Increasing Breastfeeding Rates in Clinic Patients

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Abstract

**Purpose of Project:** This quality improvement project aimed to increase the breastfeeding rates in a clinic population with the use of prenatal breastfeeding education. It served to evaluate the effect of provider prenatal breastfeeding education on breastfeeding rates in clinic patients. With the use of prenatal breastfeeding educations, mothers are provided the support and resources needed to be able to successfully breastfeed in the postpartum period.

**Methodology:** A breastfeeding education module was given to all the providers and case managers at the local clinic. Upon completion of the module, breastfeeding education during prenatal visits began at or before 36 weeks gestation and then weekly until delivery. Postpartum breastfeeding surveys were collected on all postpartum visit patients assessing their method of feeding for the babies. Two months of pre-intervention surveys were compared to two months of post-intervention surveys to evaluate effect of prenatal breastfeeding education on breastfeeding rates using quantitative data analysis with chi-square.

**Results:** A two-by-two frequency cross-tabulation table showed prenatal breastfeeding education had a positive effect on the breastfeeding rates in the postpartum period with 11.6% exclusively breastfeeding in the post-intervention group and 6.4% breastfeeding in the pre-intervention group with a p-value of 0.0231.

**Implications for Practice:** Findings suggest that prenatal breastfeeding education should be included in clinical practice and made a standard of care for all prenatal patients both locally and globally.

**Keywords:** prenatal breastfeeding education, provider breastfeeding education, breastfeeding rates
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There have been many attempts to help increase breastfeeding rates on all levels globally, national, statewide and locally. The Centers of Disease Control and Prevention (CDC) created a guide that discussing strategies to support breastfeeding mothers. In this guide, there are many strategies discussed however the three that are in direct correlation to this project’s aim are Professional Education, Access to Professional Support, and Access to Breastfeeding Education and Information (Centers of Disease Control and Prevention [CDC], 2013). Breastfeeding rates have been the focus of many hospitals and there has been a great push to increase the breastfeeding rates of mothers during their stay in the hospital and even further along in the post-partum period. This project aims to implement an intervention to increase the breastfeeding rates at a local urban clinic.

According to the CDC (2013), health care professionals working in maternity care require in-depth knowledge and skills directly related to breastfeeding and lactation management as 86% of Americans turn to a health professional as their primary source of health information. Studies have also shown that mothers often identify support received from health care providers as the most important intervention the health care system could have offered to help them breastfeed (CDC, 2013). This project provided staff with the required knowledge-base to be able to translate the education they received, back to the patients. The formal introduction of breastfeeding education as a standard of care in this clinic setting served as a practice change with the intended goal of improving breastfeeding rates.
Background and Significance

With the goal of this project being to increase the breastfeeding rates in a clinic population, it is important to first understand why there is an emphasis on increasing breastfeeding rates. Breastfeeding and breastmilk have tremendous benefits for both mother and baby. Some of the benefits for the mother include easier weight loss after delivery, lowering rates of type II diabetes and hypertension, lowering rates of ovarian and breast cancer, and reducing amount of postpartum bleeding by the release of oxytocin (American College of Obstetricians and Gynecologists [ACOG], 2020). The benefits of breastmilk for the baby include being easier to digest than formula, having the right amount of nutrients that the baby needs, breastmilk contains antibodies that prevent certain illnesses, decreases the risk of sudden infant death syndrome, and helps in risk reduction of various health problems (ACOG, 2020). By working to increase the breastfeeding rates at this clinic, the women and children who receive care at this organization benefit from the health outcomes breastfeeding provide. Alongside reducing the risk of certain illnesses for both mother and baby, an increase in breastfeeding rates would also serve an economic benefit. According to the World Health Organization (2021), reduced healthcare costs due to improved breastfeeding practices and increased breastfeeding rates would total a savings of more than $300 million in the US, UK, Brazil and urban China alone.

The intended site for this project is affiliated with a larger hospital which is not officially a baby friendly establishment but have been taking some steps in that direction. The baby friendly hospital initiative assists hospitals in giving mothers the information, confidence, and skills necessary to successfully initiate and continue breastfeeding their babies and aims to ensure that every mother is fully informed of the importance of breastfeeding and to the help she
needs to achieve her breastfeeding goal (Baby Friendly USA, 2021). As stated above, it is important for mothers to be given the information they need regarding breastfeeding to be able to successfully breastfeed their babies. As the hospital affiliated with the project site continues to take steps towards being baby friendly, providing information and skills to mothers necessary for successful breastfeeding is of importance. By providing breastfeeding education in the antepartum period, this is another way to prepare mothers to breastfeed their babies and to increase the breastfeeding rates at the organization.

**Needs Assessment**

At the clinic, many of the patients are low income, and a large amount of the population is Hispanic, and many have lower educational levels. As of now, breastfeeding education is happening infrequently at the clinic and only by the practitioners who have some type of knowledge based on their prior experiences in clinical settings. There has been no formal education provided to staff members on the topic of breastfeeding for them to be confident enough to educate the patients properly. This has become a problem because in dealing with this patient population, their feeding plans post-delivery are important to address since it greatly impacts both mother and baby. Currently at the clinic, part of the management team is beginning to look deeper into the current breastfeeding rates and investigate ways to help improve the numbers. The clinic has begun a pre-intervention by giving anonymous surveys to all patients who present to their postpartum visit. This survey asks the patient what their feeding plan was before delivery, how they fed the baby during their hospital stay, how they were feeding the baby after discharge, and how they are feeding the baby on that day that they are filling out the survey. The totals from each month’s responses are collected and placed into a spreadsheet to help the staff begin to track the breastfeeding rates prior to any intervention being implemented.
The project to be implemented would best meet the clinic’s needs and provide the staff with the education that will be required for them to relay to their patients. With proper implementation, this project would provide patients with a great advantage by having their questions answered as well as being given knowledge about breastfeeding for them to be able to breastfeed effectively after delivery. This project would not greatly impact healthcare costs since no extra cost needs to be allocated to educate either the patients or the staff and implementation of this project will hopefully pave the way to reestablish a policy focused on the importance of breastfeeding education in the antenatal period. The hospital affiliated with the clinic has been focused on increasing their breastfeeding rates so if the clinic is able to incorporate meaningful education on breastfeeding in the antenatal period, this would then reflect positively on breastfeeding rates at this healthcare system and there would be a noted rise in the breastfeeding rates.

Information on breastfeeding rates is continually being gathered on a yearly basis in order to assess the trend. According to the United Nations International Children’s Fund (2019), breastfeeding rates on a global level for the year 2018 was at 41%. In 2018, national breastfeeding rates were less than or equal to 10% to greater than or equal to 40% and for the state of New Jersey, the breastfeeding rates as of 2018 were 10-19% (CDC, 2019). The latest record of the breastfeeding rate at the clinic in 2017 was at 27.5% (MCH Epidemiology, 2019). For the state of Jersey, the Healthy People 2020 set a goal of 85% for those who ever breastfed and 45% for those who exclusively breastfeed in the first 3 months (New Jersey State Health Assessment Data [NJSHAD], 2019). Based on this statistical data listed above, the state of New Jersey and the more local SPUH clinic are both falling short of the intended goal. On the local level at the SPUH clinic, management has begun to collect data on the number of women who
are breastfeeding after being discharged from the hospital. They have also begun to put together a breastfeeding taskforce which will be responsible to come up with different ways to increase the breastfeeding rates amongst the clinic patients.

The strengths that the clinic has starting out with is their desire to increase the breastfeeding rates, the pre-implementation procedures that have already begun to take place and the initiation of the breastfeeding taskforce. The weaknesses of the clinic are their heavy patient volume which serves to decrease the time available to provide education to each patient, the lack of lactation personnel available on ground at the clinic, and lack of formal breastfeeding education provided to providers and staff. The opportunities at this facility is their affiliation with a hospital that is also pushing to increase their breastfeeding rates and a high patient volume provides a larger sample side for this intervention. The threats at the clinic in regards to this project would be staff willingness to translate information to patients. There could possibly be a challenge in getting the providers to incorporate something new into their plan of care. Another evident threat at this facility is the language barrier between staff and patients being that a large number of patients at the clinic are primarily Spanish speaking. However, the use of interpreter services that are made available in every exam room helps to break this barrier.

**Problem Statement**

At the clinic, the focus has recently been looking at ways to increase the breastfeeding rates. As mentioned earlier, due to the need to increase the breastfeeding rates, a breastfeeding taskforce has been put in place to begin looking at why the breastfeeding rates are so low and what can be done to increase them. One of the problems identified was the lack of breastfeeding education being given to the patients that come in for their prenatal visits. As of now, there has been no formal education provided to the providers and case managers at the clinic on
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breastfeeding. There have also not been any policies put in place that highlights when breastfeeding education should be done in the clinic and the key factors that should be addressed with the patients.

**Clinical Question**

The lack of breastfeeding education brings to light the clinical question that is the foundation of this project. The clinical question to be answered by this project is as follows: Does improving breastfeeding education and support to providers and case managers and implementation of prenatal breastfeeding education to patients improve breastfeeding rates in clinic patients in the postpartum period?

**Aims and Objectives**

The aim of this project was to increase the breastfeeding rates in this clinic population. The increase in breastfeeding rates would show that formal education provided to providers which was translated to the patients in the antepartum period had a positive effect by increasing breastfeeding rates in the clinic patients. By increasing the breastfeeding rates, the clinic would be able to reach or be close to reaching the breastfeeding benchmarks set for not only the state by also on a global level. Health care outcomes for both mother and baby would also improve as each benefit from what breastfeeding offers. The objectives of this project were to:

- Increase the breastfeeding rates at this clinic by implementation of routine breastfeeding education in the prenatal period.

- To provide breastfeeding education by way of online module to providers and case managers at the clinic which they will use to educate the patients seen in office during
their routine prenatal visits. Breastfeeding education was to begin at or before 36 weeks gestation and then weekly after 36 weeks gestation until delivery.

- Assess the increase in breastfeeding rates by way of anonymous postpartum breastfeeding surveys given to each patient at their postpartum visit.
- Compare two months pre-intervention breastfeeding rates with two months post-intervention breastfeeding rates to assess the impact of the study intervention on the aim of the project.

**Theoretical Framework**

The Knowledge-to-Action (KTA) model has been used as a guideline in the area of knowledge translation in many different types of organizational settings. This framework provides the steps to take and in which order to take them in order to achieve the best results for the intended purpose. The framework is illustrated as having both a funnel like process and a cyclic process which work side by side and allows a free flow of ideas between the two concepts (see Appendix A). The funnel portion of the KTA model is representative of the knowledge creation while the surrounding cycle represents the steps needed to apply the knowledge (Graham et al., 2006). The cyclic portion is set up with seven different phases that are to be followed when using the model to translate knowledge. The seven phases are: identifying a problem that needs to be addressed, adapting the knowledge use to the local context or setting, assessing any barriers, selecting and implementing interventions, monitoring use of the knowledge, evaluating outcomes, and sustaining knowledge (Graham et al., 2006).

Identification of a problem requires first assessing the needs of the organization and the figuring out an area of change needed. Adapting the knowledge use to the local context requires understanding the audience which is expected to implement the change and assessing the
usefulness and appropriateness of the knowledge as it relates to that audience. Assessing barriers include identifying areas of pushback to the change to be implemented or areas which prove to be a challenge with moving forward with the change. Selecting implementation interventions requires choosing the appropriate method to implement in a format which will be well received and produce the anticipated results and the actual implementation of the interventions.

Monitoring the use of knowledge is the process of ensuring that the interventions are being executed appropriately to yield the anticipated results and providing feedback to those making the changes. Evaluate outcomes includes analyzing results of the implementation and assessing whether the anticipated results were reached and if not, why they weren’t reached. After evaluating outcomes would be sustaining knowledge which involves ongoing feedback about what worked and didn’t work and continuing to implement the changes that worked in order to improve outcomes long-term.

The KTA framework was chosen for the purposes of this project because it identifies the key steps that will be used in the project. The basis of KTA is to translate knowledge to the clinical setting through some form of action which requires a change to be implemented. The problem of increasing breastfeeding rates has been identified at the clinic by some of the management. Following the phases of the KTA framework, education will be provided to all providers through virtual learning and knowledge will be assessed by way of a posttest after completion of the learning module. This new knowledge that has been attained by the providers will then be translated to the patients during the antenatal visit starting at 36 weeks gestation. After a period of three months, evaluation of an increase in breastfeeding rates will be conducted by collection of postpartum breastfeeding surveys to all patients returning to the clinic for their postpartum visit. After the implementation of this project, the long-term goal will be to ensure
that this knowledge is sustained by the providers and they continue providing breastfeeding education and support to their patients in the antepartum period.

**Review of Literature**

In order to address and answer the clinical question whether or not implementation of breastfeeding education in the prenatal period could increase the breastfeeding rates in the postpartum period, a review of literature was conducted. The primary database used to identify relevant literature was EBSCOhost (Academic Search Premier). Upon initial search with the key term of *antenatal breastfeeding education*, a total of 2,971 hits were made which provided some general research pertaining to breastfeeding and the type of education which is available for patient. A more narrowed search of the same database with the key words *prenatal breastfeeding education* yielded 349 hits which were more in line with the purposes of this project of which three were included in the review of literature. However, the results could still be further condensed and a final search with the key terms *provider breastfeeding education* yielded 153 hits and provided two more to be included in the review of literature.

Eight articles found were appraised using the Johns Hopskins appraisal tools and assigned levels of quality. For the articles used in this review, most were of good quality with two of high quality and one of low quality. The search of literature showed that many acceptable articles which helped to answer the clinical question were not within the last five years. There were a limited number of articles found pertaining to this specific topic on this topic which might lead to some conclusions that provider breastfeeding, though proving to show a benefit to patient outcomes, is not widely researched, playing a role in the difficulty of the search. After completing a thorough search, eight articles were chosen for the purpose of this project. Five of the articles were research articles with the remaining three being non-research. A table of
evidence was constructed with information from each of the eight articles (see Appendix B). Of the eight articles, common ideas were linked between the different findings helping to draw conclusions and synthesize common themes from the articles as they pertain to the intended goal of the project.

**Importance of Provider Education**

Out of the eight studies in this review, four detailed the importance of provider education regarding breastfeeding and the impact it would have on the patients under their care. According to Hollander (2001), providers have a special responsibility and capacity to promote breastfeeding. In the study on health care provider impact on encouraging women to breastfeed, 73% of the participants said that a physician or nurse’s education during the prenatal period was the encouragement they needed to be able to breastfeed their baby successfully (Hollander, 2001). Since the value of the provider in the promotion of breastfeeding in so important, efforts to ensure providers are up to date with current breastfeeding knowledge is paramount. Another study of breastfeeding education in the prenatal period revealed that 74% of mothers who received breastfeeding education in the prenatal period were successfully breastfeeding their babies while 26% were not (Taveras et al., 2004). One study highlighted the issue of the lack of support and education being provided to patients regarding breastfeeding and the negative impact that had on the patients and their breastfeeding experiences. Developing approaches to enhance communication during routine prenatal visits would improve the support of breastfeeding among patients being seen in the office setting (Taveras et al., 2004).

In order to better enhance the communication between patients and providers, the providers must have confidence in themselves and their knowledge of breastfeeding. In order to enhance provider confidence, access to the knowledge to be translated to the patients is
warranted. In one of the studies, completion of education sessions showed improvement in breastfeeding knowledge \((p< 0.01)\) and the attitudes and beliefs of providers \((p=0.03)\) both proving to be statistically significant (Holmes et al. 2012). By improving provider knowledge and attitudes regarding breastfeeding, the providers are better equipped to provide support and encouragement to their patients.

**Increase in Breastfeeding Rates**

Four of the sources appraised provided evidence about how provider education helps increase breastfeeding rates in patients. All emphasized the positive impact that provider education in the antepartum period had on breastfeeding outcomes in the postpartum period. Of the four articles, two were randomized controlled trial studies which were conducted on the impact of provider antenatal breastfeeding education when compared to standard care with no education provided in the antepartum period. In the first randomized control trial study, the group which had prenatal breastfeeding education had an exclusive breastfeeding rates of 24.2\% at one month postpartum compared 6.9\% exclusive breastfeeding rates in the group which received standard prenatal care \((p<.001)\) which proved to be statistically significant (Bonuck et al., 2014). At three months postpartum, the group which received prenatal breastfeeding education had an exclusive breastfeeding rate of 16.0\% compared to 6.2\% in the group which received standard prenatal care \((p=.01)\) proving to be statistically significant (Bonuck et al., 2014). Findings from the first trial suggested that breastfeeding consultation and anticipatory guidance from prenatal care providers increased breastfeeding intensity at up to three months postpartum (Bonuck et al., 2014).

The second randomized control trial placed the women into two different groups. Group A received breastfeeding education at their prenatal visits while B received only standard
prenatal care. In each group, the number of women who were exclusively breastfeeding was compared to the number of women who were exclusively formula feeding. At three months postpartum, 36.0% in group A compared to 17.9% in group B were exclusively breastfeeding (\(p=.01\)) and at six months postpartum 20% in group A compared to 9.5% in group B (\(p=.047\)) which both showed statistical significance (Mattar et al., 2007). The study suggested that even a simple single-encounter antenatal education and counseling session significantly improved breastfeeding practice up to three months after delivery (Mattar et al., 2007). From study findings, it is clear that breastfeeding education when provided in the antenatal period, helps to prepare the mother for breastfeeding and helps to improve her breastfeeding outcomes which is a benefit to both mother and baby.

**Professional Opinions**

In support of the research conducted about provider education in the antenatal period, there are also professional organizations who have provided guidelines and expert opinions on the matter. Three of the included sources speak to the benefits of provider education about breastfeeding and steps to be taken in order to enhance provider education. According to Mass (2015), breastfeeding support from clinicians is a highly modifiable barrier to breastfeeding success. The U.S. Preventive Services Task Force (USPSTF, 2008) made a recommendation stating interventions during pregnancy to support and promote breastfeeding should be made by all providers and staff who have contact with patients in the antepartum period.

A clinical practice guideline was published to encourage training of all pertinent healthcare staff in the knowledge needed to provide support and education to patients regarding breastfeeding (The American College of Obstetricians and Gynecologists [ACOG], 2013). ACOG states that this education and support is of high importance and would be a push in the
right directions towards meeting the Health People 2020 breastfeeding goals (ACOG, 2013). As previously stated, with breastfeeding support from clinicians being a highly modifiable barrier, actions should be taken in order to break down these barriers. Providers can and should be given the resources and knowledge needed to be able to educate their patients to improve breastfeeding outcomes.

**Methodology**

This project was aimed at implementing provider education for the intended outcome of increasing breastfeeding rates in a clinic population. As explained earlier, the intent was to emphasize how providing breastfeeding education to providers and case managers would increase patient knowledge and increase breastfeeding rates in the postpartum period. In this section, the methodology of the project will be clearly explained and provide a step-by-step process for the project. Each element of the project is outlined along with explanations surrounding the various components of the project and execution plan.

**Project Design**

This was a quality improvement project focusing on improvement of breastfeeding rates. The study design for this project was a quasi-experimental study. Quasi-experimental study designs test a casual hypothesis and lack a random assignment (United Nations Children’s Fund [UNICEF], 2014). For this project, there were no random assignments. All providers at the clinic were given the same education module to review and complete. And all the patients in their care received breastfeeding education during the prenatal period.
Setting

The setting of this project was a regional perinatal clinic which is affiliated with a larger healthcare system and hospital in central New Jersey that includes other different medical specialties. At the perinatal clinic, health services offered include routine prenatal care and gynecological care. The center is staffed by obstetricians, gynecologists, resident physicians, advanced practicing nurses, registered nurse, patient care technicians and other ancillary staff. Both the educational modules and the education provided to the patients from the providers were done at the perinatal clinic. The collection of the breastfeeding data was also collected on site.

Study Population

The study population was the providers and case managers who received the education via the modules as well as the patients who received the breastfeeding education at their prenatal appointments and completed the anonymous postpartum breastfeeding surveys. The providers at the clinic consist of four attending obstetrician and gynecologists, 20 resident physicians, seven advanced practice nurses (APN), and four case managers.

Subject Recruitment

The providers and case managers at the care center were included in this study. A list of all the providers and case managers at the care center was collected from the site administrator and used to compile the list for recruitment emails to be sent out. The email consisted of the project overview and what participant level of involvement would be.

Consent Procedure

According to the U.S. Department of Health and Human Services (2020), quality improvement activities do not require provider or patient informed consent. For the purposes of this project, no consent was required prior to the initiation of the project. A waiver of consent was obtained
because the patients were already routinely completing the anonymous survey as part of the clinic’s breastfeeding taskforce. A waiver of consent allowed for continued collection of the breastfeeding surveys and analysis after the providers breastfeeding education in order to obtain the data needed for comparison.

**Risks, Harms and Ethics**

There was minimal risk to both the providers and patients that were part of this project. There were no ethical issues that would become a concern due to the process of this study. Projected risks or harm were minimal if any at all. Risks were mitigated by ensuring the continued use of the anonymous breastfeeding surveys and ensuring that data collection and excel spreadsheet contained no unique patient identifiers.

**Subject Compensation**

Providers and case manager were not financially compensated outside of their regular standard salaries for participation. The patients coming in for their prenatal and postpartum visit were not financially compensated for coming in for their prenatal and postpartum visits or for completing the anonymous breastfeeding surveys.

**Resources Needed**

There was no budget needed for this project as there were no predetermined costs needed for the implementation of this project. The educational module was taken from an online continuing education platform on the hospital’s website and made available to the providers and case managers by way of an online module which was of no added cost to the principal investigator.
Study Intervention

For this project, the study interventions were as follows:

• An email was sent to the providers and case managers at the clinic detailing the project aims and study expectations as well as information on when the online module would be made available to them and what the deadline of completion was.

• The breastfeeding education module retrieved from the continuing education section on the main hospital website and assigned to the health stream account of each provider and case manager at the clinic with a timeframe of two weeks to complete it.

• The breastfeeding module included information on benefits of breastmilk, milk production, size of newborns belly, cluster feeding, and proper latch.

• After completion of the breastfeeding module, education during prenatal visit began before or at 36 weeks gestation and weekly thereafter until the patient delivered.

• Post-intervention anonymous breastfeeding surveys (see Appendix C) were collected and tallied for the months of January and February.

Outcomes Measured

The outcomes measured by this project were the impact of provider breastfeeding education on the breastfeeding rates at the clinic. Prior to initiation of this project, patients had been completing an anonymous postpartum breastfeeding survey on their method of feeding at
their postpartum visit (see Appendix C). The survey asked if the mother was currently breastfeeding, formula feeding or combination feeding her baby. It also addresses what the mother’s feeding plans were prior to delivery and during her stay at the hospital. Due to the large Hispanic population at the center, the survey was made available in either English and Spanish to the patients depending on their preference. The information from the surveys were tallied monthly and placed into an excel spreadsheet. The surveys that were collected in September and October as part of the breastfeeding taskforce initiative prior to the initiation of this project were used as pre-intervention data. The breastfeeding surveys that were collected in January and February were used as the post-intervention data. The same survey was used for both pre-intervention and post-intervention data collection.

**Project Timeline**

A period of three to four months was the goal for this project to allow time for patients to receive education at or before 36 weeks gestation and return for their postpartum visit to allow for surveys to be given and collected. In lieu of the current Covid-19 pandemic, if social distancing was still in affect and postpartum visits were being conducted via telehealth, the survey would have been given verbally over the phone and data would have been collected in that manner. The Covid-19 pandemic did not have an affect on the postpartum visits and for the purposes of this project, all postpartum visits happened in person and the surveys were completed and collected during the office visits.

**Data Analysis**

For this quality improvement project, data was analyzed using a chi-squared test. The breastfeeding rates that were tallied in the pre-intervention surveys were compared with the tallies taken from the post-intervention surveys. By doing so, the impact of provider
breastfeeding education on the success of part partum breastfeeding was explored. Using a chi
squared test, was able to evaluate whether a relationship existed between two categorical
variables. The two variables that were looked at were prenatal breastfeeding education and the
breastfeeding rates.

**Data Maintenance and Security**

The data collected from the postpartum surveys was stored in an excel spreadsheet which
was being updated monthly by the co-investigator. The anonymous surveys had no patient
identifiers on them, and no patient identifiers were placed into the excel spreadsheet. All
anonymous surveys were collected and tallied at the end of each month and placed into the excel
spreadsheet by the co-investigator. By the completion of the project, the excel spreadsheet was
kept in the possession of the co-investigator.

**Results**

The data collected included anonymous survey responses from 189 (n=189) postpartum
mothers visiting the clinic at their postpartum visit. The survey asks the mother to indicate her
current feeding method as either: breastfeeding, formula feeding, or combination feeding. A total
of 100 mothers completed the pre-intervention survey and 89 mothers completed the post-
intervention survey. Table 1 displays a comprehensive summary of the survey responses (see
Appendix D). In the pre-intervention group, 12% (n=12) of mothers reported breastfeeding their
babies, 41% (n=41) reported using formula alone, and 47% (n=47) reported feeding with a
combination of both breastfeeding and formula. In the post-intervention group, 24.7% (n=22) of
mothers reported breastfeeding their babies, 30.3% (n=27) reported using formula alone, and
44.9 (n=40) reported feeding with a combination of both breastfeeding and formula.
To test whether antepartum breastfeeding education increased breastfeeding rates in clinic patients, a chi-square test of association was appropriate. Table 2 shows how the data set was collapsed into a two-by-two frequency cross-tabulation (see Appendix E). The table displays both the number of mothers exclusively breastfeeding at their postpartum clinic visit and mothers not exclusively breastfeeding for both pre-and post-intervention groups. The “expected n” reflects the number of postpartum mothers who would have been exclusively breastfeeding their babies by the postpartum visit if there was no effect from the intervention. In the post intervention group, 22 mothers were exclusively breastfeeding post intervention compared to the “expected n” value of 16.01. This shows prenatal breastfeeding education had a positive effect on the breastfeeding rates in the postpartum period with 11.6% exclusively breastfeeding in the post-intervention group and 6.4% breastfeeding in the pre-intervention group.

The statistical significance of the difference in proportions was confirmed using a chi-square test of association (see Appendix F). As seen in table 3, the chi-square statistic of 5.1636 with 1 degree of freedom results in a p-value of 0.0231 which shows that the data was statistically significant and the intervention had the intended effect on the breastfeeding rates.

**Discussion**

The findings of this quality improvement project support the literature appraised. With the need for an increase in the breastfeeding rates at this clinic, efforts were made to increase the knowledge and education provided to the women during their prenatal visits in order to improve their breastfeeding outcomes in the postpartum period. The aims of this project align with the clinic’s aims to increase the breastfeeding rates and assessing various strategies. The implementation of breastfeeding education to the providers and case managers and the initiation of breastfeeding education in the prenatal period proved to increase the breastfeeding rates in the
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Clinic population. The statistically significant data supports the need for breastfeeding education in the prenatal period and show a positive correlation between prenatal breastfeeding education and increasing breastfeeding rates in the postpartum period.

Limitations

Due to the nature of the project and the number of patients seen at the clinic daily, it was physically impossible for the co-investigator to provide the breastfeeding education to every patient at every prenatal visit. The emphasis was on the providers and case managers providing the education to all the prenatal patients in their care. Due to the Covid-19 pandemic, the co-investigator was unable to frequent the clinic often and remind the providers and case managers to make sure breastfeeding education was being done. With this setback, the only form of reminders was through various email communications between the co-investigator and the providers and case managers at the clinic.

Influencing and Prohibiting Factors

There were multiple facilitating factors which had an impact on the success of the project including the buy in from key stakeholders such as the management team at the clinic and recognition at the administrative level of the need to improve the breastfeeding rates. The providers and case managers were compliant with the completion of the online breastfeeding education module which allowed for a smooth beginning. Once the module was completed, making sure the education was being done by every provider and case manager at every prenatal visit in accordance with the project objectives became the priority.

Even though the data analysis proved to be statistically significant, it was still challenging to ensure that the providers and case managers were actually educating the patients in their care. By being in constant communication with the lead APN at the clinic, the co-investigator was able
to still stay in the loop with the happenings at the clinic and had the by in of the management team. With that challenge of not being able to prove that the breastfeeding education was happening at every prenatal visit by every provider, it still yielded positive consequences by showing an increase in the breastfeeding rates at the clinic. The providers and case managers at the clinic may have had more enthusiasm and willingness than the co-investigator may have realized and proved to be worthwhile in the end.

**Process Evaluation**

The process of implementing this project was difficult at times but still yielded positive results. Participation of the providers and case managers was impressive and contributed to the success of the project. The initial buy in from the clinic allowed for a smoother process. This allowed for improved participant compliance with the prenatal breastfeeding education. The data collection tool already being in pace prior to project implementation facilitated the data collection process. Even with the limitations and prohibiting factors, the entire process was smooth with minimal road blocks.

**Implications**

This project highlights the importance of provider prenatal breastfeeding education. The findings are in support of the benefits of prenatal breastfeeding education on breastfeeding rates. Recommendations for future practice and standards of care can be made from these findings and improve healthcare outcomes of patients. Long-term benefits of these practice changes will allow for continued improvement in care provided to patients and increase provider knowledge.
Clinical Practice

The findings of this project suggest that prenatal breastfeeding education should be incorporated into clinical practice. Providers should educate patients prenatally on benefits of breastfeeding, newborn belly size, newborn feeding demands, and milk production. By introducing these topics to mothers in the prenatal period, mothers are informed earlier on what to expect in the postpartum period increasing their breastfeeding success rates. Providers and nurses should incorporate this as part of their clinical practice as they provide care for women during the prenatal period.

Healthcare Policy

Healthcare policies are made to achieve goals within a society or organization to improve health outcomes. The development of a healthcare policy that highlights the use of prenatal breastfeeding education is required. Having a policy in place would provide a guideline to be followed by healthcare workers to maintain organization and professionalism. The findings from this project serves as a foundation for future policy making. The policy would require prenatal breastfeeding education be provided to every patient in the prenatal period at or before 36 weeks gestation. Breastfeeding education should be made available to every patient unless education is declined by the patient. The policy should be made available for all healthcare workers at the organization to view and provide feedback or suggestions. The policy would allow for written documentation of the expected level of care given to the patient during the prenatal period. With this policy in place, mothers and babies would have improved outcomes by an increase in breastfeeding rates.
Quality and Safety

According to the American Academy of Family Physicians (2020), quality improvement (QI) is a systematic, formal approach analyzing practice performance and efforts to improve performance and is necessary for any practice interested in improving efficiency, patient safety, or clinical outcomes. This project looked at improving breastfeeding rates by increasing prenatal breastfeeding education and assessing its effect on breastfeeding rates. The findings of this QI project supported the use of prenatal breastfeeding education. By providing proper breastfeeding education, patient safety, clinical outcomes, and the efficiency of providers and nurses will improve.

Education

The basis of this quality improvement project was on education for the providers and nurses as well as for the patients. The breastfeeding education available to the providers and nurses helped to expand their knowledge so it could be translated back to patients. Recommendations to provide all prenatal healthcare workers with breastfeeding education regularly would help keep provides up to date with the most current breastfeeding education. Routine breastfeeding education could be provided by way of mandatory continuing education credits for providers and nurses giving an incentive for education requirements to be met. In order to be able to educate the patients in their care, providers and nurses need to be confident in their own knowledge first. This confidence can be built by completion of routine educational modules. With the goal of prenatal breastfeeding education becoming a standard of care, providing continuous education to providers and nurses equips them to achieve this goal.
Economic

Improving breastfeeding rates serves to improve healthcare outcomes as well as decreasing healthcare costs. As mentioned earlier, reduced healthcare costs due to improved breastfeeding practices and increased breastfeeding rates would total a savings of more than $300 million (WHO, 2021). Breastfeeding provides health risk reduction for both mother and baby. In mothers, breastfeeding reduces the risk of high blood pressure, type two diabetes, breast cancer and ovarian cancer (CDC, 2019). In babies, breastfeeding lowers the risk for asthma, obesity, respiratory infections, sudden infant death syndrome, and gastrointestinal infections (CDC, 2019). By working to improve breastfeeding rates, the risk for disease for both mother and baby are lowered allowing for savings in healthcare costs.

Stakeholders

The perinatal clinic where this project was conducted is associated with a larger healthcare system which had already begun looking at ways to increase the breastfeeding rates prior to the initiation of this project. As stakeholders, the clinic administration can use the findings of this project to begin to shape upcoming policies and standards of care. Recommendations by the PI to the administrative team would speak to the need for continued prenatal breastfeeding education and the importance of providers and nurses being educated and prepared to provide knowledge and support to their patients.

Plans for Sustainability

With completion of this project, efforts should be made to sustain what has been initiated. Prenatal breastfeeding education by providers and case managers at the clinic should continue. For the purposes of this project, the expectation was for the providers and case managers to provide breastfeeding to the patients during their prenatal visits without a way for the PI to
ensure the education was being done at every prenatal visit by every provider or nurse. Building off of this project, a hard stop in the electronic charting system would be the next step to ensure compliance. This addition to the electronic charting system would be a built-in hard stop that appears on the screen once the provider or case manager opens up the patient profile in the exam room. A reminder would pop up on the screen reminding the user to provide breastfeeding education during that visit. This would serve as a reminder for the user and build compliance in regards to ensuring education is being done during the prenatal visits.

Another way to expand on the work done here would be to assess the effect of peer and spousal support on breastfeeding rates. This project helped to identify that providers have an impact on the success of breastfeeding in the postpartum period. Building off of this finding, peer and spousal support could also be evaluated. The goal would be to see if peer and spousal support has a positive or negative impact on breastfeeding success rates. In regards to spousal support specifically, the objective would be to include the mother’s spouse or support person in the prenatal breastfeeding education provided and assess the impact of that education on breastfeeding rates.

The end goal would be to have prenatal breastfeeding education be mandatory and a standard of practice at this clinic. After the clinic has successfully built this into their clinical practice requirement, this practice change can be shared with neighboring organizations on a local, national, and eventually global level. The clinic can share with others how prenatal breastfeeding education helped them to improve their breastfeeding rates and encourage other organizations to implement this change.
Professional Reporting & Dissemination

The results from this project will be shared with the clinic administration as well as the PI’s project team and attendees at project presentation. Reporting project findings to the clinic serves as encouragement for continuation of prenatal breastfeeding education as results showed the intended outcome. The results will be shared verbally through a presentation to project team and electronically through emails to clinic administration staff.

After completion of this project and presentation to project team, opportunities for future scholarship include local and national conferences. The more individuals this project reaches, the greater the impact will be on patient outcomes. Local and national conferences targeted at women and children healthcare providers would be of high priority. Presenting these project findings at various health care organizations would aide in dissemination of prenatal breastfeeding education plans and its impact on patient outcomes.

Conclusion

Breastfeeding has excellent benefits for both mother and baby. It is important for health care providers who care for pregnant woman to have the knowledge base needed to educate the patients in their care. Prenatal breastfeeding education has been shown to improve breastfeeding rates in clinic patients. These findings suggest that prenatal breastfeeding education should be included in clinical practice and made a standard of care for all prenatal patients both locally and globally. Professional reporting of project findings will allow for information to be shared amongst various healthcare organizations improving the healthcare outcomes for mothers and babies for years to come.
References


https://www.acog.org/womens-health/infographics/breastfeeding-benefits


https://www.babyfriendlyusa.org/about/


https://www.cdc.gov/breastfeeding/data/reportcard.htm


MCH Epidemiology. (2019). *Exclusive breastfeeding rates for hospitals, New Jersey, 2016-2017 (Grouped by Hospital Perinatal Designation).*


Appendix A

Knowledge to Action Framework

# Appendix B

## Table of Evidence

<table>
<thead>
<tr>
<th>Article</th>
<th>Author, Date</th>
<th>Evidence Type</th>
<th>Sample, Sample Size, Setting</th>
<th>Study findings that help answer EBP question</th>
<th>Limitations</th>
<th>Evidence level and Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Mattar, C. N., Chong, Y., Chan, Y., Chew, A., Tan, P., Chan, Y., Rauff M., H. (2007)</td>
<td>A Randomized Controlled Trial</td>
<td>Random sample of eligible low-risk antenatal patients recruited from clinics in the National University Hospital, Singapore N=401 Group A received breastfeeding education material and individual coaching. Group B received breastfeeding education with no counseling. Group C received routine antenatal care only</td>
<td>Participants in Groups A and B practiced exclusive and predominant breastfeeding more often than those in Group C. Where breastfeeding practices are sub-optimal, simple one-encounter antenatal education and counseling significantly improved breastfeeding practice up to 3 months after delivery. Health care workers should make every effort to have one face-to-face encounter to discuss breastfeeding with expectant mother before delivery</td>
<td>Blocked randomization was not used to ensure the same number of participants in each group Not enough women were recruited to fulfil the power calculations Contamination between groups was not strictly prevented and women in control group came to know about interventions by talking to the other women in those groups. However, they were not given access to the material</td>
<td>Research Level I, B, Good quality</td>
</tr>
<tr>
<td>#2</td>
<td>Bonuck, K., Stuebe, A., Barnett,</td>
<td>A Randomized Controlled Trial</td>
<td>OBGYN practices in the Bronx, NY 2 different studies</td>
<td>Participants in both trials were put into either the experimental group which was receiving the</td>
<td>All breastfeeding interventions relied on</td>
<td>Research Level I, B, Good Quality</td>
</tr>
<tr>
<td>Study #</td>
<td>Author(s)</td>
<td>Methodology</td>
<td>Findings</td>
<td>Research Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-------------</td>
<td>----------</td>
<td>------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>J., Labbok, M. H., Fletcher, J., and Bernstein, P. S. (2014)</td>
<td>1. (BINGO) trial had 666 women 2. (PARINGS) trial had 275 women</td>
<td>Breastfeeding education from providers and some were in a control group receiving standard care. Findings suggested that breastfeeding consultation and anticipatory guidance from prenatal care providers increased breastfeeding intensity at 3 months postpartum</td>
<td>Maternal self-report. Fidelity of provider provided education could not be verified with EHR database. Study samples were not necessarily representative of US population of childbearing women.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hollande, D. (2001)</td>
<td>A Qualitative Study</td>
<td>Based on findings, providers have a special responsibility and capacity to promote breastfeeding. Findings from analysis show importance of educating providers so that they can further educate their patients. Findings showed interventions promoting breastfeeding have a particularly strong positive influence on breastfeeding outcomes</td>
<td>None Discussed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Taveras, E. M., Li, R., Grummer-Strawn, A.</td>
<td>Prospective Multispecialty Group Study</td>
<td>Although 91% of Obstetricians reported discussing breastfeeding prenatally, on 51% of Results may not be generalizable to mothers who lack</td>
<td>Research Level III, C, Low quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Location</td>
<td>Design</td>
<td>Participants</td>
<td>Methods</td>
<td>Findings</td>
<td>Quality Level</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>--------</td>
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<td>---------</td>
<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>L., Richards on, M., Marshall, R., Rego, V. H., Miroshnik, I., and Lieu, T. A. (2004)</td>
<td></td>
<td>429 low risk mothers</td>
<td>Participating mothers completed telephone interviews at 4 and 12 weeks postpartum</td>
<td>mothers reported that they discussed breastfeeding topics with their providers. Developing approaches to enhance communication with mothers during routine visits would improve the support of breastfeeding by providers in the prenatal period.</td>
<td>Health insurance or preventative care access. Reliance on clinicians’ and mothers’ self-reporting instead of on clinical records.</td>
<td>Level II, B, Good Quality</td>
</tr>
<tr>
<td>Holmes, A. V., McLeod, A. Y., Thesing, C., Kramer, S., and Howard, C. R. (2012).</td>
<td></td>
<td>Quasi Experimental</td>
<td>Semirural Residency Program</td>
<td>24 residents/15 faculty members at intervention site; 12 residents/9 faculty at control site. Breastfeeding education was provided to residents and faculty at intervention site. Physicians breastfeeding knowledge was assessed pre and post education sessions and practice changes in practice where also measured.</td>
<td>Completion of education sessions improved breastfeeding knowledge and attitudes of providers. Participation in education of breastfeeding helped to improve patients’ rates of breastfeeding at 4 and 6 months postpartum when compared to control group.</td>
<td>Small study looking at only one semirural residency program. Patient population was not racially or ethnically diverse.</td>
</tr>
<tr>
<td>U.S. Preventive Services</td>
<td>Literature Review</td>
<td>USPSTF evaluation of results of a systematic review</td>
<td>The USPSTF recommends interventions during pregnancy to support breastfeeding.</td>
<td>None identified</td>
<td></td>
<td>Level V, B, Good Quality</td>
</tr>
<tr>
<td>Task Force Recommendation Statement [USPSTF], (2008)</td>
<td>review on primary care initiated, conducted, or referable activities to promote and support breastfeeding. and promote breastfeeding. Evidence suggest that interventions which include prenatal components are effective in increasing breastfeeding outcomes.</td>
<td>#7 The American College of Obstetricians and Gynecologists [ACOG]. (2013)</td>
<td>Assessing and reporting on barriers to breastfeeding and coming up with strategies to help Improve breastfeeding initiation and continuation OBGYNs should counsel patients during prenatal care about benefits of breastfeeding with acknowledgment of breastfeeding challenges. Training of all pertinent healthcare staff in the knowledge needed to provide support and education to patients is necessary and important. The College supports efforts to educate patient on the benefits and mechanics of breastfeeding and encourages providers to remain strong advocates for breastfeeding in order to achieve the desired Healthy People 2020 breastfeeding goals</td>
<td>None Identified</td>
<td>Level IV, A, High Quality</td>
<td></td>
</tr>
</tbody>
</table>
EBP Question: In pregnant women at 36 weeks gestation, does implementation of breastfeeding education in the prenatal period increase the breastfeeding rates in the postpartum period when compared with a lack of breastfeeding education in the prenatal period?

| #8 | Mass, S. B. (2015) | Literature Review | Review of literature regarding education of the provider about breastfeeding and the benefits to the patients. | Breastfeeding support from clinicians is a highly modifiable barrier to breastfeeding success. Physician education in breastfeeding is vital to the provision of optimal obstetric care. Obstetricians can utilize existing online sources to improve their own knowledge, making them a valuable resource to their patients. | None Identified | Level V, A, High Quality |
Appendix C

Postpartum Feeding Survey

Today’s Date: ____________________________________________
Month of Delivery: ____________________________________________

Postpartum Infant Feeding Questions, Data collection

Feeding Intention Before delivery: Breast   Formula   Both

Hospital Stay: Breast   Formula   Both

Discharge from Hospital: Breast   Formula   Both

Today: Breast   Formula   Both
Appendix D

Summary of Survey Results

Table 1. Summary of survey results

<table>
<thead>
<tr>
<th>Feeding status</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>percent</td>
<td>n</td>
</tr>
<tr>
<td>Breast</td>
<td>12</td>
<td>12.0%</td>
<td>22</td>
</tr>
<tr>
<td>Formula</td>
<td>41</td>
<td>41.0%</td>
<td>27</td>
</tr>
<tr>
<td>Both</td>
<td>47</td>
<td>47.0%</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0%</td>
<td>89</td>
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</tbody>
</table>
Appendix E

Two by Two Frequency Table Chi-square Test of Association

Table 2. Cross tabulation and chi-square test of association expected frequencies

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Feeding status</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Breast</td>
<td>Formula/Both</td>
<td>Total</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td>frequency</td>
<td>12</td>
<td>88</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>expected n</td>
<td>17.99</td>
<td>82.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>percent</td>
<td>6.4%</td>
<td>46.6%</td>
<td>52.9%</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>frequency</td>
<td>22</td>
<td>67</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>expected n</td>
<td>16.01</td>
<td>72.99</td>
<td></td>
</tr>
<tr>
<td></td>
<td>percent</td>
<td>11.6%</td>
<td>35.5%</td>
<td>47.1%</td>
</tr>
<tr>
<td>Total</td>
<td>n</td>
<td>34</td>
<td>155</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>percent</td>
<td>18.0%</td>
<td>82.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>


Appendix F

Chi-Square Statistical Significance

Table 3. Chi-square test of association

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square statistic</td>
<td>5.1636</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>1</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0231</td>
</tr>
</tbody>
</table>