de-identified patient data through the EMR. The Director of Practice, Quality, and Research, a Doctoral Prepared Registered Nurse certified in Nursing Professional Development, approved, and oversaw the project.

Project Goals and Outcome Measures

The two goals of the project were to improve overall exclusive breastmilk feeding rates for all races and to decrease the Black/White disparity in exclusive breastmilk feeding within the organization. The outcome measures included increased rates of exclusive breastmilk feeding, and increased staff documentation of step eight and step nine compared to pre-implementation data. Data were obtained from a chart review through the EMR.

Description of the Methods and Measurement

This project aimed to improve EBM feeding rates and the disparity between Black and White mothers' EBM feeding rates at the organization by implementing steps eight and nine of

the “Ten Steps.” After nurses completed patient education, documentation by the nursing staff addressing steps eight and nine on infant breastmilk feeding and any supplements provided was essential to measure the project's success. To facilitate proper documentation, a document outlining example charting captured by the snipping tool through the EMR Playground was reviewed with staff and displayed at the nurse's station (See Appendix I and J). Nine posters were placed in staff lounges and bathrooms at the beginning of implementation and were displayed for the project's duration (See Appendix F). The data was then evaluated through a chart review to identify the differences in pre-implementation, mid-project implementation, and post-implementation EBM feeding rates. To evaluate the percentage of staff who completed the education, the project leader maintained a list of staff who were provided instruction on breastfeeding education and the proper documentation process.

Additional data was collected through the chart review to identify the EBM feeding rates. Data were organized into a pivot table categorized by the mother's race and exclusivity of breastmilk feeding. A percent difference was calculated to identify the disparity between Black and White EBM feeding within the organization. The mother verbalizes her race on admission to the birthing center, which is entered into the EMR by the admission staff (personal communication, March 8, 2022). The newborns’ race or ethnicity does not populate in the EMR until the birth certificate is submitted and chart reconciliation occurs. Additionally, literature and evidence outcome measures in this paper relating race to EBM feeding are reported using the mothers' race. Therefore, the mother's race was utilized as the demographic characteristic measure in the project.

Discussion of the Data Collection Process

To support the project need, for planning purposes, and as a pre-implementation baseline, de-identified EBM feeding data were obtained in March 2022 from the organization's Women's and Children's Quality Improvement Coordinator (See Appendix K). Immediately before project implementation, the project leader obtained baseline EBM feeding data during the first week of September 2022. Data obtained from the EMR chart review was then collected bimonthly from an average of 20 couplet charts after systematically selecting every third chart. The data included the specific documentation items of steps eight and nine and EBM feeding data divided by race. The data collected and reported for the NC Maternity Center Breastfeeding-Friendly Designation and TJC's PC-05 measure identify different aspects of EBM feeding; therefore, both data sets were presented. The EBM feeding data were compared to the US and NC's current available EBM feeding rates.

During implementation, data collection via the organization's EMR occurred bi-monthly on six occasions. The data was pulled from the organization's "four-day recently discharged" folder to ensure the same data was not collected twice, then it was filtered to display only infants in the organization's nursery. For the first week, data was collected from every 5th patient's EMR. After reviewing the data collected in the first project management report, it was identified that this process resulted in less data than expected. Therefore, for the subsequent weeks, data was collected from every 3rd patient in the EMR. The data was organized by week and included the patient's race, exclusive breastfeeding status, and the presence or absence of specific documentation items for steps eight and nine of the "Ten Steps." The graphs were organized by week of implementation. The graphs displayed percentages of EBM feeding and completion of each sub-category of steps eight and nine (See Appendix L, M, N, and O).

At the conclusion of the implementation phase, documentation of items from steps eight and nine and EBM feeding data were obtained from the same sources reviewed above (See Appendix L, M, N, O). These rates were compared using pivot tables to identify changes in the data between pre-implementation, throughout the 13-week implementation period, and post-implementation. The data collected via chart review from steps eight and nine were presented in a chart format utilizing bar graphs (See Appendix L and M). One additional graph displayed EBM feeding rates by race (See Appendix N). The PC-05 EBM feeding rates were collected from the Women's and Children's Quality Improvement Coordinator at the end of the implementation period and compared with pre-implementation rates (See Appendix K). The data were analyzed for differences to identify any possible relationship between the intervention and EBM feeding outcome changes within the organization.

Implementation Plan

The operation framework guiding the project was the IOWA Model. The IOWA Model was selected for this project due to its successful use in addressing inpatient quality improvement problem-focused triggers and its flexibility for review and redesign during the implementation process. First, a breastfeeding education document was created in partnership with the organization's lactation consultants and key stakeholders (See Appendix E). Next, a "Words and Ways that Work" document (Appendix F), was created by the project leader using evidence-based resources. Additionally, two documents outlining proper documentation of the intervention were developed. These four documents were presented to nurses and perinatal techs in September, October, and November 2022 using an in-service format and teach-back demonstration to increase staff knowledge leading to a change in practice (Appendix G).

Nurses were asked to educate all couplets on the unit by incorporating the new information into the nurse's standard admission education in the postpartum unit. Six in-service sessions occurred throughout the implementation phase in September, October, and November 2022 to review the education with 56% (55) of staff members on the perinatal team. During implementation from August 2022 to December 2022, monthly check-in meetings with the project team at the organization occurred to identify necessary revisions to the implementation plan and to communicate findings. Additionally, meetings with the DNP faculty member occurred four times to identify areas for improvement and complete implementation modifications. During implementation and after staff education was provided, the project leader conducted bimonthly chart audits to evaluate for improvement in exclusive breastmilk feeding rates and patient education documentation.

Timeline

The project implementation occurred over 13 weeks, beginning in September 2022 and concluding in November 2022. Staff education was completed throughout September, October, and November 2022. The project findings were shared with the project site champions throughout the implementation process and at the conclusion of implementation. The project presentation to the university faculty is planned to occur in April 2023. Timeline details are outlined in Appendix H.

Section IV. Results and Findings

Results

During the 13-week implementation, education materials were distributed, staff education was completed, and data were collected to evaluate for improvement. On the mother-baby unit, education was completed bimonthly during daytime and nighttime nursing shifts. Out of 98 staff, 55 completed the in-person education (56%) (See Appendix P). An educational video was made available via email to all mother-baby staff who could not attend the on-site education. Of the 98 staff, 37 (38%) individuals reviewed the video. Over the 13 weeks, 143 couplet chart reviews were completed, and of those, 29 couplet charts identified as Black race, and 90 identified as White race. The additional 24 charts were from other races and were reviewed due to the randomized chart review process. These charts were not eliminated when comparing Black and White EBM feeding rates.

The average overall EBM feeding rate during the 13 weeks of implementation was 57% compared to the pre-implementation EBM rate of 36% at week one. When evaluating race and related breastfeeding exclusivity, at week one of implementation, the Black race EBM feeding rate was 0% compared to the White race EBM rate of 40%. By week 13, the Black race EBM feeding rate improved to 40% compared to the White race EBM feeding rates of 75%. This indicates an improvement in the organization's Black and White race EBM feeding rate disparity from 40% to 35%, respectively.

In comparing pre-implementation data to post-implementation data, for step eight—supporting mothers to recognize and respond to their infant's cues for feeding, an improvement was noted in all three sub-steps, including 8.1, 8.2, and 8.3 (See Appendix L). For step 8.1, "provide education on feeding cue recognition," 100% of nurses documented that education was

provided to their patients at week 13 compared to 73% at week one. For step 8.2, “provide education on feeding on demand,” 86% of nurses documented that education was provided to patients at week 13, compared to only 55% at week one. Lastly, for step 8.3, “provide education on waking the baby for a feeding,” 86% of nurses documented that education was provided at week 13, compared to only 36% at week one.

There was a minimal improvement for step nine—counseling mothers on the risks of feeding bottles, teats, or pacifiers (See Appendix M). For sub-step 9.1, “did the baby use a pacifier,” there was a significant absence of documentation; therefore, this step showed no improvement. At week one, 100% of patients had an unknown status of pacifier use; at week 13, 95% (20 of 21) of patients had unknown pacifier use, with 5% of patients documented using a pacifier. For sub-step 9.2, “was pacifier usage and risk reviewed with the mother,” there was a documented improvement with 48% of patients receiving the education at week 13 compared to only 18% of patients receiving this education at week one; however, the goal of 80% was not attained. For sub-step 9.3, “were routes of supplementation and pros/cons of routes reviewed,” the data initially seems to demonstrate a decrease in education, with week one education rates being 18% and week 13 being 0%. Further examination of the data, there were significant improvements in patients that were “not applicable;” increasing from 36% in week one to 62% in week 13, therefore, fewer patients required supplementation with formula or breastmilk. With the actual change in supplementation, findings failed to demonstrate a significant reduction in education rates. Lastly, for sub-step 9.4, “what route was used for supplementation of formula or expressed breastmilk,” minimal change was found from week one at 9% oral syringe use and 36% unknown route compared to 62% unknown route at week 13. The change noted was affected by the absence of documentation by nursing staff.

Of note, in the data collected by the project leader during week seven, there was a reduction in the EBM feeding rate for the Black race (See Appendix O). This may be related to many factors, and no specific event can be attributed to the inconsistency. It is possible that the random sample selection was not reflective of the actual Black race breastfeeding rates during this specific week of chart reviews due to the smaller number of Black couplets in the data selection.

Discussion of Major Findings

This project aimed to increase Black EBM feeding rates and overall EBM rates in the inpatient postpartum. Implementing standardized education for nurses using the CDC and WHO "Ten Steps to Breastfeeding" heightened nurses' awareness of using evidence-based breastfeeding information in patient education. Educational documents and posters were resources made available to nurses to promote patient education on all aspects of breastfeeding (See Appendix E and F). This led to an improvement in the project site's EBM feeding rate of 67% at week 13, exceeding the initial organization goal of 50% EBM feeding (See Appendix O). Using the "Ten Steps" to increase EBM feeding rates in Black couplets and decrease racial disparities is well documented in the literature (Meek et al., 2022; WHO, 2018). This aligns with the evidence from Merewood et al. (2019) review that discusses the more steps of the "Ten Steps" a woman experiences during her maternity care, the more likely the woman is to reach her breastfeeding goals. Evidence in the literature supports that increased compliance with the "Ten Steps" decreases racial disparities in breastfeeding (Merewood et al., 2019).

Specific gaps noted in the literature include the WHO (2018) Implementation Guide, the Policy Statement on Breastfeeding by Meek et al. (2022), and other articles, such as Goncalves (2017), failing to define the term Exclusive Breastfeeding precisely. The concern with the lack of

formal definitions of EBM feeding is that the public may not understand the term exclusive breastfeeding. For example, in the study completed by Asiodu et al. (2017), one mother stated, "so when you say exclusive, I mean, giving him one formula bottle like every couple nights, is that still exclusive breastfeeding" (p. 870)? Clarifying the definition of exclusive breastfeeding is essential for mothers, healthcare providers, and data scientists. Furthermore, one may question data findings if standardized definitions are not used.

The TJC defines EBM feeding as "newborns that were fed breast milk only since birth" (Yendro, 2020, Slide 55). In their definition, using dextrose or glucose gel 40% for hypoglycemia is considered a medication and not a feeding; therefore, infants receiving this therapy are still considered EBM feeding. The USDA & HHS (2020) Dietary Guidelines clearly define EBM feeding as "an infant consuming only human milk, and not in combination with infant formula and/or complementary foods or beverages (including water), except for medications or vitamin and mineral supplements" (p. 54). Furthermore, breastfeeding alternatives such as providing human donor milk should be included or excluded in the definition of exclusive breastfeeding to ensure data reporting accuracy and consistency.

An additional project goal was to achieve steps eight and nine of the "Ten Steps" to work towards the NC Maternity Center Breastfeeding-Friendly Designation. The overall goal was to successfully implement each step at least 80% of the time. This was achieved for step eight; however, significant improvements will still be needed for three out of the four categories to achieve step nine. Actions taken towards achieving step nine included displaying posters in the staff common areas and reviewing the poster with every staff member so that they had access to evidence-based statements to guide their patients on using pacifiers and bottle nipples (See Appendix F). Moreover, the organization's supplementation guidelines were reviewed with every

staff member to ensure best practices. Educating staff members on pacifier and bottle nipple use and supplementation recommendations is well supported in the literature (WHO, 2018).

A significant gap in the WHO's (2018) literature regarding "The Ten Steps" is the lack of recommendations on alternatives to bottle nipple use in providing expressed maternal or donor breastmilk. Addressing this gap is crucial, as many new mothers express breastmilk through hand expression or pumping and should be provided guidance on the best way to give their expressed milk to align with step nine. At the project site, providing maternal or donor breastmilk via oral syringe up to 10mL in volume was the preferred route of supplementation when the mother expressed milk or if the newborn required feedings beyond latching to the breast. The NC Maternity Center Breastfeeding-Friendly designation lists oral syringe feeding as a viable option for supplementing expressed breast milk (North Carolina Health and Human Services, 2013). Further guidance on oral syringe feeding as an alternative to bottle nipple is an important topic to address as it would offer a potential solution to a barrier in complying with the WHO and UNICEF's recommendations.

Lastly, the organization's EBM feeding metric reported to TJC, also known as the PC-05 metric was obtained from the Women's and Children's Quality Improvement Coordinator at the end of the implementation period. Upon review, there was an improvement in EBM feeding rates from 49% at the end of the project compared to the pre-implementation rate of 44.1% (personal communication, January 24, 2023). The reported differences between Black and White race EBM feeding was 15% prior to the project implementation compared to 28% at project completion (personal communication, March 8, 2022; personal communication January 24, 2023). Although this does not demonstrate an overall improvement in the difference between Black and White race EBM feeding rates, the randomly selected sample for the TJC PC-05 data

only represented 28 Black couplets compared to 99 White couplets during the months of August to November, which may have caused the data to be significantly more affected by those who did not EBM feed.

Section V. Interpretation and Implications

Costs and Resource Management

The total monetary project costs were $122.97 (See Appendix Q). The primary costs associated with the project included printing posters, a one-month membership to Canva, a graphic design program, and candy as a small thank you for staff to encourage compliance in the project. The project leader created an educational poster using Canva to access professional digital design resources. The estimate did not include the time spent on a thorough literature review, project development and management, implementation, revision, and dissemination of findings, which is estimated to be over 1,000 hours. All individuals involved in the project, including the project leader, the faculty member, the two project site champions, the Women's and Children's Quality Improvement Coordinator, and the organization's Director of Practice, Quality, and Research, were not specifically paid for working on the project. Additional time considerations included the external effects of the project on the project leader's life due to many personal activities that were not completed due to working on the project.

Upon replication of the project, if the project leader were in a paid position, costs to complete the project would increase. The project involved 17.25 direct hours of staff education and 37.5 hours of chart reviews. These hours would be required to be completed by a staff member from the organization to provide education and to monitor for project-related improvement in EBM feeding rates. The hours related to project design and collaboration with the project site champions and the faculty advisor during project development and implementation were not considered. These would not be replicated if the project were repeated because these parts are related to the graduate research process. When replicating the project, the project leader would likely require experience in Women's Health Nursing and should possess

breastfeeding knowledge. According to “Registered nurse hourly” (2022), the average salary for a Registered Nurse at the organization is around $41 per hour (“Registered nurse hourly,” 2022). At a total of 54.75 hours, the staff member's hourly rate during project implementation would cost the organization $2244.75. The overall estimated project cost, including supplies and staff, is $2367.72 (See Appendix Q).

If the project was implemented on a larger scale with a larger staff base or across more units, the project would require more than one project leader, or it would be more time intensive for the project leader, adding additional cost. Also, if staff members attending the training were required to complete the education outside of regularly scheduled working hours, this would result in a greater cost to the organization. Further considerations for project implementation include the need for a computer with access to the EMR, data software programs such as Microsoft Excel, and the ability to travel to and from the project site. These items were not incorporated into the budget, as the project leader would likely have access to these through their organization as an employee, and traditionally, travel expenses are not considered with onsite employment.

When completing a cost-benefit analysis, it is essential to consider costs, resources, and overall outcomes to determine if the project is worthwhile. Based on the calculations, to improve the breastfeeding rate by 31%, the associated cost were estimated to be $2367.72. The project's costs are minimal when considering the costs associated with poor health outcomes and formula feeding due to unsuccessful EBM feeding, which are absorbed by patients, their families, and the healthcare system. These costs are further explored in the implications of the project findings below.

Implications of the Findings

This project offered education to staff regarding breastfeeding, supplementation, and using pacifiers. This is important because it resulted in improved breastfeeding education for the new mothers at the organization. First, this project increased the staff's awareness of the organization's need to improve its EBM feeding rates. The project leader discussed with the staff their role in improving the organization's EBM rates and decreasing the Black/White feeding disparity. By providing standardized staff education, the intent was that all staff members would provide the same education to all couplets and document the completion of the education in the EMR. A poster was provided to staff with readily available evidence-based discussion points for the staff to use with the patient and their family members (See Appendix F). The education sheet provided staff with a reference sheet outlining basic evidence-based breastfeeding knowledge (See Appendix E).

Implications for Patients

This project has multiple implications for patients. This project improved Black EBM feeding rates at the project site to reduce health outcome disparities. This is important because the evidence demonstrates significant long-term health and wellness benefits for couplets that successfully EBM feed. In their committee opinion, ACOG (2018) notes that interruption in lactation in women is associated with higher rates of maternal breast and ovarian cancer, diabetes, heart disease, and hypertension. Risks for newborns who do not exclusively breastfeed include a greater incidence of sudden infant death syndrome, metabolic disease, and infectious diseases (ACOG, 2018). In their study, which utilized a hypothetical Monte Carlo Simulation of 100,000 women and their infants, Bartick et al. (2016) identified significant disparities between non-Hispanic White and Non-Hispanic Black populations due to suboptimal breastfeeding. The

Non-Hispanic Black population had 1.7 times the number of ear infections, 3.3 times the cases of necrotizing enterocolitis, and 2.2 times the number of excess child deaths. These findings reflect the specific importance of the project.

This project also assisted couplets in reaching their EBM feeding goals and contributed to the patient and families' satisfaction with the nursing staff, organization, and healthcare system. One additional implication for the patients included decreased costs associated with feeding their infant as there was no need to purchase infant formula, bottles, or pacifiers with successful EBM feeding and increased access to food packages for women qualifying for the Women Infants and Children (WIC) Special Supplemental Nutrition Program. As Comees (2017) discusses in her literature review, women who choose to breastfeed their infants are eligible for the most significant amount and variety of foods provided by the WIC program, which provides optimal nutrition for the dyad rather than only supplying formula for the infant. This is important because by facilitating successful EBM feeding in the hospital through proper breastfeeding education and practices, patients can achieve their breastfeeding goals, improve their own long-term health outcomes and the health outcomes of their infant.

Implications for Nursing Practice

The project increased the nursing staff’s knowledge regarding evidenced-based breastfeeding recommendations from key organizations, including the WHO, CDC, AAP, and ACOG. The project successfully provided nursing staff with readily accessible evidenced-based breastfeeding resources that remain in the unit for long-term use. This is important because informing the nursing staff of these recommendations allows staff to grow their nursing skill set to ensure they have the necessary tools to establish a trusting relationship with their patients, improving nurse-patient communication.

Implementing charting changes and streamlining specific documentation needs within the EMR ensured the nurses began to document the hard work they put into making the patients' EBM feeding successful. Proper documentation is essential to receive the NC Maternity Center Breastfeeding-Friendly Designation. Staff should be recognized for their strides in supporting the community to improve EMB feeding rates by improving the education provided to patients, adding knowledge to the nursing skill set, and properly documenting the education provided. The project assisted in bringing the organization's nurses up to the standards observed at other hospitals in the community (North Carolina Department of Health and Human Services, 2021). By taking the lead to ensure best practices are integrated into patient education initiatives, nurses continue to enhance the impact they already have on their community and the patients they serve.

Lastly, this project demonstrates the importance of a collaborative approach to improving EBM feeding in an organization through interprofessional collaboration with the organization's advanced practice providers, nurses, perinatal technicians, managers, Lactation Consultants, and IT specialists. As demonstrated in the Driver Diagram (Appendix R), the factors affecting EBM feeding rates are multi-factorial. Project outcomes were likely improved by emphasizing the strengths of each participant involved. The advanced practice providers collaborated with nursing staff and the family unit to ensure the patient's safety, health, and well-being, and the care plan, which included the family's feeding intention. The Lactation Consultants at the organization were vital for developing and reviewing evidence-based materials to ensure the education was effective and accurate. Without receptive nursing staff specifically skilled in patient care and healthcare education, step eight and nine of "The Ten Steps" would not be delivered effectively to the patients. The unit managers allowed for proper coordination, project support, and encouraged unit comradery. The IT specialist addressed documentation challenges

and ensured successful data collection, improving project outcomes dissemination. Overall, the success surrounding interprofessional collaboration significantly impacted improving nursing practice and patient outcomes.

Impact for Healthcare System(s)

This project has multiple implications for the healthcare system, including decreased costs of formula and costs related to poor health outcomes, improving the organizational EBM feeding rate to align with CDC recommendations, achieving the NC Maternity Center Breastfeeding-Friendly Designation, and the NC Healthy People 2030 Goal-infant mortality. The Monte Carlo simulation completed by Bartick et al. (2016) determined that suboptimal breastfeeding was associated with $3.0 billion in medical costs and 2,619 excess maternal deaths, and 721 excess child deaths annually. These potential costs and medically unnecessary deaths as a direct result of poor EBM feeding should spark the healthcare system to finally address the ongoing breastfeeding crisis and the societal need to improve EBM feeding rates. According to Barraza (2020), in the United States, infant formula sales reached $1.5 billion in 2015, and the overall cost of breast milk substitutes worldwide was expected to rise to 70 billion dollars by 2019. A significant amount of this cost is not medically necessary but results from maternal or family preference and the lack of responsibility from the healthcare system to help mothers successfully EBM feed their infants. In 2022, the United States experienced a formula shortage that significantly affected the ability of families to provide nutrition to their infants and demonstrated the importance of ensuring lactation support as one of many comprehensive strategies to prevent critical shortages of formula (Abrams & Duggan, 2022). This project improved EBM rates, therefore decreasing formula use resulting in cost savings and decreasing the reliance on manufactured breastmilk alternatives.

The project also increased the organizational EBM rate to work towards aligning the organizational rate with current CDC and TJC recommendations. Additionally, by achieving step eight and progressing on step nine, the organization is one step closer to achieving its first NC Maternity Center Breastfeeding-Friendly Designation star to demonstrate its dedication in supporting breastfeeding. Achieving this designation would align the project site with the other designated hospitals in the area. This is important because although there are no specific financial implications for the organization associated with achieving the TJC PC-05 EBM feeding metric, the TJC provides guidelines and recommendations to ensure safe and quality healthcare in hospital systems. TJC is the governing body of hospital accreditation, therefore, if a healthcare system cannot meet certain criteria or does not actively promote quality improvement in its care, the organization may lose its accreditation. This would result in broad financial implications due to the loss of insurance coverage, and the organization's reputation would suffer, decreasing the communities trust in the healthcare system. In an area with three large healthcare systems for patients and staff to select from, the quality of care and the organization's positive reputation are essential to the system's success.

Lastly, this project addressed the NC Healthy People 2030 goal to decrease the infant mortality rate and the Black/White rate disparity. Infant mortality and the Black/White race disparity are linked to disparate treatment of mothers of color, food insecurity, and fewer educational resources (NCIOM, 2020). This project addressed all three topics by facilitating equitable education to all mothers and advocating for successful EBM feeding. This improves food insecurity by resolving the need for formula and introducing potential access to WIC food packages.

Sustainability

This project is sustainable for multiple reasons. One of the project's first steps was to verbalize the need for the organization to improve its EBM feeding rates directly to the nursing staff. The next critical step was to begin a culture shift in the unit to prioritize EBM feeding by advocating for the nursing staff to become accountable for improving EBM rates. The education regarding the documentation steps eight and nine provided to staff was recently incorporated into the "standard documentation" class offered to all new employees in the postpartum unit at the organization. This ensures that newly onboarded women's center staff will continue to receive the same education. Additionally, the education completed by the project leader was recorded and provided to project stakeholders to utilize for future staff educational needs.

The project became even more sustainable after discussing the new organizational goal of using the "Ten Steps" to work towards applying for the NC Maternity Center Breastfeeding Designation with the project stakeholders. To achieve this designation, the organization must sustain its current achievements while working towards additional goals in completing all "Ten Steps." After completing all "Ten Steps," the organization will be monitored periodically to retain its designation. Nurses must continue to provide this education to all patients and document the completion of the education in the EMR to attain and retain the designation successfully. A future consideration to ensure success and sustainability would include alerts for the documentation in the EMR to ensure all steps are correctly and consistently documented.

The organization will need to continue working to achieve additional steps of the "Ten Steps to Successful Breastfeeding" using the interventions from this project and other ongoing QI projects. A lactation consultant, Women's Center Educator, and Team Leader plan to continue working on these steps with unit staff to pursue further progress and apply for the first

star of the NC Maternity Center Breastfeeding Designation in the second quarter of 2023. The organization has implemented improvement projects on steps four; facilitating immediate and interrupted skin-to-skin contact, six; do not provide breastfed newborns any food or fluids other than breastmilk, and seven; practice rooming in 24 hours per day. The project has successfully initiated and supported a movement towards reaching these goals, and significant progress in achieving stars for the designation is expected in 2023.

Dissemination Plan

This project has been disseminated at various locations. First, the project was disseminated at the organization's spring research day to present the unit-specific findings to other inpatient units. During this session, the stakeholders and the nursing staff directly involved with the project, as well as other stakeholders such as the Women's and Children's Quality Improvement Coordinator and the organization's Director of Practice, Quality, and Research, were able to view the project's outcomes and inquire about any questions regarding the project. This event was identified based on the organization's requests for project findings to be presented.

The project was also presented in a poster format at the University College of Nursing on April 11th, 2023, to fellow students, faculty, and family members (See Appendix S). After the presentation, the project paper was submitted to the university "The ScholarShip" repository for public access. Lastly, the project leader plans to submit a project abstract to the Association of Women's Health, Obstetric, and Neonatal Nurses Annual Convention in June 2024. This conference targets Women's Health, obstetric, and neonatal nurses who desire to discover new knowledge, strengthen their existing skills, and grow their professional networks. An abstract will be submitted by October 2023 for consideration as a Research Poster Presentation. This

conference was selected due to the project topic, the project leader's background as a maternal-newborn registered nurse, and the backgrounds of conference attendees, which align with the project's targeted audience.

Section VI. Conclusion

Limitations

A few limitations existed during the project implementation, including staff availability for education, new staff members and travel nurse challenges, high unit census, lack of proper documentation completion, and project timeline. With various staffing schedules of full-time employees, those working three 12-hour shifts per week; part-time employees, those who work two 12-hour shifts per week and casual staff, those working three 12-hour shifts in six weeks, availability of staff for education on the project was limited. With staff members having no set day-of-the-week work schedules, it became difficult for the project leader to track staff who had received education or needed education. Other staffing challenges were related to the high census of patients, which led to increased staff workload and minimal downtime, making it difficult to educate staff during the scheduled in-service sessions. This prolonged the duration of on-site education days due to the unit's workflow. This led to extending the onsite education days and requiring the project leader to make unit visits to provide 1:1 education when staff was available.

An additional limitation was the presence of new staff and travel nurses. When using the EMR, travel nurses and new nurses logged into the unit incorrectly; therefore, their flowsheet did not have some of the specific charting rows available that were being used to collect data for 8.3, providing education regarding waking the baby for a feeding, and for 9.2, pacifier usage and risk reviewed with the mother. This issue was alerted to the project leader during the third educational session by a staff member, and a discussion with the organization's IT followed to assess the flowsheet difference. According to the IT team, when logging into the EMR, a staff member must appropriately select their template and context. In this case, the staff member was required to select the “Inpatient Nurse” template and specify their location to the appropriate

women's unit. This is due to how the flowsheets are individualized to provide the staff with specific documentation items associated with their role. Many travel nurses and new nurses were not appropriately selecting this template and context, leading to the inability to chart in those specific sections. At week six, education was provided to nurses on selecting the appropriate flowsheet, and an improvement in the documentation of steps 8.3 and 9.2 were noted in the following weeks of implementation.

Other limitations included the limited documentation on the supplementation route, as most infants receiving a supplement did not have a route documented. This can be attributed to many factors but is most likely an absence of charting related to forgetfulness, as it is an additional step when documenting a supplement. Lastly, due to the random selection process of charts, there was a smaller number of patients identifying as Black race in the data collected. The charts likely display the prevalence of race proportionate to the organization's patient population, which is unequal; therefore, the data is representative of the organization's patient population. The project timeline was another limitation, with only 13 weeks to track improvement in EBM rates. If the project continued, improvements in EBM feeding could be tracked, and differences between black and white EBM feeding rates may decrease further.

Facilitators

The project's facilitators included the staff and stakeholders' overwhelming support of the project. Both expressed their desire to improve overall EBM feeding rates, including the EBM feeding rate differences based on race, and to bring the organization up to community standards regarding EBM feeding rates and NC Maternity Center Designation status. An additional facilitator was the organization of data in an EMR and efficient IT access to discuss and resolve documentation concerns. The organization of data made it possible to collect data through EMR

chart review and successfully track and develop graphs to identify bi-weekly changes toward improvement.

Recommendations for Others

Many recommendations should be considered by individuals who may desire to replicate this project, including making modifications to staff documentation within the EMR and potentially modifying the education rollout. Another consideration when replicating the project is that the project leader should possess experience in Women's Health. To improve EMR documentation, the project leader should ensure all staff uses the proper context before starting the project and collecting data. This education could be provided in a unit staff meeting or during shift huddles as it is pertinent to all unit documentation, not specifically to the project. If the project leader could work closely with the EMR system and IT, adding a pacifier use (yes/no) category to the EPIC flowsheet would significantly help quantify the number of infants using a pacifier versus only providing education on pacifier use. This is one core measure for NC Maternity Center Breastfeeding-Friendly Designation step nine; therefore, it would be an asset to the EMR for data collection. Furthermore, establishing a formal alert in the EMR to ensure all elements related to the *Ten Steps* are appropriately documented would assist the organization in successfully achieving the NC Maternity Center Breastfeeding-Friendly Designation.

To improve education provision, a recommendation would be to poll staff members about the best times for education, or more specifically, how they desire the presentation of education, such as a one-time class, rounding education, or video education. Another consideration would be providing education to staff in a lecture format which may be more effective in securing the nursing staff's attention, potentially enhancing the unit staff's knowledge and, therefore, the patient's education. Providing the education in a large lecture format would also improve the

project's scalability to larger groups. Lastly, reviewing all couplet charts for EBM feeding rather than a randomized selection would provide a more comprehensive review of the organization's EBM rates. Alternatively, collaborating with IT to obtain a report generated by the EMR for the data items collected would eliminate the extensive chart review process decreasing time and resources while providing more accurate information in real-time.

One strength of this project was the absence of cost for the project site; therefore, maintaining a low cost should be considered to ensure cost-benefit in the future. Possible opportunities for saving money if the project was replicated would be not providing chocolate candy during education, as it did result in additional project costs. However, small incentives often provide recognition and motivation to the staff members to continue actively participating in a quality improvement project. Therefore, the low-cost small token of appreciation is likely worthwhile. Additionally, utilizing the resources that were already created would eliminate the cost of the Canva membership. Lastly, extending the project implementation time would be helpful to further evaluate the positive improvements of the project. Although the project will continue at the organization site, increasing the number of staff members educated overall would improve patient education and documentation compliance.

Recommendations Further Study

If this project were to continue, the project should be implemented in the organization's nursery, NICU, and labor and delivery unit to include all departments within the women's center to ensure standardized education and documentation. The project leader should explore the unit's preference on education methods to enhance the attendance and scalability of the project. This project could easily be transitioned to other teams in the women's center or other organizations needing to improve their EBM feeding rates or the disparity of Black/White EBM feeding rates.

This project could apply to different settings, including obstetric and pediatric offices or a prenatal education class. Incorporating staff and patient education into those settings would likely be successful as the literature demonstrates that some choices leading to successful exclusive breastfeeding occur early in the mother's pregnancy (Asiodu, 2017). This emphasizes the importance of incorporating the "Ten Steps" and breastfeeding education early in prenatal education and obstetric practices. Additionally, the WHO (2018) and the AAP recommend that all healthcare providers utilize the "Ten Steps" to support breastfeeding; therefore, this project is supported by the literature to be used in pediatric settings to enhance parental and healthcare provider knowledge (ACOG, 2018; Meek et al., 2022). A future project could include implementing the "Ten Steps" into the prenatal setting to see if this resulted in improved EBM feeding rates in the postpartum setting. A secondary project could look at the EBM feeding rates when the "Ten Steps" are implemented in both settings. These further studies may improve knowledge of the true impact the "Ten Steps" have on successful EBM feeding, as well as the ideal targeted audience and educational setting.

Final Thoughts

The project's overall goal was to decrease the Black/White disparity in exclusive breastmilk feeding within the organization. A secondary objective was to increase the percentage of mothers who successfully exclusively breastfed their newborns at the project site. To achieve these goals, staff education was provided on two of the World Health Organization's "Ten Steps to Successful Breastfeeding" (2018). The project demonstrated the success of "The Ten Steps to Successful Breastfeeding" and the positive impact nursing staff has on decreasing the Black/White EBM feeding disparities and improving EBM feeding rates in the postpartum setting. With the continued use of the project's educational interventions, successful culture shift

in the nursing staff, and the planned continued implementation of all “Ten Steps,” the positive health outcomes associated with an increased EBM feeding rate will translate into improving the health outcomes of Black mothers and their infants.

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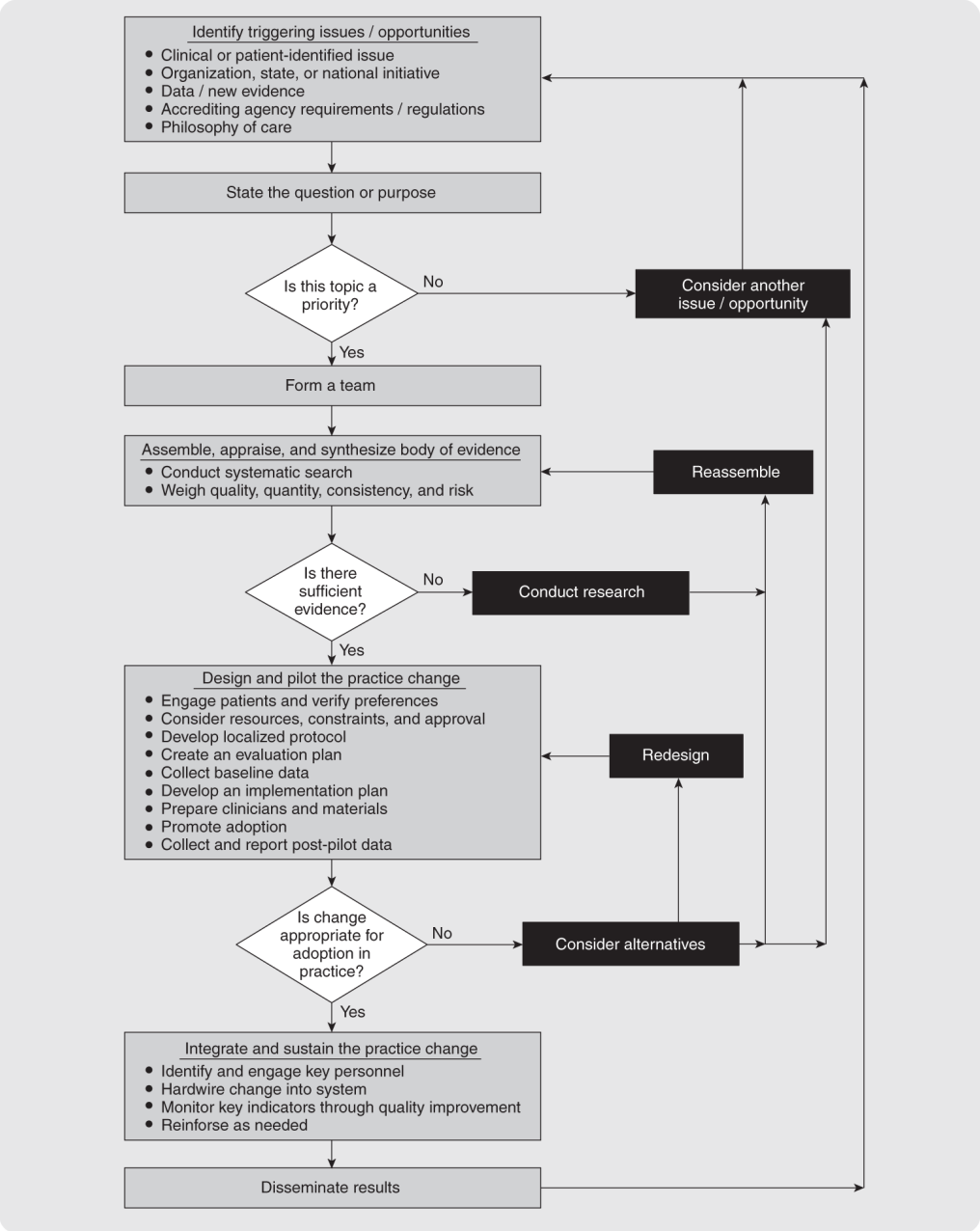
Appendix A

Ten Steps to Successful Breastfeeding

Appendix B

The IOWA Model



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Appendix C

Project Partner Letter of Support

[redacted]

March 28, 2022

To East Carolina University College of Nursing:

We at [redacted] have reviewed Mariah Carey's DNP Project Proposal *"Facilitating Equitable Nutrition to Improve Infant Mortality and Maternal Outcome Racial Disparities."* ***Mrs. Carey*** has organizational support and approval to conduct the Doctor of Nursing Practice student project within our institution. Our organization's liaison, or project champion, for the project is [redacted]

We understand that the timeframe for this project is from the date of this letter through May 1, 2022. Implementation at the project site will occur July 1, 2021 through November 30, 2021, unless otherwise negotiated. We understand that for Mrs. ***Mariah Carey*** to achieve completion of the DNP program, dissemination of the project is required by the University and will include a public presentation related to the project and submission to the ECU digital repository, The ScholarShip. In addition, we understand that ECU College of Nursing encourages students completing exemplary scholarship to develop a manuscript for publication, but that is not a requirement. Our organization understands and agrees that the student will not use our organization's name in the formal project paper or any subsequent posters, presentations, or publications.

Our organization has deemed this project as a ***quality improvement initiative***. Our organization is aware that this project will be processed first through our organizational approval process and then through the ECU College of Nursing process, which may include a formal review through University and Medical Center Institutional Review Board of East Carolina University (UMCIRB), if needed. Our organization ***does*** have an Institutional Review Board (IRB) and will honor the findings of the UMCIRB

Thank you,

[redacted]

Director Practice, Quality, & Research

[redacted]

Appendix D

Organization IRB Letter of Approval

[redacted]

July 18, 2022

Mariah Carey

Dear Ms. Carey:

Congratulations on making progress towards the Doctorate of Nursing Practice at East Carolina University.

On behalf of Patient Care Services at [redacted] I am providing you with permission to conduct a quality improvement project for the Women's Hospital team that aims to improve exclusive breastfeeding through patient teaching and knowledge measurement.

I understand the objective of the study is:
1) To improve overall exclusive breastmilk feeding rates within the organization for all races.
2) To decrease the Black/White disparity in exclusive breastmilk feeding within the organization.

I understand the quality improvement project will include the following:
- Patient and staff contact, teaching, audits, and survey with intent to compare pre/post breastfeeding rates.

Please continue to work closely with [redacted] for the details of project execution. Should you require any further information, please do not hesitate to contact me. Upon completion of the study, I will enjoy reading the project report.

Sincerely,

[redacted]
Chief Operating Officer and Interim Chief Nursing Officer

[redacted]

Appendix E

Education Document for Staff Education

1

Breastfeeding Education

First 24-hour feeding expectations:
After birth, your baby will typically have a period of wakefulness and be alert and eager to breastfeed for the first couple of feedings. After that, they may go through a period of sleepiness. This is normal. If your baby has not started showing hunger cues within 3 hours of the start of the last feeding, then try to wake your baby for a feeding.

Waking Techniques:

- Undress your baby down to nothing but a diaper
- Change baby's diaper
- Gently caress the baby's arms, legs, belly, and head while in the bassinet.
- Position your baby for a feeding and hand express a drop of colostrum onto your baby's lips

If these techniques have not been successful in waking your baby, then place your baby skin to skin on your chest for 15-20 mins. This can help wake your baby but also stimulates the hormones that assist with lactation, making it a benefit for you and your baby. If your baby is still not interested in waking to feed after trying all these techniques, try again in another 2-3 hours if your baby has not started showing hunger cues before then. If you are concerned about your baby being sleepy or not waking for a feeding, then request to speak with your nurse.

How often should I feed my baby?
The goal for your baby is 8-12 good feedings every 24 hours. If your baby is showing hunger cues, then feed your baby. If your baby has not started showing hunger cues by 2-3 hours from the beginning of the last feeding, then wake your baby for a feeding.

Hunger cues:

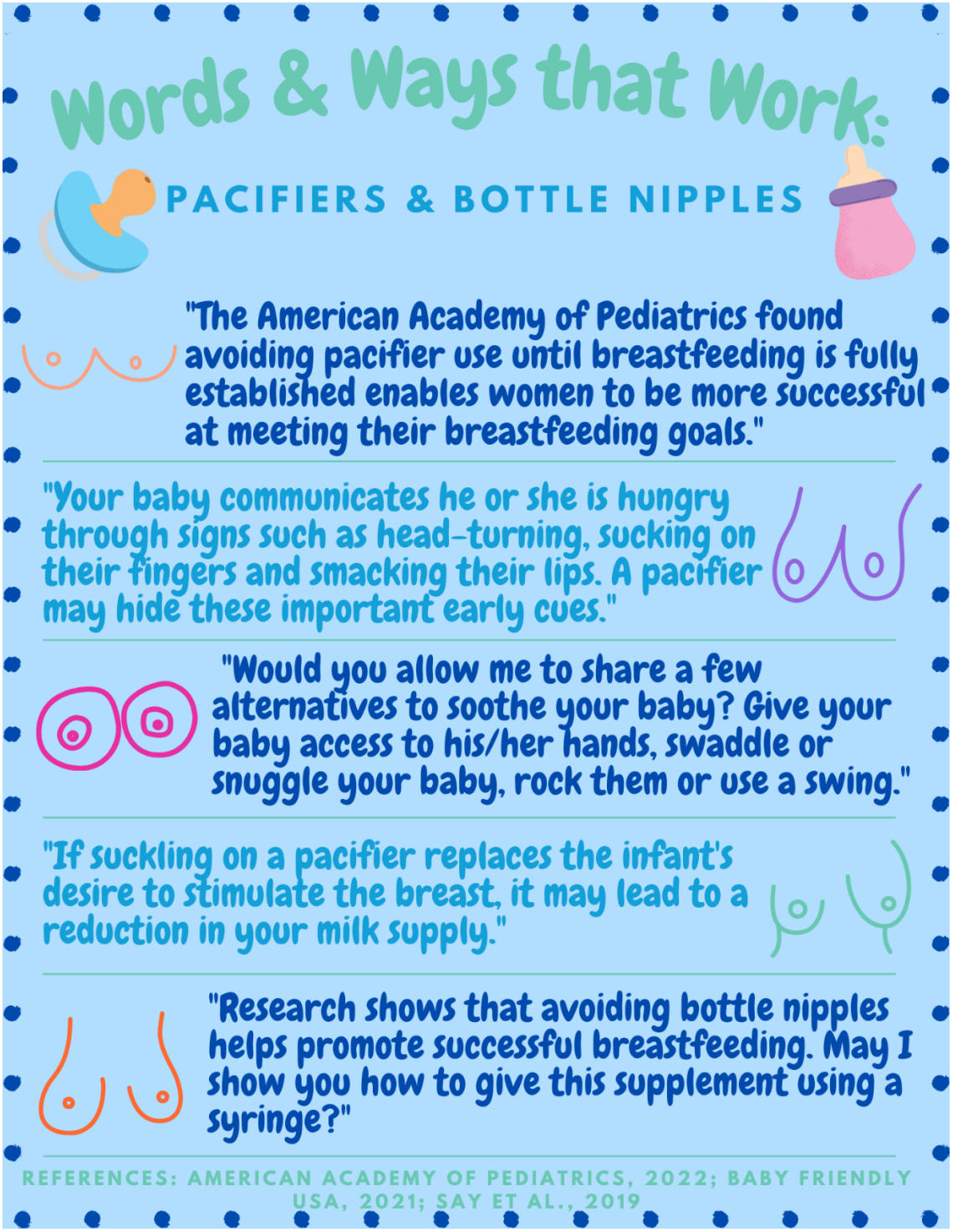
- Waking and becoming more alert
- Licking their lips
- Sticking their tongue out
- Moving their hands to their mouth or sucking on their hands
- Rooting (turning their head and opening their mouth)
- Crying is a late hunger cue, so try to begin feeding with the earlier hunger cues.

Length of Feedings:
Feedings usually last 15-45 minutes. Nurse your baby on one side for 15-30 minutes, burp your baby, and then offer the second breast if your baby is still showing signs of hunger. Alternate the breast you start with at each feeding. If your baby is sleepy at the breast, you can massage your baby's hands or feet, gently blow on their face, or use a cool washcloth on their face to gently stimulate your baby.

Signs of a Good Feeding:

Appendix F

Words & Ways that Work: Pacifiers & Bottle Nipples



Appendix G

Education Script

Verbal Education Script

Hi, my name is Mariah. As you may know, I am a staff nurse in our postpartum unit. I am also a student in the Doctor of Nurse Practitioner-Family Nurse Practitioner program at East Carolina University. For my DNP project prior to graduation, I am working to improve our overall exclusive breastmilk feeding rates and focusing on decreasing the Black/White disparity in our exclusive breastmilk feeding rates here at Rex.

As you may know, the U.S. Department of Agriculture and the U.S. Department of Health and Human Services state that exclusive human milk feeding is the preferred form of nutrition for infants from birth until six months of life. Additionally, the Centers for Disease Control and Prevention states that breastfeeding has numerous evidence-based advantages for the infant, including a decreased risk of sudden infant death syndrome, obesity, type one diabetes, and infections such as necrotizing enterocolitis. Mothers who breastfeed have a decreased risk of breast and ovarian cancer, type two diabetes, and high blood pressure. In general, Black women and their infants already experience an increased risk of poor health outcomes. When coupled with the races' lower breastfeeding rates and compared to their white counterparts, the risks are exponential, thus, it is essential to specifically increase supportive breastfeeding measures among Black women.

As an organization, we will be using the World Health Organization and United Nations Children's Fund "Ten Steps to Successful Breastfeeding," to guide our practice toward improving our exclusive breastmilk feeding rates. We will be focusing on Steps eight and nine.

First, I will review updated breastfeeding education and tips. This education should be reviewed with every couplet at every admission to ensure each family receives equitable education.

This education provides new parents with feeding expectations for the first 24 hours of their baby's life, explains how often they should feed their infant, how long they should feed their newborn, how to identify a good feeding, and information regarding cluster feeding and engorgement.
{Review all points on sheet}

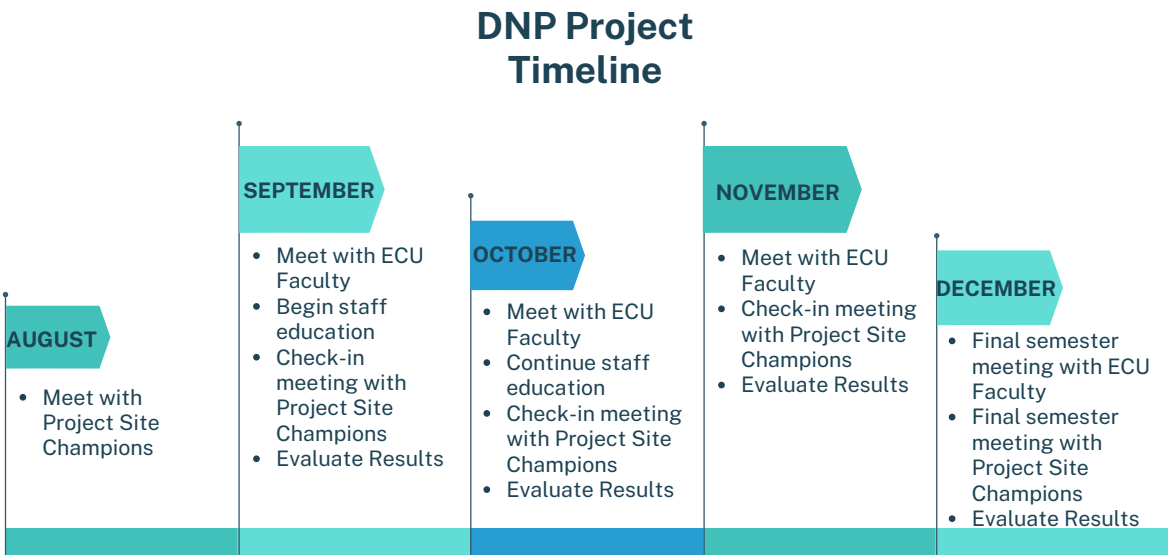
Any questions the patient has should be answered. If you are not confident with your answer, you can always refer to a lactation consultant for assistance.

Reviewing this breastfeeding education covers step eight of the "Ten Steps": Encourage breastfeeding on demand. After completing additional admission education, nurses should complete the appropriate documentation. (See tool #2)

Step nine in the "Ten Steps to Successful Breastfeeding" addresses not using artificial teats or pacifiers to breastfeed infants. According to The American Academy of Pediatrics, using pacifiers in breastfeeding infants is not recommended until breastfeeding is well established. By using the "Words and Ways that Work with Pacifier and Bottle Nipples" we can educate our new parents who chose to breastfeed on the most up-to-date evidence-based practice regarding pacifier and bottle nipple use.

Appendix H

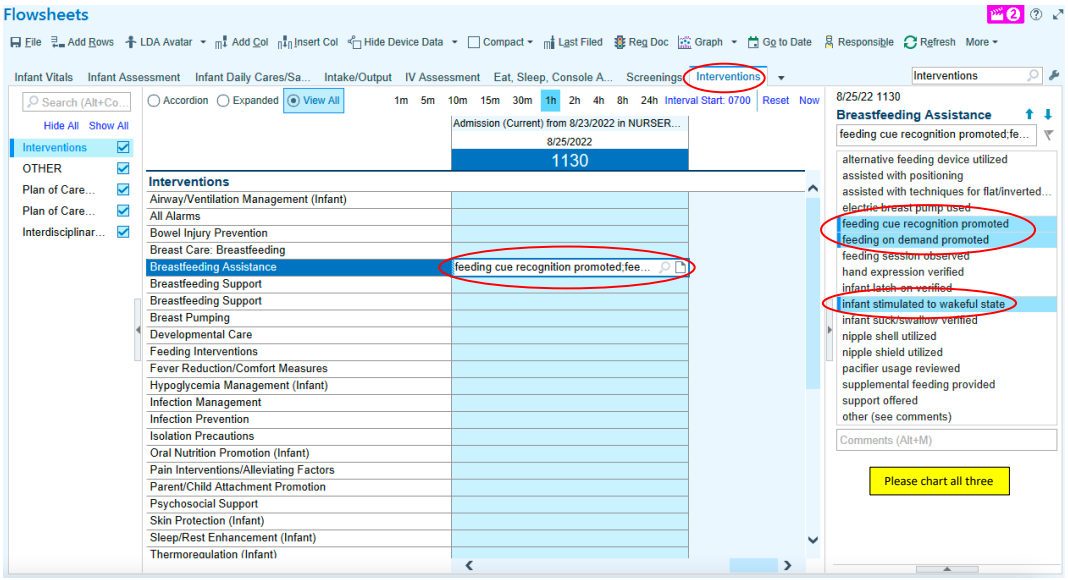
Project Timeline



Appendix I

Step Eight Documentation Screenshot

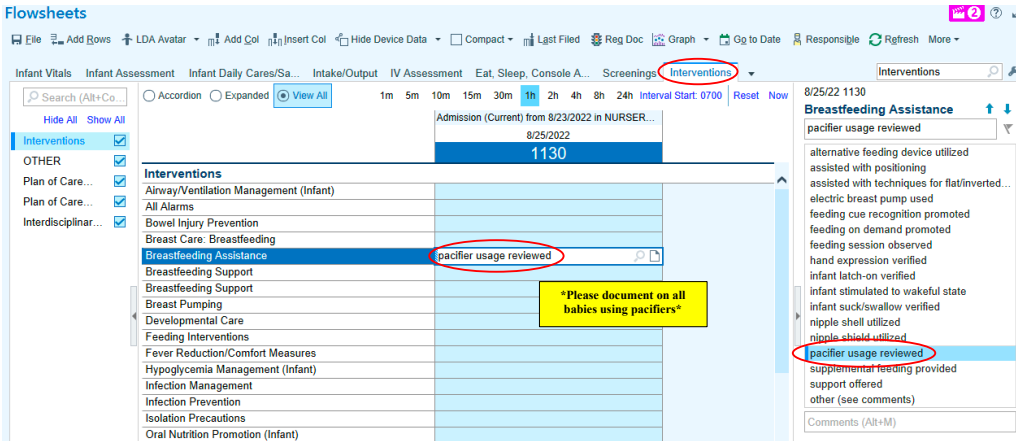
Documentation of Step 8: Encourage Breastfeeding on Demand

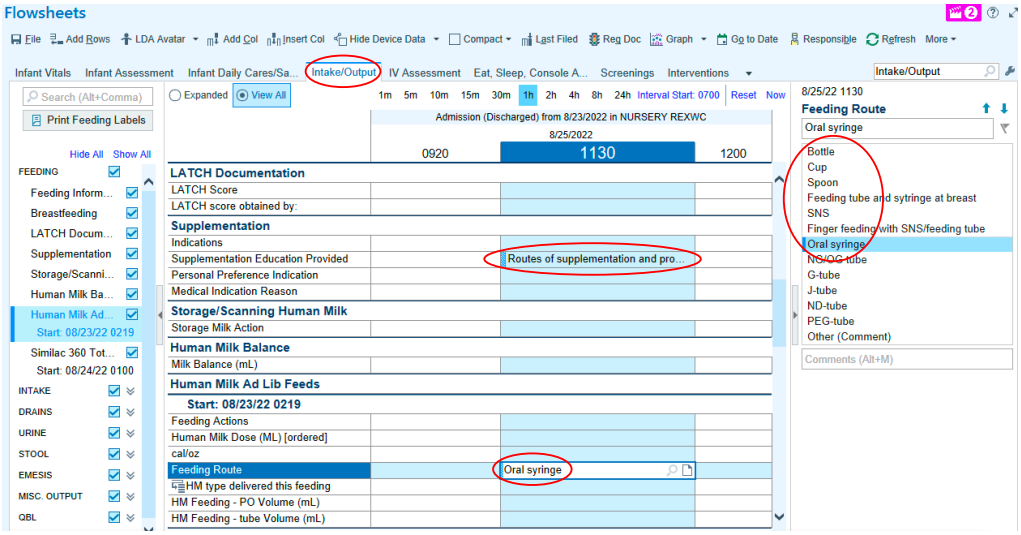


Appendix J

Step Nine Documentation Screenshot

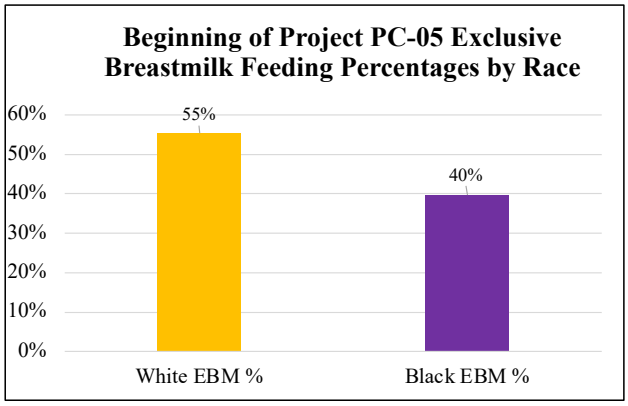
Documentation of Step 9: Encourage Breastfeeding on Demand

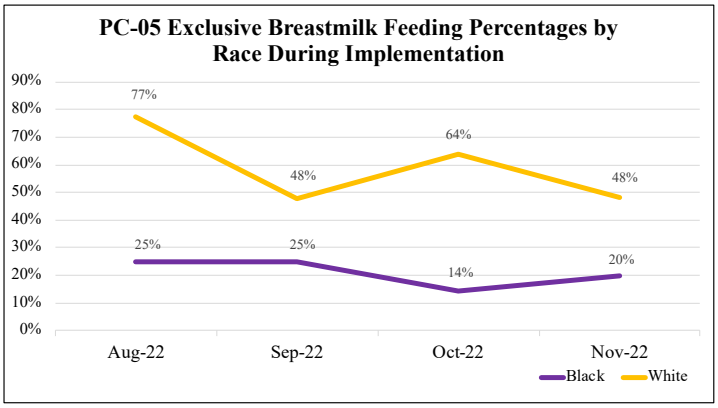


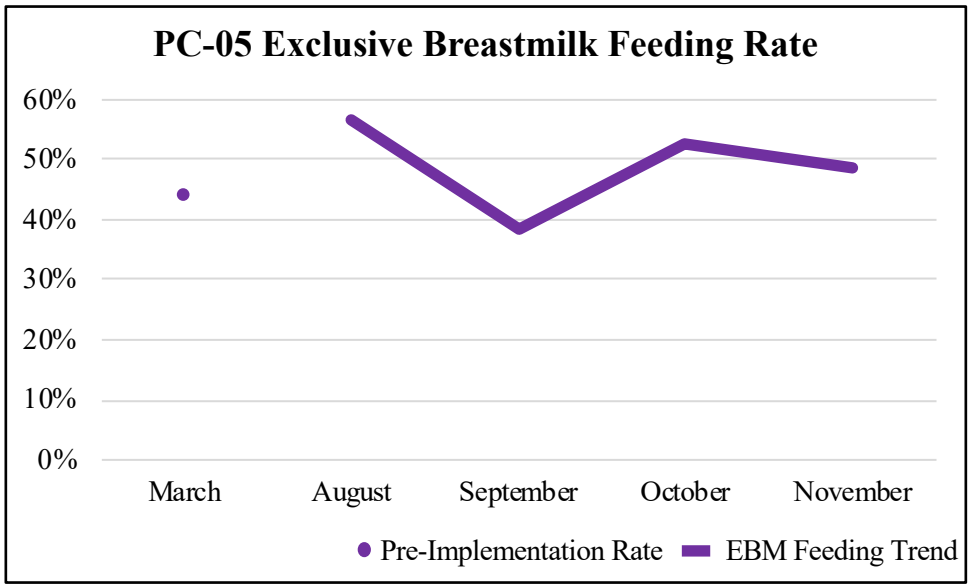


Appendix K

PC-05 Exclusive Breastfeeding Data

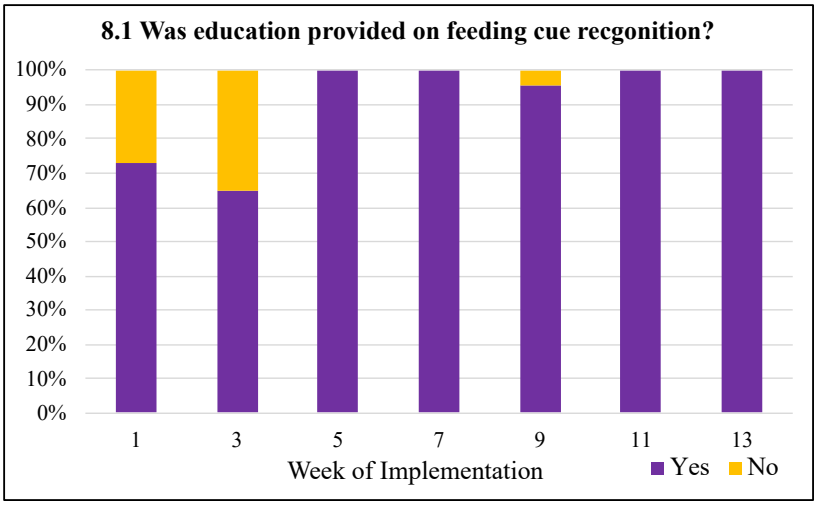


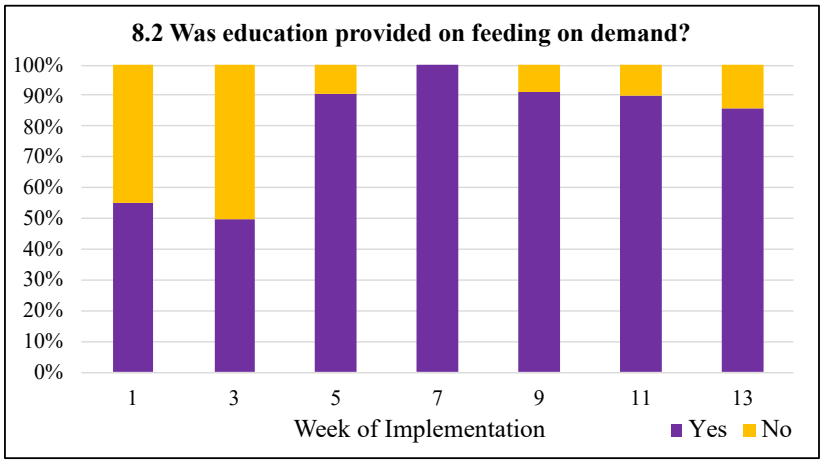


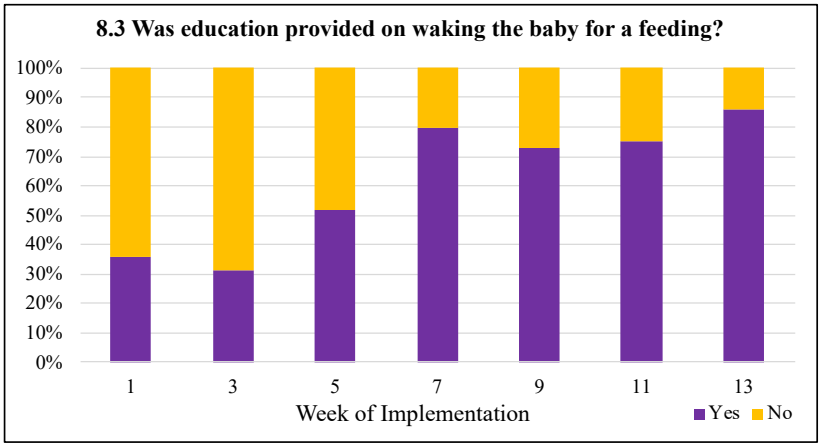


Appendix L

Chart Review Data: Step Eight

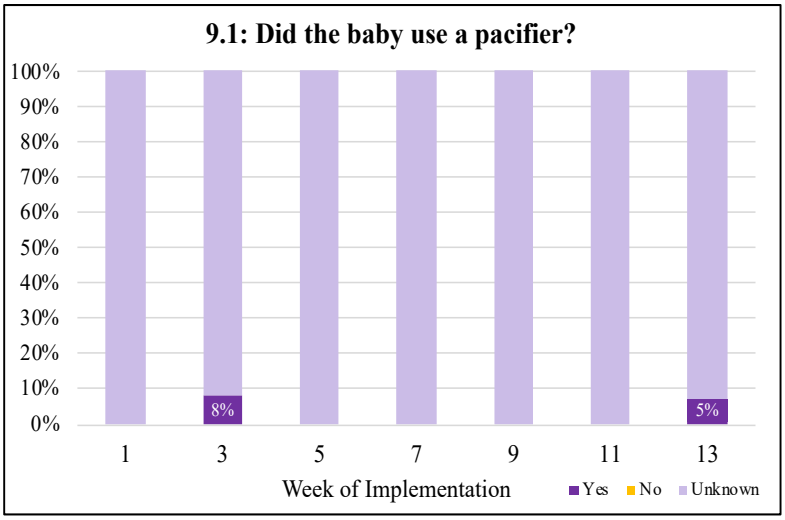


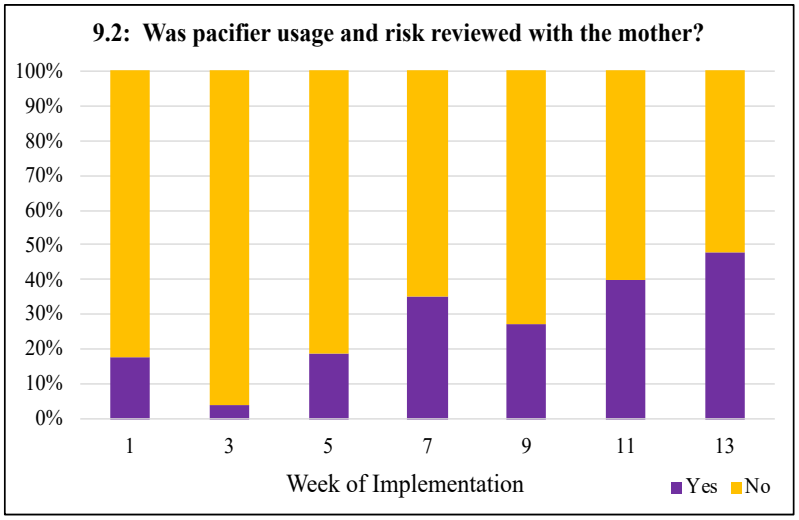


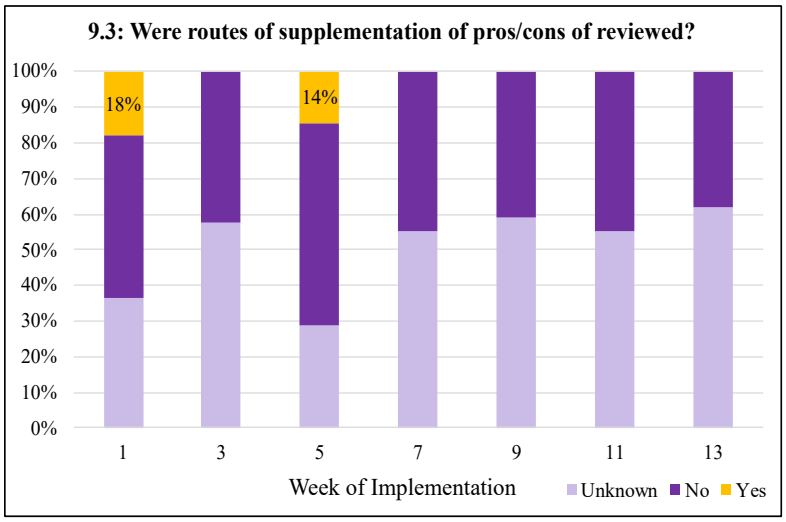


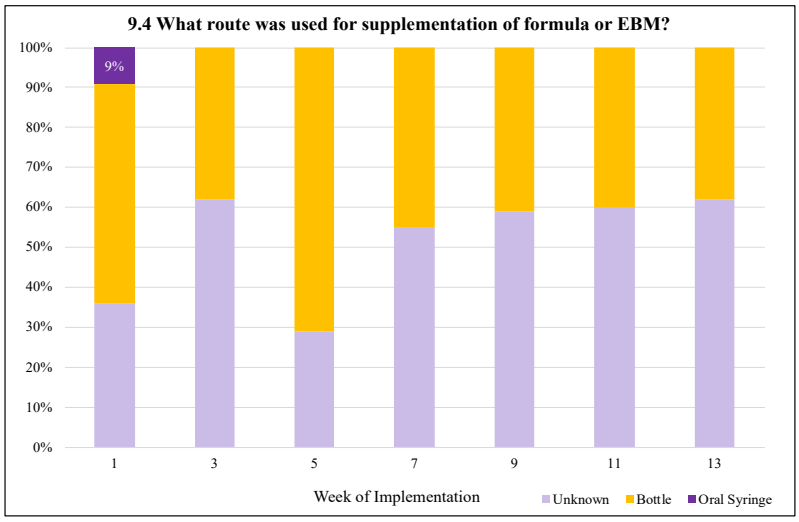
Appendix M

Chart Review Data: Step Nine



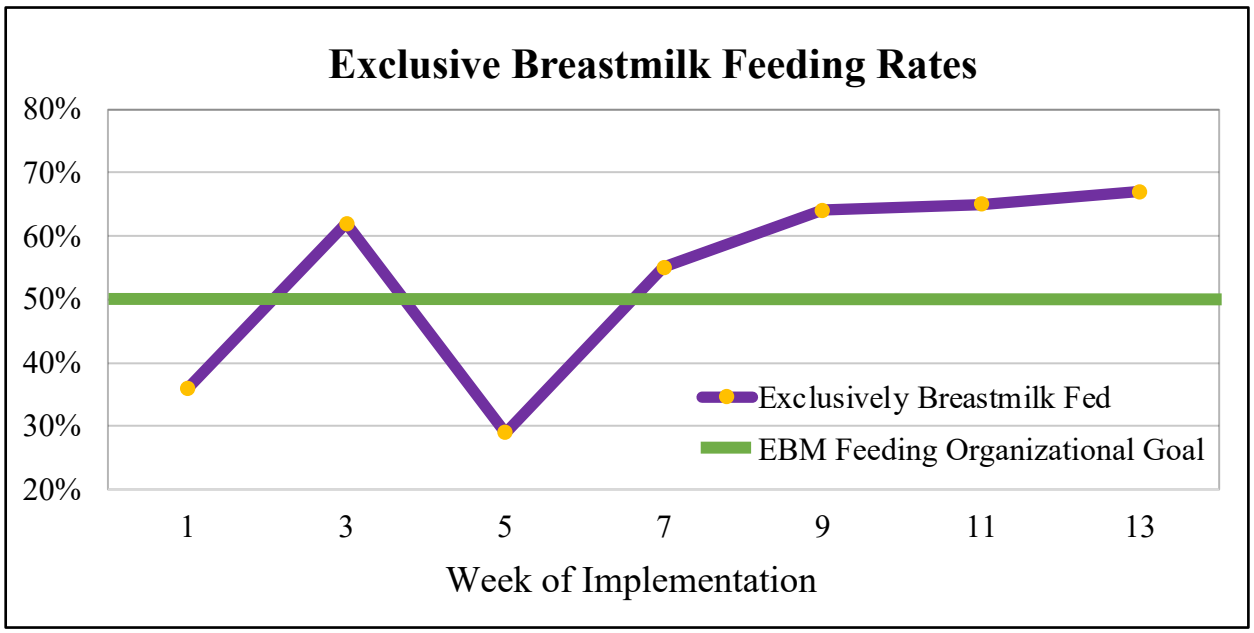






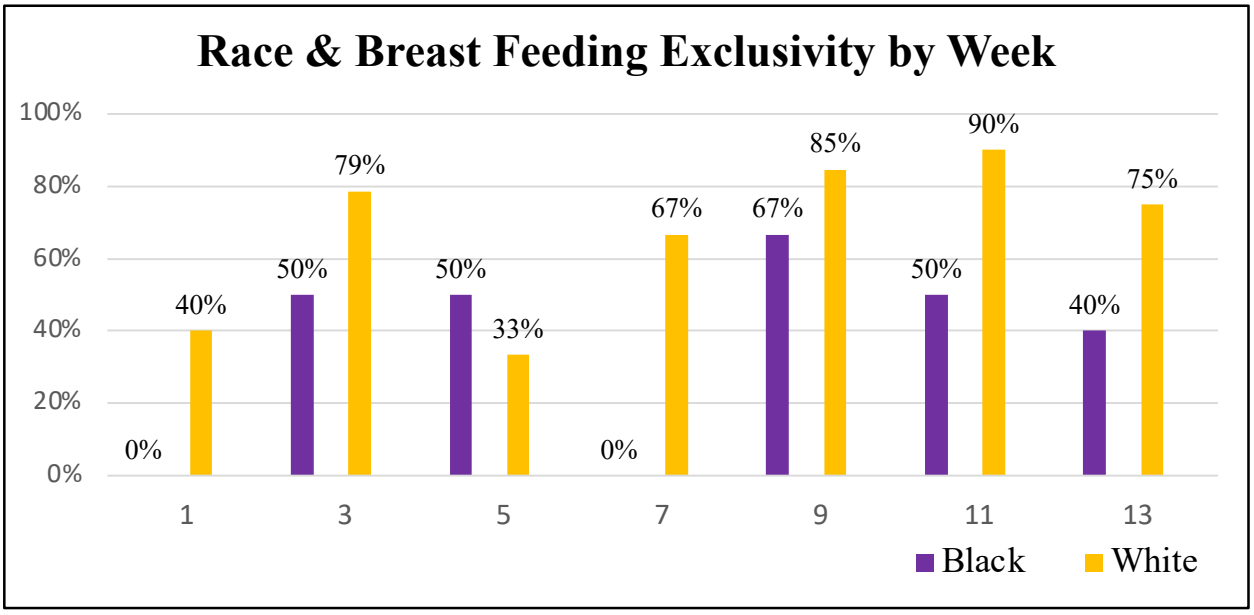
Appendix N

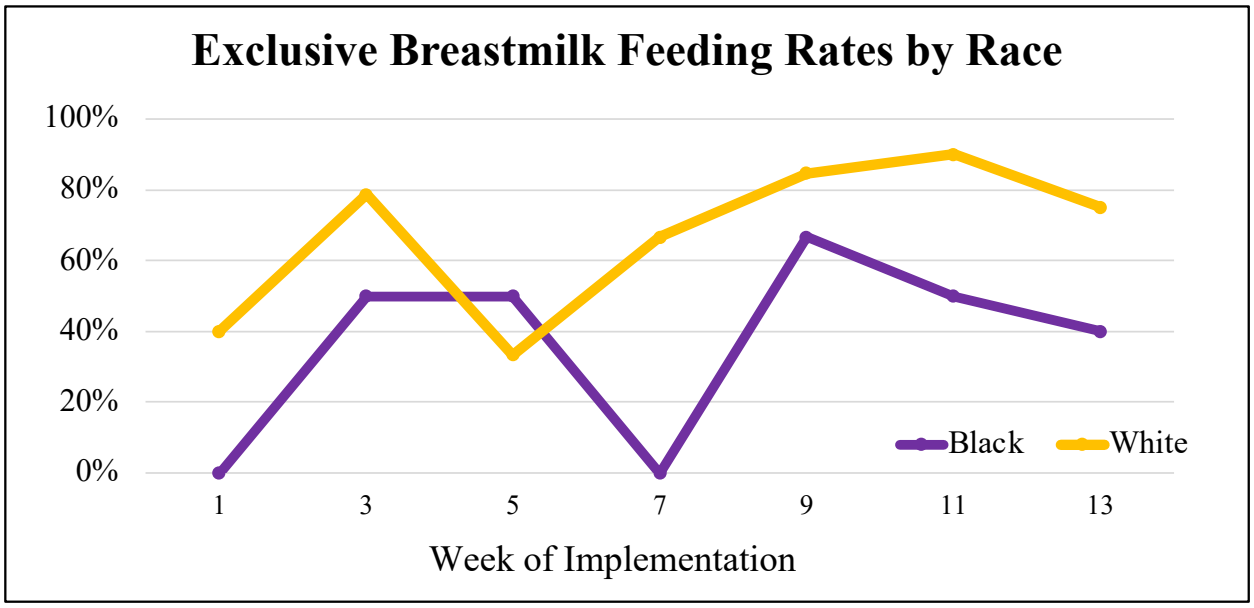
Data Findings: Exclusive Breastfeeding Rates



Appendix O

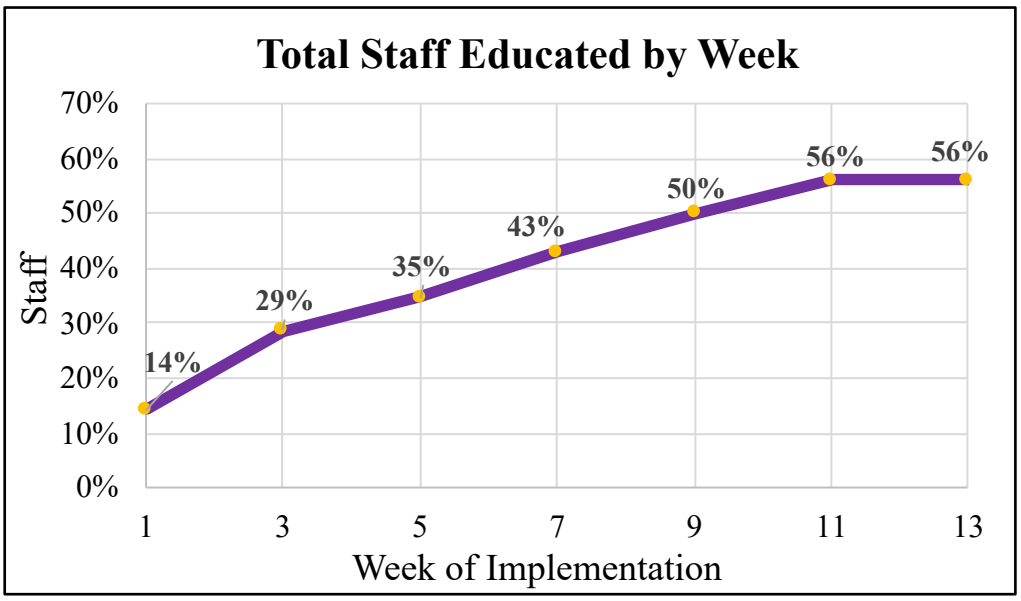
Data Findings: Race and Breastfeeding Exclusivity





Appendix P

Staff Education Rates by Week



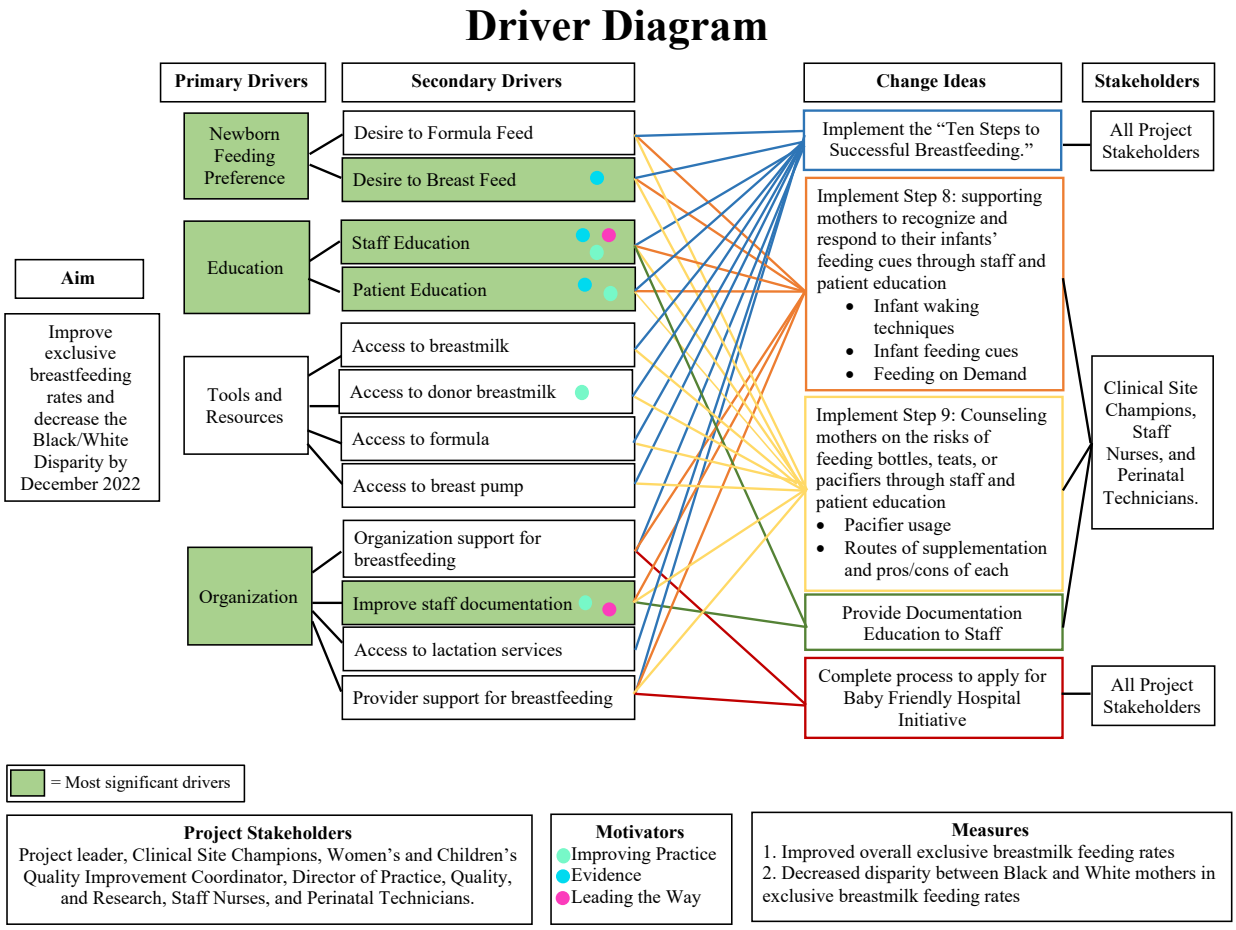
Appendix Q

Project Budget

Material	Quantity	Cost	Total
Monthly Canva Membership	1	$12.99	$12.99
Printed Posters	10	$8.00	$80.00
Chocolate Candy Bags	2	$14.99	$29.98
Total Cost:			$122.97
Staff Education Hours	17.25	$41.00	$707.25
Chart Review Hours	37.5	$41.00	$1537.50
Total Cost if project was completed by a paid staff member:			$2367.72

Appendix R

DNP Driver Diagram



Appendix S

DNP Project Poster

ECU COLLEGE OF NURSING

Facilitating Equitable Breastfeeding Among Black Women

Mariah Carey, BSN, DNP Student, RN, FNP-BC, RNC-MNN
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Significance

- Exclusive Breastmilk Feeding (EBM) has evidence-based health advantages for couplets
- Black women and infants have an increased risk of poor health outcomes
- Black race's health risks are exponential when coupled with their lower breastfeeding rates
- Healthy NC 2030 Health Indicator 20, infant mortality rate

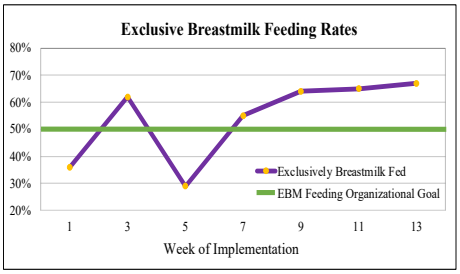
Purpose

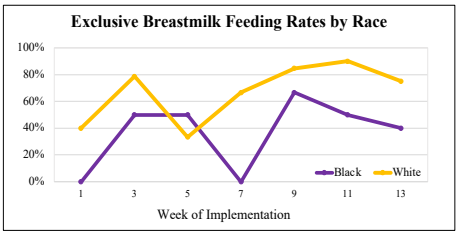
- Addresses one potential contributing factor to Black/White disparities in infant mortality and poor maternal outcomes
- Used evidence-based interventions to increase Black and overall EBM feeding in the inpatient postpartum setting

Implementation Process

- *The Ten Steps to Successful Breastfeeding* guided six education sessions using an in-service format
- Educational video sent via email to staff for those unable to attend the in-service sessions
- Resources: "Words and Ways that Work" poster and a Breastfeeding Education sheet
- Biweekly data collection via the EMR
- Modifications after monthly check-in sessions using the IOWA Model

Results





Acknowledgments

Thank you to my faculty mentor Dr. Dianne Marshburn, and project site champions Christine Debnam & Sherry Brown

Outcomes

- Exclusive breastmilk feeding rates: 36% to 67%
- Improved the difference between Black and White EBM rates: 40% to 35%
- In-service education: 56% of staff
- Video Education: 38% of staff
- *Ten Steps:* Step 8: achieved, Step 9: improving

Implications to Care

- Improved inpatient EBM rates indicates more couplets successfully discharged EBM feeding
- **Patients:** increased satisfaction, long-term health benefits, and decreased costs
- **Staff:** Enhanced evidence-based breastfeeding knowledge, improved skill set
- **Organization:** NC Maternity Center Breastfeeding Designation, Healthy NC 2030, CDC, & WHO recommendations

Future Recommendations

- Explore unit preference for preferred education routes to enhance attendance and scalability
- Increase the implementation duration
- Expand scope to include all Women's Center units
- Collaborate with EMR team to improve documentation process for clinical staff
- Incorporate education into prenatal classes and partnering obstetric and pediatric offices

Appendix T

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** – Analyzes and uses information to develop practice **Competency** -Integrates knowledge from humanities and science into context of nursing **Competency** -Translates research to improve practice **Competency** -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	1. Used *The Doctor of Nursing Practice Project: A Framework for Success* book and the *White Paper* to understand DNP project goals and develop an appropriate DNP project framework. 2. Used the Melnyk & Fineout-Overholt (2019) model to conduct a literature review. 3. Translated research into a formal DNP project to improve practice.
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** –Develops and evaluates practice based on science and integrates policy and humanities **Competency** –Assumes and ensures accountability for quality care and patient safety **Competency** -Demonstrates critical and reflective thinking **Competency** -Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** -Develops and implements innovations incorporating principles of change **Competency** - Effectively communicates practice knowledge in writing and orally to improve quality **Competency** - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	1. Communicated knowledge gained through evidence and experience with project stakeholders, faculty mentor, and to the public through written and oral forms. 2. Continuously reviewed literature throughout all project stages to promote critical and reflective thinking. 3. Advocated for improved equity and quality of healthcare within an organizational setting. 4. Monitored costs, developed a budget, and evaluated the cost-benefit of the quality improvement intervention.
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** - Critically analyzes literature to determine best practices **Competency** - Implements evaluation processes to measure process and patient outcomes **Competency** - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients **Competency** - Applies knowledge to develop practice guidelines **Competency** - Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** - Collaborate in research and disseminate findings	1. Conducted a thorough literature review to determine best practices to improve the organizational problem. 2. Utilized driver diagram to understand the multi-factorial causes and effects on the organizational problem to improve the implementation process.
Essential IV ***Information Systems – Technology & Patient Care Technology for***	**Competency** - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care **Competency** - Analyze and operationalize patient care technologies	1. Utilized informatics from EMR to understand and track pre-implementation, implementation, and post-implementation use of best practices and patient outcomes.

the Improvement & Transformation of Health Care	**Competency** - Evaluate technology regarding ethics, efficiency and accuracy **Competency** - Evaluates systems of care using health information technologies	2. Analyzed patient care by building multiple graphs to display project data outcomes. 3. Developed educational video and sent to staff via E-Mail to be used by staff who were unable to attend in-person education. 4. Partnered with IT at project site to evaluate flowsheet challenges and documentation opportunities.
	Description	**Demonstration of Knowledge**
Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency**- Analyzes health policy from the perspective of patients, nursing and other stakeholders **Competency** – Provides leadership in developing and implementing health policy **Competency** –Influences policymakers, formally and informally, in local and global settings **Competency** – Educates stakeholders regarding policy **Competency** – Advocates for nursing within the policy arena **Competency**- Participates in policy agendas that assist with finance, regulation and health care delivery **Competency** – Advocates for equitable and ethical health care	1. Provided an educational in-service style presentation for staff using evidence-based methods to advocate for equitable and ethical healthcare. 2. Established role as nurse leader on unit to encourage improved nurse-facilitated patient education.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	**Competency**- Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship **Competency** – Provide leadership to interprofessional care teams **Competency** – Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	1. Completed the CITI Modules and developed a project proposal that was submitted to the organization's internal Institutional Review Board for approval. 2. Met with the organizations project stakeholders including the Director of Practice, Quality, and Research to discuss the development and implementation of the project. 3. Completed frequent meetings with project stakeholders and course faculty. 4. Collaborated with lactation consultants, IT Specialists, library liaison, stakeholders, and faculty to develop project successfully.
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency**- Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** – Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** – Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	1. Used IOWA Framework to support the quality initiative. 2. Completed thorough literature review then synthesized biostatistics and data to use in developing health promotion strategies to address the identified organizational problem. 3. Developed a DNP project that supported a Healthy People 2030 Goal infant mortality, and current guidelines from the Centers of Disease Control and Prevention and the World Health Organization.

		4. Targeted the racial disparities in health outcomes identified during the literature review process by developing a DNP project to improve these gaps in care.
Essential VIII ***Advanced Nursing Practice***	**Competency**- Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings **Competency** – Design, implement & evaluate nursing interventions to promote quality **Competency** – Develop & maintain patient relationships **Competency** –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** – Mentor and support fellow nurses **Competency**- Provide support for individuals and systems experiencing change and transitions **Competency** –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	1. Fulfilled the role as nurse mentor through project implementation. 2. Analyzed outcomes to identify efficiency of implementation, related costs, and implications for staff, patients, and the healthcare system. in healthcare quality. 3. Used advanced clinical judgement and systems-thinking to address a large system issue at a nurse-patient intervention level using a driver diagram to set realistic goals for improvement in patient outcomes. 4. Provided encouragement to nursing staff during all interactions at in-service education sessions to support new documentation and education changes.