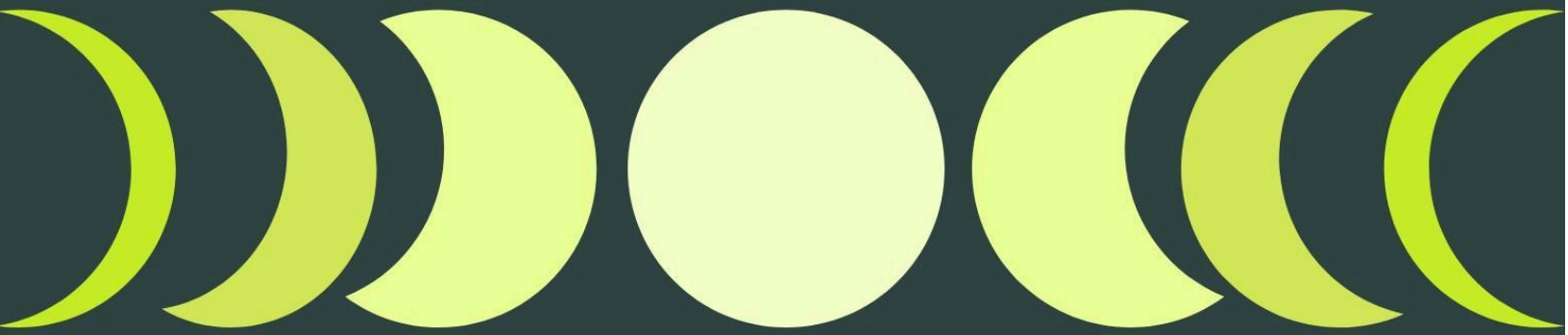

NATAL

a web of prenatal care support

CHS 211A, Group 5
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TABLE OF CONTENTS

ABSTRACT

Low birthweight (LBW), defined as babies born below 5.5 pounds, is increasing in prevalence in the United States (U.S.) and disproportionately impacts people of color, people living on low incomes, and people with low levels of education.[1] LBW is a leading cause of neonatal death in the U.S.; LBW babies are 20 times more likely to die in infancy than babies not born at LBW, and result in yearly economic costs of over $25.2 billion.[2] Service Planning Area 6 (SPA 6) in Los Angeles (L.A.) County, California has the highest level of LBW in the county, and the demographic makeup is predominantly people of color; Latinx people comprise 68.25% (717,130) of SPA 6, and Black people comprise 27.19% (285,702).[3] Underfunded hospitals and education, as well as little access to quality nutrition, safe housing, and preventative care in SPA 6 all contribute to risk factors associated with LBW; however, programs expanding access to prenatal care show promising impacts on addressing this health disparity.[4]

NATAL will act as a web of support that connects pregnant people in SPA 6 to existing prenatal care resources that may be underutilized, all in an effort to increase prenatal care.[4] NATAL will provide one primary intervention, prenatal education classes, and one secondary intervention, a prenatal support hotline. In partnership with community organizations, the prenatal classes will provide free education for pregnant people in SPA 6. The hotline will refer pregnant people to Medi-Cal, CalFresh, WIC, and other relevant services and local healthcare providers. NATAL will run for one year and, if implemented successfully, reduce the LBW rate among its participants by increasing prenatal care utilization.

PROBLEM STATEMENT

Trends & Who is Most Impacted: In 2021, 8.52% (311,932) of babies born in the United States (U.S.) were low birthweight (LBW), which is defined as below 5.5 pounds.[1] The rate of LBW babies in the U.S. has been fluctuating since the 1990s, with a recent increase of 3% from 8.24% in 2020.[5] LBW is a leading cause of neonatal death, accounting for 87 infant deaths per 100,000 live births in 2020.[2] In the U.S., LBW disproportionately impacts babies based on race, education, and socio-economic status (SES).[6]

Risk Factors: LBW is a result of preterm birth (PTB, live births before 37 weeks' gestation) or small-for-gestational age (SGA), which refers to babies who do not gain needed weight before birth.[7] There are a number of factors that determine the length of gestation and impact birth weight, including hypertension, diabetes, drug and alcohol abuse, weight, nutritional status, and lack of prenatal care (medical care received during pregnancy).[4,8,9] Many of these risk factors are more prevalent in communities experiencing poverty, and deprived socioeconomic-related factors such as food insecurity, income instability, and residential segregation.[10] Specifically, poverty is associated with an increase in stress, lower education rates, lack of access to healthcare, sedentary lifestyles, and poor quality nutrition, all of which can lead to the risk factors for LBW described above.[11,12] Research indicates that such social determinants of health may negatively impact quality and continuity of prenatal care needed to prevent LBW.[10]

Health Consequences: LBW babies are 20 times more likely to die in infancy (less than one year old) than babies not born at LBW, and those who survive are at higher risk of developing acute health complications such as respiratory distress syndrome, blindness, cerebral palsy, malnutrition, inhibited growth, and delayed cognitive development.[6,13] LBW is a predictor of health and SES across the life course; as adults, LBW babies have an increased risk of

developing chronic health conditions such as metabolic syndrome, type II diabetes, cardiovascular disease, hypertension, and cancer.[8,10] Chronic illnesses such as these often lead to other comorbidities, incur billions of dollars in healthcare costs, and contribute to the rate of Disability Adjusted Life Years (DALYs), which represent overall disease burden in a country.[14]

Economic Consequences: LBW babies require more medical interventions than average birthweight infants, leading to higher associated economic and healthcare costs.[15] As of 2016, the annual economic cost (medical, educational, loss in productivity) of LBW babies in the U.S. was over $25.2 billion.[16] Medical costs specifically were four times greater for LBW babies ($49,140) than average-weighted babies ($13,024).[16] Reallocating this spending to prevention efforts may reduce costs overall and lead to better health outcomes for LBW babies, as well as communities that are disproportionately impacted.[17]

Social Consequences: The outcomes of LBW carry through the life course and can impact educational attainment; as the prevalence of LBW decreases, educational attainment increases.[18] A study evaluated cognitive function from childhood to midlife and found that birthweight was positively associated with cognitive capability at multiple ages between 8 and 43.[18] Cognitive functioning is a predictor of educational attainment, occupational performance, SES, health, and longevity, all of which impact communities' ability to thrive over the lifecourse.[19]

Target Population: NATAL's target population is pregnant people in SPA 6, which encompasses the cities of Athens, Compton, Crenshaw, Florence, Hyde Park, Lynwood, Paramount, and Watts; the indirect targets are newborn babies. SPA 6 has a high LBW rate (8.1%) compared to the L.A. County average of 7.1% (8,783), a high prevalence of risk factors for LBW within the community, and existing infrastructure aimed at addressing maternal care inequities and incidence of LBW.[20] SPA 6 has the second highest rate of LBW in California; SPA 1 leads with

8.8% (489), but because SPA 6 has a significantly larger population, with predominantly Black and Latinx individuals (285,702 and 717,130 respectively) who carry the burden of LBW more than others, NATAL chose to focus on SPA 6 instead of SPA 1.[3,20]

In California, nearly twice as many Black babies are LBW (11.8%) than white babies (5.8%), subsequently making Black babies more likely to die or suffer from long-term health consequences due to LBW.[7,22] SPA 6 was historically predominantly Black due to segregated housing covenants and redlining, but today, Latinx people comprise 68.25% (717,130) of SPA 6, while Black people comprise 27.19% (285,702).[23] While the demographic majority in SPA 6 has shifted, it remains the largest population of Black people in L.A. County, and notably, the history of housing discrimination has resulted in underfunded hospitals and education, and deficiencies in access to quality nutrition, safety, and preventive care in the community, all of which contribute to the health risks associated with LBW.[3,23] While NATAL's target population broadly encompasses all pregnant people in SPA 6, it is important to note how historical and present day racism contribute to the problem, and dictate who is most impacted.

Pregnant people in SPA 6 reportedly experience a variety of barriers in accessing prenatal care, including mistrust in the medical system, perceived high costs, and unmet language needs.[24] Furthermore, 38% of adults aged 18-64 are uninsured (compared to the 29% county average), 45% report difficulty accessing medical care (32% county average), and only 11% report eating five or more fruits and vegetables per day (16% county average).[25] Notably, 23% of pregnant people do not receive prenatal care during their first trimester in SPA 6, compared to the 18% county average.[25] These factors are all driven by the history of racial segregation, which has influenced poverty rates, employment opportunities, healthcare access, and fresh food presence, all of which can impact birthweight outcomes.[11,12,26,27]

Initiatives to Address LBW: ***(1) Comprehensive Care & Classes:*** Several initiatives to increase prenatal care and subsequently reduce incidence of LBW have been introduced in L.A. County. MAMA's Neighborhood is a Los Angeles Department of Public Health (L.A. DPH) program that provides group prenatal care education classes.[28,29] Their goal is to reduce preterm birth (PTB, which is on the causal pathway to LBW) through providing affordable prenatal healthcare, free prenatal education classes, individualized care coordination, food access and more.[28] At the nine MAMA's Neighborhood sites across L.A. County, they provide prenatal care and education to clients with social risk factors prevalent among SPA 6 community members; 56% are under or unemployed, 54% need immigration services, CalFresh (California's Supplemental Nutrition Assistance Program), and MediCal, 25% face housing insecurity, and 18% have a language barrier to care.[30] MAMA's Neighborhood efforts appear to be effective; of their program participants, 86% have normal birthweight babies.[30] MAMA's Neighborhood classes are not currently offered at any clinics or hospitals in SPA 6.

(2) Nutrition Support. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) services provide nutrition education, healthy food vouchers, and healthcare referrals to pregnant or recently pregnant people.[31] Research on improving maternal nutrition indicates that a higher intake of healthy foods (fruits, vegetables, proteins, dairy products, whole grains) are associated with reduced risk of LBW.[32] WIC works to provide both nutritional education and access to healthy foods for pregnant people which can reduce LBW incidence.

(3) Group Programs. Lastly, programs like Centering Pregnancy offer group prenatal health education and discussions in order to expand awareness of prenatal health and access to obtaining it.[33] Group participants receive 20 hours of care throughout the course of their pregnancy compared to the two hours of traditional care; through education, support, and patient

engagement, these programs offer pregnant people an avenue for consistent resources and continuity of care, ultimately reducing their risk of birthing a LBW baby by 38%.[33]

Needs Assessment

NATAL reviewed academic literature, L.A. County data, and qualitative data from community organizations sharing pregnant people's experiences in SPA 6 to understand their priorities. We looked to community initiatives like the L.A. County African American Infant and Maternal Mortality (AAIMM) Initiative and Black Infants & Families to examine the social determinants of LBW in SPA 6. We conducted an environmental scan of the target population's access to and use of healthcare and insurance, service delivery, prenatal care and education, and public program enrollment such as WIC, CalFresh, and Medi-Cal, informing the scope of and gaps in prenatal care. Public benefits offices such as WIC, CalFresh, and Medi-Cal are stakeholders who will serve as valuable community partners during the implementation of NATAL's program, both by providing client referrals to NATAL, and by providing services to NATAL clients. Additionally, we will conduct key informant interviews with other local stakeholders, such as prenatal educators at MAMA's Neighborhood, midwives, doulas, and providers in SPA 6. Following a Community-Based Participatory Research (CBPR) model, we will conduct focus groups with pregnant people in SPA 6 to learn their barriers to receiving prenatal care such as transportation, childcare, scheduling, and food access, considering that SPA 6 has limited access to fresh food and is considered a food desert.[34,35] Furthermore, we will observe MAMA's Neighborhood's classes in order to familiarize NATAL staff with the curriculum, how the classes are run, and the benefits of group prenatal classes for potential clients. From there, NATAL staff will work with MAMA's Neighborhood to learn what resources and support they need to expand their prenatal education classes to SPA 6. Additional surveys

will be added throughout the program to respond to community priorities.

PROGRAM DESCRIPTION

Program Goal: NATAL aims to reduce the rate of infants born at LBW in SPA 6 by increasing prenatal care knowledge and utilization.

Program Rationale: NATAL will adopt MAMA's Neighborhood's prenatal education class curriculum to mitigate behaviors associated with risk of LBW. Martin Luther King Community Hospital (MLKCH) is the county hospital in SPA 6 where the majority of births occur, particularly for uninsured and MediCal patients.[21] By expanding MAMA's Neighborhood classes to MLKCH, NATAL participants will receive education in pregnancy nutrition, stress reduction techniques, and resources to increase prenatal care utilization, all of which have been linked to reduced incidence of LBW.[11,12,27,36] In addition, NATAL will develop a prenatal support hotline for pregnant people to access supplemental support during pregnancy, including community referrals and support with scheduling medical appointments.

Objective 1: Prenatal Care Attitude: By July 1, 2025, the number of Black and Latinx adults in SPA 6 who have very little or no trust in prenatal medical care will decrease by 15% from 16.5% (165,467) to 14% (139,467).[37] *Baseline Justification: A study on medical mistrust among racially diverse adults in California found that 16.5% of (1,624) Black and Latinx adults had little or no trust in medical care; therefore, our estimated baseline is 16.5% of the total population of Black and Latinx adults in SPA 6 (1,002,832), which is 165,467.*[37] **Rationale:** Pregnant people of color experience disproportionate levels of mistrust in medical providers, which has been linked to underutilization of prenatal care.[38] SPA 6 is 96% (1,002,832) Black and Latinx, and given the high prevalence of medical mistrust in communities of color, mistrust in medical care likely has a high prevalence in the community.[24] Historically, Black and Latinx

patients who had given birth at MLKCH have reported that they believe prenatal care is important; therefore it is likely not a lack of awareness that reduces prenatal care utilization in SPA 6, but rather mistrust of engaging with the medical system.[24] NATAL will attempt to build medical trust by providing culturally competent prenatal education courses at MLKCH and connecting patients with providers that meet their cultural needs.

Objective 2: Prenatal Care Behavior: By May 1st, 2028, the number of pregnant individuals who receive timely prenatal care (medical care during their first trimester) in SPA 6 will increase by 6.5% from 77% (15,077) to 82% (16,056).[25,39] *Baseline justification: NATAL aims to increase the number of pregnant individuals receiving prenatal care during their first trimester in SPA 6 up to the L.A. County average level of 82% (16,056).*[25,39] **Rationale:** Early initiation of prenatal care is associated with reduced incidence of LBW.[23,40] Prenatal care includes physical exams, blood tests, blood pressure monitoring, urinalysis, pelvic exams, vitamin prescriptions, and counseling on test results.[9] Prenatal care check-ups can provide early intervention for risky behaviors such as drug and alcohol use, and can address social factors like stress, safety, and food security, all of which can impact birthweight.[9,11,12,27] County and state-wide data depict the importance of early prenatal care to identify and mitigate risk factors, and MAMA's Neighborhood data further supports this: class participants who began receiving care during their first trimester had fewer incidences of LBW than those who did not.[23,41]

Objective 3: Prenatal Education Behavior: By July 1, 2025, the number of pregnant people in SPA 6 who have attended three group prenatal education classes will increase by 140% from a baseline of 150 to 360.[41] *Baseline justification: MAMA's Neighborhood has an active enrollment of 970 individuals across six sites in L.A. (none currently in SPA 6), which breaks down to 150 individuals attending group prenatal health education classes per site annually, indicative of*

how many people take prenatal education classes per SPA[41]*.* **Rationale:** Research indicates that prenatal group education classes are associated with a lower incidence of LBW and 86% of individuals in MAMA's Neighborhood prenatal classes reportedly birthed infants at normal birthweight.[36,41] Additionally, an evaluation of CenteringPregnancy group prenatal classes saw that participants had a 66% risk reduction in LBW, attributed to the social network of care and empowerment gained through skills and knowledge.[36] NATAL will adopt the MAMA's Neighborhood's classes that focus on topics that address risk factors to LBW to make our program tailored to program participants.

Objective 4: Prenatal Health Knowledge: By July 1, 2025, pregnant people in SPA 6 who participate in MAMA's Neighborhood classes will demonstrate an increase in knowledge of prenatal health by 40.4% from a baseline score of 50.1% to 84% on NATAL's adaption of the Maternal Health Literacy Inventory in Pregnancy (MHELIP) survey. *Baseline justification: While MHELIP is elaborated on in our methods section, it is a validated survey that measures different aspects of maternal health literacy. Because access to prenatal health education is lacking in SPA 6, we anticipate an average pretest score between 50.1 - 66, and an average posttest score between 84 - 100. Knowing that prenatal education is impactful in health outcomes, we believe that individuals who attend three MAMA's Neighborhood classes will be able to demonstrate an increase in prenatal health knowledge.* **Rationale:** According to the Precaution Adoption Process Model (PAPM) an individual must have awareness before they are able to take action on a health issue.[42] Using this theory, MAMA's Neighborhood classes will teach participants about prenatal care practices and increase their understanding of actions such as adopting healthy eating habits, staying hydrated, getting routine exercise, and practicing stress management, all of which can increase positive birth outcomes and reduce LBW.[12,43]

Key Strategies and Activities

NATAL's program design will utilize aspects of the Health-Belief Model (HBM) and PAPM in order to increase prenatal care knowledge and utilization among pregnant people in SPA 6. NATAL will accomplish this goal through a primary and secondary intervention. The primary intervention will administer three MAMA's Neighborhood prenatal education classes to program participants at MLKCH; the secondary intervention will be a hotline to connect callers with existing prenatal care services and provide navigation support.

Strategy 1: Hotline Recruitment: Recruit pregnant people in SPA 6 to access NATAL's hotline and receive prenatal support services. **Activities:** 1) Develop brochures that provide NATAL's hotline number, hours of operation, and a QR code to NATAL's website with a description of provided services. Services include assistance with securing providers and scheduling doctor's appointments, counseling on prenatal benefits covered by Medi-Cal, and connecting individuals to other public benefits such as CalFresh and WIC (see Appendix D) Develop partnerships with the DPSS Medi-Cal and CalFresh offices, local WIC offices and healthcare providers. Distribute NATAL's brochures to partners and request they distribute them to clients. 3) Post NATAL brochures at grocery stores, pharmacies, and other stores where people access pregnancy tests to target individuals at the beginning of their pregnancies. 4) Establish a pop-up protocol for NATAL's Health Care Navigators (HCNs) to station at local WIC offices, DPSS, healthcare providers, parks, and community grocery stores to advertise NATAL's hotline services.

Rationale: Following the Community Organization Model, NATAL will promote social action by utilizing existing programs in SPA 6 to recruit hotline callers.[42] By creating a network with established community programs and providers who already serve as trusted sources within the community, pregnant people may be more inclined to call NATAL's hotline and seek support.

Strategy 2: Hotline Development: Create a hotline for pregnant people in SPA 6 to call and receive prenatal support services from trained HCNs. **Activities:** 1) Utilize Dialpad, an existing software designed for public health programs, to run a streamlined workspace to house NATAL's hotline and participant records. Dialpad will direct hotline calls to NATAL's HCNs and will generate participant records from calls. 2**)** Recruit, hire and train NATAL staff to run hotline operations and pop-ups. 3) Through NATAL's hotline, HCNs will provide prenatal care navigation support to callers. 4) HCNs will update participant records with services provided and any additional barriers to care those callers shared. **Rationale:** Following the socio-ecological model at the community level, NATAL's hotline adds a prenatal care resource for the SPA 6 community, as well as recruit participants for NATAL's primary intervention: MAMA's Neighborhood group prenatal education classes. The hotline will address structural barriers to prenatal care access such as clinic hours, appointment availability, and cultural sensitivity of care by creating an avenue for pregnant people to express challenges they face and assist them in finding providers that fit their needs.[44] Pregnant people in SPA 6 will feel inclined to call NATAL's hotline because it provides an alternative method of medical support without the barrier of medical fear and mistrust. As a framework of reference, Safe Abortion Information Hotlines (SAIHs) have been used as a strategy to provide safe abortion information to pregnant people, which has been linked to positive patient care outcomes and reduced healthcare mistreatment.[45] SAIHs are typically operated by community members, which has led to pregnant people having increased trust in the services they provide.[45] Similarly, NATAL's hotline is operated by trained community members (HCNs) in an effort to create trust among participants.

Strategy 3: Health Education: Adopt MAMA's Neighborhood prenatal education course and offer classes at MLKCH. **Activities:** 1) Partner with MAMA's Neighborhood staff to plan class

schedules and logistical needs such as staffing, food, participation rewards/incentives, and class materials. 2) NATAL's NS will assist with facilitating MAMA's Neighborhood classes by tracking participant attendance, distributing food and cash incentives, and providing further assistance when needed. MAMA's Neighborhood will provide staff to teach the classes.

Rationale: Participation in group prenatal classes is linked to positive birth outcomes; therefore, tailored education that teaches specific tools to target LBW will be an efficient use of funding.[36,46] Each course in MAMA's Neighborhood's 8-class series focuses on one area of prenatal health that is important for both maternal and fetal health and development. The first three classes of MAMA's Neighborhood's curriculum are the most vital for reducing incidence of LBW; these include 1) Introduction to Prenatal Care (physical and emotional changes during pregnancy, i.e. stress management), 2) Nutrition and Building Healthy Habits (healthy weight gain, hydration, and nutrition), and 3) Exercise and Pregnancy (recommendations, benefits, and resources).[32] NATAL anticipates a reduction in incidence of LBW corresponding to an increase in prenatal care knowledge of these topics.

Implementation Plan

NATAL is a one-year program housed in the Community Health Department of MLKCH in Nickerson Gardens, Los Angeles. The program will run from July 1, 2024, to July 1, 2025.

PHASE I: Pre-Intervention (4 months)

Partnership Development: During a four-month period ending on November 1, 2024, NATAL will establish partnerships with key stakeholders including Medi-Cal and CalFresh programs, WIC, MAMA's Neighborhood, and healthcare providers in SPA 6 (Crenshaw Community Clinic, East Compton Clinic, Watts Healthcare). NATAL's Program Director and Administrative Assistant will generate these partnerships by creating shared goals and agreeing on a desired

number of monthly referrals provided by each entity (NATAL and community partner). This will allow NATAL to integrate in the community and generate an avenue for consistent recruitment.

Hire Staff: NATAL will post job listings for the following positions: one full-time Program Director (PD), one full-time Administrative Assistant (AA), one contract Technology Specialist (TS), two Navigation Supervisors (NS, one full-time and one part-time, split between primary and secondary interventions), three part-time Health Care Navigators (HCN), and two interns. All staff will be hired by September 22, 2024.

Train Staff: Beginning on October 1, 2024, NATAL's staff cohort will begin a two-week long training. During this time, the PD and AA will train staff on NATAL's mission and goals, the program structure and role responsibilities, general operations, and HIPAA. Staff will also receive training from representatives from the local WIC, Medi-Cal, and CalFresh offices to understand the scope of services provided. The TS will train staff on using Dialpad for hotline operation, and how to manage participant records. NSs hired for MAMA's Neighborhood class assistance will undergo training with MAMA's Neighborhood staff to support class facilitation.

PHASE II: Recruitment (5 months, ongoing)

Participant Recruitment: After the pre-intervention phase ends, recruitment for NATAL's program will begin and be ongoing for five months (November 1, 2024 - April 1, 2025). To recruit participants, NATAL will provide the Medi-Cal, CalFresh, and WIC offices each with 10 brochures per month detailing NATAL's services and request distribution to pregnant individuals who visit their offices. NATAL will also post 100 brochures at community parks, grocery stores, and pharmacies, and will replace or restock as necessary throughout the six months. ***Pop-Ups:*** During weekdays, one HCN and one Intern will host NATAL pop-ups at DPSS, WIC, and other partnered healthcare sites to recruit participants. Pop-ups will consist of a table, a canopy, and a

banner with NATAL's logo. Staff will pass out NATAL brochures and provide information on NATAL's hotline services and MAMA's Neighborhood classes.

PHASE III: Implementation (6 months, ongoing)

Hotline: ***Operations:*** Beginning on November 1, 2024, NATAL's hotline will operate from 1pm to 7pm every day. Two HCNs and one NS will work each shift. At the start of each call, the HCN will ask if the caller has previously contacted the hotline, and if so, retrieve the person's Dialpad record. Each record will contain the participant's name, date of birth, phone number, zip code (if applicable), and gestational age. Once the participant record is identified, HCNs will listen to their needs and provide referrals to services requested. At the end of each call, HCNs will note resources provided and ask participants if they are facing any additional barriers to accessing care. If NATAL has an existing resource for the barrier, HCNs will provide it; otherwise, they will use their feedback to inform future partnership efforts as part of NATAL's ongoing needs assessment. Half of all hotline callers will be randomly selected to join NATAL's other intervention arm, the MAMA's Neighborhood classes.

Health Education: ***Development:*** NATAL will adopt MAMA's Neighborhood's 8-class prenatal education curriculum to a LBW targeted 3-class course. This way, participants will 1) receive the most relevant information that is associated with reduced risk of LBW, 2) have more consistent exposure to the outcome (any given participant will take exactly three classes, making measurement of effectiveness more accurate), and 3) NATAL will be able to enroll more participants in the classes by offering more class cycles. ***Operations:*** Beginning the first week of November 2024 and continuing over the course of the five-month recruitment and six-month intervention period, NATAL will administer 12 cycles of MAMA's Neighborhood classes (two class cycles per month to offer more timeslots for participants); each cycle will last three weeks

(one class per week), with a week off at the end of each cycle. Classes will have a maximum of 25 participants to promote an intimate learning environment and engagement. MAMA's Neighborhood's Health Educators will facilitate the classes at MLKCH Outpatient Care Center with support from NATAL's NS. Participants will be required to attend all three classes to be eligible for evaluation and receive their $20 Visa gift card (see Appendix F) for full curriculum details). One NS and occasionally one intern, will be present at each class to take attendance, distribute incentives, when necessary (after a participants' third class), provide food for participants, and evaluate participant engagement.

LOGIC MODEL: *NATAL's Logic Model illustrates how prenatal education classes influence knowledge and behavioral shifts that reduce prevalence of LBW in the context of SPA 6.*

PROCESS EVALUATION PLAN

Purpose: To ensure proper implementation, NATAL will be continuously evaluated on dose delivered, dose received, recruitment and reach, client satisfaction, and fidelity. Methods for evaluation include questionnaires, surveys, class observation, attendance, and data collection.

Partnerships with Community Services: *Is NATAL receiving consistent referrals from local partnerships? Are all partners' goals being met? What unforeseen obstacles exist?* To ensure that NATAL's community partnerships with WIC, CalFresh, Medi-Cal, MAMA's Neighborhood, and healthcare providers are effective, NATAL's PD and administrative assistant (AA) will hold quarterly meetings with each partner to ensure the partnership is reaching its goals. These meetings will be a chance for NATAL and partner organizations to converse about any unmet needs or concerns, and for NATAL to understand partner organizations' referral and client support processes. For MAMA's Neighborhood, these meetings will address challenges or unmet needs occurring in the facilitation of classes at MLKCH.

Recruitment and Reach: *Are partners referring pregnant people to NATAL's hotline? Are pregnant people taking NATAL brochures at local clinics? Is NATAL referring participants to the hotline at pop-up events?* To monitor how well NATAL is recruiting new program participants, interns will call and visit local clinics, service offices, and sites that display NATAL brochures to assess if they are being utilized. The TS will generate reports by aggregating Dialpad data on how many new and existing participants contact the hotline, number of website views, and how participants heard about NATAL. The reports will be presented at monthly staff meetings where the PD, administrative assistant, and navigation supervisors will review the data to make strategic changes to recruitment efforts.

MAMA's Neighborhood Classes: *Are MAMA's Neighborhood prenatal education classes being attended? Are participants engaged and excited to attend the classes? Are these classes effective in distributing accurate and relevant information? Do these classes inspire participants to seek out other prenatal care services?* During each MAMA's Neighborhood class, NATAL's NS will observe and track participant engagement (paying attention, not on phones, body language

suggests attentiveness to class leader) and participation (asking questions, providing answers, sharing about themselves) **(*dose received*)**. They will take attendance at the beginning of each class to measure consistency **(*service utilization*)**. Due to the format of NATAL's program, it plans to execute its process and impact evaluation of MAMA's Neighborhood classes concurrently. Once a participant completes three MAMA's Neighborhood classes, they will be given a posttest survey to measure their outcomes achieved (further described in the impact evaluation) as well as their satisfaction and overall attitudes toward the classes. Through a survey administered in person, participants will be asked if the hours and location were accessible, if they felt comfortable in class, if the material was culturally relevant, if their questions were answered, and if they were given referrals to resources. This would inform NATAL if the classes provided useful information, if the class environment supports learning, and if the provided incentives are effective. The survey will evaluate **quality**, **integrity** and **fidelity** of the program.

Hotline Satisfaction: *Are NATAL hotline callers receiving the services they need? Are they having positive experiences with NATAL staff? Does the NATAL hotline have both wide reach and individual retention? Is NATAL providing pregnant people the resources and knowledge it set out to (**dose delivered**)?* The first 10 participants who call NATAL's hotline will receive a text survey asking about the accessibility and satisfaction of NATAL's services. Surveys will ask if the participant needs resources that are not currently available, if they are experiencing any barriers to accessing care, if their language and cultural needs are being met, if they have had positive experiences with NATAL staff, and if they plan to utilize prenatal care services since their hotline call. Participants who respond to the survey will receive a $10 Visa gift card. HCNs and interns will research new potential partners that could address unmet needs, as well as report their findings to the NSs and the PD who will work to foster new community relationships.

Healthcare Navigator Training: *Are NATAL staff effectively trained on NATAL's operations? Did NATAL build staff and program protocols in a culturally sensitive and relevant manner?* During NATAL's two-week paid staff training, the PD and AA will request feedback from HCNs at the end of each week. HCNs will be recruited from SPA 6 to offer perspective on the cultural relevance of NATAL's program protocols. After HCNs go through training, they will be required to complete a self-assessment that shows their understanding of NATAL's program protocols, hotline operations, and MAMA's Neighborhood curriculum. The assessment will also have a satisfaction survey for HCNs to provide feedback on the training period and provide suggestions ***(dose received)***. HCNs will be required to complete the survey and will be rewarded with $10 Visa gift cards for their time.

NATAL Staff Capacity: *Does NATAL have enough staff to sustain its hotline program and effectively run MAMA's Neighborhood classes? Is NATAL staff satisfied with the program delivery and work environment?* Based on feedback from HCNs and NSs, NATAL will continue to evaluate staff capacity to ensure the program has enough staff to function optimally. NATAL will ensure staff satisfaction through encouraging open and frequent communication, monthly 1:1 meeting between the PD, NSs, and HCNs to address any challenges or feedback, set goals, and reflect on program protocols that may need improvement.

Financial Audit: NATAL's PD will manage the budget and program spending to report needed adjustments over the six-month intervention span. The PD will also collect receipts from staff for any needed spending and run payroll. Annual financial audits will determine whether budget shifts are needed. ***Cost Per Program Participant:*** NATAL has budgeted $348,045.00 to run its intervention (hotline and MAMA's Neighborhood classes). While the program's anticipated sample size is 720 individuals, NATAL anticipates serving 3,240 individuals in the SPA 6

community through its hotline services, making the cost per person roughly $107.

IMPACT EVALUATION PLAN

Evaluation Research Questions: To assess the effectiveness of NATAL in reducing incidence of LBW, we plan to implement a randomized control trial (RCT) to evaluate the following research questions. (1) *Did pregnant people in SPA 6 who participated in MAMA's Neighborhood prenatal education classes demonstrate an increase in prenatal care knowledge?* which will utilize an explanatory strategy to measure knowledge gained through NATAL's program. This provides an indication of knowledge gained that would allow for the adoption of behaviors associated with reduced risk of LBW. (2) *Does participation in MAMA's Neighborhood prenatal education classes reduce the incidence of low birthweight (LBW) in SPA 6?* which will utilize an explanatory strategy because it examines the relationship between MAMA's Neighborhood prenatal care classes and the effect those classes have on behaviors that reduce LBW. Measuring this will indicate whether or not participation in MAMA's Neighborhood group prenatal education classes is an effective intervention in reducing incidence of LBW.

Research Design & Strategy: Using a RCT with a pretest-posttest method, we will evaluate the effect MAMA's Neighborhood classes have on prenatal care knowledge and the resulting impact on reducing the incidence of LBW. Randomization will help ensure that the control and treatment groups are composed of participants with an equal distribution of similar characteristics such as the number of prior pregnancies, age, race, immigration status, health insurance status, employment status, and relationship status. We will adjust for additional significant confounding factors during the analysis of the treatment and control groups. The treatment group will receive both MAMA's Neighborhood classes and NATAL's hotline support. The control group will only receive hotline support. While prior research indicates a greater risk

reduction with attendance of at least five prenatal classes, we targeted the first three MAMA's Neighborhood classes for efficiency and efficacy because their subject matter relates directly to LBW: Introduction to Prenatal Care, Nutrition and Building Healthy Habits, and Exercise and Pregnancy.[43] Based on past studies, we know that nutrition and healthy eating, exercise, and stress reduction skills are all on the causal pathway to birthweight outcomes; therefore, these three classes provide the most significant education in reducing risk of LBW, and increase efficiency and accessibility to participants by reducing the number of classes in NATAL's program.[4] To evaluate if attending MAMA's Neighborhood classes results in reduced risk of LBW, NATAL will compare birthweight outcomes of the treatment group (participants of MAMA's Neighborhood classes and hotline support) to the birthweight outcomes of the control group (participants who received only hotline support).

Hypotheses: The first three hypotheses answer our first research question by identifying the intermediate outcomes necessary to reduce incidence of LBW and ultimately, validating our second research question through our fourth hypothesis. Participation in MAMA's Neighborhood classes is defined as attendance of NATAL's adopted three-class series, inclusive of prenatal nutrition, stress reduction techniques, and physical and emotional changes in pregnancy.

Attributive Hypothesis 1: *Participation in MAMA's Neighborhood prenatal education classes will increase knowledge of stress management tools among pregnant people in SPA 6.* According to the Precaution Adoption Process Model (PAPM), an individual must have awareness before they are able to take action on a health issue; therefore, an increase in knowledge of stress management tools (independent variable) will likely lead to actions taken to reduce stress (dependent variable).[42] The pretest-posttest survey will measure stress competency, which we define as how participants reduce stress in their daily lives. Stress is an intermediate outcome of

LBW, so improving stress reduction competency will theoretically reduce risk of LBW.[27]

Attributive Hypothesis 2: *Participation in MAMA's Neighborhood prenatal education classes will increase nutrition knowledge among pregnant people in SPA 6.* An increase in knowledge of prenatal nutrition (independent variable) will theoretically improve nutritious eating during pregnancy (dependent variable). Considering PAPM and the HBM, NATAL will increase knowledge on the importance of nutrition during pregnancy and provide tools to support their prenatal health.[42] The pretest-posttest will measure nutrition knowledge before and after participation in MAMA's Neighborhood classes. Nutrition knowledge during pregnancy is defined by the MAMA's Neighborhood curriculum as knowledge on food groups and serving size, hydration, understanding food labels, health substitutes, food safety and MyPlate.[43] Nutrition knowledge is on the chain of causation to the intermediate outcome of nutrition habits during pregnancy, thus leading to reduced risk of LBW.[4]

Associative Hypothesis 3: *Participation in MAMA's Neighborhood classes is positively associated with prenatal care utilization among pregnant people in SPA 6 throughout their pregnancy.* Prenatal education (independent variable) in MAMA's Neighborhood classes will likely promote prenatal care (dependent variable) through influencing participants at different levels of the Socioecological Model. Targeting individual prenatal knowledge operates at the individual level, community support through interactions and relationship building influences the interpersonal level, and referrals to health care providers and other services influences the organizational level. The medical system navigation services and social support from MAMA's Neighborhood classes offered at MLKCH Outpatient Care Center will address the high prevalence of medical mistrust among Black and Latinx adults in SPA 6.[37] It is measuring an association between competency in navigating prenatal care resources, which is measured by the

ability of a pregnant person to seek out and receive prenatal care resources. Testing this will provide further understanding of why there is a lack of prenatal care utilization in SPA 6.

Explanatory Hypothesis 4: *Completing the adopted three-class series of MAMA's Neighborhood's curriculum will reduce rates of LBW babies among program participants.* Attending MAMA's Neighborhood classes (independent variable) and being exposed to stress reduction, nutrition knowledge, and prenatal care promotion (intermediate outcomes of reducing LBW risk), the treatment group will likely experience reduced rates of LBW (dependent variable). NATAL will compare birthweight outcomes of the treatment group to the birthweight outcomes of the control group. This measures a cause-and-effect relationship between utilizing resources referred and provided by NATAL with an increase in positive birth outcomes. This framework follows the HBM that states increasing knowledge around health issues encourages adoption of healthy behaviors.[42]

Sampling Strategy: NATAL will recruit participants through four primary avenues: community referrals such as healthcare providers and clinics, referrals through partnerships with local government entities including CalFresh, MediCal, and WIC, through NATAL pop-up events within the community, and through direct contact to NATAL's hotline. There were roughly 12,000 pregnant people in SPA 6 in 2021;[46] NATAL anticipates reaching 90% (10,800 people), and of those, successfully recruiting 30% (3,240) to our study.[47] Of those 3,240 individuals, we anticipate that roughly 80% will be eligible (2,600 people); however, NATAL does not have the capacity to teach enough classes for a sample size of 1,300 people. In order to maintain the structure of MAMA's Neighborhood classes and facilitate a strong, intimate community environment for better learning and engagement, NATAL plans to restrict each class to 25 people. With 25 participants in each class cycle, and a total of 12 cycles, our expected sample

size is 720 (360 in both treatment and control) after an anticipated 20% dropout rate from 864.

Potential dropout would occur if participants enrolled in MAMA's Neighborhood classes do not attend all three classes in the series (anticipated 10%). Additional dropout may occur from the control or treatment group among those who receive our services but do not complete the posttest survey (anticipated 10%). In the case that attrition is higher than anticipated, we will continue with the planned intervention and evaluate results with a smaller sample size.

Within an ongoing five-month recruitment period, we anticipate about 232 participants joining through community referrals, 200 through pop-up events, 232 through government entity referrals, and 200 through direct contact to the hotline, reaching a total recruitment size of 864 individuals. Of this total sample, 432 individuals will be allocated to the treatment group and 432 individuals will be allocated to the control group. We expect attrition to remain relatively even among treatment and control groups; while the classes are more burdensome for folks to attend, they receive a cash reward as incentives, and while hotline callers do not receive an incentive, their burden to access is minimal.

To account for the possibility of Type I and Type II errors in our hypotheses, we are recruiting a large sample to have a power of 80% with an alpha level of 0.05, to detect our standard effect size of 0.6. For the variation, we will choose a 50-50 split with a 3% sampling error. To account for maturation threats and selection bias, we will use post-stratification sampling to categorize data and will divide each stratum by gestational age. We will compare strata of participants in their first trimester (1 weeks to 13 weeks) to those in their second trimester (14 weeks to 28 weeks). Those with higher scores in the pretest survey will not be selected for the study.

Access to Participants: The first consideration in obtaining access to subjects is a potential lack

of trust in NATAL given the high rates of medical mistrust among Black and Latinx adults in SPA 6.[37] In order to address medical mistrust in the community, NATAL's HCNs will be hired exclusively from within SPA 6, so potential participants will interact with fellow community members who are more likely to relate to their daily experiences. Another potential consideration is availability and childcare; participants' work schedules could interfere with weekly class times, or they may lack access to reliable childcare. In order to combat this, NATAL will run two cycles of classes concurrently to offer more class times to participants, as well as provide childcare at MLKCH during class times with NATAL interns.

Exclusion Criteria: There are five main exclusion criteria for NATAL's participants. First, those who begin interacting with NATAL after 28 weeks of pregnancy because prenatal education prior to the third trimester (week 28 to 40) is more effective in reducing LBW.[4] Second, participants who do not speak English or Spanish because NATAL's program materials are only available in those two languages. Third, participants who do not live in SPA 6 in order to maintain consistency in participants' income levels (median household income in SPA 6 is $36,400).[25] Fourth, participants who do not have a phone number because they will not be able to contact NATAL's hotline and we will not be able to reach them for evaluation. Fifth, participants who had a high score (85 and above) in the pretest survey will not be administered a posttest survey or considered in the score comparisons. Their high score demonstrates an existing high level of prenatal health literacy, leading to potential contamination.

Data Collection and Measures: Our unit of analysis and data collection is the individual; we will collect data from individual NATAL participants and analyze it by comparing individual-level data from the control group to the treatment group. Participants will be randomly assigned to either the treatment or control group only when they have completed the pretest

survey to avoid contamination of the results. For treatment participants, the posttest survey will be administered on the last day of the three-course series (three weeks). For control participants, three weeks after their initial contact with NATAL's hotline, a posttest survey will be sent via text, followed up by phone call, or administered at their local DPSS office if requested.

To collect data from NATAL participants, we plan to utilize the Maternal Health Literacy Inventory in Pregnancy (MHELIP, Appendix A), a 48 question survey that has been proven as a "reliable and validated scale for assessing maternal health literacy during pregnancy."[48] The MHELIP has been tested and validated in urban areas among vulnerable populations comparable with SPA 6 making it an appropriate tool for our target population.[48] It comprehensively evaluates participants on the following topics: maternal health knowledge, searching for maternal health information, assessment of maternal health information, and maternal health decision making and behavior, and has been proven to be both consistent and valid.[48] This survey will test our first and second hypotheses that participation in MAMA's Neighborhood prenatal education classes will increase knowledge in stress reduction tools and nutrition among participants with questions like "I know recommended nutrition during pregnancy," and "I'm able to control/manage psychological changes in pregnancy." It will also assess our third hypothesis, which proposes that participation in MAMA's Neighborhood classes will be positively associated with prenatal care utilization and decreased medical mistrust through questions such as "I feel I trust healthcare providers." The survey is estimated to take participants around fifteen minutes to complete,[48] however, since NATAL will modify the survey to evaluate our intervention, we will pretest the survey with 30 participants from our target population, in both English and Spanish, to assess the length of time it takes to complete, and if the questions are clear to understand. The treatment and control groups' pretest survey will be administered during the time of recruitment

(at pop-up events or during first hotline interaction); treatment participants must take the pretest survey prior to their first MAMA's Neighborhood class. Posttest surveys for the treatment group will be distributed at the end of the third class of each MAMA's Neighborhood class cycle. Posttest surveys for the control group will be administered three weeks after their initial contact with NATAL to ensure treatment and control participants have a comparable amount of time interacting with NATAL. Lastly, we will collect data on participants' birth outcomes in order to evaluate our fourth hypothesis that participation in MAMA's Neighborhood classes reduces incidence of LBW. Once participants are 12 weeks postpartum, HCNs will contact them via call and text to obtain information on birthweight. For participants who do not respond, HCNs will follow up over a three-week period at different times of the day. After receiving birth outcome information, participants' outcomes will be categorized as a LBW outcome if their infant weighs less than 5.5lbs at birth, and no LBW outcome if their infant weighs above 5.5lbs at birth.[49]

Data Analysis: Following the MHELIP scoring protocol, participants will be scored on proficiency in its four main categories; we will add the raw scores and linearly transfer them to a score from 0 to 100 using the following formula: [(raw score – minimum possible raw score) / (maximum possible raw score – minimum possible raw score) * 100].[48] The final value is the total score, which is ranked in the four following categories: inadequate (0 - 50), problematic (50.1 - 66), sufficient (66.1 - 84), and excellent (84.1 - 100). We estimate that the majority of participants' pretest scores will fall between 50.1-66 (problematic) and our goal is for treatment group participants' posttest scores to fall between 84-100 (highly sufficient or excellent). Per the MHELIP's design, a score of sufficient or excellent is the desired health literacy score for a pregnant person.[48] We are confident in achieving these results based on the evidence provided in literature showing the impact prenatal care classes have on maternal health literacy.[33]

Ethical Considerations: While the three-class series is meant to be more attainable, cost effective, and specifically reduce LBW prevalence, NATAL excludes five classes from MAMA's Neighborhood's original curriculum that cover other topics relating to maternal health. While these additional classes do not lead to NATAL's goal of reduced LBW, they do influence many other birth outcomes. Additionally, NATAL services are only offered in Spanish and English. While most residents in SPA 6 are English and Spanish speakers, NATAL is not inclusive of the pregnant people in SPA 6 who are not. Lastly, while NATAL is intentionally designed to leverage existing resources, these resources operate outside of our jurisdiction; consequently, participants could have experiences that are not in line with NATAL's patient-centered values. Participant experiences in MAMA's Neighborhoods classes or other community partners include interactions with staff and curriculum details outside of NATAL's control. Thus, we anticipate potential issues in patient care given our dependence on referrals and outside teams.

DISCUSSION

Effectiveness: NATAL's program will be successful if the rate of LBW infants among program participants is reduced from the SPA 6 average of 8.1% to the L.A. County average of 7.1%.[20] The MAMA's Neighborhood curriculum and hotline support provided is expected to decrease participants' medical mistrust and increase their prenatal care knowledge, skills, and utilization during pregnancy. If unsuccessful, evaluation will show little to no reduction in LBW rates among study participants, or little to no improvement on their posttest scores. In this case, NATAL will reevaluate the MAMA's Neighborhood curriculum, the accessibility of the classes (i.e., room temperature, location, time, etc.), and the survey responses to identify potential weaknesses or barriers. If the program is unsuccessful in demonstrating an increase in prenatal health knowledge and utilization, and reduced incidence of LBW, NATAL plans to interpret the

findings to analyze which aspects of our program provide benefit to the community and how our findings can influence future interventions.

Limitations: *1) Recruitment.* While NATAL's recruitment strategy is a strength in that it involves various community stakeholders, it is a potential weakness in that it relies on external entities to provide referrals, who may refer participants who do not match our study's eligibility criteria. Additionally, it may be difficult to reach folks in their first trimester of pregnancy. NATAL's study participants must be between 1 and 28 weeks pregnant (first and second trimester) pregnant because prenatal education and care impact LBW more when adopted early in pregnancy; however, we are unsure how effective recruitment in early pregnancy will be given that people may not know they are pregnant or have not made a decision about keeping their pregnancy. *2) Contamination.* NATAL anticipates potential contamination through interaction between the treatment and control groups; because participants may live in the same neighborhoods or attend the same health clinics and community spaces, they may interact, and share information gained through the intervention. This will be revealed if the control group scores higher than expected (above 83, highly sufficient-excellent) in their posttest surveys and indicates exposure to prenatal care information through interacting with treatment group participants, healthcare providers, social services, or friends and family. Additionally, participants who have already completed prenatal care education classes or have had past pregnancies pose a contamination threat because they will have a higher baseline knowledge of prenatal health. While we recognize these groups as potential confounders, we wanted to keep our inclusion criteria broad enough to include a large sample of pregnant individuals. *3) Attrition.* Anticipated dropout (20%) is a potential limitation to collecting accurate data from the desired sample size. In response, NATAL works to reduce barriers pregnant people may face in

participating by providing incentives and childcare during class. Lastly, we cannot control how many interactions the control group participants will have with NATAL's hotline leading to potential inconsistency in control group's measurements.

Validity: *1) Internal validity.* When analyzing the evaluation results, NATAL will account for maturation threats, selection bias, and gestational age by stratifying for factors such as prior pregnancies, age, race, immigration status, health insurance status, employment status, and relationship status to ensure internal validity. However, the majority of SPA 6 is located in a food desert, meaning residents have limited access to fresh produce and other foods considered nutritious during pregnancy.[35] If no change in nutrition is seen in post MAMA's Neighborhood classes, it may be due to limited access to these foods, rather than lack of nutrition knowledge gained. *2) External validity.* If NATAL's objectives are reached, we will conclude that MAMA's Neighborhood classes are effective in increasing prenatal care utilization over exclusive hotline use and this can be generalizable to communities of color and low SES. However, our findings are not generalizable to prenatal courses alone since the MAMA's Neighborhood classes were provided in conjunction with the hotline. Additionally, we are not analyzing barriers to utilizing phone services; therefore, we will not know if potential barriers influenced the positive results of MAMA's Neighborhood classes through underutilization of the hotline.

Implementation contingency plan: Classes will be rescheduled in the case of cancellations due to MAMA's Neighborhood facilitator's absence. If the class needs to be canceled or moved to a different location for external factors (classroom is under remodeling, COVID-19 exposure, etc.), NATAL will have a backup space at MLKCH Outpatient Center or will teach the class remotely via Zoom. If a class needs to be canceled, we will reschedule that same week following the participant's best availability. If a HCN is unavailable to operate the hotline, attend popups or

classes, a NS will substitute and perform the HCN duties.

Sustainability: NATAL operates through leveraging existing resources in SPA 6. These resources will continue to exist without NATAL's services; however, we expect that participants will disseminate knowledge gained and influence prenatal care utilization among the community. Furthermore, if our intervention is effective, we will work with MAMA's Neighborhood to consider the possibility of a LBW-specific series at MLKCH Outpatient Center and other locations.

Dissemination of findings: NATAL will share findings with our partners and stakeholders to inform programs working with pregnant people in SPA 6. NATAL's adapted three-class series curriculum will be shared as a toolkit via email and in-person meetings, as well as to other community partners upon request. NATAL will share findings with other researchers via academic and policy institutions, at conferences, and in relevant maternal health and reproductive justice journals. NATAL's success would prove a need for prenatal education in SPA 6 to reduce LBW through stress management knowledge, prenatal nutrition knowledge, and prenatal care utilization.

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APPENDIX

Appendix A: Timeline

	Year 1												
	2024						2025						
Activity	**July**	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Jan.**	**Feb.**	**Mar.**	**April**	**May**	**June**	**July**
Pre-intervention													
Develop partnerships					Nov 1								
Develop pretest & posttests													
Develop staff training materials													
Hire Staff													
Train Staff													
Design NATAL's website													
Design marketing materials													
Establish hotline number													
Reserve room for MAMA's													
Program maintenance													
Partnership engagement													
Maintenance of Dialpad													
Marketing materials edits													
Recruitment													
Deliver brochures to partners													
Place brochures in public areas													
Partners disseminate brochures					Nov. 1					April 1			
Community Pop-ups													
Implementation													
Operate Hotline					Nov. 1					April 1			
MAMA's Neighborhood classes													
Evaluation													
Pre-test survey both groups													
Post-test survey both groups													
Birth outcome data collection													
Full program evaluation													July 1

Appendix B: Budget

NATAL Cumulative Budget (2024 - 2025)			
PEROSONNEL	**QUANTITY**	**%FTE ON PROJECT**	**ANNUAL SALARY / TOTAL**
FULL TIME EMPLOYEES (WEEKDAYS ONLY)			
Program Director	1	100.00%	$67,200.00
Navigation Supervisor	1	100.00%	$57,600.00
Administrative Assistant	1	100.00%	$57,600.00
BENEFITS & TAXES AT 40%			
All full-time employees			$72,960.00
PART TIME EMPLOYEES (WEEKDAYS ONLY)			
Health Care Navigators (30 HOURS)	2	150.00%	$36,000.00
Interns (15 HOURS)	2	75.00%	$12,960.00
PART TIME EMPLOYEES (WEEKENDS ONLY)			
Navigation Supervisor (12 HOURS)	1	30.00%	$17,280.00
Health Care Navigators (12 HOURS)	1	30.00%	$14,400.00
TOTAL			**$336,000.00**
NON-PEROSONNELL	**QUANTITY**	**UNIT COST**	**TOTAL COST**
CONTRACTED EMPLOYEES (HOURLY, INVOICED)			
Technology Specialist	1	$45/HR	$3,780.00
Technology			
Laptops	5	$900.00	$4,500.00
Dialpad Software	1	$35.00	$420.00
MLKCH Office			
Office furniture	x	$1,000.00	$1,000.00
Office snacks	8	$50.00	$400.00
Pop-Ups			
Furniture	x	$140.00	$140.00
Marketing			
Brochures	300	$0.50	$150.00
Fliers for job postings	50	$0.50	$25.00
NATAL Swag	100	$5.00	$500.00
Local Travel	100 mi	$0.50	$50.00
Treatment Group Incentives			

Class Food	36	$30	$1,080.00
TOTAL			**$12,045.00**
EVALUATION COSTS	**QUANTITY**	**UNIT COST**	**TOTAL COST**
Process Evaluation			
In-Depth Survey Participants: Visa gift cards	10	$10	$100.00
HCN Feedback Surveys: Visa gift cards	3	$10	$30.00
Impact Evaluation			
Treatment Group Participation & Feedback: Visa gift cards	360	$20.00	$7,200.00
Printed MHELIP Surveys	360	$0.16	$57.60
SAS Statistical Software	2	$295.00	$590.00
TOTAL			**$7,977.60**
TOTAL (PERSONELL, NON-PERSONELL, OTHER, EVALUATION)			
TOTAL DIRECT COSTS			$356,022.60
TOTAL INDIRECT COSTS AT 20%			$71,204.52
GRAND TOTAL			**$427,227.12**

Appendix C: Budget Justification

PERSONNEL

Full-time employees

Program Director (1): The Program Director will oversee NATAL's program activities and staff, maintain relationships with community partners, manage the budget, apply for grants and other funding, run payroll, authorize expenses, oversee documentation for the program, and report to the leadership of MLKCH Hospital. The Program Director will work alongside the Administrative Assistant to lead quarterly meetings with community partners. The Program Director will spend the first 10 months of the program on planning, recruitment, and implementation efforts, and the last two months on evaluation efforts.

- Monthly salary: 1 FTE, $5,600
  Annual salary: 40 hours per week, 12 months = $67,200
  Total salary requested = $67,200
- Shift: 11am - 7pm, Monday - Friday

Navigation Supervisor (NS) (1): The weekday Navigation Supervisor will directly oversee the HCNs and Interns, attend quarterly meetings with community partners, coordinate local community partnerships alongside the Program Director, lead process evaluation focus groups, and hire and train HCNs and interns. Additionally, they will support facilitation of MAMA's Neighborhood prenatal education classes by taking attendance, distributing incentives, and supporting MAMA's Neighborhood staff as needed. Once the recruitment and intervention phase are complete, the NS will spend the last two months supporting evaluation efforts.

- Monthly salary: 1 FTE, $4,800
  Annual salary: 40 hours per week, 12 months = $57,600
  Total salary requested = $57,600
- Shift: 11am - 7pm, Monday - Friday

Administrative Assistant (1): The Administrative Assistant (AA) will assist with paperwork, schedule meetings, track program expenses and purchases, assist Program Director with staff payroll, coordinate with the Technology Specialist about website or software updates, take notes during meetings, support staff training, purchase incentives, order office food, class food, incentives, and NATAL swag. They will also coordinate with the MLKCH Human Resources department when needed, and support NS and HCNs with daily responsibilities. The AA will spend the first 10 months of the program on planning, recruitment, and implementation efforts, and the last two months on evaluation efforts.

- Monthly salary: 1 FTE, $4,800
  Annual salary: 40 hours per week, 12 months = $57,600
  Total salary requested = $57,600
- Shift: 11am - 7pm, Monday - Friday

We have allocated an additional 40% of all full-time employees' salaries for taxes and benefits, which equates to an additional $72,960 for the full year of the program.

Part-time employees (weekdays only)

Healthcare Navigators (HCNs) (2): The HCNs will operate NATAL's Hotline and pop-ups to perform program recruitment; they will distribute NATAL information to community partners

and support with both process and impact evaluation efforts. At least one HCN will be fluent in Spanish.

- Monthly salary: 1.5 FTE, $3,000.00
  Annual salary: 30 hours per week, 12 months = $36,000.00
  Total salary requested (2 HCNs) = $72,000
- Shift: 1pm - 7pm, Monday - Friday.

Interns (2): Interns will support recruitment and evaluation efforts by designing and printing NATAL brochures, distributing materials to community partners, supporting pop-up recruitment events, and assisting with social media management and engagement. Interns will assist with childcare in MAMA's Neighborhood classes when needed. During process evaluation, they will help administer surveys and follow up with participants when needed. Interns will additionally support NATAL staff during the impact evaluation phase.

- Monthly salary: 0.75 FTE, $1,080
  Annual salary: 15 hours per week, 12 months = $12,960
  Total salary requested (2 interns) = $25,920
- Shift: 2pm - 7pm, 3 days per week.

Part-time employees (weekends only)

Navigation Supervisor (NS) (1): The weekend Navigation Supervisor will provide oversight and support for HCNs during hotline operation. Additionally, they will provide support during process and impact evaluation.

- Monthly salary: 0.3 FTE, $1,440
  Annual salary: 12 hours per week, 12 months = $17,280
  Total salary requested = $17,280
- Shift: 1pm - 7pm, Saturday - Sunday.

Healthcare Navigators (HCNs) (1): The weekend HCN will operate NATAL's hotline, fill out participant charts, and assist in recruitment, process evaluation, and impact evaluation efforts when necessary. The weekend HCN will be fluent in Spanish.

- Monthly salary: 0.3 FTE, $1,200.00
  Annual salary: 12 hours per week, 12 months = $14,400.00
  Total salary requested = $14,400.00
- Shift: 1pm - 7pm, Saturday - Sunday.

OPERATIONAL COST

Contracted employees

Technology Specialist (TS): The Technology Specialist will be a contracted employee and will establish and maintain NATAL's Dialpad account. They will streamline the Dialpad software on all of NATAL's laptops and ensure proper security software is installed. Additionally, they will produce program reports that provide data on quantity and frequency of hotline callers. They will also build NATAL's website and administer edits when requested. We anticipate the TS will log more hours at the beginning of the program during setup, and fewer throughout the program during maintenance, for an average of 7 hours per week.

- Monthly salary: $315.00
  Annual salary: $45/HR, $315 per month, 12 months = $3,780.00

Total requested = $3,780.00.

Technology

Laptops: Five laptops will be purchased for the Program Director, Navigation Supervisor, Administrative Assistant, and both HCNs. Laptops will be used at the MLKCH office to operate the hotline and during the MAMA's Neighborhood classes to track attendance.

- Total cost: 5 laptops x $900.00 each = $4,500.00.

Dialpad software: Dialpad is the software that HCNs will use to run the hotline operation; additionally, it will be used to track participants throughout the program (i.e.: attendance at MAMA's Neighborhood classes, number of hotline interactions, completion of pre-test/post-test, etc.).

- Total cost: Dialpad subscription ($35.00 per month) = $420.00.

MLK Office

NATAL's program is housed and located at Martin Luther King Community Healthcare (MLKCH) Hospital's Community Health Department in Nickerson Gardens, Los Angeles.

Office Furniture: The furniture for NATAL's program will be purchased during the pre-intervention phase. It will be used in the MLKCH office for NATAL staff. The furniture will be desks, chairs and sofas.

- Total cost: $1,000.00.

Office Snacks: Snacks will be provided for all staff at MLKCH office.

- Total cost: $50 per month x 8 months = $400.00.

Pop-Up Events

Furniture: The furniture for the pop-ups will be purchased during the pre-intervention phase. Pop-up sites will require a portable table, tent, and banner. Swag and other materials are included in the marketing section of this budget.

- Total cost: $30.00 table + $35.00 banner + $75.00 tent = $140.00.

Marketing

Brochures: Brochures will be printed and distributed to partner's offices, community spaces, and used during pop-up recruitment events.

- Total cost: 300 x $0.50 each = $150.00.

Fliers for job postings: Fliers will be printed and distributed during the pre-intervention phase.

- Total cost: 100 x $0.50 each = $50.00.

NATAL swag: Swag will be used for pop-up handouts.

- Total cost: 100 x $5.00 per item = $500.00.

Local travel: Mileage reimbursement will be provided to staff that travel between partner sites. They will drive to partner locations that are located around MLKCH Hospital. Locations in SPA 6 where staff will be traveling include: Department of Public Social Services (DPSS) (Medi-Cal

and CalFresh programs), WIC, and healthcare providers in SPA 6 (Crenshaw Community Clinic, East Compton Clinic, Watts Healthcare), grocery stores, and pharmacies.

- 10 months x 10 mi/month = 100 miles total.
- Total cost: 100 mi x $0.50 = $50.00.

Incentives

Incentives for MAMA's Neighborhood

Visa Gift Cards: Each participant in the intervention group (MAMA's Neighborhood prenatal classes) will receive a $20 visa gift card for attending at least two of the first three classes. NATAL's anticipated sample size for the treatment group is 360 individuals.

- Total cost: 360 x $20.00 = $7,200.00.

MAMA's Neighborhood class food: NATAL will provide food to participants in each MAMA's Neighborhood class. There will be a total of 36 classes held during the intervention (12 class cycles, 3 classes in each cycle).

- Total cost: 36 x $30.00 = $1,080.00.

EVALUATION COSTS

Process Evaluation

Hotline Survey Rewards: The first ten hotline callers will be asked to complete a survey administered via text message that will ask them to evaluate their experience contacting the hotline; each survey participant will be rewarded with a $10 Visa gift card.

- Total cost: 10 x $10 = $100.00.

NATAL Staff (HCN) Survey Rewards: NATAL's three Health Care Navigators will be asked to evaluate the efficacy of their staff training and how culturally relevant they feel NATAL's services are. This survey is an internal evaluation of NATAL's staff / human resources process. Each HCN will be rewarded with a $10 Visa gift card for completing the survey.

- Total cost: 3 x $10 = $30.00.

Impact Evaluation

Treatment Group Participation & Feedback: All study participants who complete the three MAMA's Neighborhood prenatal education classes will be given a hand-written survey in person at the final class meeting to evaluate their experience and measure knowledge gained. This survey will serve as *both a process evaluation and an impact evaluation measurement*. Each participant will then be rewarded with a $20 Visa gift card for completing the program.

- Total cost: 360 x $20 = $7,200.00.

Printed MHELIP Evaluation Surveys: Each study participant in the MAMA's Neighborhood classes will be given a printed survey to fill out by hand. We anticipate printing costs to be $0.16 per survey for 360 participants.

- Total cost: 360 x $0.16 = $57.60.

Evaluation Statistical Tool: NATAL will utilize SAS to input survey data and analyze results. NATAL will purchase two licenses for the Program Director and Navigation Supervisor to analyze results.

- Total cost: $295 per license x 2 licenses = $590.00.

Total Cost requested: $427,227.12.
NATAL requests $427,227.12 to run a one-year, two-tiered intervention in SPA 6; this cost includes personnel, operational, and evaluation costs. While we acknowledge the gravity of this amount, it is far below the economic costs associated with low birthweight (LBW) in the U.S., which exceeds $25.2 billion annually.[17] On average, this breaks down to about $49,140 per LBW infant, compared to $13,024 per average-weighted infant.[17] NATAL's total cost per person is $107 (total program $ requested / 3,240 people served), making the cost to theoretically prevent LBW much lower than the cost to treat complications that arise from LBW.

Appendix D: Brochures (English & Spanish)

Catch Us In Person

Each week we will be popping up in your community with prenatal resource navigation and to enroll you in prenatal classes. Find us at Crenshaw Community Clinic, East Compton Clinic, Watts Healthcare, and MLK Community Healthcare Hospital. We will also be at grocery stores and pharmacies near you.

Check our website for our schedule!

1-866-GO-NATAL

(1-866-466-2825)

Prenatal Hotline

Getting all your prenatal care

Healthcare Navigators to support you in getting the resources you need throughout your pregnancy and into postpartum.
Assistance in navigating Medi-Cal, WIC, and CalFresh. Help you find and make doctor's appointments that fit your needs.

MAMA's NEIGHBORHOOD
a Strong Start for Families

Prental Classes

with MAMA's Neighborhood at MLK Community Hospital

Free prenatal classes! A 3-class series to learn how to care for your body and yourself during pregnancy. Covers physical and emotional care, nutrition, and exercise.

NATAL-LA.ORG

1-866-GO-NATAL

(1-866-466-2825)

NATAL-LA.ORG

1-866-GO-NATAL

(1-866-466-2825)

NATAL

una web de apoyo prenatal

NATAL-LA.ORG

1-866-GO-NATAL

(1-866-466-2825)

MAMA's NEIGHBORHOOD

CALIFORNIA WIC WOMEN, INFANTS & CHILDREN

CalFresh FOOD

Nos puedes conocer en persona

Cada semana estaremos en tu comunidad con recursos prenatales para ayudarte a navegar el sistema de salud y para registrarte en clases prenatales. Encuentran en Crenshaw Community Clinic, East Compton Clinic, Watts Healthcare, y MLK Community Healthcare Hospital. También estaremos en supermercados y farmacias cerca de ti.

¡Revisa nuestra página web para ver nuestros horarios y ubicaciones!

1-866-GO-NATAL

(1-866-466-2825)

Línea de Teléfono Prenatal

Recibe todo tu cuidado prenatal

Navegadores de salud te apoyaran para obtener los recursos que necesitas durante tu embarazo y postparto.
Te darán asistencia para navegar los servicios de Medi-Cal, WIC, y CalFresh. Te ayudarán a encontrar y a hacer citas con doctores para tus necesidades en el embarazo.

MAMA's NEIGHBORHOOD
a Strong Start for Families

Clases Prenatales

con MAMA's Neighborhood en MLK Community Hospital

¡Inscríbete en clases prenatales gratis! Consiste en una serie de 3 clases para aprender sobre como cuidar tu cuerpo y tu mentalidad durante el embarazo. Los temas son sobre cuidado para tu cuerpo, nutrición, y ejercicio.

Appendix E: Staff Roles

Program Director: The full-time Program Director will oversee NATAL's program activities and staff, maintain relationships with community partners, manage the budget, apply for grants and other funding, run payroll, authorize expenses; oversee documentation for the program, and report to the leadership of MLKCH Hospital. The Program Director will lead quarterly meetings with community partners.

Administrative Assistant: The full-time Administrative Assistant will assist with paperwork, answer NATAL's office phone, schedule meetings, track program expenses and purchases, assist Program Director with staff payroll; coordinate with TS about website or software updates, take notes during meetings, support staff training; purchase incentives, order office and class food and NATAL swag. They will also coordinate and liaise with the MLKCH Human Resources department when needed.

Technology Specialist (TS): The Technology Specialist will be a contracted employee and establish and maintain NATAL's Dialpad account. They will streamline the Dialpad software on all of NATAL's phones and laptops and ensure proper security software is installed. In addition, they will produce program reports that provide the number of calls received in a given timeframe, the frequency that services are requested, and any other data requested by the Program Director. They will also build NATAL's website and administer edits when requested.

Navigation Supervisors: Navigation Supervisors will directly oversee the HCNs and Interns, as well as attend weekly meetings with the Program Directors about hotline, pop-ups, and MAMA's Neighborhood operations. They will attend quarterly meetings with community partners and provide any feedback received from HCNs and Interns. They will lead hiring and training efforts for HCNs and Interns and oversee NATAL's social media accounts.

Healthcare Navigators (HCNs): The part-time HCNs will work pop ups at partner's sites to distribute NATAL information to recruit participants, respond to NATAL's hotline calls, fill out

participant charts, and note unmet prenatal care needs among program participants. At least one HCN will be fluent in Spanish.

Interns: Interns will work alongside Navigation Supervisors to design and print NATAL recruitment materials; research potential community partners and perform outreach, aggregate data collected by the TS to present to Navigation Supervisors and assist with social media management and engagement. They will also assist HCNs at pop-ups at least once per week.

NATAL Staff Hours & Shifts:

Hotline operating hours:

- MONDAY - FRIDAY: 1pm- 7pm
- SATURDAY - SUNDAY: 1pm - 7pm

Pop-up hours weekdays:

- MONDAY - FRIDAY: 1pm - 7pm
- SATURDAY - SUNDAY: 1pm - 7pm

HCNs and the NS will work two 6 hour shifts a week from 1pm to 7pm.

Appendix F: MAMA's Neighborhood Curriculum

MAMA's Neighborhood establish curriculum class topics are:

Session 1 – Introduction to Prenatal Care

- Introduction to the different class topics
- Physical changes during pregnancy
- Emotional changes during pregnancy

Session 2 – Nutrition and Building Healthy Habits

- Appropriate weight gain during pregnancy
- What should you eat? (food groups, serving size, MyPlate)
- Staying hydrated
- Reading food labels
- Healthy substitutes
- Food safety

Session 3 – Exercise and Pregnancy

- Benefits of exercise during pregnancy
- Safe exercises to do.
- What are the recommendations?
- When to stop exercising

Session 4 – Breastfeeding

- Benefits of breastmilk for baby and mom
- Understanding how breastfeeding works
- Effective Latching
- Breastfeeding positions
- Additional support (BF support groups, pumps)
- Baby Friendly, Skin to skin

Session 5 – Labor and Delivery

- Understanding stages of labor, false labor vs. active labor, contractions
- When to go to the hospital, triage, admission
- Vaginal/Cesarean delivery
- Options for pain management
- What baby will look like when it is born (vernix, Mongolian spots, milia, puffiness)
- Hospital policy (stay, number of people in the room, etc.)

Session 6 – Comfort Techniques during Labor

- What techniques to use to ease pain during labor
- Understanding contractions
- Cycle of fear, pain, tension
- Comfort techniques (breathing, scented candles, picture/image)
- Laboring positions
- How labor partner can be of support

Session 7 – Postpartum Care for Mom

- Post birth vaginal care/cesarean section care
- Baby blues/postpartum depression
- Contraception

Session 8 – Postpartum Care for Baby

- Car seat safety
- Umbilical cord care
- Bathing your baby
- Safe sleep, SIDS

Appendix G: The maternal health literacy inventory in pregnancy (MHELIP)

(ADAPTED FROM Taheri S. et al., 2018 TO FIT NATAL's PROGRAM)

Item	I don't know at all	I know a little	I know something	I know a lot	I know fully
1. I know expected physical changes during pregnancy.					
2. I know expected psychological changes during pregnancy.					
3. I know recommended nutrition during pregnancy.					
4. I know recommended healthcare during pregnancy					
5. I know recommended physical activity in pregnancy.					
6. I know recommended exercise during pregnancy.					
7. I know how to choose prenatal supplements (vitamins).					
8. I know the appropriate referral timing for pregnancy examinations (visits).					
9. I know diagnostic examinations (ultrasound and tests) of maternal and fetal health in pregnancy.					
10. I know of expected weight gain during pregnancy.					
11. I know common pregnancy problems such as nausea, vomiting, lower back pain.					
12. I know recommended vaccines during pregnancy.					
13. I know the normal number of fetal movements.					
14. I know the factors affecting fetal					

health.					
15. I know risk signs in pregnancy.					
16. I know pregnancy disease symptoms such as gestational diabetes, high blood pressure in pregnancy and other diseases.					
Item	**Not at all**	**rarely**	**sometimes**	**most often the times**	**always**
17. I acquire information from written materials such as books, educational notes, pamphlets and medication brochures.					
18. I acquire information from radio, podcasts or television.					
19. I acquire information from internet sources such as websites and social media.					
20. I acquire information from other pregnant people.					
21. I acquire information from family, friends and acquaintances.					
22. I acquire information from healthcare professionals such as a physician or midwife.					
23. I acquire information from Medi-Cal, WIC, Cal-Fresh.					
24. It is easy for me to read pregnancy-related vocabulary from information sources such as books, educational booklets, internet and social media					
25. The information obtained from different sources of information are understandable for me.					
26. I know valid and verified sources for getting the right					

pregnancy related information.					
27. I feel comfortable to ask doctors or midwives for pregnancy related information.					
28. I evaluate the accuracy of pregnancy-related information obtained from online sources such as websites & social media.					
29. I evaluate the accuracy of pregnancy-related information obtained from friends and relatives					
30. I am able to control/manage psychological changes in pregnancy.					
31. I am able to control/manage physical changes in pregnancy.					
32. I am able to manage/control stress during pregnancy					
33. I implement recommended nutrition for pregnancy.					
34. I feel I trust healthcare providers					
35. I feel respected in healthcare settings					
36. I adhere to recommended physical activity in pregnancy.					
37. I implement necessary measures for personal health care during pregnancy.					
38. I take prenatal supplements.					
39. I consult with the doctor or midwife before taking any type of medication during pregnancy (chemical and herbal).					
40. I attend first trimester (1-13 weeks) prenatal care (examinations) as scheduled.					

41. I attend second trimester (13-28) prenatal care (examinations) as scheduled.					
42. I attend ultrasound and tests in pregnancy recommended by healthcare professionals such as doctor or midwife.					
43. I avoid stress during pregnancy when I can.					
44. I avoid taking actions that are harmful to pregnancy.					
45. I see the doctor or midwife as soon as possible when any signs of danger in pregnancy is observed.					
46. I feel comfortable asking the doctor or midwife for further explanation if the information and recommendations are not clear enough.					
47. I participate in decision making about pregnancy issues with the doctor or midwife (providing personal opinions).					
48. I pay attention to the accuracy and appropriateness of information given to other pregnant people.					

Maternal Health Knowledge: 1-16 question

Search for maternal health information: 17-23 question

Assessment of Maternal Health Information:24-30 question.

Maternal Health Decision Making and Behavior: 31-48 question

(ADAPTED FROM Taheri S. et al., 2018 TO FIT NATAL's PROGRAM)

	Number of items	Minimum possible raw score	Maximum possible raw score
Maternal Health Knowledge	16 (item 1-16)	16	80
Search for maternal health information	7 (item 17-23)	7	35
Assessment of Maternal Health Information	7 (item 24-30)	7	35
Maternal Health Decision Making and Behavior	18 (item 31-48)	18	90

To calculate each subscale or total score for the MHELIP, first we added raw scores and linearly transferred it to a score from 0 to 100 using the following formula.

$$\text{Score} = \frac{Raw\ score - Minimum\ possible\ raw\ score}{Maximum\ possible\ raw\ score - Minimum\ possible\ raw\ score} * 100$$

We ranked the MHELIP score to 4 categories: 'inadequate', 'problematic' (which together also define 'limited' health literacy), 'sufficient and 'excellent' (which together also defined 'desired' health literacy):
Inadequate= 0–50
Problematic= 50.1–66
Sufficient= 66.1–84
Excellent=84.1-100

Appendix H: Mobile Pop-Up Sites

Healthcare sites:

- Crenshaw Community Clinic
- East Compton Clinic
- Watts Healthcare
- MLK

WIC sites:

- PHFE WIC – View Park/Windsor Hills, West Adams
- Watts Healthcare WIC – South, Southeast and Compton Health Districts

DPSS sites:

- Compton – Office 26
- Florence – Office 17
- South Central – Office 27
- South Special – Office 7