

Increasing Exclusive Breastfeeding Rates through Nursing Education and
the Implementation of a Checklist
By Kristen Farrell

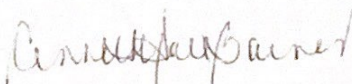
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Running Head: INCREASING EXCLUSIVE BREASTFEEDING RATES THROUGH
EDUCATION

Increasing Exclusive Breastfeeding Rates Through Nursing Education
and the Implementation of a Checklist

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DNP Project submitted to the School of Nursing
of Salisbury University in partial fulfillment of the requirements for the degree of
Doctor of Nursing Practice

February 5, 2021

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2021

Abstract

Exclusively breastfeeding a newborn by providing no other form of nutrition other than breastmilk has been shown to provide a substantial number of benefits to both mom and baby. In the hospital setting, exclusively breastfeeding mothers are assisted by nurses to continue breastfeeding properly and feed their babies adequately. When using the theory of planned behavior, it is identified that patients may ask for formula when their attitude towards breastfeeding is not representative of the importance of exclusively breastfeeding when possible. Research shows that more education improves a nurse's knowledge and confidence in assisting patients and prevents unnecessary formula supplementation. The purpose of this project was to provide additional breastfeeding education to nurses and implement a breastfeeding checklist in order to help them better assist patients with breastfeeding and ensure every step has been taken to assist the patient. In doing so, the project aimed to increase exclusive breastfeeding rates upon discharge. Before implementation, the exclusive breastfeeding rate upon discharge was 63%, and three months of data following implementation showed rates of 67%, 69%, and 54%. While a marginal initial increase was seen, the exclusive breastfeeding rates did not continue to remain elevated. Many factors influenced exclusive breastfeeding rates, and the checklists were not completed for all patients as intended. Further study is necessary to understand the effect of a breastfeeding checklist, but initial increases in breastfeeding rates indicate that education and awareness for nurses to assist patient with breastfeeding can provide an increase in exclusive breastfeeding rates.

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Project Overview

Exclusively breastfeeding, where no formula or other nutrition except breastmilk has been provided to a newborn, has shown to have many benefits to both mom and baby, including providing ideal nutrition, reducing disease risk, and promoting bonding (Ullman & Fisher, 2017). Nurses on the Mother Baby Unit of a hospital are responsible for helping patients with breastfeeding and for providing formula for supplementation when necessary. For this project, nurses on the Mother Baby Unit at a Maryland hospital received further breastfeeding support education in the form of an electronically distributed PowerPoint as well as an in-person competency session with the project coinvestigator. Following this education, when nurses were contemplating presenting formula to a breastfed baby, they first completed a checklist of interventions designed to help the patient successfully breastfeed. Nurses identified steps they took, and if they ultimately still needed to provide formula, the reason for this was indicated. Rates of exclusive breastfeeding patients were identified for three months before the project implementation and for three months following its completion. Rates of completion of the checklist by nurses were also measured throughout this time period. Data were collected from the completed checklists as well as electronic medical records of the patients. Information was only accessed by the investigators of the project, and all patient identifiers were removed from the data. The results may determine if the implementation of a checklist, when formula supplementation is considered, can decrease the likelihood that formula will be given to an exclusively breastfeeding patient. This project aimed to

increase the rate of exclusively breastfeeding patients by providing education to nurses thus avoiding supplementation.

Problem Statement

At a Maryland hospital, the Mother Baby unit is striving to improve the rate of discharged patients that are still exclusively breastfeeding. The rates of exclusively breastfeeding patients upon discharge at this Maryland hospital is currently 53% which is lower than the recommended 70% set by The Joint Commission (Joint Commission, 2015). This Mother Baby Unit has set their benchmark at a potentially achievable 65% goal but it is consistently not being met. Nurses provide a lot of assistance to moms who need help breastfeeding, and ultimately provide them formula if they feel it is necessary. An influx of newly hired nurses has led to inexperienced staff assisting mothers and babies with breastfeeding, and thus not being adequately prepared to help them. In these instances, staff are providing formula to babies when other methods could help them receive breast milk instead.

Purpose

This project was intended to increase the preparedness of staff nurses in assisting with breastfeeding and provide alternative solutions to breastfeeding problems. The purpose of the project was to educate staff and patients in order to complete steps to continue solely breastfeeding, and to determine if this intervention would increase the rates of exclusively breastfeeding patients at discharge.

PICOT

What is the effect of increased education and implementation of a breastfeeding

assistance checklist for nurses on the Mother Baby unit at a Maryland hospital when comparing rates of moms who are exclusively breastfeeding when discharged from the hospital and those who introduced formula?

Analysis of Relevant Literature

An exhaustive search of the literature was conducted to find relevant articles related to this project (Appendix A). To find articles to support the project, CINAHL Plus with Full Text, Cochrane Library, MEDLINE with Full Text, and ProQuest were used. The initial search included “breastfeeding” in the title AND “hospital”. This was narrowed by including AND “education” OR “staff” in order to find articles that specifically addressed increasing staff education regarding breastfeeding. Many articles discussing the Baby Friendly initiative were found, so using the reference page from an original article from the search was used to find two additional articles that covered this topic. A second search for title “Baby Friendly” AND “education” found 5 more potential articles that used this initiative to talk about the benefits of educating staff to help new moms. The title “ten steps” AND “breastfeeding” included the articles that focused on the 10 steps to exclusively breastfeeding that is included in the Baby Friendly initiative. In order to find articles specific to hand expression and pumping to supplement, another search with title “breastfeeding” AND keyword “pumping” OR “expression” was used which yielded few additional results. Each search included the parameters of peer reviewed articles, English only, and those published in the last five years. Duplicates were removed, and the remaining articles were reviewed for relevance. Articles focused solely on breastfeeding rates after hospitalization were removed. Articles found that were

not pertinent including no mention of education or alternate methods of milk expression or Baby friendly articles that focused on implementing the entire process were removed. One article was found describing a published article that was not found in the initial search. This specific article was found using the references page. An additional article was found off of the reference page of one of the discovered articles.

Six articles were used in this analysis to show an established need for the DNP project: Increasing Exclusive Breastfeeding Rates through Nurse Education. These articles are a combination of research designs, an EBP project, and a systematic review that, when used together, represent the benefits of nurse education to potentially increase exclusive breastfeeding rates (Appendix B). Each article uniquely shows how nurse education can help support breastfeeding mothers.

Important Themes

Benefits of Educating Staff Nurses

One important recurring theme in the literature is the benefit of education for the staff that is supporting breastfeeding mothers. Step 2 of the Baby Friendly initiative, which aims at increasing exclusive breastfeeding rates, identifies the importance of training the health care staff that implements the breastfeeding policy. Balogun et al. (2017) reviews several studies aimed to increase education for nurses providing breastfeeding support. In all six studies examined here, nurses' knowledge, attitude, and compliance in the breastfeeding policy increased with the educational intervention. Several studies (Ma et al., 2018; Nehring- Gugulska et al., 2015, & Ullman & Fisher, 2017), used pre- and post-tests to demonstrate an increase in breastfeeding knowledge

after an educational intervention was introduced. Wallace et al. (2017) demonstrated an increase in an ability to assist with hand expression for nurses who were provided video education and demonstration on the technique. Each article displayed the benefits of breastfeeding education for staff that provides breastfeeding assistance to new mothers.

Nurses Avoiding Formula Supplementation

Another theme evident in the literature is the role of the nurse in avoiding formula supplementation when it is unnecessary. Chantry et al. (2014) acknowledges a need to find the source of formula introduction and educate nurses in order to avoid an unnecessary use of formula in the future. Ma et al. (2018) and Wallace et al. (2017) both reference the Baby Friendly initiative and the importance of increasing education in order to adhere to the Baby Friendly guidelines which will potentially decrease formula use.

Variations in Concept Definition or Populations

One concept that varies throughout the articles is what effect the education has on the subjects. While some studies look specifically at the ability for nurses to help their patients when breastfeeding, others focus on breastfeeding knowledge and confidence. Wallace et al. (2017) found a specific increase in the ability for nurses who received the intervention to assist with hand expression. Balogun et al. (2017) looked at studies that measured the rate of exclusive breastfeeding, thus determining the ability of nurses to assist without providing unnecessary formula. The remaining studies all examined knowledge and/or confidence of the subjects after the intervention. The varying effects of the education and what is measured by the study do not negate the importance of each

study because they all contribute in some way to show a benefit to education that all relate to the potential study that is planned.

One variation in the populations studied is the specificity of the sample group. In some studies, the population consisted of only nurses. In other studies, all health care personnel that assisted new mothers were included. The studies in Balogun et al. (2017) and the study by Ullman & Fisher focused specifically on nurses in their sample. Ma et al. (2018), Nehring- Gugulska (2015), and Wallace et al. (2017) had sample populations that included doctors, nurses, and midwives. Because these studies focused on the benefits of breastfeeding education and not the effect of exclusive breastfeeding rates, they are still relevant to the study despite not being as specific in their population.

Variations in Methods Quality

The methods of these studies vary greatly, ranging between an evidence-based practice project, randomized and non-randomized trials, and a systematic review. The evidence-based practice project by Ullman and Fisher (2017) used a pre-test/post-test design with only 22 nurses taking part in the study. This smaller scaled study with no randomization is weaker evidence than other studies. A smaller sample size decreases the generalizability of the results because it is not a representative sample of the greater population. Stronger designs include larger sample sizes such as Nehring-Gugulska et al. (2015) and Chantry et al. (2014) which also have control groups to compare the intervention group results to. It is more likely that the intervention aided in the increase in knowledge and confidence scores when the control group does not improve in their scores. A stronger quality of evidence is from randomized studies, such as those from Ma

et al. (2018) and Wallace et al. (2017). Other factors in the study can be controlled, which aids in supporting the findings of the study. A systematic review is the strongest form of evidence when reviewing randomized control trials, which was completed by Balogun et al. (2017). The studies in this article also most closely represent the design of the intended DNP project.

Conclusion

The research conducted on this topic is limited and leaves an opening for more necessary evidence to describe the importance of nursing education to improve exclusive breastfeeding rates. While some studies show a relationship between nursing education and knowledge and confidence, others describe how nurses are largely responsible for assisting in breastfeeding and preventing unnecessary formula supplementation. Only the systematic review by Balogun et al. (2017) identifies a direct relationship between educating nurses and an increase in exclusive breastfeeding rates. Despite only six supporting articles and some with poor quality evidence, the identified themes support the plan of this DNP project. It is identified that increased education helps nurses improve their ability to support breastfeeding mothers, and in doing so this project aimed to identify if this would improve exclusive breastfeeding rates.

Theoretical Framework and EBP Model

The purpose of the DNP project was to educate nurses in order to allow them to better assist with breastfeeding by learning techniques to use hand expression and pumping to assist with feedings, in order to increase the rates of mothers that are exclusively breastfeeding when leaving the hospital. When analyzing breastfeeding as a

healthy behavior, it can be applied to health theories. Two factors have been largely identified in the research as to why mothers choose not to breastfeed. This includes lack of knowledge of the importance of breastfeeding, and not enough support to begin the technical process of breastfeeding (Zhu et al., 2017). These factors may be able to be combatted with the support of nurses and encouragement that breastfeeding is possible to struggling moms. The patients' attitude towards breastfeeding and their perception of the normalcy of this practice is inherent in their willingness to begin practicing it. When looking at the choice of participating in the behavior of breastfeeding in this capacity, the theory of planned behavior (TPB) applies. According to the National Cancer Institute (2005), the theory of planned behavior states that the individual's attitude towards a behavior influences the behavior itself. The intent to participate in the behavior is also influenced by whether the person believes their support system supports the behavior as well (National Cancer Institute, 2005). "According to TPB, breastfeeding attitude, subjective norm, and breastfeeding control are significant determinants of breastfeeding behavior" (Zhu et al., p.148). Whether or not to breastfeed is ultimately a choice they have to participate in this behavior, and it is affected by cognitive factors that relate to this behavior (Zhu et al.). When challenges occur that impede the infant's ability to breastfeed properly, nurses or mothers may introduce formula as a quick fix for this issue. If the attitude exists that introducing formula has no negative impact on breastfeeding, this practice will continue. Zhu et al. stated that "breastfeeding attitude is related to the knowledge of the importance and benefit of exclusive breastfeeding" (p.149). Therefore, educating mothers and nurses on this topic will make them more aware of the benefits

and have a better attitude towards breastfeeding. This may then increase the rate of mothers who leave the hospital exclusively breastfeeding.

Some research has argued that the TPB does not necessarily apply to breastfeeding. It is inconclusive in the research whether the perceived control of breastfeeding has any effect on intent to exclusively breastfeed (Guo et al., 2016). Researchers have argued both for and against this idea, noting how exclusively breastfeeding is not always determined by intent to do so that is based on a perception of control over the ability to maintain exclusively breastfeeding (Guo et al.). TPB was used in this project, but it is unknown for certain if changing the mother's perception of the ability to breastfeed by providing support will also change the behavior of using unnecessary formula supplementation.

This project was conducted using the Donabedian model of structure, process, and outcomes to measure the project success. In this model, these three pieces work together to define the quality of health care provided (Ameh et al., 2017). The structure of the organization at this Maryland hospital provides nurses for patients to assist in breastfeeding, and also supply formula when mothers request it or certain needs of the infant warrant introducing formula. Limited instruction for nurses on techniques to help moms use hand expression and pumping to increase their milk supply limits the use of these methods. More staff training provided by this project changed the structure; this leads to the process aspect of the model, including assisting with breastfeeding, providing education, and limiting the introduction of formula to babies. This project changed the process of providing education to nurses as well as the policy for introducing formula for

patients by offering alternative solutions to breastfeeding challenges through a checklist. Increasing knowledge of breastfeeding practices, as well as the way formula is offered after other methods are attempted, can potentially change the outcomes measured in this project. An increase in exclusively breastfeeding rates among discharged patients is the technical outcome in the model.

Project Design

Methodology

This project was conducted on the postpartum unit at a hospital in Maryland with the support of the Director of this unit. The first phase of the project was to provide education to staff regarding breastfeeding practices and it changed the previous practice at this hospital in Maryland to ensure evidence-based practices regarding breastfeeding are being used. All staff nurses on the Mother Baby Unit were given an educational HealthStream (online learning platform) that communicated the current breastfeeding policy at the hospital. The HealthStream also included the proper way to teach hand expression to new mothers, and the steps to set up a breast pump. A new process of completing a checklist (Appendix C) was implemented before exclusively breastfeeding moms were given formula. This checklist was explained in detail in the HealthStream. Nurses should teach hand expression, how to recognize and respond to newborn feeding cues, how to position and latch their newborn for breastfeeding, how to assess effective breastfeeding by observing their newborn's latch and the presence of audible swallowing, how to assess effective breastfeeding by observing their newborn's elimination patterns, and initiate pumping, if unable to provide enough breast stimulation otherwise. Each step

was checked off after completed, and an explanation provided at the bottom of the checklist to explain whether or not the interventions were successful and exclusive breastfeeding was maintained.

After completing the HealthStream, nurses then completed a competency check off performed by the coinvestigator of this project. The competency required staff to demonstrate hand expression using a provided mannequin, demonstrate three different positions for proper breastfeeding, state how to identify milk transfer during feedings, identify how to assess maternal pain during breastfeeding, and confirm their knowledge of the new checklist and ensure they knew how and when it should be completed. The coinvestigator also discussed communication techniques and ways to help the nurses feel comfortable explaining to new mothers that exclusively breastfeeding is still possible with support.

Once the education phase was completed, staff nurses began utilizing the checklist when any patient was having difficulties breastfeeding. If a patient who was exclusively breastfeeding requests formula, the checklist must have been completed before providing formula to them. If a nurse could not get a baby to latch properly or complete a breastfeeding session, they would complete the checklist before providing formula supplementation. If a baby had 10% or greater weight loss, required phototherapy, or had hypoglycemia, the pediatrician was contacted for orders. If the pediatrician did not consider formula supplementation medically necessary, the nurse would complete the checklist in order to further assist the mom breastfeeding and prevent

unnecessary formula use. The outcome of the use of the checklist was documented, and any indication for formula was documented in the medical record of the patient.

During the months of data collection, there were 1,128 babies born that met criteria to be included in this project. A sample was taken each month of 104 babies out of those that met sample criteria. Patients not included in the final reported exclusive breastfeeding rates were those patients whose child expired, was admitted to the neonatal intensive care unit, was less than 37 weeks gestation, or was transferred to another facility. The checklist intervention was given to the study population of the patients that indicated upon admission that they would be exclusively breastfeeding. All patients eighteen and older who indicated their intention to exclusively breastfeed were included in the study. Nurses were instructed to complete a checklist for any patient requesting formula who was previously exclusively breastfeeding their infant. Checklists were completed for patients who initially selected to exclusively breastfeed in their admission questionnaire. Patients who chose to formula feed or a combination of both at admission were excluded from the project. Completed checklists were kept in a locked drop box located on the unit, only accessible by the coinvestigator. All patients during the months of November 2020, December 2020, and January 2021 who chose during admission that exclusive breastfeeding was their intention, were identified among the sampled patients. If formula was given to one of these mothers, it was identified if a checklist was completed for that patient. The checklists were reviewed to determine what steps were taken to avoid giving formula and the ultimate reason it was given. Confidentiality was ensured during data collection, as the project coinvestigator was the only person to view

the patient checklists and only the date of care and the patients' medical record number was recorded on the checklists. Percentages for each reason formula is given was calculated when compared to the total number of patients in the sample given formula. Exclusive breastfeeding rates were calculated using the electronic medical record by determining the total number of patients who identified exclusive breastfeeding as their planned method, and also determining how many continued this throughout their hospital stay. The reported percentage was found using a sample of patients who met the inclusion criteria and by identifying who remained exclusively breastfeeding upon discharge.

SWOT Analysis

This hospital in Maryland has the second highest births in Maryland annually, and many patients seek out the hospital to have their baby because of its reputation. The lactation department is very supportive of patients and provides a lot of assistance to maintain healthy babies through breastfeeding. The hospital's breastfeeding policy is utilized to encourage exclusively breastfeeding. However, high turnover rates in nursing and in lactation leads to many new staff members who lack experience is helping patients with breastfeeding. Lactation consultants are only available at limited hours and only sees each patient once a day. Nurses are responsible for assisting patients with breastfeeding at all other times. Staff nurses are only trained in lactation for a few hours upon being hired, and no yearly competencies are required to ensure they are capable in assisting patients with breastfeeding.

The hospital is continuing to expand through new programs including a mental health hospital, open heart surgery capabilities, and residency programs. These

opportunities are unique to this hospital in Maryland compared to nearby hospitals, making the organization stand out among competitors. For patients coming to deliver here, a new way to communicate with lactation consultants through telehealth is being utilized to provide more support in breastfeeding. However, this hospital in Maryland is not certified to be a Baby Friendly Hospital, which many other hospitals in the state are. This status is given to hospitals who meet all requirements set by the Baby Friendly initiative which is designed to provide the most support possible for exclusively breastfeeding moms. Some patients may seek to deliver at a Baby Friendly hospital to better support exclusively breastfeeding (Appendix F).

Changing the policy for nurses to use a checklist to ensure all measures are taken to support a patient exclusively breastfeed is an opportunity to provide the best breastfeeding support for their patients. The education provided to nurses through the project as well as this policy change could remain in place if the results of the project show a positive influence on exclusive breastfeeding rates. Yearly education through the HealthStream and annual competencies can ensure nursing staff is adequately prepared to support their patients, making the goal of this project a sustainable change.

Implementation Timeline

In October of 2020, pre-data were collected by the coinvestigator using the electronic medical record to identify rates of exclusively breastfeeding patients for August to October 2020. In October of 2020, an email notifying staff of the project was dispersed (Appendix D), accompanied by the educational PowerPoint access. The coinvestigator had access to the HealthStream data which displays who had completed

the PowerPoint, which was completed by all staff nurses. Beginning in November 2020, checklists were completed by nurses. Instructions to complete the checklist were provided during their competency, and nurses were now able to complete the checklists when necessary and turn them in through a locked drop box located on the unit. These checklists were accessed by the coinvestigator and data was recorded to identify success rates of the checklist and reasons why formula was given. The checklists were utilized in November, December, and January. Data collection of the remaining checklists and exclusive breastfeeding rates recorded in the electronic medical records then began. Following this, an analysis of results was conducted. Dissemination of findings are now being conducted.

IRB and Agency Approval

Before project implementation began, approval from Salisbury University's Institutional Review Board was obtained. In addition, the hospital in Maryland gave approval for the project to begin. Their Quality Improvement council approved the project to be conducted on the Mother Baby Unit, and the unit director gave permission for the project to be completed.

Project Implementation

Barriers and Facilitators

Implementation of the project Increasing Exclusive Breastfeeding Rates Through Nursing Education was completed with the help of several interdisciplinary groups at the hospital in Maryland. The nurse educator of the Mother Baby Unit assisted in publishing the education for nurses among the hospital's electronic educational system. The lactation

department of the hospital in Maryland assisted by providing a mannequin to be used in the competency sessions provided to nurses, and their expertise helped the coinvestigator design an educational plan for the nurses. The Quality Improvement Council at the hospital in Maryland assisted the coinvestigator by evaluating the project for evidence-based practice intentions to ensure the project would be able to be conducted. With the support of the advisor of the project and Salisbury University, this DNP project was conducted.

Implementation barriers also occurred during the application of this project. The project timeline was adjusted on several occasions to accommodate both the institutional review board and the hospital where the project was conducted. In order to complete three months of data collection, the education portion of implementation had a limited time to be completed. Nurses had only one week to complete their educational PowerPoint, which was a short amount of time when not all staff nurses work every week and only access the hospital's educational platform when working. In addition, competencies were offered on many different days, but nurses that did not work during those days did not complete a competency. This was primarily nurses that are contingent part time status and only work one to two shifts per month. Due to hospital restrictions in place due to Covid-19, employees could not come into the hospital in groups when they were not assigned to be working that day. As a result, the competency sessions had to be completed during staff's regularly scheduled hours. The coinvestigator made several more competency sessions available and adjusted to allow staff to come when available. Some sessions were interrupted or cut short if a staff member had to return to their

patients during the session. Education was provided to as many staff nurses as possible, but the completion of this was met with barriers.

Summative Evaluation of Implementation Process

This DNP project was conducted using evidence-based literature to implement increased education and a process change on a Mother Baby Unit at a Maryland hospital. Implementation of the DNP project was completed in its entirety despite barriers that were encountered. The education portion of the project was completed in a very compressed timeline that did not allow time for all nurses to receive a competency. All nurses completed the required education on the hospital's educational platform, and nearly all nurses completed a competency session. Data were able to be collected for three consecutive months during the use of the checklists. The completed project can offer information to the staff and leadership of the Mother Baby Unit of a Maryland hospital in order to continue to look at the impact nurses have on breastfeeding rates.

Analysis and Discussion of Findings

Education

Every staff nurse on the Mother Baby Unit, 48/48, completed the HealthStream educational PowerPoint to learn more about how to assist patients with breastfeeding. Of these nurses, 86% then completed a competency with the co-investigator that included demonstrating hand expression, identifying ways to assist in breastfeeding, and talking about conversations nurses can have with patients who are worried about exclusively breastfeeding. There were seven nurses that did not complete a competency and they were contingent part-time nurses that worked too infrequently to have worked on a date a

competency was offered. The director of the unit and the unit educator gave weekly reminders to all staff to complete the breastfeeding checklists throughout the three-month data collection period.

Participants

Based on previously determined algorithms by the hospital sampling protocol, a monthly sample of patients were obtained through the electronic medical record to determine exclusive breastfeeding rates. Those patients among the sample that provided formula to their baby were reported as fallouts. Twenty-eight patients were fallouts in November, 26 in December, and 40 in January. Table 1 represents patient specific information of these fallouts. Only patients that chose to exclusively breastfeed could potentially benefit from the project because patients that delivered with the intention of formula feeding were excluded. Eight patients in November, five patients in December, and 20 in January were eligible for a checklist to assist them in continuing to breastfeed.

Table 1

Patient Specifics

Primary Language			
	November	December	January
English	93%	81%	77%
Spanish	7%	19%	23%
Delivery Type			
	November	December	January
Vaginal	54%	71%	62%
Caesarean section	46%	29%	38%
Stated Feeding Preference			
	November	December	January
Mixed or Formula	72%	81%	50%
Exclusively Breastfeeding	28%	19%	50%

Checklist Completion

Despite encouragement from the co-investigator and mandating of the checklists by the unit director, a low number of checklists were ultimately completed. In November, 14 total checklists were completed, 12 checklists were completed in December, and seven checklists were completed in January. When comparing completed checklists to the fallout patients in the sample, only two checklists were completed for these patients in November and zero in December or January. Table 2 represents the percentage of checklists completed.

Table 2

Fallout Patients with Completed Checklists

	November	December	January
Completed	25%	0%	0%
Not Completed	75%	100%	100%

Because a checklist was not completed on all intended patients, it is difficult to evaluate their effectiveness. The two patients, in November, who were exclusively breastfeeding and were given a checklist when asking for formula and still ended up formula feeding, were helped in every way possible identified on the checklist. If this was consistently shown throughout the data, it could be determined that the checklists were not beneficial. A lack of consistency in their completion does not allow this assumption to be made. Additional use of the checklists would be necessary to determine their effectiveness.

Exclusive Breastfeeding Rate

The purpose of this project was to determine if providing the education and implementing a breastfeeding checklist would have a positive impact on the exclusive breastfeeding rate upon discharge in order to meet the recommended benchmark of exclusively breastfeeding rates. In using descriptive statistics, the overall exclusive breastfeeding rate was compared to the benchmark of 65% set by the hospital. In looking at the reported exclusive breastfeeding rates, there was initially a small increase in the percentage after implementation. This percentage is determined by using the sampled patient's data and dividing the number of exclusively breastfeeding patients by the total number of patients discharged in that month. The three prior months before implementation showed an exclusive breastfeeding rate of 67%, 65%, and 63% respectfully. Implementation occurred immediately prior to November, and the subsequent months showed exclusive breastfeeding rates of 67% and 69%. In addition to the slight increase in rate, these months met the intended benchmark rate. While this marginal increase first occurred in November and December 2020, the following month of January 2021 had a reported exclusive breastfeeding rate of 54%. Table 3 represents these data.

Table 3*Exclusive Breastfeeding Rates of a Hospital in Maryland*

	Aug 2020	Sept 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2021
Exclusive Breastfeeding Rate	67%	65%	63%	67%	69%	54%
Number of exclusive breastfeeding patients out of total patients in the sample	63/93	59/90	54/85	57/85	57/83	47/87
	Pre-Implementation			Post-Implementation		

Among the patient fallouts, those that initially reported exclusive breastfeeding as their choice were further evaluated for the reason for formula supplementation. Maternal request for formula includes all reasons to not continue to only breastfeed that are potentially avoidable if assisted by the patient's nurse. This includes the mother feeling like her baby is still hungry after breastfeeding, sore nipples, and trouble latching. A doctor's order or medical reason such as low blood sugar or high weight loss is also reported. Table 4 demonstrates that maternal request was much more likely to be the cause for supplementation in the sampled population.

Table 4*Documented Reason for Supplementation*

	November	December	January
Maternal Request	87%	75%	70%
Doctor Order or Medical Reason	13%	25%	30%

The initial increase in exclusive breastfeeding rates could be representative of the impact breastfeeding education had on the nurses. The completed HealthStream and competencies provided beneficial information for nurses to apply when assisting patients to breastfeed. Verbal feedback from newly hired nurses included their appreciation of the education and the benefit that using the hand-expression mannequin had in their ability to teach this method to patients. By month three after implementation, it is possible that newly hired staff that had not received the education were providing formula to patients. In addition, only Mother Baby staff nurses were included in the education and were given instructions on how to complete a checklist. Many of the exclusively breastfed infants that received formula were provided formula from a nurse on the labor and delivery unit or by a nurse that is a member of the Flex staff. These nurses work on the Mother Baby unit occasionally but were not included in the project implementation.

In post-implementation interviews of staff nurses, subjective causes for the January decrease in exclusive breastfeeding rates were obtained. Staff noted the increase in patient census that month and short staffing they found themselves trying to balance. Nurses reported being unable to help patients with breastfeeding for extended periods of time the way they would have liked to. Providing formula when a patient suggests it requires less of a time commitment for a nurse, so this could have been a contributing factor to the increase in maternal requests for formula that were granted without completing a checklist.

Results Overview

While a marginal increase in the reported exclusive breastfeeding rates was initially seen, there was a drop in this rate at three months following the project

implementation. Staff was appreciative of the education provided and by word of mouth reported that they felt more confident in helping patients with breastfeeding and hand expression. The lack of consistent data do not show a benefit to nurses completing the breastfeeding checklist, so their implementation did not provide a valuable improvement to the exclusive breastfeeding rates of the unit.

Economic Considerations

Patients who are discharged from the hospital and are exclusively breastfeeding are more secure financially in caring for their infant. They are able to provide their baby nutrition without purchasing formula. If an increase in the rate of exclusively breastfeeding patients at discharge occurs, more patients can save money on both formula and potentially healthcare costs for their infant. According to Quesada (2020), money spent to help patients breastfeed leads to more money saved on later healthcare. “Higher breastfeeding rates lower healthcare economic costs because they reduce the prevalence of several pathologies among both breastfed infants and breastfeeding mothers” (Quesada, 2020, p.35). If more research is conducted to determine methods to increase exclusive breastfeeding rates, a further economic impact may occur.

Implications for Practice and the DNP

The importance of trending health outcomes for hospitalized patients upon discharge is notable for DNP prepared nurses. Exclusive breastfeeding rates at discharge are indicative of the support provided to patients during their hospitalization. Nurse leaders are responsible for educating staff and patients in order to improve health outcomes, including breastfeeding rates. The advantages of exclusively breastfeeding is well documented in the literature (Ullman & Fisher, 2017). Using evidence-based

practice to properly educate staff nurses in order to provide optimal support for patients can increase the number of patients that remain breastfeeding, and thus, have a positive impact on their health outcomes.

Process and Outcome Recommendations

Providing additional education to staff nurses regarding ways to help aid patients in breastfeeding had shown to have a positive impact on the Mother Baby Unit at a Maryland hospital. Meeting the benchmark set by the Joint Commission is an important consideration for Maryland hospitals, as it is set to provide the best care for patients that leads to optimal health outcomes. Increased education to adequately prepare nurses to assist with hand expression and latching of a newborn is necessary if nurses are going to support patients and encourage exclusive breastfeeding. In addition, ensuring the nurses are using what they learned to provide adequate support for patients is important. In this project, checklists were not properly completed as instructed. If nurses perceive the checklists as cumbersome, it should be enforced that the assistance they are providing patients is necessary and can be done without a physical checklist completed. The importance of breastfeeding support should be emphasized, and more education given for nurses that provide formula unnecessarily before trying other methods to breastfeed.

Further research and additional project implementation is necessary to understand the true impact that an increase in nursing education and implementation of a checklist may have on increasing exclusive breastfeeding rates. A lack of staff participation in completing the breastfeeding checklists led to an incomplete understanding of their effect. Staff nurses reported an insufficient amount of time to adequately assist patients with breastfeeding, and to implement all of the recommended steps of the checklist.

Finding ways to support nurses in their tasks and allowing more time to be spent assisting with breastfeeding could potentially lead to a greater increase in exclusive breastfeeding rates. Nurse leaders who want to assist staff in providing breastfeeding assistance should recognize when their nurses need someone to help complete tasks while they provide breastfeeding assistance if needed. Providing a checklist to complete for this DNP project only added to the workload of the nurses instead of offering solutions to breastfeeding problems. Further studies aimed at finding a way to provide support to nurses is necessary to find a better solution.

Dissemination Plan

Results of the project were first be communicated to the department of the hospital where the project was conducted. This allowed the nurses and leadership team to see the impact of the education and checklist implementation and decide if it should be permanently implemented. Dissemination of findings were then conducted at the Quality Improvement Showcase at the hospital in Maryland in March 2021. A presentation was also conducted at Salisbury University in April 2021 to disseminate findings with all committee members. A written manuscript was completed to communicate findings to a wider audience. A peer-reviewed journal was then chosen to submit the manuscript to with the intent of publication. (Appendix F).

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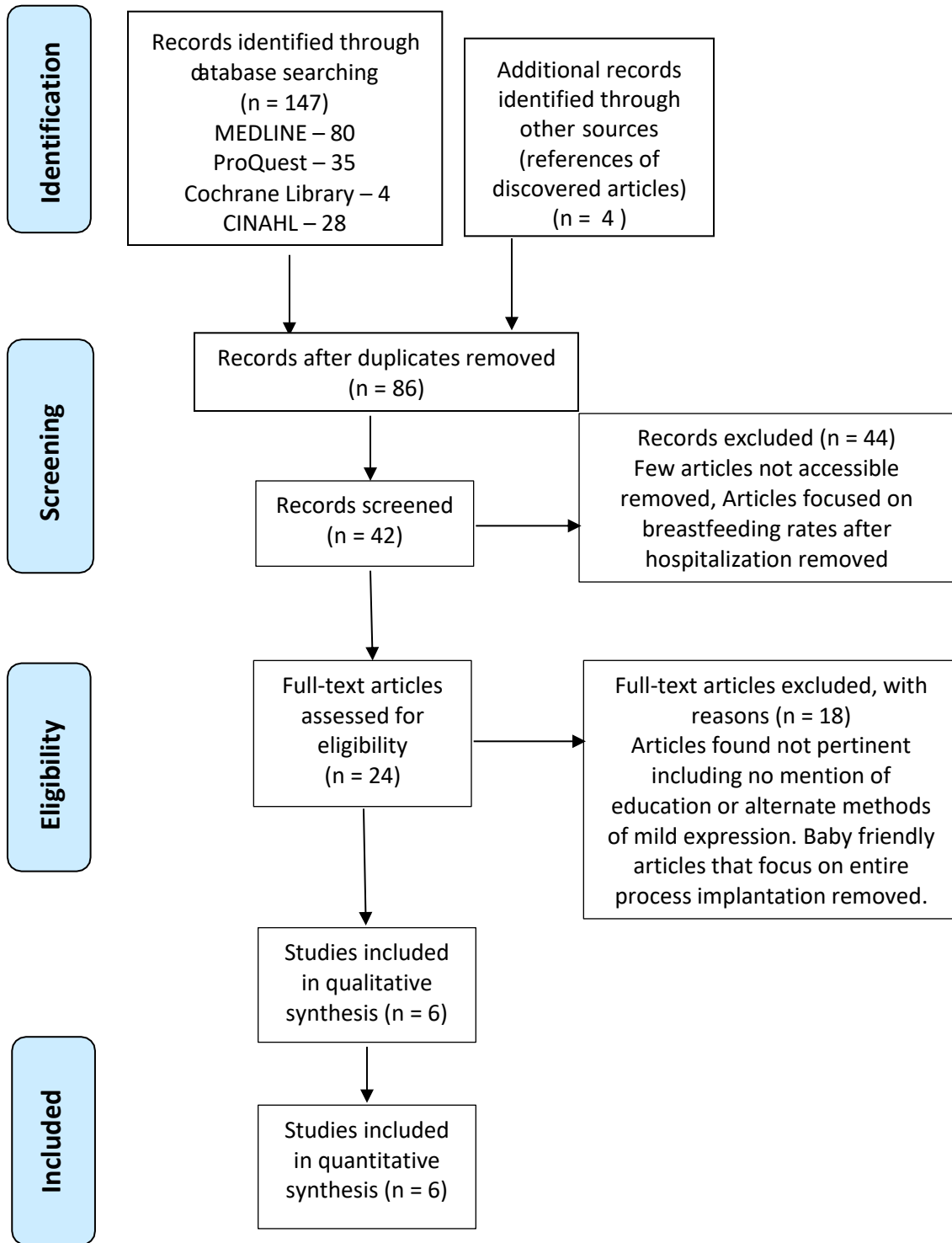
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Appendix A: PRISMA



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Appendix B: Table of Evidence

Year	Author, Title, Journal	Purpose	Design	Sample	Result
2017	Balogun, O., Dagvadorj, A., Yourkavitch, J., Da, S., Suto, M., Takemoto, Y., Rayco-Solon, P., Ota, E. Health facility staff training for improving breastfeeding outcome: A systematic review for step 2 of the baby-friendly hospital initiative. <i>Breastfeeding Medicine : The Official Journal of the Academy of Breastfeeding Medicine</i>	Use step 2 of baby friendly to educate nurses About breastfeeding in order to increase exclusive breastfeeding Rates	Systematic review	390 (5 studies)	Rate of exclusive breastfeeding increased at the intervention sites
2014	Chantry, C., Dewey, K., Peerson, J., Wagner, E., & Nommsen-Rivers, L. In-hospital formula use increases early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. <i>The Journal of Pediatrics</i>	Identify cause of in-hospital formula supplementation to exclusively breastfed infants	Longitudinal cohort study	448	Main causes were perceived low milk supply, signs of inadequate intake, and poor infant breastfeeding behavior
2018	Ma, Y., Wallace, L., Qiu, L., Kosmala-Anderson, J., & Bartle, N. A randomized controlled trial of the effectiveness of a breastfeeding training DVD on improving breastfeeding knowledge and confidence among healthcare professionals in china. <i>Bmc Pregnancy and Childbirth</i>	Test the effectiveness of a breastfeeding DVD training for clinicians to improve their knowledge and confidence in breastfeeding support skills of teaching mothers	Randomized controlled trial	191	The breastfeeding training DVD improved professionals' knowledge and confidence of the two breastfeeding support skills

2015	Nehring-Gugulska, M., Nehring, P., & Królak-Olejniak, B. Breastfeeding knowledge among polish healthcare practitioners supporting breastfeeding mothers. <i>Nurse Education in Practice</i>	Identify a need For breastfeeding courses for staff, evaluate the use of a professional course to increase breastfeeding knowledge	Cross-sectional survey	361	Participants with professional development courses were more knowledgeable in breastfeeding support
2017	Ullman, F., & Fisher, M. Application of the EBP process: Maximizing lactation support with minimal education. <i>Journal of Pediatric Nursing</i>	Implement new nurse education to adequately prepare them for breastfeeding assistance	EBP project one-group pretest, post-test design	22	Post-test scores of breastfeeding knowledge increased after education intervention
2017	Wallace, L., Ma, Y., Qiu, L., & Dunn, O. Educational videos for practitioners attending baby friendly hospital initiative workshops supporting breastfeeding positioning, attachment and hand expression skills: Effects on knowledge and confidence. <i>Nurse Education in Practice</i>	Compare the effect of educator and practitioner role play versus clinical (mother-infant) demonstration training videos	Randomized quasi-experimental trial	117	Demonstration training videos was more successful in improving participant knowledge, ability to teach hand expression and knowledge about the subject increased

Appendix C:

Checklist for Patients with Breastfeeding Difficulties To Be Completed Before Introduction of Formula

Did you teach your patient....	Yes	No
How to recognize and respond to their newborn’s feeding cues?		
How to position and latch their newborn for breastfeeding?		
How to assess effective breastfeeding by observing their newborn’s latch and the presence of audible swallowing?		
How to assess effective breastfeeding by observing their newborn’s elimination patterns (i.e., urine and stool output and stool character)?		
How to hand express their breast milk and provide it to their baby using a spoon or cup?		
How to initiate pumping, and have you set up the breast pump in their room for them?		

Center for Disease Control. (2019, December 30). Survey: Maternity Care Practices. Retrieved from <https://www.cdc.gov/breastfeeding-/data/mpinc/questionnaires.htm>

If this checklist has been completed and all criteria has been answered yes, reevaluate the need for continued intervention for your patient.

Ensure a lactation consult is in place and attempt to find an available lactation consultant if your patient needs further assistance at this time.

If despite your best efforts a mother cannot be reassured that their baby is eating enough, the pediatrician has ordered formula supplementation for medical necessity, or no expressed milk could be obtained and the baby is still not latching properly, document the indication for supplementation:

Appendix D: Letter of Intent

I. Introduction:

A quality improvement project is being conducted on the Mother Baby Unit at AAMC in order to improve exclusive breastfeeding rates for patients upon discharge. Your role in this project as a staff nurse is the ability to receive education regarding breastfeeding in order to improve your ability to assist your patients. By completing a checklist of necessary steps before providing exclusively breastfed babies with formula, you will be ensuring that everything within your scope of practice can be done before giving a baby formula when the mother has established exclusive breastfeeding as their goal.

II. Purpose and Procedure:

Exclusively breastfeeding has been shown to have many benefits to newborns. At Anne Arundel Medical Center, the mother baby unit is looking to improve the rate of exclusive breastfeeding among discharged patients. In some instances, staff are providing formula to babies when other methods could be implemented first. This project is intended to increase the preparedness of staff nurses in assisting with breastfeeding and provide alternative solutions to breastfeeding problems. The purpose of the project is to educate staff and patients in order to complete steps to continue exclusive breastfeeding, and to determine if this intervention will increase the rates of patients exclusively breastfeeding at discharge.

With your participation, you will be provided with an education HealthStream that reviews techniques to help patients with breastfeeding, as well what to do when breastfeeding is not successful. Following the education, you can sign up to complete a competency with the project's coinvestigator. This will allow you to work with a mannequin to demonstrate hand expression and breastfeeding holds, as well as reviewing other educational information regarding breastfeeding. After the education, you will be completing a checklist before providing formula to an exclusively breastfeeding patient. This checklist will review all the steps that aid in successful breastfeeding. If all steps have been completed and formula is still warranted, you will identify the reason for supplementing with formula.

IV. Risks Associated with the Project:

Potential risks of the project are minimal and include inconvenience for your time needed to complete the education. All steps will be taken to minimize any disruption and makes the education provided beneficial while not being too time consuming.

V. Benefits:

The benefits to your participation in this project are to increase your knowledge and confidence in assisting patients with breastfeeding. You will also potentially increase the rate of exclusively breastfeeding patients who are discharged from your unit.

VI. Privacy/Confidentiality:

All participation in the education and competency will be kept confidential. Anything that occurs during your time in the project including your education and participation in the checklist completion is kept confidential between you and the project investigator.

VII. Points of contact

If you have any questions about this project or would be interested in the results, please contact any of the principal investigators or co-investigator:

Principal Investigator: Dr. Kaynabess Freda: kxfreda@salisbury.edu Co-Investigator:
Kristen Farrell: kl32656@gulls.salisbury.edu

If you have any concerns about the project, please contact the primary investigator or the Office of Graduate Studies and Research at Salisbury University at 410-548-3549 or toll free 1-888-543-0148

Thank you for your cooperation.

Appendix E: SWOT Analysis

<p>Strengths</p> <p>This hospital has the second most births of any Maryland hospital, and is known in the community as a great place to give birth.</p> <p>The lactation department is helpful to patients and support exclusively breastfeeding by providing all techniques to ensure successful breastfeeding. The hospital has a breastfeeding policy with many regulations that ensure exclusively breastfeeding is supported.</p>	<p>Weaknesses</p> <p>The staff turnover is currently very high at HERE, including first year turnover at 27%. This increases costs for training and orientation and a lack of experienced employees is not beneficial for the organization. New staff are less experienced in breastfeeding and are not able to support moms to exclusively breastfeed.</p> <p>The lactation department is only available during limited hours of the day and see each patient only once a day. Nurses are responsible for helping patients with breastfeeding at all other times.</p> <p>Nurses are not provided annual competencies in breastfeeding capabilities</p>
<p>Opportunities</p> <p>The hospital is expanding their opportunities for patients by growing their facilities, including a mental health hospital that recently opened, open heart surgery will be conducted here soon, and it recently became a teaching hospital providing opportunities for residents to fulfill their training. No nearby hospitals offer open heart surgery. Many universities are looking for hospitals to support their residents with training opportunities. No nearby hospitals are teaching facilities that offer residency programs.</p> <p>Telehealth is now available for lactation consultants to meet remotely with patients who need further assistance breastfeeding</p>	<p>Threats</p> <p>National nursing shortage and high turnover rates leads to human resource difficulties in providing adequate staff. Excess funding is used for training new staff and less experienced staff is becoming more common in nursing and in lactation.</p> <p>The hospital is not a baby friendly hospital, while many other hospitals in the area are. Some patients may seek to deliver at baby friendly hospitals to better support exclusively breastfeeding.</p>

Appendix F

September 2020:

Pre-data collected by the coinvestigator using the electronic medical record to identify rates of exclusively breastfeeding patients for May to July 2020.

October 2020:

Email notifying staff of the project will be dispersed accompanied by the educational PowerPoint access. Competencies will occur and instructions on checklists to be completed will be given.

November 2020, December 2020, and January 2021:

New policy is in effect. Checklists will be completed by nurses.

February 2021:

Data collection will take place for checklist responses and exclusive breastfeeding rates recorded in the electronic medical records.

March 2021:

Analyze results and disseminate findings through manuscript, Quality Improvement Showcase, and presentation at Salisbury University.