2019

Reducing Infant Mortality Through the Nurse Family Partnership Home Visitation Program in Montgomery County, Alabama

Kristyn Hill
University of Kentucky, kirstyn.hill@uky.edu

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained and attached hereto needed written permission statements(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine).

I hereby grant to The University of Kentucky and its agents the non-exclusive license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless a preapproved embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's dissertation including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Kristyn Hill, Student

Dr. Kathryn Cardarelli, Major Professor

Dr. Sarah Wackerbarth, Director of Graduate Studies

Reducing Infant Mortality Through the Nurse Family Partnership Home Visitation Program in Montgomery County, Alabama

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
Requirements for the degree of
Master of Public Health
in the
University of Kentucky College of Public Health

By Kirstyn Hill
Sauk Village, Illinois

Lexington, Kentucky
April 11, 2019

Dr. Kathryn Cardarelli, PhD
Committee Chair

Dr. Richard Crosby, PhD
Capstone Committee Member

Dr. Marc Kiviniemi, PhD, CPH
Capstone Committee Member

Table of Contents

ABSTRACT

The mitigation of infant mortality (IM) has long been a public health effort within the United States. And although the rates have dramatically decreased with medical advancements, certain populations remain disproportionately affected. There are various factors that are thought to contribute to our IM rates and the disparities between women of varying demographics. Alabama has the highest rates of infant mortality in our county, and women of color within the state have even higher rates.

Many programs with goals of decreasing the IM rate within the United States have been implemented over time. In particular, home visitation programs have been proven effective in improving education on various child and maternal health topics and increasing use of various resources to women in need. The Nurse Family Partnership (NFP) is a nurse-led home health visiting program that arranges regular home visits to low-income, first time mothers. Visitation continues well after birth, at least until the child reaches the 18-month mark. By creating a trusting relationship with mothers and providing education and various resources in multiple areas, NFP nurses have the opportunity to transform the lives and generate healthier outcomes for all participants.

Our current proposal illustrates the implementation of NFP within Montgomery County, Alabama. By utilizing resources within the county's largest Federally Qualified Health Center (FQHC), the program plans to provide services to low income pregnant women and their families. Overall, NFP hopes to decrease the number of women and children affected by infant mortality and factors connected to poor health outcomes.

TARGET POPULATION AND NEED

Infant mortality (IM) mitigation efforts within the United States has long been a public health effort. However, as healthcare and medicine have continued to advance, the country is still ranked poorly among developed countries when it comes to the infant mortality rate. Infant mortality is defined as the death of an infant before his or her first birthday among live births and the infant mortality rate is expressed as the number of infant deaths per 1,000 live births.[1] According to the Centers for Disease Control and Prevention (CDC), the infant mortality rate of the United States in 2016 was 5.9 deaths per 1,000 live births.[1] **Figure 1** offers a map of the rates by each state.[1]

There is no single factor that leads to the death of an infant. The leading causes of infant mortality include birth defects, preterm birth and low birth weight, sudden infant death syndrome (SIDS), maternal pregnancy complications and injuries (such as suffocation).[1] Infant mortality is also affected by multiple factors within one's environment. Just like any health condition, the social determinants of health and opportunities linked to one's environment and experiences play a role in their overall life outcome. Examples of social determinants include socioeconomic status, social policies, and neighborhood deprivation.[2] Researchers have suggested that we would see improvement in birth outcomes if we addressed these social determinants of health.[2]

Infant mortality reduction efforts have decreased the overall IM rate in our country. However, disparities by race and socioeconomic status are still exceedingly apparent. Within the United States, the Non-Hispanic black population had the highest rate of infant mortality in 2016, with 11.4 deaths per 1,000 live births.[1] **Figure 2** demonstrates the disparity breakdown among racial and ethnic groups within the United States.[1]

Figure 1: Infant Mortality Rates by State, 2016

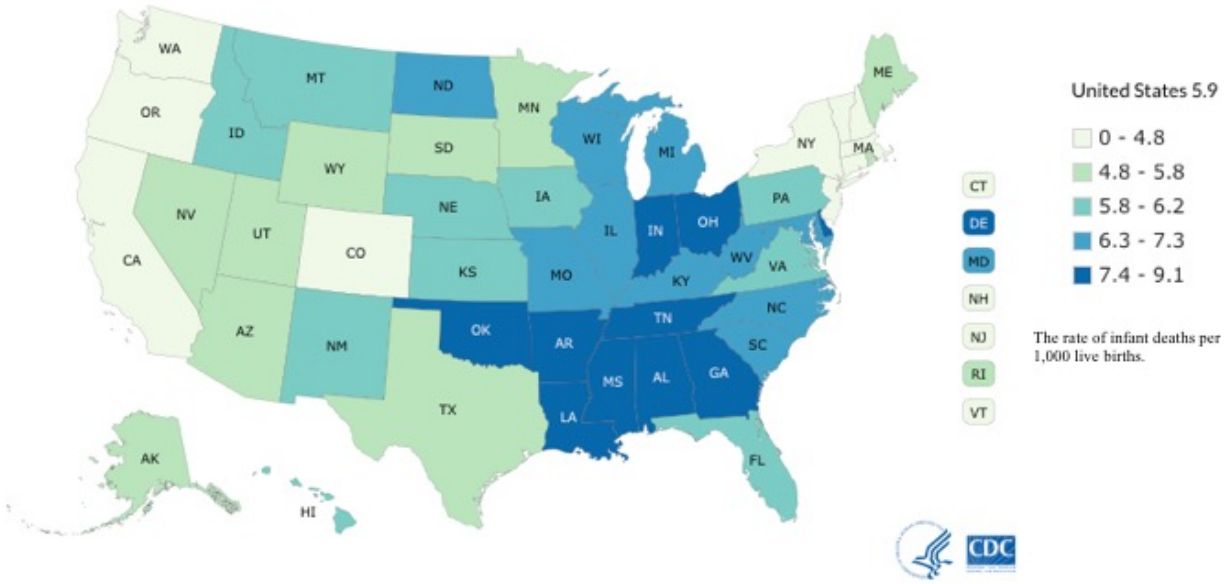
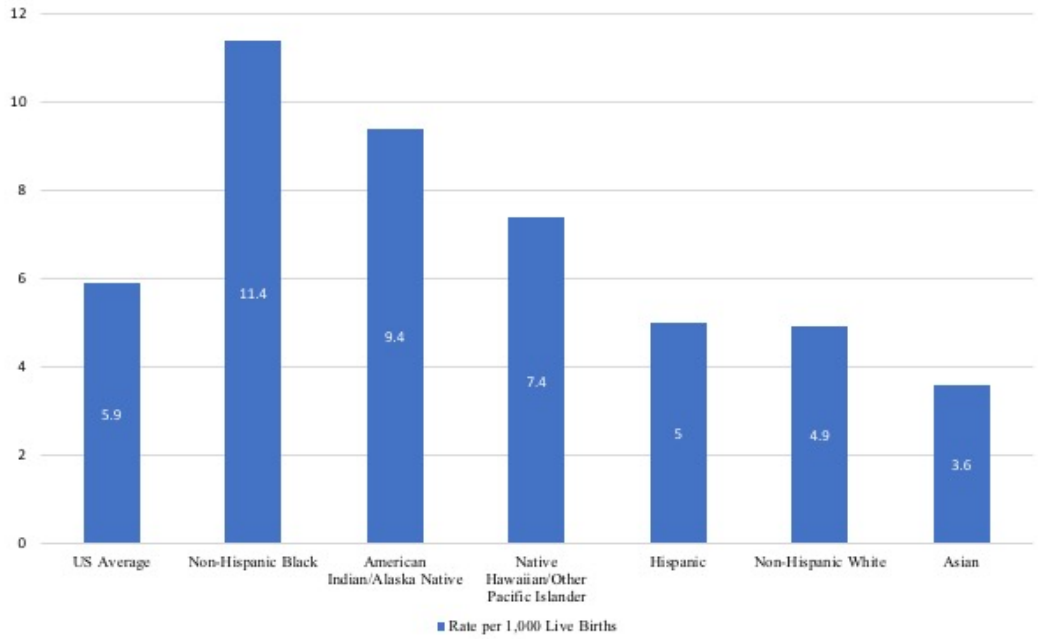


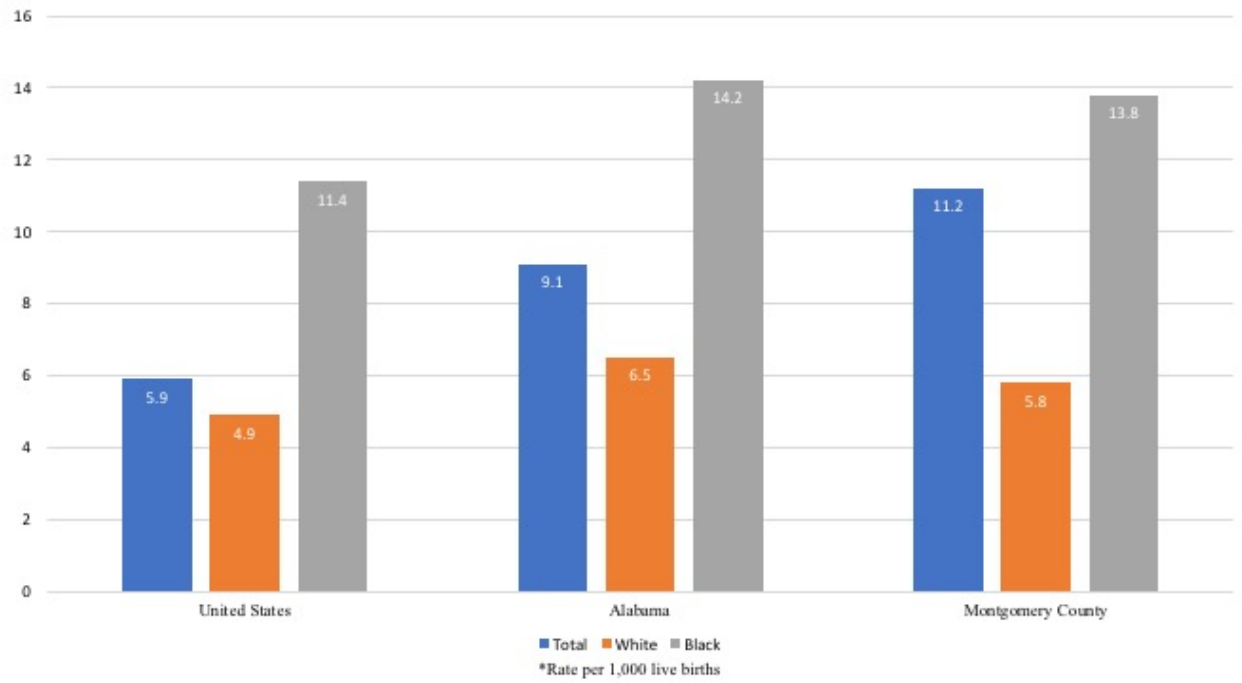
Figure 2: Infant Mortality Rates by Race and Ethnicity in the United States, 2016



Alabama is currently the state with the highest infant mortality rate within the United States- 9.1 infant deaths per 1,000 live births.[1] This is 3.1 deaths greater than the national average. There were a total of 537 infant deaths in the state within the year 2016 alone.[3] However, the more troubling data come from the racial difference breakdown.

Of all 2016 infant deaths and infant mortality data in Alabama, white residents saw an infant mortality rate of 6.5 deaths per 1,000 live births.[4] Within the same year, minorities (classified as "black and other residents") saw a rate of 14.2 deaths per 1,000 live births.[5] **Figure 3** depicts the 2016 data on a national, state, and county level.

Figure 3: Comparison of Infant Mortality Rates, 2016



Montgomery County, Alabama, has a population of 226,646 (based on 2017 United States census data).[6] This makes it the fourth most populated county within the state. About 59% of the population identifies as black, 36% identifies as white and 3% as Hispanic or Latino.[6] In 2016, there were a total of 48,060 women between the ages of 15 and 44 years old.[7] **Table 1** lists data

related to women within this age category. As of 2017, about 11% of residents under 65 years of age are without health insurance and about 19% of residents live in poverty.[6] The median household income (in 2016 dollars) was $45,358.[6]

Table 1: Women Aged 15-44 Years within Montgomery County, 2016

	Females, 15-44 y	Black Females, 15-44y	White Females, 15-44y
Total Estimated Population, n	48,060	34,280	13,780
Estimated Pregnancies, n	4,507		
Births, n	3,139	2,108	1,031
Medicaid Births, n	1,956		

There are three hospitals within Montgomery County (two under the same system), one Veteran Affairs hospital, two psychiatric hospitals, and the Montgomery County Health Department. There are also two private women's health OB-GYN offices within Montgomery, Alabama, a sliding scale-fee reproductive health services office and a primary care clinic organization (Health Services, Inc.) that offers women's and children's health services as well as Woman, Infant, and Children (WIC) Program.

There are various home visitation programs within Montgomery County that serve families in various capacities. The Gift of Life has offered various programs, including the Nurse Family Partnership program, to Montgomery County residents since 2015. The program's reach has had limited capacity, impacting 160 expecting mothers within a three year time span.[8]

Montgomery County is a part of the "Black Belt" in Alabama. The region stretches horizontally across the state (**Figure 4, Appendix)**[9]. The land is a part of the national Black Belt region, which is believed to stretch from Virginia to Texas. The name originally came from the region's rich, black topsoil, which led to many pioneers settling in the area and building plantations (in particular, cotton)[9]. Plantation owners forced slaves to work on their land and became wealthy from their work. However, as time went on, and the Civil War put an end to

slavery, the namesake has taken on a different meaning. Those Alabama counties within the Black Belt are now among the poorest in the state, lacking adequate social services and housing, poor access to education and medical services, and carrying high unemployment rates and crime rates.[9]

There are numerous resources and strategies that the state of Alabama has utilized and plans to put into effect to reduce the rate of infant mortality within their state. These strategies include the utilization of progesterone in pregnant women with a history of preterm birth (the use of progesterone supplementation during pregnancy in women with a history of spontaneous preterm delivery has been proven effective in reducing preterm birth)[10], reduction in tobacco and opioid use among woman of childbearing age, encouraging women to wait at least eighteen months between becoming pregnant again, expansion of preconception and interconception care, and the continuation of safe sleep efforts (to reduce the risk of sudden infant death syndrome).[11]

The state has also recently created a subcommittee specifically geared towards infant mortality reduction. In June 2018, the State of Alabama Infant Mortality Reduction Plan Subcommittee implemented pilot programs to reduce infant mortality by 20% over the next five years in three Alabama counties (Macon, Montgomery, and Russell).[12] Funds will be spent on numerous programs, including the expansion on home visitation programs, well-women preventive clinic visits, mental health screenings, progesterone treatment to prevent premature birth, the Baby Box program, and breastfeeding programs.[12]

The Nurse Family Partnership (NFP) is an evidence-based home visiting program that focuses on prenatal and infancy/toddler home visiting for low-income, first time mothers.[13] Various components comprise the NFP, including home visitation, transportation to prenatal care appointments, and referrals to services for both the mother and child. Participants voluntarily

enroll and are partnered with a registered nurse by their 16th week of pregnancy. Participants receive ongoing home visits until their child's second birthday. The registered nurse is required to have a minimum of a bachelor's degree in nursing in order to act as a home health nurse though the program.[14] The overall goals of the program are to improve prenatal health outcomes, improve child health and development, and to improve the economic sufficiency and life-course development of a mother and her family.[14]

NFP is shaped around the concepts of human attachment, human ecology, and self-efficacy.[15] The Social-Ecological Model also underpins the basis of the Nurse Family Partnership. The Social-Ecological Model defines the complex relationship between an individual, their relationships, the community they are in, and the policies created on a societal level.[16] Various factors (or lack thereof) within these groups may put an individual at risk for innumerable outcomes, including those related to violence or health.[16]

The Theory of Fundamental Cause is also a significant theory that helps to define the goals of the NFP. The theory of fundamental causes, developed in 1995, helps to explain the relationship between socioeconomic status (SES) and health disparities within our county, despite the continuous improvements within Western medicine.[17] Authors believe this relationship exists due to the variety of resources that protect one's health, regardless of the medical advances we have.[17] These resources include "knowledge, money, power, prestige, and beneficial social connections."[17] Per the founding authors, the four essential features of the fundamental cause theory are as follows: (1) evidence that SES influences multiple disease outcomes; (2) evidence that SES is related to multiple diseases/mortality; (3) evidence that the availability of sources plays a role in SES and health/mortality; and (4) evidence that the relationship between SES and

health/mortality is reproducible over time. **Figure 5** within the **Appendix** depicts these interactions.

Both the Social-Ecological Model and the Theory of Fundamental Cause are rooted in the idea that an individual is affected by factors they may not realize exist or factors that are out of their control. And these factors have the capability of leading to poor health outcomes for an individual and the future generation. NFP Montgomery hopes to make a positive impact on these factors by providing education and resources and bringing attention to various issues affecting mothers, their children, and their families in the future.

Families start with a weekly home visitation for the first month of enrollment, and then visitation every other week until the birth of their child.[14] At birth, weekly home visits are then restarted for the first 6 weeks.[14] Visits are then transitioned to every other week until the child is 20 months old; the last 4 visits are on a monthly basis until the child's second birthday.[14] Visits are adjusted based on a family's needs.[15] A single home visit typically lasts 60 to 75 minutes. As of June 2018, 42 states and 594 counties have been served by the Nurse-Family Partnership in some capacity.[15] The recommended case load of one full time nurse per national NFP guidelines is 25 clients.[18] With two full-time nurses and one part-time nurse, we are estimating that we will reach at least 190 families within Montgomery County. This "high touch program" puts participants in the center and has the opportunity to make long-lasting change in the health of participants and their families.

The Montgomery program will be offered to low-income mothers within the area. Unlike the national NFP, which is only open to first-time mothers, our program will be offered to any NFP-naïve women. Income categorization will be based on the national Federal Poverty Level (FPL) and families below 138% FPL will be considered eligible. With an estimated 19% of county

members in poverty, we estimate nearly 9,000 women between the ages of 15 and 44 years. Additional information on implementation and planned adaptations will be discussed in the **Program Approach** section.

Enrollment is completely voluntary for women and their families. As mentioned previously, the program is customized based on the individual needs of each family. Domains that may be covered in the program include personal health, environmental health, life course development, maternal role, family and friends, and health and human services.[15] Examples of activities include education on balanced diets, avoiding substance use, preparation for delivery, use of contraception, proper exercise and hygiene, and establishing healthcare provider care.[13] The program also provides information pertaining specifically to childcare, including safe sleep practices and environments and reducing home hazards, and breastfeeding.[13] Each participant is assigned a home visitation nurse and keeps that assignment throughout enrollment in the program. The program also assists in referrals to other human and health services as needed, such as WIC. [13]

We plan on partnering with multiple community organizations, clinics, and service providers to both recruit and refer participants. By working through the county's federally qualified health center, we have the capacity to utilize established resources and build on existing relationships to improve the health and wellbeing of the women and children of the area. Recruitment of women will be conducted through established relationships at our three established locations as well as through relationships created with other programs. Women that utilize WIC, the Montgomery Health Department, Head Start and Healthy Start programs are all examples for referrals. Word of mouth will also be utilized to identify participants. Members of our target population may be hesitant to enroll in our program. By utilizing referrals from programs already established in the

target population, in which the women already trust, we are much more likely to recruit and retain participants.

As mentioned previously, enrollment is completely voluntary. We plan on retaining at least 40% of participants through the entire process by providing child and maternal care incentives throughout their participation, as well as fostering important relationships between participants, nurses, and organizations within the community. More information on the program, partnerships, and the implementation of NFP is provided within the **Program Approach** section.

PROGRAM APPROACH

The Nurse Family Partnership (NFP) has been evaluated through numerous clinical trials over the past forty years. The program has been successful in various areas of maternal and child health, including improving women's prenatal health-related behaviors (such as cigarette smoking and diet improvements), reducing pregnancy complications, reducing harm to children, and increasing spacing between pregnancies.[19]

A twenty-year randomized clinical trial of NFP was conducted in Memphis, Tennessee, to determine the rates of maternal and child death.[13] A total of 1,138 of 1,289 eligible women were included in the study and randomized into four different treatment groups. Each group had varying degrees and timing of free transportation, home visits, and medical/resource referrals. Researchers matched participants in the trial to data within the National Death Index (NDI) and utilized International Classification of Diseases (ICD) codes to categorize deaths.[13]

The study found that both prenatal and infant/toddler home visitation reduced all-cause mortality among mothers and their children.[13] Among NFP participants, there were lower rates of preventable child mortality from birth to the age of 20 years.[13] Overall, 1.6% of child participants not receiving nurse home visits died from preventable causes (sudden infant death syndrome, homicide, injuries) while none of those enrolled in the nurse-visitation program died

from these causes.[13] The study also saw a difference in maternal mortality. Mothers who received nurse-home visitation were nearly three times less likely to die from all causes of death than those who did not receive the services.[13] Non-NFP mothers were eight times more likely to die from external causes (unintentional injuries, suicide, drug overdoses) than NFP mothers.[13]

Planning for the implementation of this program includes deciding population characteristics that would make a woman and her family eligible for the program, defining geographic boundaries for the program, and building relationships with local programs that participants could be referred to. Researching other home visitation programs in the area would also be of importance. Research would include determining those programs' reach, what they offer, and how our program would add to the county's existing services. A **logic model** summarizing the activities and desired goals and a **Gantt Chart** showcasing the implementation timeline are included in this application.

As mentioned in the **Target Population and Need** section, there are various factors that may play a role in infant and maternal health. The services offered by NFP can lead to an overall improvement of a woman and their child's health and overall wellbeing in many ways. And this, in turn, will help to curve the infant mortality rate of Alabama and the United States. As time goes on, we do hope to measure outcomes and achieve a decrease in IM rates. However, many of our outcomes at this time will be focused on multiple areas of improvement in maternal and children's health. Our **logic model** summarizes those activities, outcomes and goals.

A large number of the activities conducted and measured with our program involves self-efficacy. Self-efficacy is defined as an individual's confidence in their ability to complete a task. It is thought that a mother with strong self-efficacy helps to build a strong and healthy family.[15] There are many potential topics for education sessions with within the NFP program, including

tobacco use, breastfeeding, and newborn care (see **logic model** for additional topics). After learning more on these topics, the NFP nurse will help the mother set realistic goals for herself. Nurses will also assist with self-efficacy by guiding participants through various discussions to help the women see their potential and capabilities. Participants will not be limited to personal self-efficacy; the women will also participant in topics geared towards maternal self-efficacy.

Nurses will be hired by the Project Director, Dr. Ellie Sattler, and have ties to the home location, Health Services, Inc (HSI). Nurses within the HSI family and Jackson Hospital will be given priority in the hiring process. NFP home visitors are required to complete a single self-directed training session and an in-person three day training session prior to serving families.[14] Training includes topics such as proper communication skill use in various settings, maternal and child health care, and home health visitor skill sets. The training will also allow for nurses to meet NFP staff from across the county and pick up information, skills, and ideas from NFP programs across the county. All nurses will be required to complete HSI cultural sensitivity training prior to beginning visitations. Nurses will also be asked to complete required continuing education (CE) related to women's and maternal health while employed. While training is being completed, information pertaining to the program and opportunities for referrals will be passed onto community programs, local healthcare centers, and other home visitation programs. Nurses will take on a small case load upon the initiation of the program, and Dr. Ellie Sattler will also join in on initial visits.

The NFP-Montgomery will establish and maintain relationships with multiple community organizations by creating an open-door policy to both take and receive referrals. With the common goal of improving the health and wellbeing of Montgomery County residents, NFP hopes to create everlasting relationships with these organizations. One NFP staff member will be

responsible for maintaining these relationships and updating referral datasets and lists for NFP staff and participants. Home visitation nurses will be responsible for making referrals and providing information on other organizations to their given families.

Adaptations to this program for this grant includes allowing mothers who have had previous pregnancies to be a part of the program. The original NFP only allows first time mothers to enroll in services. However, NFP-Montgomery will allow any mother to enroll, regardless of their pregnancy history. This adaptation will allow for more eligible mothers to become participants within Montgomery County. The number of visits and activities completed during their visits will vary, based on individual needs. We will also discontinue home visitations 18 months after a child's birth. The rationale for this adaptation is to decrease program length expectations for families and allow staff to pick up additional cases sooner. We also believe that this lessened time frame will be beneficial while we have limited resources. Previous NFP programs utilized the 18-month cut-off and did not see varying results with the time difference. These adaptations separate our program it from the NFP program currently ran through the Gift of Life program in Montgomery County. As mentioned above, the Gift of Life NFP program reports impacting 167 women over three years.[8] Our adapted NFP-Montgomery program will broaden availability by serving more women in a three year time span and allowing women to enroll regardless of number of pregnancies.

Another adaptation to our program will be to allow for nurses to take on more patient cases each year. The national recommendation is less than 25 cases per full time nurse. However, since our program will allow for the enrollment regardless of previous pregnancies, the needs and expectations for each mother may not be as stringent as for a first-time mother. The workloads of each nurse will also be affected by the time of enrollment per mother. For example, the first year

of implementation will include many prenatal participants. By the second and third year, the participants timeline in pre- and post-natal care will be more staggered. We expect that mothers will require less from the nurses once they have delivered. Our first year, we will not go beyond the 25 cases per nurse load. However, once the first year is complete and staff better understand their client's needs, nurses will be free to pick up additional cases. With this nurse capacity requirement, we have the opportunity to impact at least 190 women within three years.

Resources necessary for maternal and child evaluation by NFP nurses will come directly from HSI. These supplies may include items such as glucometers, scales, and other medical supplies. The HSI telephone language interpreter will be utilized for patients with language barriers.

The community advisory group (CAG) of the program will include members of various organizations throughout Montgomery County. The role and responsibilities of this group includes initiating referrals for women in need, establishing partnerships between NFP and community organizations, and providing information and guidance on how to handle issues that community members and NFP participants may be experiencing. CAG members will also assist with the assurance of accurate and inclusive information within our NFP participant materials. Meetings with members of the CAG will initially occur every other week. Once the NFP becomes established (in year 1, quarter 2), meetings will occur every 3 months. Dinner will be provided to CAG members at each meeting. **Table 3** below depicts the organizations involved in the CAG. A more detailed explanation of members within the CAG is included in **Table 2** in the **Appendix**.

Table 3: Community Advisory Group		
Mother from Montgomery County	La Leche League (LLL) of Montgomery	Montgomery Area Mental Health Authority
Montgomery Community Action Head Start	Montgomery County Healthy Start	Montgomery Public Health Department
Montgomery County Public Library	Montgomery Transit	River Region United Way

The primary location for NFP-Montgomery recruitment will be within Health Services, Inc. (HSI). HSI is a local Federally Qualified Health Center with multiple clinics that operate within and outside of Montgomery County.[20] HSI is one of the largest clinic providers in Montgomery County, and has served underserved populations in the area since 1968.[21] In 2007, 83% of patients seen at HSI were 100% and below the federal poverty level and 77% were African American.[21] That same year, the center saw a total of 28,833 unduplicated users and 88,869 medical and/or dental encounters.[21] HSI specifically provided prenatal care to 388 patients at one of their clinics in Montgomery County in 2007 and refers all cases to Jackson Hospital for delivery.[21]

NFP recruitment will primarily be based within HSI's River Region Health Office, located at 1845 Cherry Street in Montgomery. Our office for staff will also be located at this location. Services at this office include adult medicine, laboratory and x-ray, OB/GYN and family planning, pediatrics, pharmacy, social work, and optometry.[20] HSI also offers the Women, Infants and Children (WIC) Program to families in the area.[20] Although services are offered at all clinics, the HSI WIC headquarters is located at 2101 Chestnut Street in Montgomery, 0.3 miles away from the River Region Health Office.[20]

The second location for NFP-Montgomery recruitment will be at Ramer Family Health. Ramer Family Health is also within the HSI family.[20] However, it is located thirty minutes south

of the city of Montgomery. Ramer is still located in Montgomery County, but has less resources than Montgomery proper. Services at this specific office include adult medicine, laboratory, and pediatrics.[20]

The third location for NFP-Montgomery recruitment will be Jackson Hospital. Alabama Vital Statistics data from 2016 shows that 1,210 births of the year's 5,604 occurred within Jackson Hospital in Montgomery County, Alabama.[7] As mentioned previously, HSI OB/GYN services refer all cases to Jackson Hospital for delivery. The hospital is also located 0.4 miles away from the River Region Health HSI office.

There are multiple fidelity benchmarks that each individual NFP location must meet.[22] These benchmarks are as follows:

1. All clients must meet low-income criteria of 138% below FPL
2. All clients must receive their first home visit no later than the end of the 28th week of pregnancy, with visits continuing on a weekly/bi-weekly basis based on their needs
3. Clients are visited on a one-on-one basis with the same home visiting nurse
4. Clients are visited in their own homes
5. Nurses are registered nurses with a minimum Bachelor of Nursing degree
6. The designated Committee Advisory Group meets as scheduled to assist in community support and sustainability of the program

Regarding benchmark number 4, exceptions can be made to meet a participant's needs if necessary. For example, if a participant is homeless or if they live in an unsafe home environment (abuse, drugs, etc.), efforts will be made to meet at a safe and private location with their given nurse. A visitation room will also be available within our River Region NFP office.

Fidelity monitoring will initially be the responsibility of the Project Director. Dr. Ellie Sattler will also attend multiple home visitations to evaluate fidelity between nurses throughout the first year of implementation. If necessary, nurses will be offered refresher trainings. Staff will also meet on a bi-weekly basis to discuss their practices, concerns, and ideas. After the first year, monitoring expectations will be transferred to the hired evaluator. All program materials will be monitored and evaluated by both national NFP educators and the HSI Education Center. Measures will be taken to ensure that all materials are accurate, appropriate, and inclusive of all participants.

After the first three years, efforts will also be made to institutionalize the NFP program as a branch within HSI's OB-GYN and pediatric services. Plans for sustainability will include continuing to apply for grants related to women and children's health and underserved communities, such as HRSA's Healthy Start Program. We will also work closely with the State of Alabama Infant Mortality Reduction Plan Subcommittee for future funding and data sharing. Dr. Ellie Sattler will be in direct contact with the subcommittee prior to implementation and throughout the 3-year grant period. Those within the program will continue to be a part of the program, but we hope to add additional full time and part time nurses as time goes on. Sustainability efforts will be increased within year 2 of implementation.

Determining the potential challenges that could be faced is also of importance. The largest challenge would be the voluntary enrollment of women and their continued involvement throughout the program. This could be counteracted by offering incentives. Incentives will be associated with the completion of multiple mile marker surveys, which is explained in-depth in the **Performance Measures and Evaluation** section. Another challenge will be the nurse-to-case load ratio. If the program's enrollment reaches a level that the given nurses cannot handle,

efforts will be made to prioritize needs based on a mother's previous experiences and desirability to join. If financially stable, efforts will be made to hire additional staff.

The incentive offered to participants will be a $25 Walmart gift card upon completion of each survey, with a total of three required project surveys throughout enrollment. Participants will also be enrolled in a bi-weekly drawing for goody bags comprised of items such as infant clothing, formula, diapers, and other caring items as well as self-care and relaxation packages for mothers. Items will be purchased by NFP, but the organization will ask community organizations to donate and sponsor their own baskets.

PERFORMANCE MEASURES AND EVALUATION

Due to the nature of this program, evaluation will occur through participant surveys conducted in home by the assigned visiting nurse. There will be a total of 3 surveys: one upon the initial pre-natal visitation, one post-delivery, and one at the end of participation. Comparisons will be made for each participant based on their initial survey, midpoint, and final survey. The incentive for enrollment will also be linked to survey completion.

General demographic data regarding participants will be gathered upon enrollment and throughout their time within the NFP. This data will be collected by their assigned home visitation nurse. Demographic data will include items such as their age; race and ethnicity; living situation; income; education level; pregnancy history; gestational age at time of survey; level of prenatal care; social support (i.e. marital/dating status and perceived family/friend support) and employment status. Various health behaviors will also be measured and compared on a normal basis. This includes include drug, alcohol, and tobacco use; exercise/physical activity; nutrition and perceived health behavior.

The table below depicts the outcomes that will be measured via self-report surveys. Majority of questions will be asked via five-point Likert scale.

Table 4: Measured Outputs		
Maternal self-efficacy (self-care and childcare)	Knowledge of prenatal, postnatal, and personal care	Awareness of contraception options
Use of post-partum contraception	Awareness and use of community/social services (WIC, SNAP, etc.)	Health behaviors (mother and child)
Number of breastfeeding participants	Home environment for child development	Use of prenatal and perinatal healthcare services

Multiple validated measurement tool questionnaires will be utilized, with questions correlating to our outcomes being added to our survey. Questions from the Breastfeeding Self-Efficacy Scale will be used to gather information pertaining to breast feeding self-efficacy. The 32 item scale was developed to be used in postpartum women and was found to be very reliable, with a Cronbach alpha score of .96.[23] The Infant Care Self-Efficacy Survey, a 48 item measure, will also be utilized. This measure was shown to have a reliability of .975.[24] Finally, the General Self-Efficacy Scale is a 10 item scale that we would also utilize questions from. Reliability for this scale ranges from .76 to .90 based on the group it is used for.[25]

The Home Observation for the Measurement of the Environment (HOME) scale will be adapted to the population and used to determine the participant's home environment and how it may affect a child's upbringing.[26] HOME is an observational tool used to assess characteristics of one's home environment that are believed to be relevant to a child's health and development.[26] Home visitation nurses will be responsible for completing this scale, utilizing information gathered from formal interviews and observations. A total of six categories are assessed: responsivity, acceptance, organization, learning materials, involvement, and variety. Information gathered will also be utilized to assist in education and referral opportunities for participants.

Table 5 depicts when each survey will be delivered, and which measure it will address.

Table 5: Instrument Use Timeline

Prenatal	Postnatal 1	Postnatal 2
Demographics	Demographics	Demographics
Contraception awareness + use	Contraception awareness + use	Contraception awareness + use
Social service awareness + use	Social service awareness + use	Social service awareness + use
Health behaviors	Health behaviors	Health behaviors
	Birth spacing	Birth spacing
General Self-Efficacy Scale	General Self-Efficacy Scale	General Self-Efficacy Scale
Infant Care Self-Efficacy Scale	Infant Care Self-Efficacy Scale	Infant Care Self-Efficacy Scale
Breastfeeding Self-Efficacy Scale	Breastfeeding Self-Efficacy Scale	Breastfeeding Self-Efficacy Scale
Home Observation for the Measure of the Environment (HOME) Scale	Home Observation for the Measure of the Environment (HOME) Scale	Home Observation for the Measure of the Environment (HOME) Scale

An issue related to our data collection plan and in-home surveys will be self-report bias due to the presence of the home visitation nurse. The women may inappropriately answer questions in an effort to please their home health nurse. The intention of the home nurse being present during the survey is to assist the participant in the understanding of any questions or with reading or writing, if necessary. However, surveys (other than the HOME scale) should be filled out solely by the participant.

If a participant decides to leave the program, attempts will be made to complete an exit survey, with hopes of understanding their desires to terminate their enrollment. This survey will focus more on qualitative data versus the quantitative measures of the other. Questions asked

will include why they are no longer interested, services they found useful and unnecessary, and any recommendations for improvement.

In terms of quality improvement, each survey will also include questions related to the NFP Montgomery Program and ask participants about strengths, weakness, and areas of improvement. This will also provide qualitative data for quality improvement.

The creation of our personalized surveys and questionnaires will be completed by both the Dr. Ellie Sattler and our hired evaluator, Mr. Ian Malcolm. Efforts will be made to take the reliability and validity of our tools within the first quarter of implementation.

As mentioned previously, each visiting nurse will be responsible for completing measurements and scales on their clients. Data will be sent to Dr. Ellie Sattler and Ian Malcolm on a timely basis, with the goal of measuring outcomes as described above and within the logic model. On the logistics side, NFP staff will also measure data points such as visitations versus cancellations, number of referrals made to NFP and number of referrals made by NFP staff.

If concerns are raised regarding any type of abuse (both participant and child), the team will contact the appropriate Alabama and Montgomery County officials. Prior to implementation, Dr. Ellie Sattler will review all applicable Alabama laws, policies, and procedures regarding worrisome reports.

CAPACITY AND EXPERIENCE

Health Services, Inc. (HSI) has offered various health and wellness services to the Montgomery community for over fifty years. As the main provider of primary care services to the area since 1968, our federally qualified health center (FQHC) has played a substantial role in the wellbeing of medically underserved patients. In 2007, a total of 28,833 unduplicated patients utilized our services, with a total of 88,869 medical and dental visits.[21]

HSI has twelve different clinics and wellness centers throughout Alabama, with eight of those programs specifically located within Montgomery County. The remainder are in counties surrounding Montgomery County. Various fidelity measures have been utilized and put in place to assist in the implementation and operations of each clinic location. Clinics offer a variety of family health and planning, pediatrics, and WIC services, as mentioned in the **Program Approach**.

In September of 2006, HSI was one of four FQHCs to receive funding to implement the national The Sickle Cell Disease Treatment Demonstration Program.[21] The program focuses on the improvement of sickle cell treatment and prevention by training healthcare professionals, coordinating sickle cell care, and offering genetic testing. HSI partnered with various organizations during this program, including the Department of Pediatric Hematology/Oncology within the University of Alabama at Birmingham School of Medicine, two other FQHCs, and three local sickle cell organizations.[21] The program has reached over 500 patients and families with a history of sickle cell disease or sickle cell trait.

Our FQHC status and mission to serve underserved populations has helped us to create relationships with both local and federal agencies. We have received grants from federal government and organizations such as United Way in order to provide our services over the past fifty years.[21] Many of our patients are referred to various specialty services within the community as well. For example, our prenatal patients are referred to Jackson Hospital for all delivery needs. Relationships with partner organizations are maintained by continuous communication and consistent quality assurance and improvement meetings.

HSI staff meets with multiple organizations and community leaders on a regular basis to gather both quantitative and qualitative data pertaining to our services and the overall needs of

the community. Patients seen within the FQHC system are also given the opportunity to complete surveys regarding their care and offered services Information collected during these meetings and within surveys are then used to continuously improve all services. For example, discussion with United Way has led to the implementation of an in-depth personal needs assessment for all new patients. Assessment areas include income, food, education, and health- all important areas within the fundamental cause theory. This then helps staff refer patients to necessary community resources, with the goal of improving their overall health outcomes. HSI also utilizes data reported within River Region Community Needs Assessment to better our services. The use of all community organization resources and relationships will be utilized when implementing NFP-Montgomery, including the creation of our Community Advisory Group.

Existing HSI infrastructure, such as various locations and staff and relationships with other organizations, showcases our ability to successfully manage the NFP program. Both HSI and NFP have the goal of serving underserved, low income members of the community. The organization has an overall employee turnover rate of 15%, with nurses specifically having a turnover rate of 9%. As mentioned previously, nurses already within the HSI system will be given priority in terms of hiring for NFP positions. Both HSI and the NFP program prohibits discrimination in hiring and the provision of services on the basis of age, disability, sex, race, color, national origin, religion, sexual orientation, or gender identity.

PARTNERSHIPS AND COLLABORATIONS

NFP-Montgomery is only as successful as the partnerships and relationships it creates. The organization plans on working alongside multiple community entities throughout the program's existence. These organizations are all considered stakeholders in the health and wellbeing of women and children within Montgomery County. Their various levels of expertise in various areas and availability of resources make them each a great resource for implementation advice

and participant referrals. All partners have provided letters of support. A table of partners is provided in **Table 6** below.

Table 6: Partnerships and Collaborations			
Alabama Primary Health Association	Alabama State University	Doug's 2 Salon and Spa	Faith in Action Alabama
Jackson Hospital	Montgomery City Council	Montgomery County Park District	Montgomery Housing Authority
Montgomery Public Health Department	Montgomery Public School Systems	The Wellness Coalition	+ all organizations represented in CAG (see **Table 3**)

NFP staff has met with representatives from each organization in **Table 6** to discuss the program. Discussions included goals for the program, opportunities for referrals, and any advice or input regarding the target population. We have created an open-door policy with each organization, allowing discussion on all topics pertaining to our target population. We plan on allowing members of each partnership organization to make referrals to members, pass on general information pertaining to our program to their organization members/participants. In return, we plan on providing information on their services and resources to our NFP participants.

As mentioned in the **Capacity and Experience** section, our home organization HSI has played a role within Montgomery County for over half a decade. Therefore, the FQHC has created relationships with many local and state stakeholders and has worked alongside many of the organizations to improve the health and overall wellbeing of local residents.

PROJECT MANAGEMENT

Dr. Ellie Sattler, Project Director: Dr. Sattler is the Associate Director of Women and Children's Services at HSI. Dr. Sattler obtained her Doctor of Nursing Practice and Master of Public Health degrees from the University of Alabama. She practiced within maternal and children's health for fifteen years before taking the associate director role with HSI. She has held

this title for the past five years. She has published over 25 papers and led 10 studies related to maternal and children's health. Dr. Sattler will serve as the lead investigator for projects related to NFP-Montgomery. She will also take responsibility for financial management of the program.

Kelly Curtis, Registered Nurse: Kelly is one of the home visitation nurses within the program. She obtained her bachelor's degree in nursing from the University of Alabama. She has served as an obstetrics nurse at Jackson Hospital for 8 years. She has also been a resident of Montgomery for over 20 years. She serves as the lead supervisor for the program. Her role as supervisor includes administrative duties (such as scheduling meetings) and managing overall staff operations/relations. As a home visitation nurse, Kelly will be responsible for the collection of data to be analyzed over the three-year grant period.

Sarah Harding, Registered Nurse: Sarah is also one of the program's home visitation nurses. She obtained her bachelor's degree in nursing from Tuskegee University. Sarah has worked as a general health nurse within the HSI clinics for 9 years. Her specific responsibility within the organization is to foster and maintain relationships with referral organizations and all community organizations. Sarah will keep an updated internal referral log and a referral database for participants to utilize. As a home visitation nurse, Sarah will be responsible for the collection of data to be analyzed over the three-year grant period.

Claire Dearing, Registered Nurse: Claire is also a home visitation nurse within the program. She obtained her bachelor's degree in nursing from the University of Alabama. She has served as a pediatric nurse with Health Services, Inc. for 5 years. Claire will work part time, while also continuing to work as a nurse at the HSI clinics. As a home visitation nurse, Claire will be responsible for the collection of data to be analyzed over the three-year grant period.

Ian Malcolm, Program Evaluator: Ian will serve as the program evaluator. Ian works as a contracted program evaluator and statistician with Alabama State University Department of Public Health staff. He received his Master of Public Health-Statistics in 2015 from Alabama State University.

Progress, completion, and quality of all program objectives and activities will be monitored via bi-weekly meetings at the River Region Health HSI office. Those unable to attend in person will have the ability to attend via webcam or telephone. The goal is to discuss completion of required tasks and monitor our progression. The need for adaptations will also be discussed on a consistent basis. At least one meeting each quarter will be scheduled as a case conference, allowing all nurses to discuss health and social issues that may affect participants. Community organization representatives will be invited to conduct these case conferences.

Staff turnover will be minimized by ensuring benefits, annual pay increases, and access to all HSI services. Staff will meet with Dr. Ellie Sattler on an annual basis to discuss criticism of the program and any concerns regarding their position. All staff will be required to attend training and various continuing education and training updates throughout their time with NFP. Additional details on these requirements is included in the **Program Approach** and in the **Budget Justification**.

APPENDIX

BUDGET JUSTIFICATION

A. Personnel and Fringe Benefits

Year 1

Position Title, Name	Annual Salary	% FTE	Salary Required	Fringe Required	Total Required
Project Director, Ellie Sattler	$90,000	20%	$18,000	$5,061	$23,061
Registered Nurse, Kelly Curtis	$63,000	100%	$63,000	$19,568	$82,568
Registered Nurse, Sarah Harding	$60,000	100%	$60,000	$18,930	$78,930
Registered Nurse, Claire Dearing	$60,000	50%	$30,000	$9,465	$39,465
Evaluator, Ian Malcolm	$50,000	10%	$5,000	$1,681	$6,681
Total			$176,000	$54,704	**$230,704**

Year 2*

Position Title, Name	Annual Salary	% FTE	Salary Required	Fringe Required	Total Required
Project Director, Ellie Sattler	$92,700	15%	$13,905	$3,910	$17,815
Registered Nurse, Kelly Curtis	$64,890	100%	$64,890	$20,155	$85,045
Registered Nurse, Sarah Harding	$61,800	100%	$61,800	$19,498	$81,298
Registered Nurse, Claire Dearing	$61,800	50%	$30,900	$9,749	$40,649
Evaluator, Ian Malcolm	$51,500	15%	$7,725	$2,596	$10,321
Total			$179,220	$55,907	**$235,127**

**Annual salary raise reflected*

Year 3*

Position Title, Name	Annual Salary	% FTE	Salary Required	Fringe Required	Total Required
Project Director, Ellie Sattler	$95,481	10%	$9,548	$2,685	$12,233
Registered Nurse, Kelly Curtis	$66,837	100%	$66,837	$20,759	$87,596
Registered Nurse, Sarah Harding	$63,654	100%	$63,654	$20,083	$83,737
Registered Nurse, Claire Dearing	$63,654	50%	$31,827	$10,041	$41,868
Evaluator, Ian Malcolm	$53,045	20%	$10,609	$3,566	$14,175
Total			$182,475	$57,134	**$239,609**

**Annual salary raise reflected*

Dr. Ellie Sattler, Project Director (10-20% effort, 12 months, Years 1-3): Dr. Sattler is the Associate Director of Women and Children's Services at HSI. Dr. Sattler obtained her Doctor of Nursing Practice and Master of Public Health degrees from the University of Alabama. She practiced within maternal and children's health for fifteen years before taking the associate director role with HSI. She has held this title for the past five years. She has published over 25 papers and led 10 studies related to maternal and children's health.

Kelly Curtis, Registered Nurse (100% effort, 12 months, Years 1-3): Kelly is one of the home visitation nurses within the program. She obtained her bachelor's degree in nursing from the University of Alabama. She has served as an obstetrics nurse at Jackson Hospital for 8 years. She has also been a resident of Montgomery for over 20 years and has three children that grew up within the county. She serves as the lead supervisor for the program.

Sarah Harding, Registered Nurse (100% effort, 12 months, Years 1-3): Sarah is also one of the program's home visitation nurses. She obtained her bachelor's degree in nursing from Tuskegee University. Sarah has worked as a general health nurse within the HSI clinics for 9 years. Her specific responsibility within the organization is to foster and maintain relationships with referral organizations and all community organizations.

Claire Dearing, Registered Nurse (50% effort, 12 months, Years 1-3): Claire is also a home visitation nurse within the program. She obtained her bachelor's degree in nursing from the University of Alabama. She has served as a pediatric nurse with Health Services, Inc. for 5 years. Claire will work part time, while also continuing to work as a nurse at the HSI clinics. As a home

visitation nurse, Claire will be responsible for the collection of data to be analyzed over the three-year grant period.

Ian Malcolm, Program Evaluator (10-20% effort, 12 months, Years 1-3): Ian will serve as the program evaluator. Ian works as a contracted program evaluator and statistician with Alabama State University Department of Public Health staff. He received his Master of Public Health-Statistics in 2015 from Alabama State University.

Fringe Benefits: Please note that personnel fringe costs vary based on the following benefits schedule, which can also be found at https://www.research.uky.edu/office-sponsored-projects administration/frequently-needed-information.

Fringe Benefits Calculations		
Benefit	**Staff**	**Graduate Student**
Retirement	10%	N/A
Social Security	7.65%	7.65%
Other Fringe	2.72%	1.20%
Total Percent	**20.37%**	**8.85%**
Health/Life Insurance		
Employee	$6,000/year	$2,300/year

B. Equipment and Supplies

Item Requested	**Number Needed**	**Unit Cost**	**Year 1 Amount Requested**	**Year 2 Amount Requested**	**Year 3 Amount Requested**
Laptop	3	$500	$1,500	0	0
Printer	2	$100	$200	0	0
Work Cell Phone	3	$40 per month/line	$1,440	$1,440	$1,440
Office Supplies (paper, pens, printer)	N/A	N/A	$1,000	$1,000	$1,000
Total Supplies			$4,140	$2,440	$2,440

Each nurse will be given a laptop to utilize during home visitations. Printers and office supplies will also be purchased. Nurses can use these supplies as necessary, including to print information and education for participants. Each nurse will also be given a cell phone to use for NFP purposes only. Participants will be given their assigned nurse's number and are free to call and text at times deemed appropriate by their nurse.

C. Travel

Year 1	Year 2	Year 3
In-state Travel		
$3,000	$3,000	$3,000
Out-of-state Travel		
$4,200	$2,300	$2,300

Nurses will be reimbursed for travel to and from client homes. According to the Alabama Department of Labor, the mileage reimbursement rate is $0.58 per mile. It is estimated that a nurse will make fifteen visits per week (two to three visits per day). Each nurse will travel an estimated seven miles per one-way trip. In state travel funding would be used for registration, accommodations, and travel to and from any state-level meetings and events related to infant mortality and perinatal care. The state's new infant mortality task force has inspired the creation of many opportunities and events, including the 2018 Infant Mortality Reduction Summit.

All members will travel to Denver, Colorado, for NFP training during year 1. All three nurses will also attend regional training in Atlanta, Georgia, in years two and three. The project director will attend the annual Nurse Family Partnership National Symposium, which is held in Washington, DC. The symposium allows all NFP program directors to meet and discuss their individual programs. Total meeting expenses are outlined below.

NFP Training (Y1)	
Airfare	$400
Lodging	$150/night x 3 nights = $450
Number of Attendees	4
Total	**$3,400**

Annual Regional Training (Y2-3)	
Travel	$50 (each)
Lodging	$150/night x 3 nights = $450
Number of Attendees	3
Total	**$1,500**

Project Director Meeting (Y1-3)	
Airfare	$350
Lodging	$150/night x 3 nights = $450
Number of Attendees	1
Total	**$800**

D. Incentives

As mentioned previously, the incentive offered to participants will be a $25 Walmart gift card upon completion of each survey, with a total of three required project surveys throughout enrollment. Participants will also be enrolled in a bi-weekly drawing for goody bags comprised of items such as infant clothing, formula, diapers, and other caring items as well as self-care and

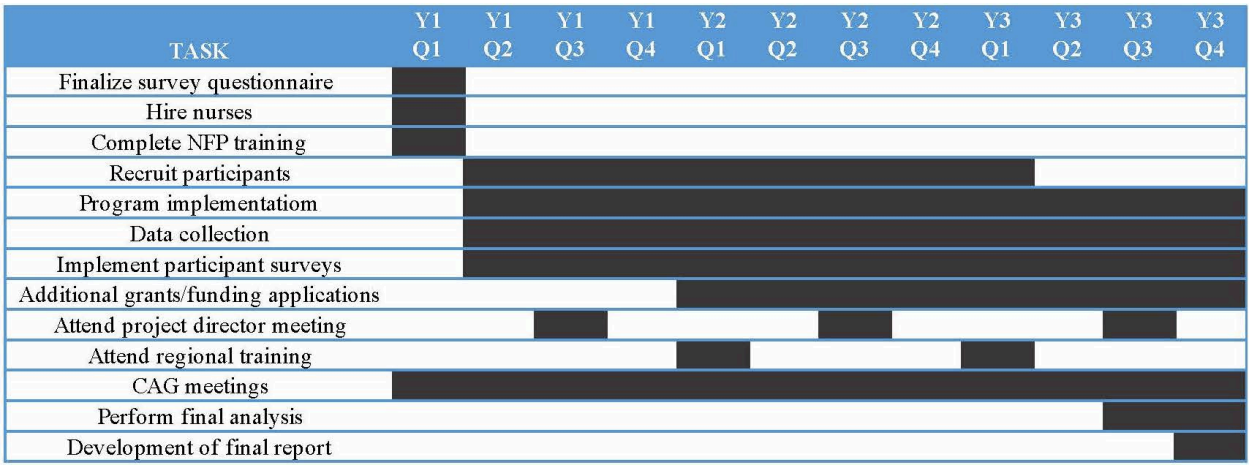
relaxation packages for mothers. Items will be purchased by NFP, but the organization will ask community organizations to donate and sponsor their own baskets. The allocated funds will also be used to provide food during CAG meetings. Funding will be decreased in year 3 due to the expectation of less enrollment and the completion of the program (average enrollment 24 months). If nursing staff only meets capacity of 190 women within three years, with a retention rate of 40% and 3 total gift cards, we would require at least $5,700. We have budgeted additional incentive funds for food, additional incentives, and additional participant enrollment.

E. Total Budget

	Year 1	Year 2	Year 3
Personnel	$230,704	$235,127	$239,609
Equipment and Supplies	$4,140	$2,440	$2,440
Travel	$7,200	$5,300	$5,300
Incentives	$5,000	$5,000	$3,000
Total	**$247,044**	**$247,867**	**$250,349**

*TOTAL 3 YEAR BUDGET**: $745,260**

GANTT CHART



MISCELLANEOUS FIGURES AND TABLES

Figure 4: Traditional Counties of the Alabama Black Belt[9]

Figure 5: Theory of Fundamental Cause

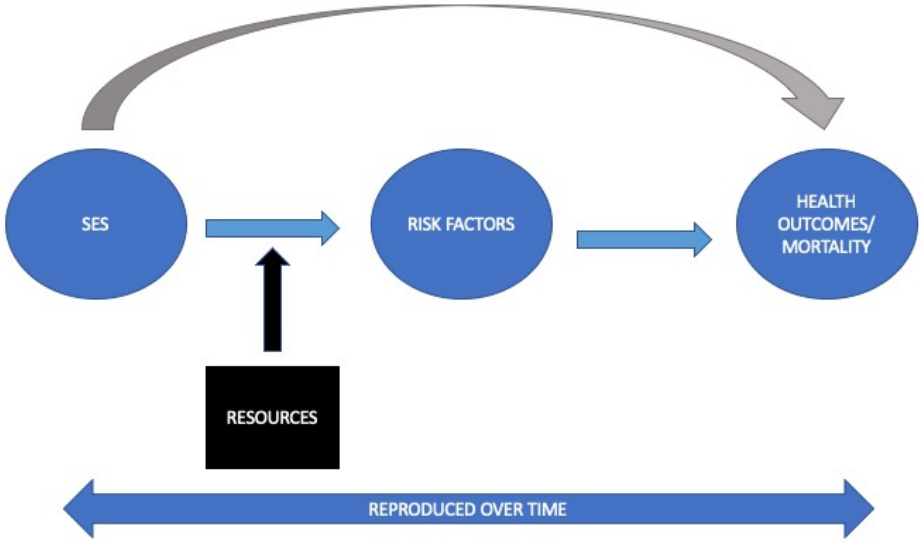
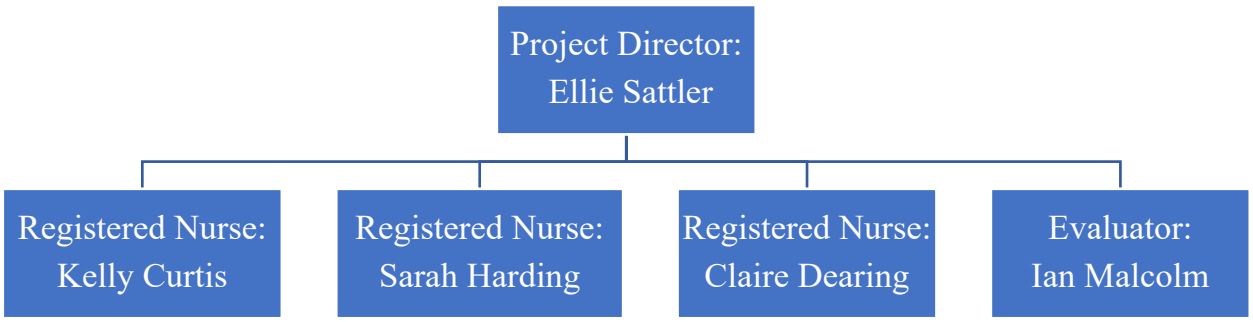


Table 2: Community Advisory Group (CAG) Members

Name & Title	Organization	Area of Expertise
Barbara Gordon, M*other*	N/A	Mother of 3 in Montgomery County
Rachel Dawes, V*olunteer* L*eader*	La Leche League of Montgomery	Breastfeeding support and education
Bruce Wayne, *Mental Health Therapist*	Montgomery Area Mental Health Authority	Psychiatric treatment and counseling
Anna Ramirez, T*eaching Assistant*	Montgomery Community Action Head Start	Infant/toddler child development
Selina Kyle, *Case Manager*	Montgomery County Healthy Start	Community needs and resource availability
Jonathan Crane, *Home Health Program Supervisor*	Montgomery Public Health Department	Home visitation programs in Montgomery and surrounding counties
James Gordon, *Public Relations*	Montgomery County Public Library	Library programming, community service
Lucius Fox, *Operations Supervisor*	Montgomery Transit	City transportation
Miranda Tate, *Health and Human Services Navigator*	River Region United Way	Local/national Health and Human Service enrollment

Figure 6: Project Management



BIBLIOGRAPHY

1. Centers for Disease Control and Prevention. (2018). *Infant Mortality*. Available from: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm.
2. Kim, D. and Saada, A. (2013). The Social Determinants of Infant Mortality and Birth Outcomes in Western Developed Nations: A Cross-Country Systematic Review. *Int J Environ Res Public Health*, 10(6): p. 2296-2335.
3. Total Resident Infant Deaths and Infant Mortality Rates by County. (2017). *Alabama Department of Public Health.*
4. White Resident Infant Deaths and Infant Mortality Rates by County. (2017). *Alabama Department of Public Health.*
5. Black and Other Resident Infant Deaths and Infant Mortality Rates by County. (2017). *Alabama Department of Public Health.*
6. Montgomery County, Alabama. (2017). *United States Census Bureau*. Available from: https://www.census.gov/quickfacts/fact/dashboard/montgomerycountyalabama/PST045217.
7. Vital Statistics. (2016). *Alabama Department of Public Health*.
8. Gift of Life. *Who We Serve.* Available from: https://golfound.org/who-we-serve/.
9. The University of Alabama Center for Economic Development. *Alabama's Black Belt Counties*. Available from: http://www.uaced.ua.edu/uploads/1/9/0/4/19045691/about_the_black_belt.pdf.
10. Norwitz, E. R. and Caughey, A. B. (2011). Progesterone Supplementation and the Prevention of Preterm Birth. *Rev Obstet Gynecol*, 4(2): p. 60-72.
11. Infant Mortality. (2018). *Alabama Department of Public Health*. Available from: https://www.alabamapublichealth.gov/perinatal/infant-mortality.html.
12. Infant Mortality Reduction Plan. (2018). *Alabama Department of Public Health*. Available from: https://www.alabamapublichealth.gov/perinatal/reduction.html.
13. Olds, D., Kitzman, H., Knudtson, M., Smith, J., and Cole, R. (2014). Effect of Home Visiting by Nurses on Maternal and Child Mortality: Results of a 2-Decade Follow-up of a Randomized Clinical Trial. *JAMA Pediatrics*, 168 (9), 800-806.
14. Michalopoulos, C., Lee, H., Duggan, A., Lundquist, E., et al. (2015). The Mother and Infant Home Visiting Program Evaluation: Early Findings on the Maternal, Infant, and Early Childhood Home Visiting Program. T*he Office of Planning, Research, and Evaluation, Administration for Children and Families, US Department of Health and Human Services.*
15. Nurse-Family Partnership. *About Us*. Available from: https://www.nursefamilypartnership.org/about/.
16. Moos, R.H. (1974). *Evaluating treatment environments; A social ecological approach*. New York: Wiley.
17. Phelan, J.C.; Link, B.G.; & Tehranifar, P. (2010). Social conditions as fundamental cause of health inequalities: Theory, evidence, and policy implications. *Journal of Health and Social Behavior,* 51 (S): p. S28-S40.
18. Nurse-Family Partnership. *Implementation Plan Guidance*. Available from: https://www.nursefamilypartnership.org/ipt2536/ipg1253/.
19. Association of Maternal and Child Health Programs. *Innovation Station: Emerging, Promising, and Best Practices on Infant Mortality and Improving Birth Outcomes*.

20. Health Services, Inc. *About HSI*. Available from: https://www.healthservicesinc.org/about/.
21. Health Management Associates. (2008). *An Analysis of Health Services for the Uninsured and Underinsured in the River Region of Alabama*.
22. Home Visiting Evidence of Effectiveness. (2018). *Implemeting Nurse-Family Partnership (NFP)*. Available from: https://homvee.acf.hhs.gov/Implementation/3/Nurse-Family-Partnership--NFP--Model-Overview/14.
23. Tuthill, E.L., McGrath, J.M., et al. (2015) *Breastfeeding self-efficacy: A critical review of available instruments.* J Hum Lact, 32(1): p. 35-45.
24. Froman, R.D. *Infant Care Self-Efficacy*. Available from: https://eric.ed.gov/?id=ED277721.
25. Schwarzer, R. & Jerusalem, M. *General Self-Efficacy Scale*. Available from: https://www.drugsandalcohol.ie/26768/1/General_Self-Efficacy_Scale%20(GSE).pdf.
26. National Longitudinal Surveys. *The HOME (Home Observation Measurement of the Environment)*. Available from: https://www.nlsinfo.org/content/cohorts/nlsy79-children/topical-guide/assessments/home-home-observation-measurement.