Social and Epidemiological Diagnosis: Non Breastfeeding Mothers

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Part 1. Introduction

Engaging in positive lifestyle behaviors to prevent or reduce the risk of chronic disease should begin as early as infancy. Newborn babies cannot yet engage in preventative practices themselves, so instead they must rely on the health-related choices made by their mothers to experience this risk reduction. Upon giving birth, mothers have the crucial decision of whether or not they will choose to breastfeed. In the United States, it is recommended that babies be exclusively breastfed for the first six months of life, and then should continue to be breastfed until at least 12 months, while also being introduced to complementary foods. By choosing to breastfeed, a mother is reducing her baby's risk of negative and chronic health conditions, such as sudden infant death syndrome, asthma, type 1 and type 2 diabetes, leukemia, and childhood overweight and obesity. Mothers should feel motivated to breastfeed because doing so reduces their health risks as well, including the risk of hypertension, type 2 diabetes, and certain types of cancers (American Academy of Pediatrics (AAP), 2021). By choosing to formula feed instead of breastfeed, a mother is increasing the chances that both her and her baby may experience negative health outcomes.

Despite the known health benefits of breastfeeding to both mother and baby, only one quarter (25.6%) of American mothers report that they are still exclusively breastfeeding through six months of age (Centers for Disease Prevention and Control (CDC), 2020). There are many factors that may play a role in why mothers cease breastfeeding before six months or choose not to breastfeed at all. It is also likely that these factors differ for mothers across the country. In order to get a better understanding of why mothers of newborns are not breastfeeding according to the national recommendations, a social and epidemiological assessment was conducted among mothers of newborns in Dover, Delaware.

The purpose of the social and epidemiological assessment was to become more familiar and knowledgeable of the characteristics of mothers of newborns in Dover, DE, the factors that contribute to their infant feeding choices, and the prevalence of breastfeeding in this area. First, a subjective social assessment of why mothers in Dover may not be breastfeeding according to national recommendations is provided, as well as a detailed description of the general Dover community. Next, epidemiological data about infant feeding in both Dover and Delaware as a whole are provided in order to identify the major issues regarding infant feeding. Then, data collected from a community visit to Dover and an interview with a key informant are summarized to aid in the understanding of the problem. Finally, based on the previously provided information, a justification is given as to why an intervention targeting mothers of newborns in Dover, DE is needed in order to reduce the health risks of both mom and baby.

Part 2. Social Assessment/Target Community

The Problem/Condition

Mothers choosing to not breastfeed is the problem that the intervention team intends to target. The alternative food option mothers choose to nourish their baby with is through formula feeding. Both breastmilk and formula provide food and nutrients, however, breastmilk has been shown to provide more benefits to a newborn. Choosing not to breastfeed a baby according to the national recommendations can cause problems for the mother, the baby, and the child when they are older.

The intervention team believes that there are multiple reasons that affect a mothers'decisions to breastfeed or not to breastfeed. At the individual level, mothers might choose to not breastfeed because of their knowledge, attitudes, or beliefs about the behavior. Specifically, mothers may not receive adequate education on the benefits of breastfeeding.

Mothers probably do not think breastfeeding has any extra benefits or they think that the benefits are small to their child. Additionally, mothers might think or have heard that breastfeeding can be difficult. For example, mothers have probably heard that breastfeeding can be painful and that it can be challenging for newborns to latch on to the mother. If the mother believes this, then she might never initiate breastfeeding.

Interpersonal relationships might cause mothers to avoid breastfeeding. These relationships include friends, co-workers, and family members, especially spouses. Friends, co-workers, and family members will have their own opinions about breastfeeding that could influence mothers' decisions not to breastfeed. Any woman that the mother knows who has had children might tell the mother not to breastfeed if they had a poor breastfeeding experience. Even a positive experience with formula feeding had by another woman could have an influence on new mothers. Spouses can be especially influential in the decision not to breastfeed because the baby is not only the mother's child but is the spouse's as well. The spouse might want to have the power to feed the baby more or think that breastfeeding will be a negative experience for the family. Most likely, mothers take feedback from their spouses seriously, so the knowledge and thoughts of the spouse will surely impact the mother's behavior to breastfeed or not.

The environment is another influence that the intervention team believes may play a role in mothers' choices to breastfeed or not. For instance, mothers will probably avoid breastfeeding if the community where they live and work does not promote breastfeeding. Unfriendly environments might cause mothers not to breastfeed especially if community members stare at the mother when feeding her child. Finally, lack of resources in the mothers'environments like proper care from doctors might inhibit mothers from breastfeeding as well.

Mothers choosing not to breastfeed their newborn is a health problem. It is the belief of the intervention team that newborns who are not breastfed will develop more poorly than children who have been breastfed. Chronic disease conditions like obesity and diabetes might be more likely to develop later on in life due to the lack of nutrients in baby formula compared to breast milk from the mother.

The Target Community

The proposed target community of interest is pregnant women and mothers of newborns who are residing in Dover, Delaware. Dover is the capital of Delaware and is located in Kent County, one of three counties in Delaware. Dover is only 23.15 square miles, but is home to approximately 38,166 residents (U.S. Census Bureau, 2019). Within Kent County, Dover is about 12 miles south of Smyrna and four miles north of Camden. It is also south of Delaware's other two largest cities (by population), Wilmington and Newark, which are both located in New Castle County. Dover is considered to be both urban and rural, however, most residents reside in the urban areas (Delaware Health and Social Services (DHSS), 2016).

The population of Dover is generally of low socioeconomic status (SES). The median household income as of 2019 was $47,669, falling below the national median household income of $64,324 (U.S. Census Bureau, 2019; U.S. Census Bureau, 2020). Almost one quarter (24.4%) of the population is living in poverty, with males and females aged 18 to 24 making up the largest demographic being affected (U.S. Census Bureau, 2019; Data USA, 2018). The poverty rate of Dover is more than double the national poverty rate (10.5%; U.S. Census Bureau, 2020). Additionally, as of 2019, 87.7% of Dover's population aged 25 and over had at least a high school degree and only 26.3% of the same age group had a bachelor's degree or higher (U.S.

Census Bureau, 2019). The high poverty rate, low median household income, and low educational attainment all contribute to the low SES of people in Dover.

The population of Dover has a few other defining characteristics, such as race and ethnicity, age, gender ratio, and employment type and status. Almost half of the population identifies as Black or African American (46.5%), with the second largest group identifying as white (43.1%). A small portion of the population identifies as Asian (2.5%) or American Indian or Alaska Native (1%). Additionally, 7.7% of Dover's population identifies as Hispanic or Latino, and about 10% of people say they speak a language other than English when they are at home (U.S. Census Bureau, 2019). The median age is 29.8 years and slightly more than half of the population identifies as female (53.4%; Data USA, 2018; U.S. Census Bureau, 2019). In terms of employment, Dover employs about 16,400 people, with the largest industries being retail trade, healthcare and social assistance, and educational services (Data USA, 2018). The unemployment rate in 2019 was 4% (U.S. Bureau of Labor Statistics, 2021). Lastly, a majority (94.4%) of Dover's population has health coverage, either through their employer or other plans such as Medicare or Medicaid (Data USA, 2018).

Conclusion

The intervention team believes it is important to target mothers in Dover, Delaware in order to increase breastfeeding rates. There are most likely a multitude of mothers who have to make the choice to breastfeed or not given that almost half the population is female and the median age is of child bearing age. Although one of the largest industries in Dover is healthcare and social assistance it is imperative that breastfeeding is promoted in this community, especially if the population of Dover is of low socioeconomic status. Low socioeconomic status can

contribute to lack of education, and the intervention team believes that lack of education contributes to lower breastfeeding rates.

Part 3. Epidemiological Assessment

Based on the social assessment and the characteristics of the target community, the intervention team believes that mothers of newborns in Dover are the ideal audience for a breastfeeding intervention. Their need for such an intervention, however, must be supported by epidemiological data. In this section, current breastfeeding rates for mothers in Kent County and Delaware are provided and the health risks associated with not breastfeeding are discussed.

Delaware breastfeeding rates are on par with the national rates. As mentioned previously, six month exclusive breastfeeding rates among mothers nationally is only about 25%. As of 2020, a similar trend could be seen in Delaware as a whole, with only 23.6% of mothers exclusively breastfeeding their infant through their first six months of life (CDC, 2020).

Delaware, like all states in the US, participates in the federally funded nutrition program, Women, Infant, and Children (WIC), which assists pregnant women, mothers of newborns, and young children by providing resources like breastfeeding support, food, and nutrition education (Delaware Health and Social Services (DHSS), n.d.). In 2020, 16,535 women and children participated in Delaware's WIC program (Food and Nutrition Services (FNS), 2021). Of the mothers who participated in WIC in Kent County, where Dover is located, about 26% were exclusively breastfeeding through six months (The Ripples Group, 2020). Although this number is slightly higher than both the Delaware and national rates, a majority of mothers in this area still are not breastfeeding their babies as recommended, which may be detrimental to both mother and baby's health.

Breastfeeding rates among mothers of newborns are not as low upon birth. In the Delaware WIC program, 59% of mothers in Kent County initiate breastfeeding with their newborn after giving birth (The Ripples Group, 2020). There are two important takeaways here. First, although 59% seems like a high number, this still means that about 40% of mothers never choose to breastfeed at all. Second, of the mothers who do initiate breastfeeding with their newborn, more than half are no longer breastfeeding by six months. Problems can arise from mothers choosing not to breastfeed their newborn or stopping breastfeeding early in a newborn's life

Newborns are at an increased risk of developing numerous diseases and conditions when they are not breastfed. These conditions include "otitis media, diarrhea, respiratory tract infection , necrotizing enterocolitis, SIDS, atopic dermatitis, asthma, celiac disease, crohn's disease and ulcerative colitis, late-onset sepsis in preterm infants, type 1 and type 2 diabetes, leukemia, childhood overweight and obesity" (American Academy of Pediatrics, 2021). Specifically, babies who are not breastfed are two times more likely to get ear infections and 16.7% more likely to develop pneumonia (California WIC/SCHSA, n.d.). Chances of developing obesity are more likely as well. Currently, 16% of children ages 10 to 17 have obesity in Delaware (State of Childhood Obesity, 2020). The obesity rate of adolescents who are in 9th to 12th grade in the state of Delaware is 31.7%, so the chances increase as the child gets older. For asthma, the rate in Delaware for 9th to 12th graders is 24.3% (Nemours Foundation, 2019). Fortunately, breast milk offers protective effects against these conditions due to antibodies and nutrients passing from the mother to the baby through breastfeeding (KidsHealth, 2018).

Breastfeeding is beneficial for the mother as well. Risk for type 2 diabetes and hypertension are decreased. Already, the prevalence of type 2 diabetes in Kent County is 13.7%

and the prevalence of obesity is 33.6%. These two rates in Kent County are the highest in any of the three counties in Delaware (Data USA, 2018). Additionally, mothers tend to lose their pregnancy weight more easily since producing and feeding breast milk burns calories (AAP, 2021; Kids Health, 2018). For both the mother and the baby, breast milk promotes emotional connections besides just preventing or decreasing the risk to developing certain conditions. Through breastfeeding there is skin to skin contact of the mother and newborn which helps babies and their mothers bond (KidsHealth, 2018).

Due to the problems associated with not breastfeeding, formula feeding and other foods should not be considered as a first option for feeding newborns. The gold standard is to solely breastfeed a newborn until at least 6 months of age. It is even recommended that newborns be breastfed until 12 months of age (KidsHealth, 2018). In order to ensure positive health outcomes for both mom and baby, it is important to determine why overall breastfeeding rates are low in Dover, why some mothers never choose to breastfeed, and why others cease breastfeeding before six months.

Part 4. Report on Community Visit

Introduction

To further understand the experience of mothers of newborns in Dover, DE, two community visits were organized to conduct a close observation of the environment. Specifically, windshield driving tours were conducted, which are useful in identifying indicators of community health, such as housing and neighborhood conditions and private or public sector services (Mckenzie et al., 2017). The goal of the community visit was to make observations of Dover mothers' quality of life to get a better understanding of what factors might be contributing to them choosing not to breastfeed or to cease breastfeeding after only a few weeks or months.

The following information describes how the community visit was conducted, the observations that were made, and a discussion of the conclusions made based on the observations.

Methods

The community visit was completed by two researchers on two different days. A map of Dover was used to decide how to split the city into two sections in order for each researcher to conduct their own community visit. Both researchers agreed that Division Street would be used as the guideline, as it almost equally splits northern Dover from southern Dover (a map highlighting this division as well as some community resources can be found in Appendix A). Researcher 1 visited the Dover area north of Division Street on Saturday, March 6th at 12pm. Researcher 2 visited the Dover area south of Division Street on Sunday, March 7th at 11am.

Specific criteria were used to assess and observe the community and both researchers followed the same criteria. These criteria included aspects of the community such as the conditions of houses and neighborhoods, number and type of healthcare facilities (especially those related to women or children's health), availability of public transportation, number of grocery stores and fast food restaurants, and overall community appearance. These criteria were considered important because they may play a role in indicating whether or not Dover is a low income area, which is known to be associated with mothers not following the recommended infant feeding practices (Boone et al., 2019). The researchers also agreed that these indicators were useful in assessing the overall quality of life of Dover residents, which could inform them of the health priorities and conditions of the community. During their individual visits, each researcher took hand written notes that related to this criteria. They also took pictures that supported their observations.

Results

Researcher 1 discovered information related to each of the desired criteria in northern Dover. They found a mix of old and new homes, with some of the older homes appearing more rundown; an example of this can be seen in Figure 1. In regard to healthcare facilities, they observed only two: a MedExpress urgent care and a women's health clinic that appeared to be dilapidated and likely closed. One bus stop along route 13 was observed, as well as many fast food restaurants. A handful of grocery stores were also noted along route 13, with some being newer and nicer and others being older and dirtier. Closer to the center of town were a few corner stores, as can be seen in Figure 2. A few other notable observations made by Researcher 1 is that there were many motels in the area, three colleges, and heavy traffic along route 13.

Figure 1

Poor housing conditions in northern Dover

Figure 2

Corner store in northern Dover

Researcher 2 also discovered information related to each of the criteria in southern Dover and had similar findings to Researcher 1. For homes and neighborhoods, only a few were east of route 13, however, these appeared to be nice, new, and in good condition. This area appeared more suburban than the area west of route 13, which is much more urban and has grid-like features, similar to a city. Researcher 1 also noted a few small community living areas that were labeled as Dover Housing Authority. Upon further research, they found that there are 27 low income housing communities in Dover. This area of Dover also had many healthcare facilities, many of which concerned the health of women. The WIC clinic in Dover was located in a state service building. This building was in a rundown area of town and the building and area itself did not look exactly friendly or inviting. Figure 3 shows that there was nothing on or around the building to indicate this is where the WIC clinic was located (the researchers only determined this by viewing a map of Dover). There was, however, a bus stop just outside of the building. Other healthcare facilities in southern Dover included Bayhealth hospital, one planned parenthood, and five ObGyn offices. Like Researcher 1, Researcher 2 also noted more fast food restaurants than grocery stores. A few other notable observations made by Researcher 1 include the Dover Capitol area, which had a few different government buildings and offered plenty of scenic green space. The southern area of Dover was also quite walkable, though the farther you get from the Capitol area, the less safe the roads and sidewalks appeared, as can be seen in Figure 4. Dover is also home to a large transit center west of the main Capitol and town area.

Figure 3

WIC clinic in southern Dover

Figure 2

Example of walkable, but less safe streets

Discussion and Conclusion

Based on the observations of each community visit, both researchers agree that many areas in Dover can be considered low income. This conclusion was reached based on the indicators related to housing and neighborhood conditions, number of grocery stores and fast food restaurants, and the overall community appearance. There was an alarming number of low income housing communities, and the conditions of many of these communities were quite poor. The overall areas surrounding these parts of town were rundown, uninviting, and did not appear very safe. Additionally, the amount of fast food restaurants in such a small area is a major concern. As mentioned previously, Kent County has the highest incidence of obesity and type 2 diabetes in Delaware, so the availability of fast food restaurants in Dover may certainly be a contributing factor to this issue. There were a few grocery stores, however, most were located along the highway or on the outskirts of town. This means they may not be easily accessible for residents living in the center, more urban, parts of Dover. Researcher 1 took note of a corner store, which very well may be the main food source for some residents who cannot get to regular,

larger grocery stores with more fresh foods. It is the opinion of both researchers that these factors contribute to Dover being a partially low income area.

It is important to note that there were some factors that indicated certain parts of the Dover community may be a little more financially well off than others. The area surrounding the Capitol building appeared to be well-maintained, safe, and had nicer homes and buildings. The same is true for some areas east of route 13, where more suburban single-family homes were located. It is impossible to determine the quality of life of each and every Dover resident, but based on these nicer areas, it may be true that parts of the community have a higher quality of life. Additionally, just because many residents may appear to live in poorer conditions does not mean their quality of life is necessarily any less or their health conditions are any poorer. This cannot be determined by observation alone. However, given the appearance of the poorer living conditions, coupled with the known poverty and income rates in Dover, the researchers feel confident in concluding that many mothers in Dover may experience a low quality of life, and thus may be less likely to breastfeed their infants according to the national standards.

One key, interesting detail to note about Dover as it relates to mothers and infants is the availability of healthcare services that directly deal with women and children. There are multiple ObGyn offices, a planned parenthood, and a WIC clinic. Granted, these are all located in southern Dover, but within this part of town they appeared to be very accessible by foot. Without knowing that breastfeeding rates are low in Kent County, one might assume that they are actually quite high, based on the availability of resources for women's health in the area. However, upon further investigation, when you notice details such as the uninviting, rundown look of the WIC clinic and the surrounding area as a whole, it might make sense that breastfeeding rates are low.

Through the observations made on two windshield driving tours of northern and southern Dover, the researchers agree that there are certainly parts of the environment that support the previously determined low breastfeeding rates of women in this area. The seemingly high availability of healthcare services is of interest and warrants further investigation as to why they potentially are not being utilized to their greatest extent. From these observations, the researchers conclude that the rather low income nature of Dover and the potential low quality of life experienced by mothers aides in the understanding of the health priorities for this community.

Part 5. Key Informant Interview

Introduction

The purpose of this interview was to learn the extent to which choosing not to breastfeed is a problem in the state of Delaware, specifically in Dover. The intervention team sought to gain an understanding of mothers' knowledge about breastfeeding, barriers faced by mothers who choose not to breastfeed, and health problems that exist for mothers who do not breastfeed and their newborns from the perspective of a community expert. Lastly, the intervention team wanted to acquire knowledge about the characteristics of mothers who do not breastfeed and the services the state provides through Women, Infants, and Children (WIC).

Methods

The intervention team interviewed Maria Shroyer, a Consultant Dietitian with the Delaware WIC Program. She is a consultant in the nutrition education sector of WIC, and has been in this position for ten years. In regards to breastfeeding, Maria works with staff who interact with WIC participants like pregnant women and mothers. Additionally, she tracks breastfeeding statistics on the administration side of WIC.

Maria Shroyer is an expert in regard to breastfeeding statistics in both the state of Delaware and Dover. She is a quality key informant due to her role at WIC. Not only does she have to track statistics in regard to breastfeeding rates but she also has to understand why the rates of breastfeeding might be increasing or decreasing. Additionally, it is her job to understand the barriers to breastfeeding in order to have the ability to help increase breastfeeding rates throughout Delaware. This understanding is gained through her interaction with WIC nutritionists and peer counselors who directly communicate with Delaware pregnant women and mothers.

The week prior to the key informant interview the intervention team met to create the interview questions. Eleven questions were formulated based on the information that the intervention team thought was needed to better understand the needs of the mothers in Dover. Maria was informed that she could add any additional information she thought would be beneficial to the project. The intervention team asked the key informant questions regarding problems and barriers associated with non-breastfeeding mothers and their newborns, statistics on breastfeeding mothers compared to non-breastfeeding mothers, and resources that state organizations offer, such as WIC (see Appendix B for the full list of interview questions).

The formal interview with Maria Shroyer and the intervention team took place on Tuesday, March 9th, 2021. The interview was conducted virtually through Zoom and was recorded. Permission to record was gained from Maria ahead of time, and she was ensured that the recording would not be shared with anyone outside of the intervention team. Upon giving her consent, the interview began. The interview lasted for forty minutes, where one member of the intervention team asked the majority of the questions and the other member wrote notes based on the information the Maria provided.

Results

Maria began by discussing barriers that mothers experience in regard to breastfeeding. One barrier to breastfeeding that Maria discussed is the drug and opioid epidemic in Delaware (M. Shroyer, Zoom communication, March 9, 2021). Many mothers use drugs or smoke tobacco, and so they think that the toxins from the drugs will pass to their baby through breastfeeding. There are also historical reasons to mothers choosing not to breastfeed. These reasons have to do with the husband because they think breastfeeding is gross. Another historical reason is the belief that breasts change and hurt after breastfeeding a newborn (M. Shroyer, Zoom communication, March 9, 2021).

Although barriers to breastfeeding exist, due to the health benefits associated with breastfeeding, the key informant discussed that breastfeeding is still important. She noted that "social emotional wellness is fostered through breastfeeding" (M. Shroyer, Zoom communication, March 9, 2021). Bonding with the baby through breastfeeding helps release hormones that help improve the mental health of the mother. Another benefit to the mother due to breastfeeding is the "greater chance of the mother getting back to her normal weight and her uterus getting back to normal" (M. Shroyer, Zoom communication, March 9th, 2021). Benefits of breastfeeding occur for the baby as well. A newborn who is breastfed tends to have less allergies and benefits from skin to skin contact. Breastfeeding helps with the growth of the baby as well and is the standard of care. "As a baby grows the carbohydrate to fat ratio needed for optimal growth changes" (M. Shroyer, Zoom communication, March 9th, 2021). A growing baby does not need as much fat, so breastmilk automatically decreases in fat content as the baby gets older. Additionally, more breastmilk is produced as the baby grows and needs more calories.

Statistics about the problem in Delaware were discussed in the interview as well.

“Nationally, 50% of babies born in the country are born with WIC which is also about the same in Delaware” (M. Shroyer, Zoom communication, March 9, 2021). The participants of WIC include “1 in 4 pregnant women, 1 in 2 infants, and 1 in 4 children” (M. Shroyer, Zoom communication, March 9, 2021). The national rate for mothers who initiated breastfeeding in 2017 was 75% compared to 53% of mothers who breastfed in the state of Delaware. At the WIC Dover clinic the rate of mothers who initiated breastfeeding in 2018 was 56% (M. Shroyer, Zoom communication, March 9, 2021).

Lastly, resources that the state of Delaware and WIC provide were addressed. In the state, there are “baby-friendly” hospitals, and there are ten criteria needed to be considered baby-friendly. Multiple hospitals in Delaware have been designated baby-friendly, and about 90% of newborns are born in baby-friendly hospitals while about 10% are being born in hospitals that have not met any baby-friendly criteria. (M. Shroyer, Zoom communication, March 9, 2021).

One of the key resources that WIC has is the employment of peer counselors. A WIC peer counselor is a past WIC participant who breastfed their child. At the Dover WIC clinic, peer counselors have been working for many years alongside the nutritionists. The main duties of the counselor is to provide support to women and mothers and to help them breastfeed their child (M. Shroyer, Zoom communication, March 9, 2021). In Delaware, WIC has four peer counselors in total. Unfortunately, making contact with women and mothers to get them to see a nutritionist or peer counselor can be difficult. The total caseload of WIC is decreasing. In 2009, the number of WIC participants totaled around 24,000. Now, there are about 16,000 - 17,000 WIC participants statewide. However, due to the transition from in-person visits to virtual visits with the pandemic, engagement has increased. Currently, the no-show rate is 11% whereas the

no-show rate for WIC appointments before the COVID-19 pandemic was 28% statewide. (M. Shroyer, Zoom communication, March 9, 2021). Primarily, WIC has increased engagement through appointment text reminders. There are online breastfeeding class text reminders as well. Currently, "online breastfeeding classes have totaled 20 to 30 participants for the day compared to 3 to 5 people attending the in-person classes" (M. Shroyer, Zoom communication, March 9, 2021). Overall, participant enrollment is down but engagement with WIC services has increased.

Discussion

According to the key informant the rate of mothers who breastfeed in the state of Delaware and in Dover could be increased since the rates are lower than the national average for the United States. In the state of Delaware this could be a problem because mothers are not educated properly. They do not have the knowledge to know if it is okay to breastfeed depending on their use of drugs or tobacco. Sometimes, the benefits of breastfeeding outweigh any problem that the drugs could have on the baby. There is different advice for certain drugs and smoking habits, and mothers need to be educated on this advice to know that breastfeeding can still provide benefits.

Specifically for WIC, the organization is not the primary source of care for mothers. Still, WIC is doing everything that they can to increase breastfeeding rates. The WIC peer counselor is one of the most beneficial resources that the organization has found to improve rates of breastfeeding. The support from these peer counselors is extremely important to mothers. However, WIC has to provide formula to any mother who chooses not to breastfeed. Although breastfeeding is usually the more economically friendly option, the WIC formula is just as economically available because it is free to WIC participants. Any mother who chooses not to breastfeed for any reason can get formula for their baby. Currently, WIC is evaluating other

programs like a buddy system for mothers. This system would provide mothers with extra support and guidance from another WIC participant. Evaluation for the text message reminders is being done as well as too many text messages can have a negative impact on engagement.

Conclusion

The key informant interview with Maria Shroyer, a Registered Dietitian with Delaware WIC, was beneficial in increasing the knowledge of the intervention team. The interviewer shared relevant information that confirmed the intervention team's initial thoughts and the epidemiological research. She depicted low rates of breastfeeding occurring in Delaware and the Dover community primarily due to lack of education and resources. The most important aspect that Maria believes to promote breastfeeding is the WIC peer counselors and virtual appointments.

Part 6. Justification of Targeted Health Problem

The intervention team plans to target mothers of newborns in Dover, Delaware to promote breastfeeding. Almost half of the population in Dover is female and the median age is 29.8 years. These characteristics of this population support that there is an audience for a health program that targets breastfeeding. The need to promote breastfeeding is also confirmed by the fact that 40% of mothers in Kent County never initiate breastfeeding. The community visit further supports the fact that not many mothers are breastfeeding in Dover. Many environmental indicators in Dover showed that the area is a low income area, and the research supports that lower income is associated with lower breastfeeding rates. Additionally, the interview with the key informant explained that breastfeeding rates are low throughout the state of Delaware as well as Dover. There are multiple barriers to breastfeeding, but resources to educate the mothers of

newborn children can be helpful. The key informant has found that support through WIC peer counselors has provided the most help to increase the rates of breastfeeding. However, WIC is doing all that they can as an organization to promote breastfeeding, and yet the rates in Delaware are still below the national average. More efforts need to be implemented in order to make breastfeeding a more common practice in Dover, Delaware. Given all the information, the intervention team plans to create a program to encourage breastfeeding of newborns through 12 months of age.

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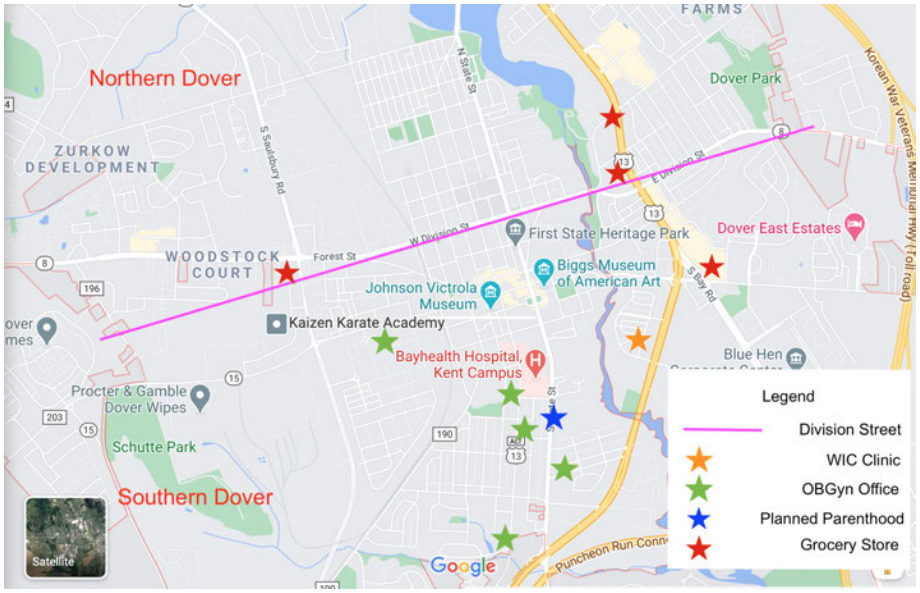
Appendix A

Map of Dover, Delaware showing community resources:



Appendix B

Interview questions that were asked to Maria Shroyer, Registered Dietitian at Delaware WIC:

1. What is your job title? How long have you worked in this position?
2. Can you describe the type of populations that do not normally breastfeed in Dover?
3. Do you think there is a higher percentage of mothers who breastfeed vs formula fed in Dover?
4. How many mothers in Dover and/or Delaware do not breastfeed?
5. Do you think pregnant women and new mothers know about the services offered at WIC and in Delaware?
6. Why do you think new mothers are not breastfeeding? / What are the barriers to breastfeeding?
7. What do you think would be helpful to reduce the barriers to breastfeeding?

8. What do you think are the major health problems facing non breastfeeding mothers?
9. What services in regard to nutrition and breastfeeding do you offer at WIC?
10. What are the health concerns for babies that are not breastfed?
11. Is there any other information you think we should know about pregnant women or breastfeeding/formula feeding mothers?