PRISCILLA PROJECT OF BUFFALO:
IMPACT OF ENHANCED POST-DELIVERY FOLLOW-UP ON REFUGEE PERINATAL OUTCOMES

by
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A capstone project proposal submitted to the
School of Nursing
The State University of New York
in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice

December 2017
DNP Capstone Project Approval Form

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Priscilla Project of Buffalo: Impact of Enhanced Post-Delivery Follow-Up on Refugee Perinatal Outcomes

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Acknowledgments

This capstone project would not have been possible without my capstone advisor, Dr. Dianne Loomis, who supported me throughout the research and writing processes. She was the calm in the center of the storm; I left her meetings feeling both reassured and confident. I am also indebted to my academic advisor, Dr. Pamela Paplham, for her tireless efforts in guiding me through this challenging graduate program. Many thanks to the University at Buffalo library staff, especially Sharon Murphy in the Health Science Library, who directed me through a tangled web of academic databases. Despite all this, no one has been more important to me in the pursuit of this degree than the members of my family. Gratitude to my parents, Ben and Cheryl, and my siblings, Benjamin, Heather, Jeff, and Bethany, whose love and guidance are with me in whatever I pursue.
Abstract

**Problem:** Pregnant refugees are a vulnerable population. Without community support, the maternal-child cohorts are at higher risk of negative perinatal health outcomes. **Purpose:** The purpose of this project is to determine if cohorts who received DSRIP-funded enhanced post-delivery follow-up have statistically different perinatal outcomes compared to refugee cohorts who received standard care. **Background/Theoretical Framework:** The current literature demonstrates that refugee women face health care disparities in the United States. Ecological Systems Theory provides the theoretical foundation. **Methods:** Chi-square, independent T-tests, and Mann Whitney U tests were performed to determine if there are statistically significant differences between the project groups. **Results:** The only significant difference between the two groups is level of maternal social risk. No other statistically significant differences are noted in perinatal outcomes between the enhanced post-delivery follow-up and standard care populations. Overall, the entire study population has equivalent or better outcomes when compared to local, county, or state benchmarks. **Implications:** Community health centers should consider adapting the approaches taken by the PPB in order to improve perinatal outcomes. Further research with adequate power is warranted. Comparing these results to other primary care sites that provide refugee care would provide further insight.

*Keywords:* refugee, perinatal care, community support, enhanced post-deliver follow-up
The Priscilla Project of Buffalo (PPB) is a perinatal community outreach program that enhances the health and social services provided by Jericho Road Community Health Center (JRCHC), a federally qualified health center (FQHC), located in Buffalo, New York. The PPB’s primary focus is supporting the needs of low-income, pregnant refugees. The PPB provides support for pregnant refugee mothers from the prenatal period up to a few weeks postpartum. In 2015, the program received DSRIP funding allowing it to provide enhanced post-delivery follow-up for refugee mothers and their children up to two years postpartum. If pregnant refugees are identified as higher risk, then they are enrolled in DSRIP and receive the additional support services. The purpose of this project is to evaluate the impact of this enhanced post-delivery follow-up and to determine if there are statistically significant differences in maternal and child perinatal outcomes.

The United States (US) resettled over 69,000 refugees during 2015 (Mossaad, 2016). Refugees are “individuals outside their countries of nationality who are unable or unwilling to return to their countries because of persecution or well-founded fear of persecution” (United States Department of Homeland Security [USDHS], 2017). These individuals are resettled to refugee camps located within either their own country or a nearby country. Refugees are required to go through a significant application and vetting process in order to enter the US (Mossaad, 2016). Some refugees may spend years in refugee camps before the US or other nations approve their entry.

At the beginning of each fiscal year, the U.S. federal government determines the number of refugees to be granted admission, the countries from which refugees will be admitted, and the regions to which refugees will be resettled (Mossaad, 2016). In 2013, 2014, and 2015 the refugee admissions ceiling was set at 70,000 and the US utilized nearly 100% of that capacity each year.
Assuming the trend continues, the US could potentially resettle 350,000 individuals from across the globe within a five-year period.

New York State (NYS) ranks third nationally to receive the most refugee resettlements (DiNapoli, 2016). Between 2008 and 2014, NYS admitted between 3,500 and 4,500 new refugees annually (DiNapoli, 2016). Over the past two decades, Buffalo has seen a marked increase in the resettlement of refugee populations from all over the world (Fike, Chung, & Riordan, 2015). From 2003 to 2014, Erie County accepted approximately one third of all the refugees resettled to NYS from countries such as Burma, Iraq, Bhutan, and Somalia (Fike et al., 2015). From 2000 to 2010, the Buffalo-Niagara Metro region experienced a 34% increase in the foreign-born population (Fike et al., 2015).

As more refugees are resettled to the US, health care providers must be prepared to meet the needs of this vulnerable population. From 2012 to 2017, newly arrived refugees comprised approximately 16% of JRCHC’s new patient population (J. Mossop, personal communication, July 17, 2017). From 2016 to 2017, over 56% of JRCHC’s patient population communicated primarily in a language other than English, which is double the national average of 23% for FQHCs (personal communication, July 17, 2017). From 2012 to 2017, approximately 24% of JRCHC’s prenatal patient population was new refugees (personal communication, July 17, 2017).

**Problem Statement**

New refugees have difficulty navigating the US health care system for a variety of reasons including cultural barriers, language differences, transportation difficulties, and significant changes from past health care experiences (Lane & Cole, 2013). Since new refugees in the US face many barriers accessing health services, there is an increased reliance on
emergency departments, which ultimately increases health care costs (Reavy, Hobbs, Hereford, & Crosby, 2012). Pregnant refugees, in particular, reported that their health care experiences in the US left them feeling vulnerable, uninformed, and misunderstood (Wojnar, 2015). This creates an unacceptable risk for negative perinatal outcomes for mothers and their children. Negative perinatal outcomes for the mother and child could include decreased prenatal monitoring, high rates of cesarean section (C-section), prematurity, low birthweight (LBW), lack of breastfeeding maintenance, and poor follow-up postpartum for both mother and child.

Evidence from the literature indicates that mentorship programs, similar to the PPB, serving vulnerable populations have had success in improving patient outcomes in the past. One study indicates that participation in volunteer doula community programs significantly improve breastfeeding outcomes (Cattelona, Friesen, & Hormuth, 2015). Doulas and community health workers (CHWs), when utilized in the postpartum period, have shown an increase in breastfeeding initiation or duration, an enhancement in maternal bonding, and a decrease incidence of postpartum depression (Middleton, 2003). Community programs could also have a positive impact on child health outcomes, including the decision whether or not to vaccinate (Wolf, Rowhani-Rahbar, Tasslimi, Matheson, & DeBolt, 2016).

An evaluation of the PPB was performed several years ago in order describe the activities and impact of the program within the context of historical and persistent health care disparities (Clifton, Cadzow, & Rowe, 2009). With the use of intake and exit evaluations, researchers gathered information on the social support systems of the refugee women participating in the PPB including preventative medicine, community resources, and nutrition (Clifton et al., 2009). They recommended improving the PPB based on their evaluation, citing a need for greater education to target factors that did not show improvement (Clifton et al., 2009). More data is
needed to determine if offering enhanced post-delivery follow-up has a significant impact on refugee maternal and child health outcomes. Evidence that this program is improving maternal and child health outcomes will help the PPB be a stronger competitor for finite health care resources both within the organizational structure of JRCHC and from outside funding sources.

**Role of Advance Practice Nursing**

Doctors of Nursing Practice are in a unique position to assist pregnant refugees in overcoming health care barriers and obtaining appropriate perinatal care. Several elements of this project address all the essentials of doctoral education for advanced nursing practice (AACN, 2006). Essential I focuses on advanced academic preparation based on scientific evidence and the conceptual foundations of nursing practice (AACN, 2006). This project approaches patients in a holistic manner and recognizes that their health is influenced by constant interaction with the environment. Essential III focuses on scholarship and research as the cornerstones of doctoral nursing education (AACN, 2006). This project will scientifically evaluate patient outcomes within practice and community settings in order to increase nursing knowledge. Essential IV focuses on the extraction of information from technological systems for the improvement of patient care (AACN, 2006). This project involves data extraction from electronic medical records (EMRs) and information databases. Essential V focuses serving as an advocate for social justice, equality, and the ethical treatment of all patients (AACN, 2006). The evidence from this project will be used to evaluate PPB outcomes, so that they may continue to advocate for vulnerable, pregnant refugees.

**Purpose and PICO**

The purpose of this project is to determine if refugee cohorts who received DSRIP-funded enhanced post-delivery follow-up have statistically different perinatal outcomes
compared to refugee cohorts who received standard care. All mothers and children received community support from the PPB, some with standard care follow-up for 6-8 weeks postpartum and others with DSRIP-funded enhanced post-delivery follow-up for two years postpartum.

In pregnant refugee women and their children enrolled in the PPB from April 2015 to April 2016, how does DSRIP-funded enhanced post-delivery follow-up compared to standard care effect maternal and child perinatal health outcomes?

**Review of Literature**

An outline will be provided of the research that currently exists regarding pregnant refugees and immigrants. It is important to note that the term refugee and *immigrant* are not synonymous. According to the USDHS (2017), an immigrant is any alien living in the US, except one legally admitted under specific non-immigrant categories. There is a paucity of medical research focusing specifically on US refugees. While medical research on U.S. immigrants may be a helpful starting point, it cannot be assumed that both groups share the same experiences.

**Perinatal Care in Refugee Camps**

International health services provided for refugees following disaster do not satisfactorily meet the needs of these vulnerable populations. One study found that while most women in refugee camps were able to access prenatal services, other health concerns were largely neglected (Westhoff et al., 2008). Misconceptions regarding sexually transmitted infections, HIV transmission, lack of family planning, decreased oral contraceptive use, and sexual violence against women were all reported (Westhoff et al., 2008). Another study evaluated refugee maternal mortality across several countries (Hynes, Sakani, Spiegel, & Cornier, 2012). In many cases, there were delays in reaching, seeking, and receiving perinatal care that resulted in
maternal death (Hynes et al., 2012). Exposure to traumatic experiences, displacement to refugee camps, and poor perinatal care can have a significant negative impact on perinatal health outcomes.

**Role of Acculturation and Stress**

After resettling to a new country, pregnant refugees continue to face challenges and endure stress due to their new environment. Many studies focus on the role of acculturation, the process of adopting a new culture, and the associated psychological stress it produces (Flynn, Foster, & Brost, 2011; Fox, Entringer, Buss, DeHaene, & Wadhwa, 2015; Hawkins, Gillman, Shafer, & Cohen, 2014; Tsai et al., 2017). One study determined that high levels of lifetime stress in addition to African ancestry significantly increased the risk of preterm birth (Tsai et al., 2017). Another study noted increased negative perinatal outcomes for pregnant Somali women because of acculturation, increased time spent in the US, and stress (Flynn et al., 2011). These negative outcomes included higher levels of obesity, poor nutrition, gestational diabetes mellitus, and substance use or exposure (Flynn et al., 2011). Most of the literature in the US over the past several decades has focused primarily on pregnant Hispanic, Latina, or Mexican American immigrant women. These studies found that overall acculturation and stress resulted in negative outcomes for immigrant women including decreased family cohesion, increased risk taking behaviors, low birth weight, higher risk of postpartum depression, and decreased sleep (Alhasanat & Giurgescu, 2017; Balcazar, Krull, & Peterson, 2001; Balcazar, Peterson, & Krull, 1997; Callister & Birkhead, 2002; D'Anna-Hernandez, Garcia, Coussons-Read, Laudenslager, & Ross, 2016; Peterson, Cobas, Balcazar, & Amling, 1998). It has been suggested that acculturative stress during pregnancy can have an intergenerational effect on the health of the child and increase susceptibility to chronic diseases later in life (Fox et al., 2015). Ultimately,
the process of acculturation results in poorer maternal health behaviors for refugee and immigrant women (Hawkins et al., 2014).

**Perinatal Health Concerns in the US**

Refugee and immigrant women face unique health concerns that must be addressed in addition to the standard prenatal care provided. Research indicates that pregnant refugee women are at greater risk for increased lead levels and vitamin deficiencies (Alba, Carleton, Dinkel, & Ruppe, 2012; McGready et al., 2001). Infection from the hepatitis B virus is also a significant concern for foreign-born mothers (Din, Wasley, Jacques-Carroll, Sirotkin, & Wang, 2011; Shah et al., 2015; Walker et al., 2016). Latent tuberculosis infection (LTBI) disproportionately affects refugee women and one study found that the prenatal setting represents a missed opportunity to link affected women with LTBI treatment (Ross & Goff, 2005; Sackoff et al., 2006; Schwartz et al., 2009). Female circumcision may also be a potential issue for refugee women and U.S. health practitioners may not be comfortable or competent in providing appropriate obstetric care (Arbesman, Kahler, & Buck, 1993; Campbell, 2004; Jacoby & Smith, 2013). One study found a significant disparity in the rates of preeclampsia between immigrant and native-born mothers across six industrialized nations (Urquia et al., 2014). Additionally, certain refugee and immigrant groups have a higher risk of developing gestational diabetes mellitus (Braun et al., 2011; Kim et al., 2013; Sanchalika & Teresa, 2015; Vangen et al., 2003). Providers must be prepared to deal with diverse health issues depending on individual patient circumstances and country of origin.

**Health Access and Disparities**

Evidence in the literature indicates that pregnant refugees face decreased access to prenatal care for a variety of reasons including lack of geographical access, low socioeconomic
status, and cultural or language barriers. According to one study, less than half of Dominican immigrant mothers in Puerto Rico received adequate prenatal care after controlling for demographic characteristics and insurance coverage (Colon-Burgos, Colon-Jordan, Reyes-Ortiz, Marin-Centeno, & Rios-Mota, 2014). Transportation and basic access to a local prenatal clinic can also be problematic for pregnant refugees. For example, one study in New York City reported that prenatal clinics were unevenly distributed and uninsured immigrant women did not have a prenatal clinic within close proximity (McLafferty & Grady, 2005). One study indicated that Somali refugee women expressed a need for reminder calls, transportation, and childcare in order to attend their prenatal appointments (Herrel et al., 2004). Socioeconomic status is another significant factor in the quality of prenatal and postnatal care for many refugee and immigrant women (Santiago & Figueiredo, 2015). Pregnant refugees and immigrants with poor socioeconomic status may delay or fail to seek prenatal care due to the associated expenses (Santiago & Figueiredo, 2015). Many studies cite language barriers and lack of cultural understanding by healthcare providers as the most commonly recurring issues when providing care for pregnant refugees and immigrants (Lindsay et al., 2016; Santiago & Figueiredo, 2015; Woodgate, 2012).

Cross-Cultural Perspectives

Pregnant refugee and immigrant women approach care from their own cultural perspectives and have specific preferences regarding how prenatal care is managed (Beine, Fullerton, Palinkas, & Anders, 1995; Goyal, 2016; Kulig, 1990; Seo, Kim, & Dickerson, 2014; Wojnar, 2015). For example, pregnant Korean immigrants living in the US preferred to maintain their own cultural health practices and developed strategies for overcoming health barriers including seeking information independently, maximizing available resources, and bringing a
family interpreter to medical appointments (Seo et al., 2014). Increasing cross-cultural understanding can increase compliance with medical visits, the decision to vaccinate, and other positive health behaviors (Reavy et al., 2012). While foreign-born mothers are more likely to breastfeed due to cultural traditions as opposed to native-born mothers, continued support is needed to ensure that refugees and immigrants maintain this behavior despite increased acculturation and time spent in the US (Harley, Stamm, & Eskenazi, 2007). It is imperative that US medical providers collaborate with patients and develop a plan of care that meshes with cultural practices and beliefs.

**Overcoming the Disparities**

Health care reform has been explored as a possible mechanism to reduce health disparities in vulnerable populations, including pregnant refugees and immigrants. Expansion of Medicaid for pregnant refugees and immigrants reduces the risk of inadequate prenatal care; however, state variations in coverage may cause some refugee and immigrant women to delay care or avoid seeking prenatal care entirely (Dennis et al., 2013; Fuentes-Afflick et al., 2006; Hessol, Vittinghoff, & Fuentes-Afflick, 2004). It has been hypothesized that decreasing public funding for pregnant refugees and immigrants will ultimately increase neonatal expenditures due to increased secondary and tertiary prevention for postpartum complications (Brown, 2000).

Helping pregnant refugees and immigrants overcome health care barriers in a sensitive, cross-cultural manner is a significant challenge. Many organizations are attempting to meet that challenge by developing culturally sensitive community support programs. The goals of these community programs may vary, but many attempt to enhance social support, increase access to community resources, improve medical outcomes, and facilitate better communication between patients and health care providers (Coley, 2012; Connors, Coonrod, Habak, Ayers, & Marsiglia,
2013; Liu, Chao, Jostad-Laswell, & Duncan, 2017; Phillipi, Holley, Payne, Schorn, & Karp, 2016; Torres, Smithwick, Luchok, & Rodman-Rice, 2012). The PPB was developed with the same goal of addressing health care disparities for pregnant refugees in Buffalo.

**Theoretical Foundation**

Urie Bronfenbrenner’s Ecological Systems Theory (EST) serves as the theoretical foundation for this project (Bronfenbrenner, 1979). The EST consists of a set of four structures, each inside the next, with the individual person or participant at the center (Bronfenbrenner, 1979). These levels are the microsystem, mesosystem, exosystem, and macrosystem (See Figure 1). Level 1, the microsystem, is closest to the individual person and involves the immediate environment in which the individual interacts (Onwuegbuzie, Collins, & Frels, 2013). Clients of the PPB may have limited Microsystems to draw on for social support. For example, a pregnant refugee or immigrant new to the country may be limited to the home microsystem due to cultural and language barriers. This induces a sense of isolation. Level 2, the mesosystem, is the interrelationship between two or more settings in which an individual participates (Onwuegbuzie et al., 2013). The mesosystem is the connection between two or more Microsystems (Onwuegbuzie et al., 2013). Events that occur within one microsystem can influence other Microsystems. Level 3, the exosystem, refers to one or more settings that may not involve the individual person but in which events occur that affect the mesosystem and Microsystems (Onwuegbuzie et al., 2013). For example, the husband of a PPB client experiences discrimination in his workplace due to his limited English proficiency. This causes the husband stress and negatively influences his relationship with the PPB client furthering her sense of social isolation. Level 4, the macrosystem, involves the larger cultural context including societal norms (Onwuegbuzie et al., 2013). Individuals within the same macrosystem share beliefs, norms,
ideologies, policies, and laws (Onwuegbuzie et al., 2013). Clients of the PPB experience displacement from their native macrosystem, which influences all the other levels.

For the purposes of this project, EST provides the theoretical mechanism by which birth outcomes for individual PPB clients are influenced. Theoretically, the interaction between one microsystem, the PPB, and other microsystems, such as school, home, and prenatal clinic, contribute to positive changes in perinatal outcomes for individual clients.

**Methodology**

**Design**

This project is a non-experimental, ex post facto retrospective chart review. A timeline for this project is displayed in Figure 2. The measurable goals of this project were:

1. To identify and compare the characteristics of women and children participating in the PPB, both in the enhanced post-delivery follow-up intervention versus those who received standard care.
2. To compare maternal health outcomes between enhanced post-delivery follow-up PPB mothers versus those who received PPB standard care.
3. To compare child health outcomes between enhanced post-delivery follow-up PPB children versus those who received PPB standard care.
4. To describe the experiences of PPB clients and their perspectives of the PPB program.

**Setting**

The PPB is located on the West Side of Buffalo and provides services within the city and surrounding suburban areas. Through the PPB, pregnant refugees receive a variety of services based on client needs. The PPB is operated by volunteer mentors as well as paid staff, which includes both doulas and community health workers (CHWs). During the PPB intake evaluation
a survey is performed to determine if mothers are low, medium or high social risk (See Appendix A). Clients considered low risk (less than 7 points) are eligible for supplies, education, and possibly doula services. Clients considered medium risk (7-15 points) are eligible for a mentor and all services. Clients considered high risk (above 16 points) are eligible for a second mentor and referrals to other support agencies. Typically, CHWs perform intake and exit evaluations for every client and perform monthly home visits. If a client needs a higher level of community support and resources, then a volunteer mentor performs home visits on a weekly basis. The PPB assists clients in obtaining transportation, acquiring appropriate supplies for the child, connecting with community resources, and educating on what to expect during the delivery. Culturally and linguistically matched doulas may be present at the delivery operating as both a motivational coach and as an interpreter. The PPB supports clients post-delivery by advocating for continued breastfeeding and encouraging attendance to medical appointments. The PPB staff provide educational seminars on several topics including infant care, breastfeeding, maternal nutrition, car seat safety, and vaccination. New mothers are encouraged to connect with other community members at social events.

Sample

A systematic selection process of eligible cases was performed from a list of PPB clients provided by PPB management. A list of the 133 clients from the enhanced post-delivery follow-up PPB population and a list of 127 clients from the standard care population were provided to the PI. A total of 260 cases had potential for inclusion in this study. Every third client listed was included until the appropriate sample size was achieved. Twenty-five maternal-child cohorts were selected from the standard care population, defined as clients of the PPB who were not DSRIP-enrolled and whose children were not followed for 2 years postpartum. From this list, 27
cases were excluded and 75 were not reviewed. Twenty-five maternal-child cohorts were be
selected from the enhanced post-delivery follow-up population, defined as clients of the PPB
who are DSRIP-enrolled and whose children are followed 2 years postpartum. From this list, 24
cases were excluded and 84 were not reviewed. The populations were concurrent from April
2015 to April 2016, with a total of 51 cases excluded and 159 cases not reviewed. Cases were
excluded for the following reasons: the maternal-child cohort did not receive primary and/or
prenatal care at JRCHC, maternal death, miscarriage, elective abortion, multiples (twins, triplets,
etc.), or the child was less than 12 months of age. After an appropriate sample size meeting
criteria was obtained, the PI did not review additional cases.

**Project Variables**

The operational definition for each variable has been determined (See Appendix B). For
Goal 1, no independent or dependent variables were identified. Nominal variables were collected
including maternal ethnicity, maternal language, maternal smoking status, maternal marital
status, type of insurance, receiving SNAP benefits, and receiving WIC benefits. Ordinal
variables included maternal education level and interval variables included time in the US, and
maternal age.

For Goal 2, the independent variable was whether the mother was part of the enhanced
post-delivery follow-up or standard care population. This is a dichotomous, nominal independent
variable. All other variables were the dependent variables. Nominal dependent variables included
attendance to postpartum visit, initiation of breastfeeding, exclusive breastfeeding, doula present
at delivery, and type of delivery. Interval dependent variables included gestational age and
birthweight; ratio dependent variables included the number of prenatal appointments, duration of
exclusive breastfeeding, duration of total breastfeeding, and maternal risk level.
For Goal 3, the independent variable was whether the child was part of the enhanced post-delivery follow-up or standard care population. All other variables were the dependent variables. Nominal dependent variables included attendance to 2-month, 4-month, 6-month, 9-month, and 12-month well-child examinations. Ordinal dependent variables included the vaccination status at 2-months, 4-months, 6-months, 9-months, and 12-months of age.

For Goal 4, the researcher evaluated responses from a semi-structured interview. The semi-structured interviews were performed by CHWs for all the clients of the PPB postpartum.

**Research Procedures**

The researcher was responsible for all data collection using a data collection form developed for this project (See Appendix C). Data was extracted from the PPB intake evaluation, the PPB exit evaluation, and from the EMR (See Appendix A and Appendix D). Each case had a serial number and a unique case identification number. Only the primary investigator was able to link the case identification number back to the EMR. The serial number linked the data collection forms to a coded Excel spreadsheet. If any maternal-child cohort was discovered to have less than 85% complete data then the cohort was excluded from the statistical analysis. A new cohort was selected in the systematic manner described above; the process was repeated until complete data is obtained. In the event of conflicting or incomplete data, the highest value that can be confirmed in the EMR will be recorded.

The researcher reviewed the semi-structured client responses to the questions in the PPB exit evaluation. Responses were labeled with the case serial number, de-identified, and a hardcopy was printed.
Ethical Concerns

Permission from the University at Buffalo School Social and Behavioral Institutional Review Board (IRB) was granted for this study. A major ethical issue of this project is maintaining the confidentiality of all cases. Hard copies of the data collection forms were stored in a locked cabinet only accessible by the researcher. Data was encoded into an Excel spreadsheet and saved on a password protected computer accessible only by the researcher. After project completion, hard copies of data will be destroyed and the researcher will maintain a password protected electronic copy of the de-identified Excel spreadsheet and de-identified semi-structured interviews.

Data Analysis

Data collection forms were coded into an Excel spreadsheet and imported into SPSS v24 software for statistical analysis. For Goal 1, descriptive statistics were used for both groups to summarize demographic data in frequency units and percentages. Any significant differences between the two project populations are reported.

For Goals 2 and 3, a combination of chi-square tests, independent sample t-tests, and Mann-Whitney U tests were performed. To determine if there were significant relationships between the categorical independent and the nominal/ordinal dependent variables, a non-parametric chi-square test was performed. Assumptions of the chi-square test include random sampling and that each case falls within only one category (Polit, 2010). Magnitude of effects using the phi coefficient are reported (Polit, 2010). The relationship of two nominal or ordinal variables is best evaluated by comparing percentages rather than means (Polit, 2010). To determine if there were significant relationships between the categorical independent variable and scale dependent variables, parametric independent sample t-tests were performed (Polit,
Assumptions of the independent sample t-test include random sampling and normal distribution of the dependent variable within each of the two populations (Polit, 2010). Confidence intervals for the results are reported. The magnitude of effect (Cohen’s d) was calculated (Polit, 2010). The relationship of a categorical independent variable and scale dependent variables is best evaluated by comparing population means. To confirm the relationships between the categorical independent variable and scale dependent variables, the non-parametric analog for the independent t-test (the Mann Whitney U test) was performed. The Mann Whitney U test is appropriate for the same levels of measurement as the independent sample t-test, but does not assume normal distribution of the dependent variables in the study populations (Polit, 2010). The Mann Whitney U test was used to determine if the two population distributions are identical by comparing the mean ranks (Polit, 2010). It is unclear whether the distributions for the outcome variables are normally distributed in the study populations; therefore, the Mann Whitney U was used to confirm the results of the independent sample t-tests. A post hoc power analysis was performed using the estimated magnitude of effects to determine if the study was appropriately powered. The power analysis was performed using the free online power calculators provided by ANZMTG Statistical Decision Tree (2017, 2017A).

For Goal 4, the responses to the semi-structured interview were evaluated qualitatively to identify themes. With the use of inductive content analysis, responses were coded to determine recurring themes (Hsieh & Shannon, 2005).

Results

A total of 50 maternal-child cohorts (N=50) were reviewed based on the selection criteria and the information provided by PPB management. Statistical analysis was performed using SPSS v24.
**Goal 1**

To identify and compare the characteristics of women and children participating in the enhanced post-delivery follow-up population versus those who received standard care, 25 maternal-child cohorts from the enhanced post-delivery follow-up population ($n_1=25$) and the standard care population ($n_2=25$) were evaluated. Descriptive data is presented in Table 1. It was hypothesized that both study populations would share similar demographic characteristics since the samples were concurrent. Overall, the PPB is providing care to a diverse group of pregnant refugees and the demographic distributions are similar between both study populations.

Crosstabs with chi-square testing was performed with the dependent variable of DSRIP enrollment status for mother. Independent variables included maternal ethnicity, maternal language, maternal smoking status, maternal marital status, type of insurance, SNAP benefits, WIC benefits, maternal education, time in the United States, and maternal age. Chi-square results and $p$ values are presented in Table 2.

Cases included mothers ranging from 19 to 42 years of age; a mean of 28.34 years ($p=.317$). Overall, the majority of N (58%) were of Burmese descent. Other groups included Somali (10%), Nepali/Bhutanese (12%), and Congolese (2%). Ethnic distributions were statistically equivalent between $n_1$ and $n_2$ ($p=.195$). Only 18% of N spoke English. Major languages spoken in $n_1$ and $n_2$ were Burmese/Karen (52% and 44%, respectively), Nepali (20% and 4%, respectively), Arabic (12% and 4%, respectively), and Somali/Maay Maay (4% and 8%, respectively). Maternal language was not significantly different between $n_1$ and $n_2$ ($p=.218$). A vast majority of N were never smokers (94%) and were married/partnered (88%). Smoking was not significantly different between $n_1$ and $n_2$ ($p=.600$) and neither was marital status ($p=.700$). The primary insurance of N were all federally funded health insurance plans. Insurance status
was not significantly different between groups \((p=.396)\). There were equivalent rates for the receipt of WIC \((\sim 84\%, p=.598)\) and SNAP \((\sim 70\%, p=1.000)\) benefits. Most mothers \((66\%)\) had obtained an 8\textsuperscript{th} grade education or less and 14\% had some high school education \((p=.518)\). The majority of N \((58\%)\) were in the US for less than 3 years \((p=.392)\).

**Goal 2**

To compare maternal health outcomes between enhanced post-delivery follow-up PPB mothers versus those who received standard care, \(n_1\) and \(n_2\) were evaluated. Statistical analysis for Goal 2 variables are presented in Tables 3 to 5. It was hypothesized that DSRIP-funded enhanced post-delivery follow-up would correlate to higher positive maternal outcomes. Regardless of the use of parametric or non-parametric statistical testing, the outcomes of the Goal 2 statistical analysis remained the same. No statistically significant differences were noted between \(n_1\) and \(n_2\) in outcome variables, except for maternal social risk levels \((p=.007)\).

A combination of crosstabs with chi-square testing, independent-sample t-tests, and the Mann Whitney U test were performed. In addition, Levene’s test for equality of variances was included with the independent samples t-test and was used to determine if variances in the study populations are equal. No statistically significant differences in variance were noted for any of the outcome variables. The dependent variable for Goal 2 was DSRIP enrollment status for mother. Independent variables included attendance to postpartum visits, breastfeeding initiation, exclusive breastfeeding, doula present at delivery, type of delivery, birthweight, and maternal risk levels.

Risk levels between \(n_1\) and \(n_2\) were significantly different \((t=2.818, p=.007)\) with DSRIP-enrolled mothers being at significantly higher social risk than those in the standard care population. Mothers on average attended \(\sim 11\) prenatal visits \((p=.685)\). A doula was present at the
delivery in 54% of cases ($p=.108$). Cases delivered at ~39 weeks gestation on average ($p=.083$). The majority of N (82%) delivered vaginally with only 4% delivered by an initial C-section ($p=.974$). Appropriate birthweight was noted in 94% of cases. The three low birthweight (LBW) cases (6%) all occurred within $n_1$ ($p=.074$). The majority of N (88%) attended their postpartum appointments on time within 8 weeks of delivery ($p=.685$). Breastfeeding was initiated in 90% of cases with no significant differences between $n_1$ and $n_2$ ($p=.637$). Exclusive breastfeeding (i.e. no formula supplementation) was offered in 48% of all cases and was maintained for an average of 3.3 months. Breastfeeding initiation ($p=.637$) and duration of exclusive breastfeeding ($p=.766$) were not significantly different between $n_1$ and $n_2$. In cases where formula supplementation was offered to the child, breastfeeding was maintained an average of 6.82 months ($p=.928$).

**Goal 3**

To compare child health outcomes between enhanced post-delivery follow-up PPB children versus those who received standard care, $n_1$ and $n_2$ were evaluated. Statistical analysis for Goal 3 is presented in Table 6. It was hypothesized that DSRIP-funded enhanced post-delivery follow-up would correlate to higher positive child outcomes. Overall, no statistically significant differences were noted. Crosstabs with chi-square testing was performed with the dependent variable of DSRIP enrollment status for child. Independent variables included attendance to 2-month, 4-month, 6-month, 9-month, and 12-month well-child examinations. In addition, vaccination status at 2-months, 4-months, 6-months, 9-months, and 12-months of age was evaluated.

A majority of children attended their well-child examinations on time at 2 months (82%), 4 months (66%), 6 months (60%), 9 months (56%), and 12 months (72%). Attendance to 2-month ($p=.467$), 4-month ($p=.674$), 6-month ($p=.819$), 9-month ($p=.521$), and 12-month ($p=.856$)
well-child examinations was not significantly different between n\textsubscript{1} and n\textsubscript{2}. Children received vaccinations at 2 months (94%), 4 months (84%), 6 months (84%), and 12 months (78%) of age. No statistically significant differences between n\textsubscript{1} and n\textsubscript{2} regarding vaccination rates at 2 months ($p=.221$), 4 months ($p=.683$), 6 months ($p=.351$), or 12 months ($p=.640$) of age. In addition, 92% of all children were up-to-date with age-appropriate vaccinations at 9 months of age ($p=.297$).

**Goal 4**

To describe the experiences of PPB clients and their perspectives of the PPB program 41 semi-structured interviews obtained from the PPB exit evaluation were qualitatively analyzed (See Appendix D). 22 semi-structured interviews were completed from the enhanced post-delivery follow-up population (n\textsubscript{1}) and 19 semi-structured interviews were completed for the standard care population (n\textsubscript{2}). Inductive content analysis was performed. First open coding of the content occurred followed by creating categories and then abstraction. Major overarching themes are displayed in Table 7 (See Table 7).

The semi-structured interviews obtained from n\textsubscript{1} were more detailed and the majority of the themes were first identified from this sample. The semi-structured interviews obtained from n\textsubscript{2} were less detailed, but still contained all of the themes identified for n\textsubscript{1}. Four overarching themes were identified: social support, education, supplies, and activities of daily living. Participants in the PPB reported that mentors provided them with social support by visiting them, going on outings in the community, eating together, and transporting them to doctors’ appointments. PPB participants reported that mentors also provided educational opportunities. The mothers expressed appreciation that they could practice English with PPB mentors. In addition, mentors taught mothers how to drive and provided appropriate advice or support regarding childcare. Many PPB participants reported appreciation for the help in obtaining baby
supplies and other materials. One participant stated “She really helped a lot with everything; went to get baby supplies, anything I needed, the mentor helped me get. She had a lot of energy. She never came empty-handed . . . always had something to bring for the family.” PPB participants also reported that mentors helped them with activities of daily living in the US. Most notably, mothers reported that mentors helped them with understanding WIC and grocery shopping.

Discussion

The comparison populations \((n_1 \text{ and } n_2)\) had statistically similar demographic features across variables: maternal age, ethnicity, language, marital status, type of insurance, WIC or SNAP benefits (a proxy for income level), education level, and time in the US. All cases received prenatal and primary care at JRCHC and concurrent samples were obtained. These factors contribute to a statistical analysis which focuses specifically on pregnant refugees while simultaneously avoiding potential confounding variables inherent in samples with significantly different demographic features. It is important to take note of the low level of education in the study sample with most mothers (66%) having an 8th grade education or less. Education is a significant social determinant of health and impacts patients’ levels of health literacy. The importance of increasing educational opportunity for underserved refugee mothers cannot be overstated.

The PPB is supporting the underserved refugee population in the Buffalo area. The Burmese population accounted for 58% of the entire sample. The focus of the PPB on Burmese clients in this sample was expected. According to Erie County census data from 2002 to 2014, the number of Burmese refugees resettled to the Buffalo area was more than that of any other refugee group (Fike et al., 2015). These refugees left Burma due to war, social unrest, and
political instability. Petersen et al. (2000) examined the human rights violations that are rampant in Burma and which contribute to the high number of refugees fleeing that country. Many refugees from Burma were resettled to camps in Thailand where they (presumably) experienced the inadequate access to prenatal care as noted in the literature review (Hynes et al., 2012). They were subsequently resettled to the US and experience significant stress during the acculturation process. This stress had the potential to influence their birth outcomes in negative way.

Across the study population (N) positive maternal perinatal outcomes were noted. PPB mothers attended on average 10 prenatal appointments and delivered vaginally at term. The Agency for Healthcare Research and Quality (AHRQ, 2012) recommends that pregnant women have 8-11 prenatal visits, including a preconception visit. It is generally accepted that vaginal deliveries are preferred to elective C-sections, which is why the PPB encourages vaginal deliveries for clients if possible. According to the New York State Department of Health (NYSDOH, 2015), the C-section rate for Women and Children’s Hospital of Buffalo (WCHOB) was 34.7% in 2015. By comparison, the rate of C-section in this sample of PPB clients was 14%, less than half of local benchmark. Between 2013 to 2015, 11.8% of all births in Erie County were premature, defined as less than 37 weeks gestation (NYSDOH, 2017). By comparison, 2% of the PPB cases delivered before 37 weeks gestational age. According to the NYSDOH (2017a), LBW (<2500g) babies accounted for 8.3% of all deliveries in Erie County from 2013 to 2015. In addition, very low-birth weight (VLBW, <1500g) babies accounted for 1.3% of all deliveries in Erie County within the same timeframe (NYSDOH, 2017b). By comparison, 6% of the PPB mothers in this study sample had LBW babies (<2500g) and no cases of VLBW babies were noted. Ninety-four percent of the entire sample had appropriate birthweight babies (2500g to 4000g). The breastfeeding initiation rate for the PPB was very high at greater than 90%. In
addition, data from WCHOB indicated that approximately 35% of mothers offered exclusive breastfeeding and approximately 62% of mothers offered any breastfeeding (NYSDOH, 2012). By comparison, 48% of PPB mothers offered exclusive breastfeeding and 84% of PPB mothers offered any breastfeeding. The average duration of any breastfeeding for PPB clients was 6 months, with an average of 3 months for exclusive breastfeeding. In the literature review, the use of perinatal community programs and doula services had a positive impact on breastfeeding initiation and duration (Cattelona et al., 2015; Middleton, 2003). The results of these statistical analyses concur with that theory.

Across the study population (N), an overall downward trend was noted in child perinatal outcomes as a factor of time. Attendance to well-child examinations decreased 16% from 2 to 4 months of age, 6% from 4 to 6 months of age, and 4% from 6 to 9 months of age. There was an increase of 16% in attendance rates from 9 to 12 months of age, but this increase was not enough to return to the 2-month highest level of 82%. Similarly, a 10% reduction in vaccination rates was noted from 2 to 4 months of age and an additional 6% reduction in vaccination rates was noted from 6 to 12 months of age. No net change in vaccination rates was noted from 4 to 6 months of age. NYS vaccination rates were obtained from the Centers for Disease Control and Prevention (CDC) for 2015 (CDC, 2017). Vaccination rates in NYS varied greatly depending on the type of vaccine. By 13 months of age, a vast majority children in NYS received two doses of inactivated poliomyelitis vaccine (94.9%), three doses of diphtheria/tetanus/pertussis vaccine (92.4%), three doses of pneumococcal conjugate 13 vaccine (86.9%), and three doses of hepatitis B vaccine (86.2%) (CDC, 2017). By comparison, 92% of PPB children were up-to-date on these vaccinations by 9 months of age. At 13 months of age, a majority of children in NYS had received three doses of haemophilus B vaccine (77.6%) and one dose of measles/mumps/rubella
and varicella vaccines (56.2% and 53.6% respectively) (CDC, 2017). By comparison, 78% of PPB children were up-to-date on these vaccinations by 12 months of age. Despite downward trends in well-child examination attendance and vaccination rates, the vaccination rates for PPB clients were roughly equivalent or better than those reported for all of NYS. In the literature review, the use of perinatal community programs was theorized to positively impact important child-rearing practices, such as the decision whether or not vaccinate (Wolf et al., 2016). The results of these statistical analyses concur with that theory.

The organizational culture of JRCHC is a key element in the care that is provided for pregnant refugee clients. The PPB operates within the larger corporate structure of JRCHC. The mission statement of JRCHC as a whole is:

> Jericho Road Community Health Center provides a culturally sensitive medical home, especially for refugee and low-income community members, facilitating wellness and self-sufficiency by addressing health, education, economic and spiritual barriers in order to demonstrate Jesus’ unconditional love for the whole person. (JRCHC, 2017)

JRCHC was founded to provide culturally competent health care specifically for refugee patients. The founders of JRCHC witnessed the health care disparities which refugees experience in Buffalo, NY and are determined to change that trend. These are the same disparities that were noted for this population in the literature review. This care is delivered by an interdisciplinary team of health care professionals in a culturally sensitive manner throughout the perinatal period.

As noted in the literature review, patients present to the clinic with their own cultural perspectives and ideas on how medical care should be managed. JRCHC and the PPB have a shared organizational culture that encourages collaboration with patients in medical decision-making. An exploration of the experiences of PPB clients and their perspectives of the PPB
program reveals overall positive feedback. A vast majority of women expressed that they felt supported by the PPB during their pregnancies and birth experiences. A majority of PPB clients appreciated the support and described different ways in which the mentors helped them throughout the perinatal period. Most PPB clients did not have any recommendations regarding changes they would like to make to the program. The relationships between mentors, doulas, and PPB clients form the foundation upon which enhanced social support, increased access to community resources, and better communication occurs. These methods of addressing and overcoming health disparities were also noted in the literature. One client stated “Sara and Beth . . . they helped me with everything. Sarah knew nothing [about me] and now she knows everything.”

The results of this study concur with the evidence provided in the literature review. Community perinatal outreach programs have the potential of improving maternal and child health outcomes for vulnerable populations via the theoretical mechanism provided by Ecological Systems Theory (EST). EST posits that different microsystems can influence one another via the mesosystem. Based on the quantitative and qualitative analyses performed in this study, the microsystems of the PPB outreach program, JRCHC’s prenatal clinic, the hospital, and the patient’s home life are all interconnected and interdependent.

Clinical Implications

It was hypothesized that the rate of positive maternal and child perinatal outcomes would be higher for those who received DSRIP-funded enhanced post-delivery follow-up. However, this hypothesis failed to take into account the impact of significantly different maternal social risk levels. DSRIP-enrolled mothers had significantly more social risk factors compared to those who received standard care. Overall, statistical analyses indicate improved maternal and child
perinatal health outcomes for the entire study, regardless of DSRIP-status and enhanced follow-up.

A few inferences can be made based on the quantitative and qualitative results of this project. First, being a patient of JRCHC and a client of the PPB (or some combination of both) has contributed to better overall perinatal outcomes compared to NYS and local benchmarks. Second, the services provided by JRCHC and the PPB (or some combination of both) has contributed to a “closing the gap” effect as evidenced by equivalent outcomes in a low social risk group compared to a high social risk group. Third, the support services provided by the PPB enhance the therapeutic relationships formed with clients, even more so than what the medical staff of JRCHC can provide alone.

Other community health practices working with high risk or underserved patients should consider replicating and modifying the approaches taken by the PPB and JRCHC. The results of this study indicate overall positive perinatal health outcomes which could result in significant cost reduction and net savings for the U.S. health care system. All calculations in the following cost analysis were performed with the assumption that the percentages within the populations remain the same or similar regardless of population size or time elapsed. For example, if the percentage of X in 50 cases is 10%, then the percentage of X is presumed to be 10% for any number of cases. In addition, if the percentage of X over a two year time period is 50%, then the percentage of X is presumed to be ~50% in the first year and ~50% in the following year. All totals are reported at in U.S. dollars rounded to the nearest whole cent and have been adjusted for inflation to 2017 values using the United States Department of Labor, Bureau of Labor Statistics’ (USDOL, BLS, 2017) online Consumer Price Index (CPI) calculator. The median cost of a C-section at WCHOB in 2015 was $10,154.06 (NYSDOH, 2016). The median cost of a vaginal
delivery at WCHOB in 2015 was $6,740.06 (NYDOH, 2016A). Compared to WCHOB, the PPB has a 20.7% reduction in C-section rates. This would mean an annual saving of $145,112.64 per 200 PPB clients. Prematurity (<37 weeks gestational age) and exclusive formula feeding are significant risk factors in the development of necrotizing enterocolitis (NEC) (Gephart, McGrath, Effken, & Halpern, 2012). Ninety percent of infants who develop NEC are premature and were significantly more likely to have been formula-fed only (Gephart et al., 2012). The estimated cost of one hospitalization for NEC is approximately $73,700 (Gephart et al., 2012). The PPB has a 22% reduction in the rate of exclusive formula feeding compared to WCHOB and a 9.8% reduction in prematurity rates compared to Erie County. If all the PPB premature babies were also exclusively formula-fed and 12% of those developed NEC, then the estimated annual savings would be $183,336.72 per 200 PPB clients. Hospitalizations due to comorbidities associated with VLBW can incur significant direct costs including an average of $111,577 for brain injury, $103,151 for bronchopulmonary dysplasia, and $91,521 for late-onset sepsis (Johnson, Patel, Jegier, Engstrom, & Meier, 2013). This sample of the PPB had no VLBW babies, which is a reduction of 1.3% compared to all of Erie County. Assuming only one VLBW-associated comorbidity and hospitalization, this would mean a savings of $247,950.68 to $302,286.83 per 200 PPB clients annually. The costs of hospital visits for vaccine-preventable diseases were obtained from the CDC (2014). PPB clients had improved vaccination rates compared to the NYS rates for the following vaccines. Increased vaccine rates were noted for measles/mumps/rubella (21.8%), varicella (24.4%), pneumococcal conjugate (5.1%), and hepatitis B vaccine (5.8%). Vaccination rates for other vaccines were roughly equivalent to NYS rates, so no significant savings or expenditures would be expected. Assuming that 5% of all unvaccinated children contracted each of these diseases and was admitted to the hospital at the
median probability of hospitalization, then the cost savings annually per 200 PPB clients would be: $5,045.08 to $57,633.04 (measles), $12,747.03 to $52,440.87 (mumps), $5,512.86 to $51,969.30 (for rubella), $114.80 to $613.80 (varicella), $1,001.60 to $6,720.57 (pneumococcal conjugate), $4,697.25 to $8,112.96 (hepatitis B). The total annual cost savings for the PPB based on these results and the associated assumptions would be between $605,528.66 and $808,236.73.

An estimation of the PPB program expenses is necessary to place the annual cost savings into context. The primary expenses of the PPB are payroll and materials. Per PPB management, the program was operated by 6 full-time staff and 5 part-time staff in 2017 (K. Forster, personal communication, November 29, 2017). Unpaid interns, volunteer mentors, and doulas were not included in the calculations. According to United States Department of Labor, Bureau of Labor Statistics (2017a), the median annual pay for an office clerk is $30,580 and the median annual pay for a medical assistant is $31,540. The cost of total payroll is estimated at $259,930 to $268,090 per year. Materials are mostly donated including baby clothes, manual breast pumps, teaching supplies, and 90% of the diapers. The PPB purchases Pack n’ Plays, car seats, and 10% of the diapers with program funding. If the PPB provided every with a Pack n’Play ($60 to $90) and a car seat ($60 to $100), then the program expenses would be approximately $24,000 to $28,000. If the PPB provided every client with three 128-count boxes of Pampers newborn diapers ($31.49 each), then the program expenses would be $18,894. The total annual expenses of the PPB based on these calculations would be between $302,924 and $325,084. The theoretical annual net savings for the PPB program is estimated to be $302,604.66 to $483,152.73.
Strengths and Limitations

This study has several strengths and limitations. An ex-post facto retrospective chart review methodology was appropriate because experimentation was not possible and the study variables were not subject to the PI’s control (Giuffre, 1997). Ex post facto research allows the PI to use correlations in order to infer relationships between variables but does not prove causality (Giuffre, 1997). The major benefit of ex post facto research is that it evaluates situations that occur in “real” environments as opposed to those contrived by the PI (Giuffre, 1997). Another strength of this study is complete data for a vast majority of the study variables. Of the 34 variables collected across the 50 maternal child cohorts, only 10 variables (.005% of all data) was missing. No cases were excluded on the basis of missing data. The internal validity of this study is high with a detailed data collection procedure and a single individual collecting the data. The data coding was subjected to two independent checks on two separate occasions to ensure accuracy. This contributes to more rigorous statistical analyses. Findings from this study can only be generalized to the local refugee population and can inform future local research efforts. The standardized approach detailed in this study will permit study replication and may lead to the production of comparable findings in the future.

Limitations of this study include a moderate level of variation in the data collection process and limited statistical power. Significant outcome variables, most notably breastfeeding duration, vaccination rates, and doula presence at the delivery, were collected from multiple locations in the EMR. In some cases, the data in different sections of the EMR conflicted or were incomplete. In addition, the statistical analyses indicate that this study has small sample sizes with insufficient power. Although power analysis is usually performed during the planning phase of a study, it was not possible due to a lack of estimated population effect sizes in the literature.
As stated before, there is a paucity of research that focuses specifically on refugee clients. A post hoc power analysis was performed to inform the next steps for the PPB since the samples in this study were very similar with only one statistically significant result. Recommended sample sizes at .80 power with an alpha level of \( p < .05 \) were calculated based on the magnitude of effects noted in the statistical analyses for outcome variables (See Table 8). Another limitation of this study is the semi-structured interviews performed during the PPB exit evaluations. They were low quality and lacked the detailed information required for a thorough qualitative content analysis. Investing resources to perform a thorough exit interview could provide the PPB with more rigorous feedback to enhance program performance. The external validity of this project is limited because it focuses on pregnant refugee populations within a specific geographical region. Results from this project may not be generalizable to other populations.

**Conclusion**

The Priscilla Project of Buffalo (PPB) is a perinatal community outreach program that enhances the health and social services provided by Jericho Road Community Health Center (JRCHC), a federally qualified health center (FQHC), located in Buffalo, New York. The purpose of this project was to evaluate the impact of DSRIP-funded enhanced post-delivery follow-up and to determine if there are statistically significant differences in maternal and child perinatal outcomes. The defense of continued DSRIP-funding based on solely these results is tenuous. While it is clear that JRCHC and the PPB in concert are having a positive effect on perinatal outcomes with significant hypothetical cost-savings further research is needed to clarify the impact of the PPB as a separate entity from its parent organization. Recommendations for future research include larger sample sizes for greater statistical power and additional comparative populations. A study designed to include mothers and children who receive services
from the JRCHC medical team but not from the PPB, would be helpful. In addition, comparing these percentages to the outcomes for other local community health centers that serve pregnant refugees may provide further insight.
References


doi:10.1097/01.AOG.0000191299.24469.1b

http://doi.org/10.1097/ANC.0b013e31824cee94


doi:10.1097/01.mlr.0000124244.26926.4d


Table 1  
*Selected Demographics for Study Population*

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<th>Sub-variable</th>
<th>DSRIP Enrolled</th>
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<td>Standard Care</td>
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<td>Receiving WIC Benefits</td>
<td>Yes</td>
<td>17 (68.0)</td>
<td>18 (72.0)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7 (28.0)</td>
<td>7 (28.0)</td>
</tr>
<tr>
<td></td>
<td>Missing Data</td>
<td>1 (4.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Maternal Education</td>
<td>8th Grade or Less</td>
<td>19 (76.0)</td>
<td>14 (56.0)</td>
</tr>
<tr>
<td></td>
<td>Some H.S.</td>
<td>2 (8.0)</td>
<td>5 (20.0)</td>
</tr>
<tr>
<td></td>
<td>H.S. Grad/GED</td>
<td>2 (8.0)</td>
<td>2 (8.0)</td>
</tr>
<tr>
<td></td>
<td>College Grad</td>
<td>0 (0.0)</td>
<td>1 (4.0)</td>
</tr>
<tr>
<td></td>
<td>Missing Data</td>
<td>2 (8.0)</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td>Time in the United States</td>
<td>Less Than a Year</td>
<td>10 (40.0)</td>
<td>8 (32.0)</td>
</tr>
<tr>
<td></td>
<td>1 - 3 Year</td>
<td>7 (28.0)</td>
<td>4 (16.0)</td>
</tr>
<tr>
<td></td>
<td>3 - 5 Year</td>
<td>3 (12.0)</td>
<td>4 (16.0)</td>
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<tr>
<td></td>
<td>5+ Year</td>
<td>4 (16.0)</td>
<td>9 (36.0)</td>
</tr>
<tr>
<td></td>
<td>Missing Data</td>
<td>1 (4.0)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

*Note.* Number of cases are listed for each variable. The values in the parentheses are percentages.
Table 2
Chi-Square Analysis for the Relationship Between DSRIP Status and Goal 1 Demographic Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Ethnicity</td>
<td>8.634</td>
<td>6</td>
<td>.195</td>
</tr>
<tr>
<td>Maternal Language</td>
<td>8.278</td>
<td>6</td>
<td>.218</td>
</tr>
<tr>
<td>Maternal Smoking Status</td>
<td>1.021</td>
<td>2</td>
<td>.600</td>
</tr>
<tr>
<td>Maternal Marital Status</td>
<td>1.424</td>
<td>3</td>
<td>.700</td>
</tr>
<tr>
<td>Type of Insurance</td>
<td>4.077</td>
<td>4</td>
<td>.396</td>
</tr>
<tr>
<td>Receiving SNAP Benefits</td>
<td>.000</td>
<td>1</td>
<td>1.000</td>
</tr>
<tr>
<td>Receiving WIC Benefits</td>
<td>1.029</td>
<td>2</td>
<td>.598</td>
</tr>
<tr>
<td>Maternal Education</td>
<td>3.243</td>
<td>4</td>
<td>.518</td>
</tr>
<tr>
<td>Time in the United States</td>
<td>4.106</td>
<td>4</td>
<td>.392</td>
</tr>
</tbody>
</table>

*Note. N=50. Statistical significance set at level of \( p < .05 \).*
Table 3
*Chi-Square Analysis for the Relationship Between DSRIP Status and Goal 2 Maternal Nominal/Ordinal Health Outcome Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance to Postpartum Visit</td>
<td>.758</td>
<td>2</td>
<td>.685</td>
</tr>
<tr>
<td>Breastfeeding Initiation</td>
<td>.222</td>
<td>1</td>
<td>.637</td>
</tr>
<tr>
<td>Exclusive Breastfeeding Offered</td>
<td>1.282</td>
<td>1</td>
<td>.258</td>
</tr>
<tr>
<td>Doula Present at Delivery</td>
<td>4.451</td>
<td>2</td>
<td>.108</td>
</tr>
<tr>
<td>Type of Delivery</td>
<td>.224</td>
<td>3</td>
<td>.974</td>
</tr>
<tr>
<td>Birthweight</td>
<td>3.191</td>
<td>1</td>
<td>.074</td>
</tr>
</tbody>
</table>

*Note.* N=50. Statistical significance set at level of $p < .05$. 
Table 4
*Group Descriptive Statistics for Goal 2 Maternal Interval/Ratio Health Outcome Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>DSRIP Status</th>
<th>n</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of Exclusive Breastfeeding</td>
<td>Yes</td>
<td>25</td>
<td>3.500</td>
<td>5.2757</td>
<td>1.0551</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>3.100</td>
<td>4.0774</td>
<td>.8155</td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
<td>Yes</td>
<td>25</td>
<td>6.88</td>
<td>4.978</td>
<td>.996</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>6.76</td>
<td>4.304</td>
<td>.861</td>
</tr>
<tr>
<td>Gestational Age</td>
<td>Yes</td>
<td>25</td>
<td>39.24</td>
<td>1.739</td>
<td>.348</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>39.68</td>
<td>1.030</td>
<td>.206</td>
</tr>
<tr>
<td>Number of Prenatal Visits</td>
<td>Yes</td>
<td>25</td>
<td>10.68</td>
<td>2.996</td>
<td>.599</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>11.72</td>
<td>3.422</td>
<td>.684</td>
</tr>
</tbody>
</table>

Note. $n_1 = 25$. $n_2 = 25$. Statistical significance set at level of $p < .05$. 
Table 5
Independent Samples T-Test for the Relationship Between DSRIP Status and Goal 2 Maternal Interval/Ratio Health Outcome Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levene's Test for Equality of Variances</th>
<th>T-Test for Equality of Means</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Duration of Exclusive Breastfeed</td>
<td>2.348</td>
<td>.132</td>
<td>.300</td>
</tr>
<tr>
<td>Duration of Any Breastfeed</td>
<td>1.098</td>
<td>.300</td>
<td>.091</td>
</tr>
<tr>
<td>Gestational Age</td>
<td>3.144</td>
<td>.083</td>
<td>-1.089</td>
</tr>
<tr>
<td>Number of Prenatal Visits</td>
<td>.293</td>
<td>.591</td>
<td>1.143</td>
</tr>
<tr>
<td>Risk Level</td>
<td>.002</td>
<td>.964</td>
<td>2.818</td>
</tr>
</tbody>
</table>

*Note. N=50. Statistical significance set at level of p < .05. * was statistically significant
Table 6
*Chi-Square Results for DSRIP Status and Goal 3 Child Nominal/Ordinal Health Outcome Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance to 2 Month WCC</td>
<td>1.524</td>
<td>2</td>
<td>.467</td>
</tr>
<tr>
<td>Attendance to 4 Month WCC</td>
<td>.788</td>
<td>2</td>
<td>.674</td>
</tr>
<tr>
<td>Attendance to 6 Month WCC</td>
<td>.400</td>
<td>2</td>
<td>.819</td>
</tr>
<tr>
<td>Attendance to 9 Month WCC</td>
<td>1.305</td>
<td>2</td>
<td>.521</td>
</tr>
<tr>
<td>Attendance to 12 Month WCC</td>
<td>.311</td>
<td>2</td>
<td>.856</td>
</tr>
<tr>
<td>Received Vaccinations at 2 Months of Age</td>
<td>3.021</td>
<td>2</td>
<td>.221</td>
</tr>
<tr>
<td>Received Vaccinations at 4 Months of Age</td>
<td>.762</td>
<td>2</td>
<td>.683</td>
</tr>
<tr>
<td>Received Vaccinations at 6 Months of Age</td>
<td>2.095</td>
<td>2</td>
<td>.351</td>
</tr>
<tr>
<td>UTD with Vaccinations at 9 Months of Age</td>
<td>1.087</td>
<td>1</td>
<td>.297</td>
</tr>
<tr>
<td>Received Vaccinations at 12 Months of Age</td>
<td>.892</td>
<td>2</td>
<td>.640</td>
</tr>
</tbody>
</table>

*Note.* N=50. Statistical significance set at level of $p < .05$. 
<table>
<thead>
<tr>
<th>Overarching Theme</th>
<th>Subtheme</th>
<th>Examples</th>
</tr>
</thead>
</table>
| 1. Social Support | Socialization | Mentors provided significant social contact:  
“She visited me a lot and helped me a lot”, “We went out in the park sometimes”, “We went out to eat”, “She went to hospital with me when I delivered my baby”, “She visited me after I delivered (talking, making food)” |
| | Transportation | Mentors provided transportation: “Doctors’ appointments”, “Taking me [to] labor and delivery room when I was in labor”, “She took me [to the] donation place”, “Help[ed] me to go in [the] hospital for [my] blood tests” |
| 2. Education | English | Mentors provided an outlet to practice English:  
“[She] taught me English”, “Helped with English”, “She taught me with English” |
| | Driving | Mentors taught participants how to drive:  
“She’s teaching me how to drive”, “Teach me to drive and a lot more things” |
<table>
<thead>
<tr>
<th>Overarching Theme</th>
<th>Subtheme</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby/Child Care</td>
<td>Mentors provided education opportunities for mother and child: “She help[ed] my daughter with [her] homework”, “Stayed with the children during the labor”, “[She] talk[ed] to me at home about pregnancy”</td>
<td></td>
</tr>
<tr>
<td>3. Supplies</td>
<td>Baby Supplies</td>
<td>Mentors assisted mother in obtaining supplies for the baby: “Give me baby’s clothes”, “Clothing, baby toys, shoes, clothes, books”, “obtaining baby supplies”, “help me with the baby clothes”</td>
</tr>
<tr>
<td>4. System Navigation</td>
<td>WIC Shopping</td>
<td>‘WIC shopping”, “WIC, doctors’ appointments”, “Taking me to WIC shopping”</td>
</tr>
<tr>
<td></td>
<td>Grocery Shopping</td>
<td>“grocery shopping”</td>
</tr>
</tbody>
</table>
Table 8
*Post hoc Power Analysis with Calculated Sample Sizes*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Power</th>
<th>$p$</th>
<th>df</th>
<th>Magnitude of Effects (Cramer’s V or Cohen’s D)</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postpartum Attendance</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.123</td>
<td>636.84</td>
</tr>
<tr>
<td>Breastfeeding Initiation</td>
<td>.80</td>
<td>.05</td>
<td>1</td>
<td>.67</td>
<td>17.48</td>
</tr>
<tr>
<td>Exclusive Breastfeeding</td>
<td>.80</td>
<td>.05</td>
<td>1</td>
<td>.160</td>
<td>306.60</td>
</tr>
<tr>
<td>Doula Present at Delivery</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.298</td>
<td>108.49</td>
</tr>
<tr>
<td>Type of Delivery</td>
<td>.80</td>
<td>.05</td>
<td>3</td>
<td>.67</td>
<td>24.29</td>
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<tr>
<td>Birthweight</td>
<td>.80</td>
<td>.05</td>
<td>1</td>
<td>.253</td>
<td>122.62</td>
</tr>
<tr>
<td>Duration of Exclusive</td>
<td>.80</td>
<td>.05</td>
<td>48</td>
<td>.08484</td>
<td>2,181.86</td>
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<tr>
<td>Breastfeeding</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
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<td>.05</td>
<td>48</td>
<td>.025789</td>
<td>23,603.98</td>
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<tr>
<td>Gestational Age</td>
<td>.80</td>
<td>.05</td>
<td>48</td>
<td>.307872</td>
<td>166.58</td>
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<tr>
<td>Number of Prenatal Visits</td>
<td>.80</td>
<td>.05</td>
<td>48</td>
<td>.323377</td>
<td>151.08</td>
</tr>
<tr>
<td>Attendance to 2-MO WCC</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.175</td>
<td>314.60</td>
</tr>
<tr>
<td>Attendance to 4-MO WCC</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.126</td>
<td>606.87</td>
</tr>
<tr>
<td>Attendance to 6-MO WCC</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.089</td>
<td>1216.35</td>
</tr>
<tr>
<td>Attendance to 9-MO WCC</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.162</td>
<td>367.12</td>
</tr>
<tr>
<td>Attendance to 12-MO WCC</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.079</td>
<td>1543.77</td>
</tr>
<tr>
<td>Received Vaccinations 2-MO</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.246</td>
<td>159.21</td>
</tr>
<tr>
<td>Received Vaccinations 4-MO</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.123</td>
<td>636.84</td>
</tr>
<tr>
<td>Received Vaccinations 6-MO</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.205</td>
<td>229.26</td>
</tr>
<tr>
<td>UTD Vaccinations 9-MO</td>
<td>.80</td>
<td>.05</td>
<td>1</td>
<td>.147</td>
<td>363.22</td>
</tr>
<tr>
<td>Received Vaccinations 12-MO</td>
<td>.80</td>
<td>.05</td>
<td>2</td>
<td>.134</td>
<td>536.57</td>
</tr>
</tbody>
</table>
Figure 1. Bronfenbrenner’s Ecological Systems Theory.

Figure 1. A visual representation of Bronfenbrenner’s Ecological Systems Theory as presented in Onwuegbuzie et al., 2013. Reproduced with permission from Taylor & Francis Publishing.
Figure 2. A Gantt-style timeline with estimated timeframes for project activities.
Appendix A

PPB Intake Evaluation Form

The Priscilla Project of Buffalo (PPB)  Priscilla Project
Jericho Road Community Health Center  Date: 08/14/17
233 West Ferry Street, Buffalo, NY 14213  Client Medicaid#:
Phone: 716-886-0771  karen.forster@jrchc.org

Client Name: Test, Test  DOB: 01/01/1990
Address: 184 Barton Street, Buffalo, NY 14213  Phone: (716)-111-1111
Country of Origin:  Language(s):
Additional Language Partner/Family Member speaks:
Email Address:
Do you use social media (Face book)?  Yes  No
Date of Arrival: 00/00/0000  Resettlement Agency:
Who is your Primary Care doctor?  Who is your OB provider?
Due Date: 00/00/0000

TRANSPORTATION:
Do you have difficulty arriving at medical appointments?
Do you have transportation to your appointments?
   Do you have a car?
   Do you have access to a car?
   Are you able to use the bus?

MEDICAL CONCERNS:
   When did you have your last:
      Regular Check-Up 00/00/0000
      Gynecological exam/pap smear 00/00/0000
      Breast exam by nurse/doctor00/00/0000
      Filled required prescriptions 00/00/0000
      Well child visit for you child/children00/00/0000

Was the patient queried about smoking behavior?  Yes  No
Does the patient currently smoke?  Smoking:
Was she counseled about smoking cessation?  Yes  No
Do you use alcohol?  Alcohol:
   (Be sure to add how much/how often.)
Do you use marijuana?  Drug Use:
   (Be sure to add how much/how often.)
Do you use any non-prescribed medications, pain killers, ecstasy, heroin?  Drug Use:
   (Be sure to add how much/how often.)
Appendix A Continued

Do you chew betel nut?
If yes, please describe how much/how often.

Have you been to a dentist in the past year?
If you have not been to a dentist, are you interested in help making an appointment?

<table>
<thead>
<tr>
<th></th>
<th>Referred</th>
<th>Established</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
<tr>
<td>Health Insurance non-Medicaid</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
</tbody>
</table>

**HOUSEHOLD STATUS:**
1. Have you attended school?
2. Where did patient attend school?
3. What is the highest grade patient completed?
4. What are your current educational goals?
5. Do you work outside your home?
6. If yes, Where do you work?
7. What are your childcare arrangements?
8. Are you a ESL or GED student?
9. If yes, Where do you attend school?
10. Does your spouse/partner work?
11. If yes, where does your spouse work?
12. Does your spouse/partner go to ESL?
13. If yes, Where does spouse/partner attend ESL?
14. Including yourself, how many people are living in your household?

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Relation</th>
<th>DOB</th>
<th>Grade/School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are there any problems at school?
With the services you currently receive, do you have enough food for your family?
How do you meet your need for clothing?

<table>
<thead>
<tr>
<th></th>
<th>Referred</th>
<th>Established</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNAP</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
<tr>
<td>WIC</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
<tr>
<td>HRDC</td>
<td>00/00/0000</td>
<td>00/00/0000</td>
<td></td>
</tr>
</tbody>
</table>

If there is an emergency in your home, who would you call for help?
Appendix A Continued

Who helps you when you need help?

Do you feel safe living in your home and in your relationships? SH: Abuse:

Do you have any problems with:

**Birth Experience:**
1. Tell me what you know about feeding your newborn?
2. Do you plan on breast feed or formula feeding your baby?
3. Is patient a first time mother?
4. If patient has other children where were they delivered?
5. Is patient having her first child in the US?
6. Patients goals for program participation?
7. Goals Achieved

**Directions:** A point value is assigned to every criterion that statistically leads to higher risk. That value is added for every criterion found in the client's circumstance. Clients under 7 points are considered low risk and are eligible for supplies and education and possibly doula services. Clients between 7-15 points are medium risk and are eligible for a mentor and all services. Clients above 16 points may also have a second mentor and will be referred to other agencies as needs arise.

**Living Situation:**
1. Unmarried or second wife
2. Does not have family or supportive friends
3. Has been in the US for less than 2 yrs.
4. Has four or more children
5. Is living below or near the poverty level
6. Utilities not working
7. History of domestic violence
8. Little or no English
9. Home in disarray or appears unsafe
10. Cooking or shopping seem difficult
11. Cleaning appears difficult
12. Multiple c-sections (3 or more)
13. Under 18
14. Preeclampsia
15. Gestational Diabetes
16. Anemia
17. More than one miscarriage
18. Concerns breast feeding
19. Other Complications
20. Not participating in WIC (if eligible)
21. Not participating in Food Stamps/HEAP/Medicaid
Appendix B
Operational Definitions for Project Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>maternal ethnicity:</td>
<td>Country of origin as noted in the EMR demographic at the time of data collection.</td>
</tr>
<tr>
<td>maternal language:</td>
<td>Primary spoken language as noted in the EMR demographics at the time of data collection.</td>
</tr>
<tr>
<td>maternal zip code:</td>
<td>5-digit zip code as noted in the EMR demographics at the time of data collection.</td>
</tr>
<tr>
<td>maternal smoking status:</td>
<td>The use or abstinence from cigarette smoking during the perinatal period as noted in the EMR PPB exit evaluation.</td>
</tr>
<tr>
<td>maternal marital status:</td>
<td>Marital status as noted in the EMR demographics at the time of data collection.</td>
</tr>
<tr>
<td>type of insurance:</td>
<td>Type of insurance noted in the EMR demographic at the time of data collection.</td>
</tr>
<tr>
<td>receiving SNAP benefits:</td>
<td>Receiving SNAP benefits (food stamps) as noted in the EMR PPB intake assessment form.</td>
</tr>
<tr>
<td>receiving WIC:</td>
<td>Receiving WIC benefits as noted in the EMR PPB intake evaluation.</td>
</tr>
<tr>
<td>maternal education level:</td>
<td>Highest-grade level completed as noted in the EMR PPB intake evaluation.</td>
</tr>
<tr>
<td>time in the United States:</td>
<td>Numeric value in months (rounded), the time elapsed between (a) arrival date noted on the EMR refugee health assessment and (b) the date on which the EMR PPB intake evaluation was created.</td>
</tr>
<tr>
<td>maternal age:</td>
<td>Numeric value in years (rounded) for the age of the mother on the date of delivery as noted in the EMR prenatal record.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 2</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>type of service received A:</td>
<td>The type of service the mother received from the PPB depending on date of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>attendance to postpartum visit:</td>
<td>Attendance to a postpartum visit with a medical provider within 8 weeks of delivery noted in the EMR progress notes at time of data collection.</td>
</tr>
<tr>
<td>initiation of breastfeeding:</td>
<td>Any episode of breastfeeding on one or more occasions in any setting for any duration of time after date of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>type of feedings:</td>
<td>The type of feedings mother provided to child noted in the EMR progress notes.</td>
</tr>
<tr>
<td>doula present at delivery:</td>
<td>The presence of a doula at the time of delivery and for any duration of time after delivery noted on the EMR PPB exit evaluation.</td>
</tr>
<tr>
<td>type of delivery:</td>
<td>The type of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>duration of breastfeeding:</td>
<td>Any amount of breastfeeding noted in the EMR progress notes.</td>
</tr>
</tbody>
</table>
Appendix B Continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>gestational age:</td>
<td>Value in weeks (rounded) for the gestational age of the child on the date of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>birthweight:</td>
<td>Weight in grams of child birthweight on the day of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>number of prenatal appointments:</td>
<td>Number of prenatal appointments attended prior to delivery date noted in the EMR appointments.</td>
</tr>
<tr>
<td><strong>Goal 3</strong></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Definition</td>
</tr>
<tr>
<td>type of service received B:</td>
<td>The type of service the child received from the PPB depending on date of delivery noted in the EMR prenatal record.</td>
</tr>
<tr>
<td>attendance to 2-month well-child examination:</td>
<td>Attendance to a 2-month well-child examination with a medical provider noted in the EMR progress notes at time of data collection.</td>
</tr>
<tr>
<td>attendance to 4-month well-child examination:</td>
<td>Attendance to a 4-month well-child examination with a medical provider noted in the EMR progress notes at time of data collection.</td>
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<tr>
<td>attendance to 6-month well-child examination:</td>
<td>Attendance to a 6-month well-child examination with a medical provider noted in the EMR progress notes at the time of data collection.</td>
</tr>
<tr>
<td>attendance to 9-month well-child examination:</td>
<td>Attendance to a 9-month well-child examination with a medical provider noted in the EMR progress notes at the time of data collection.</td>
</tr>
<tr>
<td>attendance to 12-month well-child examination:</td>
<td>Attendance to a 12-month well-child examination with a medical provider noted in the EMR progress notes at the time of data collection.</td>
</tr>
<tr>
<td>received of vaccinations at 2-months:</td>
<td>Received 2-month vaccinations noted in the EMR progress notes according to the CDC vaccination schedule, 2017.</td>
</tr>
<tr>
<td>received of vaccinations at 4-months:</td>
<td>Received 4-month vaccinations noted in the EMR progress notes according to the CDC vaccination schedule, 2017.</td>
</tr>
<tr>
<td>received vaccinations at 6-months:</td>
<td>Received 6-month vaccinations noted in the EMR progress notes according to the CDC vaccination schedule, 2017.</td>
</tr>
<tr>
<td>received vaccinations at 9-months:</td>
<td>Received 9-month vaccinations noted in the EMR progress notes according to the CDC vaccination schedule, 2017.</td>
</tr>
<tr>
<td>received vaccinations at 12-months:</td>
<td>Received 12-month vaccinations noted in the EMR progress notes according to the CDC vaccination schedule, 2017.</td>
</tr>
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## Appendix C
Data Collection Form

<table>
<thead>
<tr>
<th>Case Mother Name:</th>
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</thead>
<tbody>
<tr>
<td>JRCHC Acct#:</td>
<td></td>
</tr>
<tr>
<td>Case ID#:</td>
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</table>

<table>
<thead>
<tr>
<th>Ethnicity:</th>
<th>Breast Feeding Initiation:</th>
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<table>
<thead>
<tr>
<th>Language:</th>
<th>Time Breast Feeding:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Zip Code:</th>
<th>Doula:</th>
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</table>

<table>
<thead>
<tr>
<th>Smoking Status:</th>
<th>Delivery Type:</th>
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</table>

<table>
<thead>
<tr>
<th>Marital Status:</th>
<th>Gestational Age:</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Insurance Type:</th>
<th>Birthweight:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>SNAP Benefits:</th>
<th>Number of Prenatal Visits:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>WIC Benefits:</th>
<th>Maternal Education:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Time in the U.S.:</th>
<th>Risk Level:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Maternal Age:</th>
<th>Research Notes:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type of Service:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Attendance to Postpartum:</th>
<th></th>
</tr>
</thead>
</table>
Appendix C Continued

<table>
<thead>
<tr>
<th>Case Child Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JRCHC Acct#:</td>
<td></td>
</tr>
<tr>
<td>Case ID#:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Service:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance to 2 month WCC:</td>
<td>Received vaccines at 2 months:</td>
</tr>
<tr>
<td>Attendance to 4 month WCC:</td>
<td>Received vaccines at 4 months:</td>
</tr>
<tr>
<td>Attendance to 6 month WCC:</td>
<td>Received vaccines at 6 months:</td>
</tr>
<tr>
<td>Attendance to 9 month WCC:</td>
<td>Received vaccines at 9 months:</td>
</tr>
<tr>
<td>Attendance to 12 month WCC:</td>
<td>Received vaccines at 12 months:</td>
</tr>
</tbody>
</table>

**Research Notes:**
Appendix D

PPB Exit Evaluation Form

The Priscilla Project (PPB) - Jericho Road Community Health Center
233 West Ferry Street, Buffalo, NY 14213
Office: 716-886-0771
Jericho Road Community Health Center: 716-881-6191
karen.forster@jrchc.org

Date: 08/14/2017

Name: Test, Test   DOB: 01/01/1990   Delivery Date: 00/00/0000
Entrance Date: 00/00/0000   Exit Date: 00/00/0000   Months In Program: 

Services:                  Referrals:                     OB Clinic:          
Birth Outcomes:            Notes on Family:                Baby's Name:       

1. If you ever need help with any of the following things, where would you go? 
   Food:                           Clothing:                        
   Breastfeeding:                 The safety of you, your children, or your house: 

2. Do you have WIC?              
3. If answer to 2 is yes, do you find it easy to shop for WIC? 

4. Do you smoke/have you ever smoked?  
5. If answer to 4 is yes, please describe how often:  

6. Have you been to a dentist in the past year? 

7. Do you think each one of these is important for your health? 
   Regular check-up 
   Gynecological exams/pap smears 
   Breast exam by nurse or doctor 
   Filling required prescriptions 

**Nutrition** 
8. How often do you eat the following types of foods? 
Fruits:                         
Vegetables:                     
Sweets (candy, chocolate, cake, donuts):  
Pop (cola, orange drink):
Appendix D Continued

Fast food (pizza, hamburger, fried foods) and chips, etc.:
Prenatal vitamins:

9. How many 8oz, glasses of water do you drink per day?
10. What I eat while I am pregnant affects my baby's health and development?
11. Taking prenatal vitamins is important in helping my baby to grow strong?

Breastfeeding
12. Are you breastfeeding or bottle feeding your baby?
13. Do you have any concerns about breastfeeding?
14. How often should you breastfeed your baby in his/her first month?
15. How can you tell if your baby is getting enough breastmilk?

Birth Experience
16. Did you find making a birth plan helped you to have a positive birth experience?
17. Do you feel that your birth plan was followed for your birth? Why/why not?
18. Did you find working with a doula helped you to have a positive birth experience?
19. How did you feel about giving birth in the hospital in the US?
19a. What did you like about the hospital experience?
19b. What did you not like about the hospital experience?

1st Month Together
20. What should I do if my baby seems sick once s/he is home from the hospital?

Rate how important to you these statements are:

21. Rest once my baby and I are home
22. It is important for me to wait to resume relations with my husband until my body heals (~6 weeks)

Priscilla Project Evaluation

23. Do you feel that the Priscilla Project supported you in your pregnancy and birth experience?
24. In what ways did your mentor help you?
25. If you could change anything about the program, what would you change?
26. Do you feel safe living in your home?
Is there some additional way in which PPB can help you now?:

September 19, 2017

Dear Seth Wagner:

On 9/19/2017, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of Study:</td>
<td>Priscilla Project of Buffalo: Impact of Enhanced Post-Delivery Follow-Up on Refugee Perinatal Outcomes</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Seth Wagner</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>STUDY00001840</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or HDE:</td>
<td>None</td>
</tr>
<tr>
<td>Documents Reviewed:</td>
<td>• HRP-503- WagnerS Protocol.docx, Category: IRB Protocol; • Wagner, S. - Data Collection Form.docx, Category: Other; • HRP-612- Wagner,S HIPAA-Waiver.docx, Category: Other;</td>
</tr>
</tbody>
</table>

The IRB approved the study from 9/19/2017 to 9/18/2018 inclusive. Before 9/18/2018 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 9/18/2018, approval of this study expires on that date. The Initial Study materials for the project referenced above were reviewed and approved by the SUNY University at Buffalo IRB (UBIRB) by Initial Study Review. Before to 9/18/2018 inclusive. Before 9/18/2018 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

Based on the information you have provided in the “University at Buffalo Human Research Protections Program Request for Full Waiver of Individual Authorization for Use of Individually Identifiable Health Information” form (waiver request), the UBIRB has determined a full waiver of the individual authorization required by 45 CFR §164.508...
for use or disclosure of protected health information is warranted based on the following criteria as specified in 45 CFR 164.512(i) (2). Accordingly:

A) The use or disclosure of protected health information involves no more than a minimal risk to the privacy of individuals, based on, at least, the presence of the following elements:

1) An adequate plan to protect the identifiers from improper use and disclosure;

2) An adequate plan to destroy the identifiers at the earliest opportunity consistent with conduct of the research, unless there is a health or research justification for retaining the identifiers or such retention is otherwise required by law; and

3) Adequate written assurances that the protected health information will not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research study, or for other research for which the use or disclosure of protected health information would be permitted by this subpart;

B) The research could not practicably be conducted without the waiver or alteration; and

C) The research could not practicably be conducted without access to and use of the protected health information.

A brief description of the Protected Health Information for which this alteration or waiver has been granted is provided on the “Request for Waiver of the Authorization for Use of Individually Identifiable Health Information” or “Request for Limited Waiver of the Authorization for Use of Individually Identifiable Health Information for Study Recruitment” which is part of this approval. If HIV information is requested, this waiver is only valid for disclosures consistent with New York Code Public Health Article 27-F.

This full waiver has been reviewed and approved for the above referenced study by the UBIRB to permit you to receive personal health information as specified in section (1) of the waiver request.

UB IRB approval is given with the understanding that the most recently approved procedures will be followed and the most recently approved consenting documents will be used. If modifications are needed, those changes may not be initiated until such modifications have been submitted to the UBIRB for review and have been granted approval.

Prior to the expiration of this approval, you will receive notification that it is time for the UBIRB to conduct its periodic review of your study. Studies cannot be conducted beyond expiration date without re-approval by the UBIRB.
As principal investigator for this study involving human participants, you have responsibilities to the SUNY University at Buffalo IRB (UBIRB) as follows:

1. Ensuring that no subjects are enrolled prior to the IRB approval date.

2. Ensuring that the study is not conducted beyond the expiration date without re-approval by the UBIRB.

3. Ensuring that the UBIRB is notified of:
   - All Reportable Information in accordance with the Reportable New Information Form Smart Form.
   - Project closure/completion by the Continuing Review/Modification/Study Closure smart form.

4. Ensuring that the protocol is followed as approved by UBIRB unless a protocol amendment is prospectively approved.

5. Ensuring that changes in research procedures, recruitment or consent processes are not initiated without prior UBIRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.

6. Ensuring that the study is conducted in compliance with all UBIRB decisions, conditions, and requirements.

7. Bearing responsibility for all actions of the staff and sub-investigators with regard to the protocol.

8. Bearing responsibility for securing any other required approvals before research begins.

If you have any questions, please contact the UBIRB at 716-888-4888 or ub-irb@buffalo.edu.
October 13, 2017

Dear Seth Wagner:

On 10/13/2017, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of Study:</td>
<td>Priscilla Project of Buffalo: Impact of Enhanced Post-Delivery Follow-Up on Refugee Perinatal Outcomes</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Seth Wagner</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>MOD00003198</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
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<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or HDE:</td>
<td>None</td>
</tr>
</tbody>
</table>

The IRB approved the study from 10/13/2017 to 9/18/2018 inclusive. Before 9/18/2018 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 9/18/2018, approval of this study expires on that date. The Modification materials for the project referenced above were reviewed and approved by the SUNY University at Buffalo IRB (UBIRB) by Modification Review. Before to 9/18/2018 inclusive. Before 9/18/2018 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 9/18/2018, approval of this study expires on that date. or within 30 days of study closure, whichever is earlier, you are to submit a continuing review application with required explanations. You can submit a continuing review application by navigating to the active study in Click IRB and clicking Create Modification / Continuing Review. Studies cannot be conducted beyond the expiration date without re-approval by the UBIRB.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.
HIPAA Authorization combined with consent document [delete section if not applicable]

The consent form document includes the HIPAA authorization for use/disclosure of personal health information and has met the required elements of the federal regulations of HIPAA.

HIPAA Partial Waiver granted for Recruitment [delete section if not applicable]

The UBIRB has approved the HIPAA Partial Waiver to permit you to receive personal health information as specified in section (1). The Partial Waiver Form has met the required elements of the federal regulations of HIPAA.

Full HIPAA Waiver [delete section if not applicable]

Based on the information you have provided in the “University at Buffalo Human Research Protections Program Request for Full Waiver of Individual Authorization for Use of Individually Identifiable Health Information” form (waiver request), the UBIRB has determined a full waiver of the individual authorization required by 45 CFR §164.508 for use or disclosure of protected health information is warranted based on the following criteria as specified in 45 CFR 164.512(i) (2). Accordingly:

A) The use or disclosure of protected health information involves no more than a minimal risk to the privacy of individuals, based on, at least, the presence of the following elements:

   1) An adequate plan to protect the identifiers from improper use and disclosure;

   2) An adequate plan to destroy the identifiers at the earliest opportunity consistent with conduct of the research, unless there is a health or research justification for retaining the identifiers or such retention is otherwise required by law; and

   3) Adequate written assurances that the protected health information will not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research study, or for other research for which the use or disclosure of protected health information would be permitted by this subpart;

B) The research could not practicably be conducted without the waiver or alteration; and

C) The research could not practicably be conducted without access to and use of the protected health information.
A brief description of the Protected Health Information for which this alteration or waiver has been granted is provided on the “Request for Waiver of the Authorization for Use of Individually Identifiable Health Information” or “Request for Limited Waiver of the Authorization for Use of Individually Identifiable Health Information for Study Recruitment” which is part of this approval. If HIV information is requested, this waiver is only valid for disclosures consistent with New York Code Public Health Article 27-F.

This full waiver has been reviewed and approved for the above referenced study by the UBIRB to permit you to receive personal health information as specified in section (1) of the waiver request.

UB IRB approval is given with the understanding that the most recently approved procedures will be followed and the most recently approved consenting documents will be used. If modifications are needed, those changes may not be initiated until such modifications have been submitted to the UBIRB for review and have been granted approval.

Prior to the expiration of this approval, you will receive notification that it is time for the UBIRB to conduct its periodic review of your study. Studies cannot be conducted beyond expiration date without re-approval by the UBIRB.

As principal investigator for this study involving human participants, you have responsibilities to the SUNY University at Buffalo IRB (UBIRB) as follows:

1. Ensuring that no subjects are enrolled prior to the IRB approval date.

2. Ensuring that the study is not conducted beyond the expiration date without re-approval by the UBIRB.

3. Ensuring that the UBIRB is notified of:
   - All Reportable Information in accordance with the Reportable New Information Form Smart Form.
   - Project closure/completion by the Continuing Review/Modification/Study Closure smart form.

4. Ensuring that the protocol is followed as approved by UBIRB unless a protocol amendment is prospectively approved.

5. Ensuring that changes in research procedures, recruitment or consent processes are not initiated without prior UBIRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.

6. Ensuring that the study is conducted in compliance with all UBIRB decisions, conditions, and requirements.
7. Bearing responsibility for all actions of the staff and sub-investigators with regard to the protocol.

8. Bearing responsibility for securing any other required approvals before research begins.

If you have any questions, please contact the UBIRB at 716-888-4888 or ub-irb@buffalo.edu.
Purpose

To determine if refugee maternal-child cohorts who received DSRIP-funded enhanced post-delivery follow-up have statistically different perinatal outcomes compared to cohorts who received standard care.

PICO Question

- **P**: Pregnant refugee women and their children enrolled in the PPB in Buffalo, New York
- **I**: DSRIP-funded enhanced post-delivery follow-up, pregnant refugee women and their children enrolled in the PPB and followed for 2 years postpartum
- **C**: Standard care, pregnant refugee women and their children enrolled in the PPB and followed for 6-8 weeks postpartum
- **O**: Maternal and child health outcomes

Background

- NY5 admits 3,500 to 4,500 new refugees annually (DiNapoli, 2016)
- Erie County accepts approximately one third of all the refugees resettled to NY5 (Fike et al., 2015)
- The Buffalo-Niagara Metro has seen a 34% increase in the foreign-born population (Fike et al., 2015)
Literature Review

- Perinatal Care in Refugee Camps (Hynes, Sakani, Spiegel, & Corrias, 2012; Woodcock et al., 2008).
- Role of Acculturation and Stress (Flynn, Faust, & Brait, 2011; Fox, Erbringe, Buss, Dehaene, & Washabaugh, 2015; Hawkins, Gilmore, Shafie, & Cohen, 2014; Tsai et al., 2017).

- Perinatal Health Concerns in the US (Arbesman, Kahler, & Buck, 1993; Campbell, 2004; Jacoby & Smith, 2013; Ross & Goff, 2005; Sackoff et al., 2006; Schwartz et al., 2009).
- Health Access and Disparities (Lindsay et al., 2016; Santiago & Figueroa, 2015; Woodgate, 2012).
- Cross-Cultural Perspectives (Beine, Fullerton, Palinkas, & Anders, 1995; Goyal, 2016; Kulig, 1990; Seo, Kim, & Dickerson, 2014; Wagner, 2015).

Theoretical Foundation

Urie Bronfenbrenner’s Ecological Systems Theory (EST, 1979)

- Individual
- Microsystem
- Mesosystem
- Exosystem
- Macrosystem

Theoretical Foundation Cont.

Note: A visual representation of Bronfenbrenner’s EST (Onwuegbuzie et al., 2013).
Project Goals

- Goal 1: To identify and compare the characteristics of women and children participating in the PPB, both in the enhanced post-delivery follow-up intervention versus those who received standard care.
- Goal 2: To compare maternal health outcomes between enhanced post-delivery follow-up PPB mothers versus those who received PPB standard care.
- Goal 3: To compare child health outcomes between enhanced post-delivery follow-up PPB children versus those who received PPB standard care.
- Goal 4: To describe the experiences of PPB clients and their perspectives of the PPB program.

Methodology

- IRB approval was obtained.

SETTING

- The Priscilla Project of Buffalo, a perinatal community support program
- Operated by Jericho Road Community Health Center
- Provides primary care for refugees and individuals living in low-resource neighborhoods in Buffalo, New York

SAMPLE

- N=50 maternal-child cohorts out of 260 possible cohorts, April 2015 to April 2016
- 25 cases who received DSRIP-funded enhanced post-delivery follow-up (n1)
- 25 cases who received standard care (n2)
- Systematic selection process with inclusion/exclusion criteria

Methodology Cont.

PROJECT VARIABLES

- Goal 1
  - Maternal ethnicity, maternal language, maternal smoking status, maternal marital status, type of insurance, receiving SNAP benefits, and receiving WIC benefits (N); maternal education level (O); time in the US, maternal age (I)
- Goal 2
  - Independent: DSRIP status
  - Attendance to postpartum visit, initiation of breastfeeding, exclusive breastfeeding, doulas present at delivery, and type of delivery (N); gestational age and birthweight (I); number of prenatal appointments, duration of exclusive breastfeeding, duration of total breastfeeding, maternal risk level (R)

KEY

N: Nominal
D: Ordinal
I: Interval
R: Ratio
Methodology Cont.

PROJECT VARIABLES

- **Goal 3**
  - Independent: DSRIP status
  - Attendance to 2-month, 4-month, 6-month, 9-month, and 12-month well-child examinations (N); vaccination status at 2-months, 4-months, 6-months, 9-months, and 12-months of age (O)

- **Goal 4**
  - PI evaluated responses from semi-structured interviews performed by the PPB postpartum

KEY

N: Nominal
O: Ordinal
I: Interval
R: Ratio

Methodology Cont.

DATA COLLECTION PROCEDURES

- PI was responsible for all data collection using a data collection form
- Data was extracted from the EMR
- Each case had a serial number and a unique case identification number
- If less than 85% complete data, then the cohort was excluded

Methodology Cont.

DATA ANALYSIS

- **Goal 1**
  - Descriptive statistics were used for both groups to summarize demographic data in frequency units and percentages

- **Goal 2 and 3**
  - To determine if there were significant relationships between the categorical independent variable and dependent variables
  - Chi-square tests, independent sample t-tests, and Mann-Whitney U tests were performed depending on variable level of measurement

- **Goal 4**
  - Inductive content analysis, responses were coded to determine recurring themes and subthemes
  - 41 semi-structured interviews, n1 (22), n2 (19)

- “Post-hoc” Power Analysis
  - Power analysis was performed using the estimated magnitude of effects to determine if the study was appropriately powered (ANZMTG Statistical Decision Trees 2017, 2017A)
Results

Goal 1
• Hypothesis: Both study populations will share similar demographic characteristics since the samples were concurrent
• No statistically significant differences between project populations were noted (p=0.05)
• Maternal education levels were lower than expected

Results Cont.

Goal 2
• Hypothesis: DSRIP-funded enhanced post-delivery follow-up would correlate to higher positive maternal outcomes.
• No statistically significant differences between project populations for nominal/ordinal variables were noted (p=0.05)*

Results Cont.

Goal 3
• Hypothesis: DSRIP-funded enhanced post-delivery follow-up would correlate to higher positive child outcomes.
• No statistically significant differences between project populations were noted (p=0.05)
Power Analysis

Study was underpowered based on the magnitude of effects (Cramer's V or Cohen's D).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Power</th>
<th>p</th>
<th>df</th>
<th>Magnitude of Effects</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postpartum Attendance</td>
<td>0.80</td>
<td>0.05</td>
<td>2</td>
<td>0.123</td>
<td>636.84</td>
</tr>
<tr>
<td>Breastfeeding Initiation</td>
<td>0.80</td>
<td>0.05</td>
<td>1</td>
<td>0.67</td>
<td>17.48</td>
</tr>
<tr>
<td>Exclusive Breastfeeding</td>
<td>0.80</td>
<td>0.05</td>
<td>1</td>
<td>0.160</td>
<td>306.60</td>
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<tr>
<td>Doula Present at Delivery</td>
<td>0.80</td>
<td>0.05</td>
<td>2</td>
<td>0.298</td>
<td>108.49</td>
</tr>
<tr>
<td>Type of Delivery</td>
<td>0.80</td>
<td>0.05</td>
<td>3</td>
<td>0.67</td>
<td>24.29</td>
</tr>
<tr>
<td>Birthweight</td>
<td>0.80</td>
<td>0.05</td>
<td>1</td>
<td>0.253</td>
<td>122.62</td>
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<tr>
<td>Duration of Exclusive Breastfeeding</td>
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<td>0.05</td>
<td>48</td>
<td>0.08484</td>
<td>2,181.86</td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
<td>0.80</td>
<td>0.05</td>
<td>48</td>
<td>0.025789</td>
<td>23,603.98</td>
</tr>
</tbody>
</table>

Results Cont.

Goal 4

• DSRIP-funded n1 (more detailed), n2 (less detailed).
• Four overarching themes were identified: social support, education, supplies, and activities of daily living.

Inferences

• JRCHC and the PPB (or some combination of both) have better overall perinatal outcomes compared to NYS and local benchmarks.
• JRCHC and the PPB (or some combination of both) have contributed to a “closing the gap”
• The support services provided by the PPB enhance the therapeutic relationships formed with clients.

Implication for Practice

Community health centers who work with high risk or underserved patients should consider replicating and modifying the approaches taken by the PPB and JRCHC.

The defense of continued DSRIP-funding based on these results alone is tenuous.
Estimated Cost Savings

- C-section: $145,112.64
- Risk Necrotizing Enterocolitis: $183,336.72
- VLBW Comorbidities: $247,950.68 to $302,286.83
- Hospitalization Vaccine Preventable Illness: $114.80 to $57,633.04
- Total estimated cost savings: $605,528.66 to $808,236.73.

Estimated Expenditures

- Payroll: $259,930 to $268,090
- Pack n’ Plays: $12,000 to $18,000
- Car Seats: $12,000 to $20,000
- Diapers: $18,894
- Total estimated expenditure: $302,924 to $325,084

Theoretical Net Savings:

$302,604.66 to $483,152.73.

Strengths & Limitations

Strengths

- Appropriate methodology
- Can be generalized to local refugee population
- High internal validity
- Detailed data collection procedure, which allows replication
- Rare missing data

Limitations

- Data collected from different areas in the EMR
- Limited statistical power
- Weak semi-structured interviews
- Limited external validity

References


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DATE

11/22/17

11/22/17