Perinatal Periods of Risk (PPOR) Report
February 2020

Understanding and Addressing Racial Inequities in Birth Outcomes in Montgomery County, PA
Executive Summary

Improving birth outcomes for Black women in Montgomery County, PA

Knowing that racial disparities exist for birth outcomes, the Montgomery Early Childhood Consortium PPOR subcommittee analyzed all birth and death records for women living in the county. The survival of babies of Black women (n=4,482) was compared to babies of White women (n=31,496), who had better outcomes.

<table>
<thead>
<tr>
<th>In Montgomery County, babies of Black/African-American women are</th>
<th>We categorized each death by birthweight and age at death, and found that the greatest racial disparity is among very low birthweight babies (less than 3.3 pounds).</th>
<th>To reduce the racial inequity, we need to increase babies of Black women born at healthy weights.</th>
</tr>
</thead>
</table>

This is inequity. We can intervene.

To learn more about what could help Black/African-American women in Montgomery County have healthy babies, we held three community focus groups. Analysis of the birth and death records as well as content of the focus groups revealed key action areas:

- Nutrition and weight
- Health across the life course
- Interactions with healthcare providers
- Emotional and mental health support
- Informal and formal education
- Access to services

By focusing on these areas, we can reduce the number of very low birthweight babies of Black/African-American women. This will lessen the racial gap in fetal and infant survival.

Montgomery County PPOR Subcommittee 2020
For more information about this effort and our process so far: montcopia.org/3256/Get-Involved-Disparities-In-Infant-Health

1. 20.3 fetal and deaths per 1,000 births for babies of Black women compared to 7.9 deaths per 1,000 births for babies of White women
2. Comparing 1) very low birthweight deaths to low and normal weight 2) fetal deaths, 3) newborn deaths, and 4) infant deaths
The purpose of this report is to share information about the Perinatal Periods of Risk (PPOR) Study conducted in Montgomery County from 2018 to 2020, analyzing birth and death records data as well as information shared at community focus groups. This report documents the methods, results, and outcomes of this study, which quantifies, investigates, and plans to reduce the racial inequity in fetal and infant mortality experienced by Black/African-American women in Montgomery County. Finally, the Community Action Plan, developed by community members and informed by research findings, identifies high need strategies for the prioritized areas of intervention. This report was prepared by the Research & Evaluation Group at Public Health Management Corporation, under contract by the Montgomery County Office of Public Health.

We welcome you to get involved with the implementation process, share your experience, become a champion at your organization and in your community, and help make a difference. Consider sharing this report or other information with your friends, family, and coworkers. We would love to partner with you and your network.

For more information, contact Chareese Wilson at cwilson2@montcopa.org.
Our approach

Black women in Montgomery County had the highest rates of infant mortality of any racial group. In response, the Montgomery County Office of Public Health commissioned a study and convened a subcommittee to understand and address the racial inequity. The Perinatal Periods of Risk framework leads a community through analyzing data to taking action. We used a mixed methods approach to understand the size and drivers of the racial inequity, then engaged the community to create an action plan.
A call to action

Between 2012 to 2016 in Montgomery County, the infant mortality rate for Black women was nearly three times higher than the rate for other women in the county (PADOH, 2016). These inequities prompted the Montgomery County Office of Public Health to commission a study and convene a committee to better understand and address the disparity in infant mortality. The Research & Evaluation Group at Public Health Management Corporation (PHMC) led the study, in partnership with the Montgomery County Maternal and Early Childhood Consortium (MECC).

Racial health disparities are caused by racism.

A disparity is a difference seen between groups of people. Disparities that exist between racial and ethnic groups are caused by social and systemic inequities (Braveman, 2014).

We used to think that health was mostly driven by behaviors, healthcare, and other individual-level factors. But research has shown that individual behaviors don’t explain racial differences in health outcomes (Winkleby & Cubbin, 2004). Now we know that our strongest determinants of health are much bigger. Our physical environment—like our home, work, and neighborhood, and our social environment—like education, employment, services, and income—all are very important (HHS, 2010). Going further, our environment and our experiences are shaped by social systems and policies, which in the US, are built on racism and inequity (Bailey, Krieger, Agénor, Graves, Linos, Bassett, 2017; Feagin & Bennefield, 2014). So if we want to make improvements in health, in addition to providing health education, health care, and case management, we have to be addressing these systems and policies, too (Williams, 1999; Williams & Sternthal, 2010).

“Race is a social construct, a social classification based on phenotype, that governs the distribution of risks and opportunities in our race-conscious society. Although ethnicity reflects cultural heritage, race measures a societally imposed identity and consequent exposure to the societal constraints associated with that particular identity. That is, the race that an investigator notes or a study subject has learned to self-report is an excellent measure of exposure to racism. Perhaps it is this aspect of race that profoundly impacts health and results in race-associated differences in health outcomes that are large in magnitude, occur across the life span, and involve many different organ systems.” (Phyllis Jones, 2001, p.300)

Dr. Camara Phyllis Jones
Senior Fellow, Satcher Health Leadership Institute and Cardiovascular Research Institute
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**PPOR approach**

In our efforts to address inequities in birth outcomes locally, we used a specific tool called Perinatal Periods of Risk (PPOR). PPOR is a community-based, analytic framework for investigating racial disparities in fetal and infant mortality in a local community and then taking action to improve birth outcomes (Peck, Sappenfield, & Skala, 2010).

Adapted from an approach by the World Health Organization, the PPOR framework was created by CityMatCH, the national organization of urban maternal and child health leaders, in collaboration with affiliated health departments, the Centers for Disease Control and Prevention CDC, the Health Resources and Services Administration, and the March of Dimes. PPOR has been used by Healthy Start programs, urban health departments, and other organizations.

A PPOR approach can reduce fetal and infant mortality racial disparity by helping a community identify and prevent risk factors during the greatest period(s) of risk. PPOR encourages a community to move from data to appropriate action and brings together diverse community partners to build consensus, support, and partnership.

Social justice is the underlying premise of PPOR because it is based on this assertion: If one population group can have low mortality, then other groups should be able to reach that goal. In Montgomery County, Black women were identified as the population with poorer birth outcomes, with White women as the comparison population.

*The PPOR Process*
Mixed methods analyses

We used a mixed methods approach to better understand the extent and drivers of racial inequity. Data was analyzed by the Research & Evaluation Group at PHMC. For more detailed methodology, please see the Methods section (page 33).

1. **Compare racial disparity in feto-infant mortality**
   
   Using vital statistics data, we analyzed every birth, fetal death, and infant death from 2012 to 2016 among Black women (n=4,482) and White women (n=31,496) living in Montgomery County. We calculated feto-infant mortality rates for babies born to Black women and White women. Then, we calculated excess mortality, considering how many Black deaths could have been prevented if feto-infant morality rates were the same for Black and White women.

2. **Identify the types of births where the racial disparity is greatest**
   
   We categorized each fetal and infant death by birthweight and age at death into four PPOR categories. Then we calculated feto-infant mortality rates within each category to identify where the racial disparity is greatest. Each PPOR category suggests interventions most likely to reduce the disparity.

3. **Study potential risk factors**
   
   We performed multivariate logistic regression to identify factors associated with the driver of the disparity, which was too many small babies being born. We quantified the association of factors that may put a Black women at increased risk for having very low birthweight baby.

4. **Facilitate focus groups**
   
   A total of 20 Black women living in the county who had even been pregnant participated in three focus groups in September & October 2019. Questions asked about community supports for and detractors from having a happy and healthy pregnancy, their healthcare experiences, and their visions for community changes. Transcripts were analyzed for emerging themes.

5. **Host community meetings**
   
   We held two community meetings in November 2019 & January 2020, in which a few focus group participants shared their experiences and the PPOR subcommittee shared results from quantitative and qualitative findings. Then, meeting attendees participated in brainstorming and planning activities to generate potential solutions, prioritize groupings of solutions, and categorize need to intervention strategies for local Black women.
**PPOR subcommittee**

The Montgomery County Department of Health and Human Services convened a PPOR subcommittee as part of their Maternal and Early Childhood Consortium (MECC). The subcommittee served to make decisions together, provide context for analytic findings, recruit and facilitate focus groups, and plan MECC PPOR public meetings.

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Information about the Montgomery County Black women in the PPOR study

We performed descriptive analyses to learn more about the Black women in our dataset of birth and death records (those who had a birth or fetal death from 2012 to 2016 while living in Montgomery County). We examined where they live, at what gestational age their babies were born, and how much their babies weighed. We then considered how gestational age related to birthweight and survival beyond one year old.
Records analyzed included all live births and fetal deaths from 2012 to 2016 among women living in Montgomery County. Before understanding the extent and contributing factors to the racial inequity in fetal and infant deaths, we wanted to learn more about the 4,482 births and deaths to Black women (of any ethnicity).

Where did these women live?

Shown below are the five towns with the highest numbers of Black live births and infant and fetal deaths. Norristown and Cheltenham are geographic areas that deserve focus, as they have the highest number of Black infant & fetal deaths, as well as live births.

At what gestational age were most babies born?

Most Black women delivered at full term (86%).
Information about the women in the PPOR study,

How much did their babies weigh?

Most Black women’s babies had normal birthweight (86%).

![Bar chart showing birthweight categories and percentages.]

- Very low birthweight: 161, 4%
- Low birthweight: 451, 10%
- Normal birthweight: 3834, 86%

How did gestational age relate to birthweight?

Most babies that were very low birthweight were delivered extremely preterm (64%) or very preterm (30%). It was very unlikely for a very low birthweight baby to be full term or post-term. No babies at normal birthweight were delivered extremely or very preterm – almost all normal weight babies were delivered at full term (96%).

![Bar chart showing gestational ages and percentages.]

- Extremely preterm: < 28 weeks
- Very preterm: 28 to 31 weeks
- Moderate or late preterm: 32 to 36 weeks
- Full term: 37 to 41 weeks
- Post-term: 42+ weeks
How did their babies’ survival relate to gestational age?

It was very unlikely for babies born at full term or post-term to die (0%, but not 0 deaths). Babies born extremely preterm were more likely to die than live past their 1st birthday (59%), though 4 in 10 do live to their 1st birthday. Those born very preterm were much more likely to live past their 1st birthday (92%) than to die.

<table>
<thead>
<tr>
<th>Gestational Age</th>
<th>1st Birthday Lived</th>
<th>1st Birthday Died</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely preterm (&lt; 28 wks)</td>
<td>41%</td>
<td>59%</td>
</tr>
<tr>
<td>Very preterm: 28 to 31 wks</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>Moderate or late preterm: 32 to 36 wks</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>Full term: 37 to 41 wks</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-term: 42+ wks</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- The baby lived past its 1st birthday
- The baby died, either as a fetal or infant death
Understanding the extent of the racial inequity in feto-infant mortality

Using the PPOR framework to study racial disparities in feto-infant mortality, we learned that babies born to Black women are 2.6 times as life to die as babies born to White women. Considering birthweight and age at death, the greatest racial inequity is among very low birthweight babies. To reduce the racial inequity, we need to support Black women in having babies at healthy birthweights.
PPOR categories of intervention

Each fetal and infant death is sorted into categories by birthweight and age at death. A population with poorer birth outcomes is compared to a population with more optimal birth outcomes to calculate the size of the disparity. Each category relates to suggested interventions. By targeting the PPOR category with greatest disparity, interventions can better close the gap (Sappenfield, Peck, Gilbert, Haynatzka, & Bryant, 2010b).

Our analysis compared mortality rates by race of all fetal and infant deaths, very low birthweight fetal and infant deaths (weighing less than 1500 grams), and fetal deaths (weighing at least 1500 grams). There were not enough Black deaths to compare mortality rates for newborn and infant deaths.

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>Suggested interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low birthweight</td>
<td>&lt; 1500 grams (any age)</td>
<td>Preconception health, health behaviors, perinatal care, etc.</td>
</tr>
<tr>
<td>Fetal deaths</td>
<td>≥ 1500 grams &amp; ≥ 16 weeks</td>
<td>Prenatal care, high risk referral, special obstetric care, etc.</td>
</tr>
<tr>
<td>Newborn deaths</td>
<td>≥ 1500 grams &amp; 0–27 days</td>
<td>Perinatal management, neonatal care, pediatric surgery, etc.</td>
</tr>
<tr>
<td>Infant deaths</td>
<td>≥ 1500 grams &amp; 28–365 days</td>
<td>Sleep, injury, infection, etc.</td>
</tr>
</tbody>
</table>
Among all infant & fetal deaths, babies born to Black women are 2.6 times as likely to die as babies born to White women (comparing the feto-infant mortality rates of 20.3 deaths per 1,000 births to 7.9 deaths per 1,000 births, respectively).

The greatest disparity exists in the very low birthweight (<1500 grams) category, when there is an excess of 10.3 deaths per 1,000 births for Black women.

Fetal deaths account for the majority of deaths in the very low birthweight period. The driver of the disparity in fetal and infant deaths is that there are more Black babies being born at very low birthweights, rather than Black babies being more likely to die when born at the same birthweight stratum as White babies.

If babies born to Black women had the same fetal-infant mortality rate as babies born to White women, then 61% of Black deaths (55 deaths) could have been prevented.
This is racial inequity. We can intervene.

**Disparity**
Black/African-American women are 2.6 times as likely to have fetal or infant death as White women in Montgomery County.

**PPOR Period**
The greatest disparity is among babies weighing less than 1500 grams.

**Targets**
Important targets are preconception health, health behaviors, and perinatal care.

**Driver**
Birthweight distribution (too many small babies) is the root cause.

**Focus**
To reduce the racial disparity, we should focus on reducing the rate of very low birthweight births among all Black births.
Key areas of intervention to support Black women in having babies at healthy birthweights

Using findings from continued quantitative analysis of birth and death records in addition to qualitative analysis of three community focus groups, we identified six key areas of intervention to reduce very low birthweight births among Black women: emotional and mental health support, nutrition and weight, access to services, health across the life course, interactions with healthcare providers, and informal and formal education.
Analysis of risk of very low birthweight birth

In this phase, we studied factors potentially associated with greater risk of very low birthweight birth. Understanding what puts Black women at increased risk for very low birthweight birth helps identify interventions that will support healthy weight births. Multivariate analyses adjusted for the effects of education, health insurance, plurality, marital status, and age to compare factors of interest with the outcome of very low birthweight. By analytically holding constant these factors, we can see the effects of potential risk factors without the effects of these other contextual factors.

We calculated Adjusted Odds Ratios (AOR), which tell us how important these factors are among Black women in Montgomery County, comparing those with very low birthweight births (n=161) to normal weight births (n=3,869). If the AOR is more than 1, it means women are more likely to have a very low birthweight baby if they have that factor; if the AOR is less than 1, women are less likely to have a very low birthweight birth if they have that factor.

The Population Attributable Risk Percent (PAR%) tells us, theoretically, what percent of very low birthweight births could be eliminated if the factor were addressed. PAR% takes into account the number of women with that risk factor. A risk factor with a high odds ratio can have a lower PAR% because it is less common. We’ve ranked the risk factors according to PAR% and not AOR so that we are focusing on the risk factors that affect more people.
Results considering risk of very low birthweight birth

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Prevalence among VLBW</th>
<th>AOR</th>
<th>p value</th>
<th>PAR%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gained more weight than recommended during pregnancy</td>
<td>60.6%</td>
<td>1.78</td>
<td>0.052</td>
<td>32.0%</td>
</tr>
<tr>
<td>Gained less weight than recommended during pregnancy</td>
<td>26.5%</td>
<td>2.48*</td>
<td>0.006</td>
<td>22.1%</td>
</tr>
<tr>
<td>Did not receive WIC</td>
<td>58.7%</td>
<td>1.53*</td>
<td>0.048</td>
<td>20.8%</td>
</tr>
<tr>
<td>Had a prior preterm birth (of those who have had a prior birth)</td>
<td>14.3%</td>
<td>4.81*</td>
<td>0.000</td>
<td>15.2%</td>
</tr>
<tr>
<td>Had pre-pregnancy diabetes, pre-pregnancy hypertension, and/or gestational hypertension</td>
<td>16.4%</td>
<td>2.09*</td>
<td>0.003</td>
<td>8.7%</td>
</tr>
<tr>
<td>Smoked within three months before or during pregnancy</td>
<td>18.4%</td>
<td>1.58</td>
<td>0.075</td>
<td>6.8%</td>
</tr>
<tr>
<td>Lived in an area with higher income inequity (town’s White median household income is ≥ 1.5 times higher than Black median household income)</td>
<td>24.4%</td>
<td>1.10</td>
<td>0.664</td>
<td>2.1%</td>
</tr>
<tr>
<td>Had a prior live birth that resulted in death</td>
<td>5.0%</td>
<td>1.92</td>
<td>0.160</td>
<td>2.0%</td>
</tr>
<tr>
<td>Had an STI during pregnancy (gonorrhea, syphilis, herpes, and/or chlamydia)</td>
<td>8.9%</td>
<td>1.18</td>
<td>0.650</td>
<td>1.2%</td>
</tr>
<tr>
<td>Was obese before pregnancy</td>
<td>32.9%</td>
<td>1.00</td>
<td>0.979</td>
<td>0.0%</td>
</tr>
<tr>
<td>Was underweight before pregnancy</td>
<td>2.0%</td>
<td>0.66</td>
<td>0.570</td>
<td>N/A</td>
</tr>
<tr>
<td>Entered prenatal care late (at 12 or more weeks) or not at all</td>
<td>34.4%</td>
<td>0.65</td>
<td>0.053</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Statistically significant at p < .05

AORs controlled for the effects of age, marital status, education, health insurance, and plurality.

From these analyses, we learn that gaining less weight than recommended during pregnancy, not receiving WIC, having a prior preterm birth, and having pre-pregnancy diabetes, pre-pregnancy hypertension, and/or gestational hypertension are associated with increased risk for having a baby with a very low birthweight.

These analyses do not prove causal relationships, merely associations. According to a proxy measure, these statistical models explain from 11% to 17% of the variance, meaning there are many other important factors impacting the outcome of very low birthweight births. This is not an exhaustive list of important risk factors in the community. Analysis of vital records data is limited to the accuracy and consistency of reporting, and is limited to individual-level factors, many of which are driven by larger, more impactful, structural-level factors.
A note about less relevant factors

We want to note that in statistical analyses of birth and death records, having a very low birthweight birth was not associated with having an STI during pregnancy, smoking within three months before pregnancy or during pregnancy, being obese or overweight before pregnancy, having a prior live birth that resulted in death (at any age), entering prenatal care late or not at all, or living in an area with higher income inequity. Please note that we suspect that our variable for living in a town with higher income inequity likely does not accurately capture this experience.

Although these factors are not significantly associated with very low birthweight births, these factors are still clinically relevant. Research supports the importance of these factors for the health of the mother and baby (NIH, 2018; Mullick, Watson-Jones, Beksinska, & Mabey, 2005; CDC, 2018; Stubert, Reister, Hartmann, & Janni, 2018; Saliju, August, de la Cruz, Mogos, Weldeselasse, & Alio, 2013; Partridge, Balayla, Holcroft, & Abenhaim, 2012; IOM, 1985; Leveno, Cunningham, Roark, Nelson, & Williams, 1985; Vilda, Wallace, Dyer, Harville, & Theall, 2019). However, our analysis suggests that focusing on these factors alone will not change the racial gap in outcomes. To target the gap, we need to focus on those factors most salient to Black women in the county.
Key areas of intervention

Using a mixed methods approach of quantitative and qualitative information allows us to understand relevant factors from a broader perspective. After studying the birth and death records, we held three community focus groups and asked twenty local Black women about supports for and detractors from having a happy and healthy pregnancy. We also asked specifically about healthcare experiences and asked for their visions of community changes. Considering findings from both the analyses of the death and birth records as well as thematic analysis of the focus groups points us to the following key areas of intervention to support Montgomery County Black women in having babies at healthy birthweights:

- Emotional and mental health support
- Nutrition and weight
- Access to services
- Health across the life course
- Interactions with healthcare providers
- Informal and formal education
Emotional and mental health support

The need for emotional and mental health support was an important theme across all three focus groups. Key topics were the experience of trauma from a pregnancy loss or infant death, the effects of stress and the need for safe outlets, a desire for support groups (for peers, for mothers, for fathers, etc.), the need for supportive "community" (network/village/social capital), and the community stigma surrounding mental health issues.

This focus group participant talked about stigma they and other Black women are dealing with:

"Everything is taboo. You know, certain mental illness, it's taboo. They don't want to talk about it. 'Oh. You're alright'. I ain't alright. I'm not okay. It's very, very stressful to be around people who you can't express how you're feeling. And I'm feeling this way and you doubt yourself. 'Am I feeling this way?' Because they [family members] can support you financially but they're not supporting you emotionally. So we're not getting that emotional support. I speak for myself and the other women that I've seen. We're under a lot of stress."

This participant spoke of the particular stress that results from losing a child:

"I remember my second one [child], I was excited because I had lost the first one at five and a half months. I got pregnant right after and I was so happy to just finally get my baby. But then I went into a depressional state, because I wasn't over the fact that I lost my first child that I carried. So it was really hard. And like she said, you don't have nobody to talk to about that because they're like, 'You'll be fine. You've got your baby now.' Maybe I'll just push it to the back, but stuff do surface eventually. You could have child number two and next thing you know you in mental breakdown because you ain't fix the two issues you had before."

This participant described needing varied forms of support during pregnancy:

"It takes a village. It could be emotional support, support with food. You just need somebody to hold your hands sometimes. However you're feeling when you're carrying that baby, that's manifesting and soaking into that baby as a newborn."

Social connectedness and support are believed to protect against harmful effects of stress (Lu, Kotelchuck, Hogan, Jones, Wright, & Halfon, 2010), promote healthy behaviors and positive health outcomes (Cockerham, Hamby, & Oates, 2017), and relate to observed racial inequities in infant mortality (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). Improving opportunities for residents of marginalized communities to participate in and trust their community is a health equity strategy (Lu et al., 2010).
Nutrition and weight

Analyzing the birth and death records revealed that Black women who gained less weight than recommended during pregnancy were 2.48 times as likely as women who gained the recommended amount to have a very low birthweight birth ($p < .01$).

- Of all Black very low birthweight babies ($n=161$), 26.5% were to women who gained less weight than recommended during pregnancy.
- If all Black women in Montgomery County had the same low risk of very low birthweight as those who gained the recommended amount of weight, then theoretically, there would have been 22.1% fewer very low birthweight births.
- Of importance, being obese or underweight before pregnancy were not associated with very low birthweight birth, so weight gain during pregnancy, specifically, is the key consideration.

Also, Black women who did not receive WIC were 1.53 times as likely as women who received WIC to have a very low birthweight baby ($p < .05$).

- Of all Black very low birthweight babies, 58.7% were to women who did not receive WIC.
- If all Black women in Montgomery County had the same low risk of very low birthweight as those who received WIC, then theoretically, there would have been 20.8% fewer very low birthweight births.

Nutrition and weight were less prominently discussed in the focus groups than the other key areas, but women did briefly speak about this topic, and their comments are included given the importance of these risk factors in the birth and death record analysis. Focus group participants spoke about the importance of WIC, shame they experienced from healthcare providers around weight and weight gain, and the need for nutrition information.

This participant described the benefits of participating in WIC:

\[
\text{"WIC does help during the pregnancy because they give you charts on how much to eat, what to eat so you do have a good pregnancy and then them helping — not only are they telling you what things to eat, they're actually giving you checks to buy those things. So it's not like someone just giving you the advice and go figure it out."}
\]

This participant felt shamed by their healthcare provider about their weight, and it affected their pregnancy experience overall:

\[
\text{"When I was pregnant with my first son, I was 350 pounds, and every time I saw the doctor he made it a point to mention it. It was like, 'I know I'm big.' I'm not going to lose this weight the next nine months. I hated it. I hated every appointment with him. I hated it. I hated the whole pregnancy."}
\]
Focus group participants noted that access to services is limited by many factors: a **loss of services** in the county (medical and community services for women, families, and the neighborhood), **distance/transportation**, a **lack of awareness of existing services and resources**, **limited choices of health insurance**, and the complicated and lengthy landscape of navigating public benefits.

This participant said the difficulty of finding transportation makes it harder to attend appointments:

> “Transportation is a must too because if you had somebody to be able to take you to appointments, you wouldn’t miss any appointments. You would be able to have a healthier baby because you would go to your appointments and see certain things.”

This participant lamented services leaving the county, especially childcare:

> “Give us a daycare in this area. The only daycare that’s still here is the OIC. They remove everything out of the hood. Took churches down and hospitals down. The kids don’t even have nowhere to go after school. You’re just killing our community. We have nothing here. Nothing.”

These two participants noted that health insurance is a barrier to care; that not enough doctors take public insurance, and that the wait time to obtain public insurance can endanger health:

> “We need an expansion of resources and doctors that will take our insurance, period. Because we only can go to certain places.”

> “My fourth pregnancy ended in miscarriage, but I didn’t have insurance. So I was trying to get onto insurance so that I could get the procedure and it was a whole process, and it took way too long. And I had to carry around a not living thing for a while.”

These participants spoke of the hurdles to overcome to obtain public benefits:

> “Even if you want to get a job, it’s like you got to get on this three-month waiting list for [subsidized child care] to get your childcare. So how do you keep a job if you don’t have childcare? That’s one of the main problems is the childcare and who’s going to pay it. You can’t afford to pay for childcare by yourself when you just starting a job. I don’t have any family up here. So childcare is a big thing. Why does it take so long to get childcare after you apply?”

> “Because there’s a lot of people that are pregnant and they live at home and they want their own places. But how do you know how to apply for a Section 8 voucher or anything like that if you’re not educated or — you don’t even have to be educated. Just know how to fill out the form.”
Health across the life course

Analyzing the birth and death records revealed that among those who had a prior birth, Black women who had a prior preterm birth were 4.81 times as likely as those who did not have a prior preterm birth to have a very low birthweight birth ($p < .01$).

- Of all Black very low birthweight babies ($n=161$), 14.3% were to women who had a prior preterm birth.
- If all Black women in Montgomery County had the same low risk of very low birthweight as those who had not had a prior preterm birth, then theoretically, there would have been 22.1% fewer very low birthweight births.

Additionally, Black women who had pre-pregnancy diabetes, pre-pregnancy hypertension, and/or gestational hypertension were 2.09 times as likely as those who did not have those conditions to have a very low birthweight birth ($p < .01$).

- Of all Black very low birthweight babies, 16.4% were to women who had a prior preterm birth.
- If all Black women in Montgomery County had the same low risk of very low birthweight as those who had not had a prior preterm birth, then theoretically, there would have been 8.7% fewer very low birthweight births.

Entering prenatal care late or not at all was not significantly associated with having a very low birthweight birth. That means **entry to care is not driving very low birthweight births among Black women in Montgomery County.** It may be that those who have the highest needs before pregnancy are already in care. It could also be related to the established pattern across conditions and services that Black patients receive lower quality healthcare (IOM, 2003).

As with nutrition and weight, health across the life course was not as prominent of a theme in the focus groups as the other topics, but women did briefly speak about **physical health**, so a selection of their comments are included due to the significant statistical association.

This participant named not seeking healthcare when asked what challenges Black women’s reproductive health in Montgomery County:

“...We supposed to go for a yearly check, but sometimes we get so busy and be like, ‘I don’t feel nothing going on with my body.’ So we just don’t go.”

This participant stated that people don’t know how to take care of their body:

“A lot of people don’t know. And it’s the exercising and eating healthy, that’s a lot of it... but high blood pressure, sugar diabetes, all that in our race – it’s pretty bad.”
Interactions with healthcare providers

Nationally, Black patients report more provider discrimination than White patients (Lee, Ayers, & Kronenfeld, 2009). Focus group participants named the following negative elements of care: receiving differential treatment by race and socioeconomic status, perceiving provider bias according to patients’ age and race, not being able to trust their providers, experiencing a lack of respect for women and their choices, receiving a lack of information, receiving information provided at too high literacy levels, experiencing poor quality of care, and experiencing issues with all positions of healthcare staff, starting with reception staff.

These focus group participants talked about experiencing bias from their provider:

“At the time when I finally got to that new doctor, I was like 7 months along. So they rushed me in with a caseworker who came at me for neglect on my baby without them taking the time to read the records that I had been at another doctor the whole entire time. So you're placing me in a stereotype that you know nothing about me at all. You did not read any records or anything before I come in for an appointment, and the first thing you do is you see somebody of color at six plus months and you just automatically assume.”

“Don't always try to sell me birth control. … Maybe I am pregnant. Maybe I did find love in my life. Maybe we do want to start a family. Don't always put that stigma on me to make sure they get birth control. … It’s just that whole push of birth control thing. Sometimes you are ready.”

This quote describes a scenario where the participant felt they received low quality care:

“I went to [a hospital] when my first child was born. They didn't know I have preeclampsia and I lost my son. And I went to the doctors three times before but I swelled up real big. I was like, ‘My feet.’ I couldn't walk, I couldn't put shoes on. And they were telling me that it was normal and everything. I almost died, he [the baby] died. And then I was dealing with kidney failure for a little while after that. My son passed away from preeclampsia and there wasn't the help.”

Participants also named positive elements that contributed to positive healthcare experiences. They described interactions with caring, supportive, respectful providers who listened and provided information in an accessible manner. Staff cultural congruency was also named as a factor that can be helpful, but doesn’t always translate into unbiased care, and isn’t required to receive unbiased care.

This participant illustrated that cultural congruency can be helpful, but respect is paramount:

“I think we need more doctors, more doctors that look like us and more doctors that — even if they don't look like us, they respect us. See, you don't have to look like me to respect me and be professional. Sometimes, you just want professionalism.”
Informal and formal education

Women in the focus groups talked a lot about the need for information and education through both formal and informal channels. The topics they are interested in include:

- Empowerment
- Body Autonomy
- Reproductive Health
- Parenting
- Family Planning
- Relationships
- Pregnancy
- Resources in the community

These women described wanting education about pregnancy, breast exams, sexual safety, and empowerment:

“Most people read *What To Expect When You're Expecting* the first thing. A lot of women can't afford that, younger girls and things like that or they may not even know that it's available for them. A lot of girls don't know what to expect and they're afraid. So and they may be so afraid that they don't want to move forward and to finding out what to do because they're so taken back and held back by it. So maybe if it's actually coming to them without them having to go to it, it may be a little bit more helpful.”

“They never tell you that you're supposed to get your breasts checked out at a certain age. Who knew that? I didn't know how to do a breast exam. I just found it out recently. They was like, ‘You need to do exams on yourself.’ And I was like, ‘How do you do that?’ So they don't teach you that. They don't even tell you basic stuff.”

“I would like to see programs for Black girls because I think we're taught some things, but you're not really taught how to keep yourself safe. Sexual abuse, diseases or whatever. I think more of that needs to be taught from black women to black girls.”

“Empowering yourself that you have a purpose in your own vision and dream… Unfortunately, a lot of us feel like we're inferior and we're not.”
Community action plan to reduce racial inequities in feto-infant mortality in Montgomery County

Through two community meetings, the PPOR subcommittee engaged stakeholders to brainstorm strategies to support Black women, and then prioritize those strategies. The community action plan lists strategies to educate the community, improve provider/patient relationships, expand social support and counseling, improve care for women, and strength service delivery.
Community action planning

A community meeting in November 2019 included a panel of focus group participants sharing their experiences, a presentation on the analytic findings, and a brainstorming component of potential solutions to reduce the inequity. To preface the brainstorming activity, attendees were reminded of solutions that were generated during the focus groups: increasing allied healthcare providers, fostering connections and community support, providing education and information through a community hotline, and co-locating services to create a one-stop shop for families. Meeting attendees were then instructed to think of activities related to the six key areas of intervention, developed from statistically analyzing the birth and death records as well as thematically analyzing the focus groups.

The PPOR subcommittee categorized brainstormed activities into seven topics and grouped activities into strategies within topics. The seven topics were:

- Educate the community about topics and resources
- Improve provider-patient relationships and communication
- Expand social support and mental health counseling
- Improve care for women before, during and after birth
- Strengthen the delivery of services across providers, organizations and sectors
- Improve community resources
- Reduce barriers to obtaining public benefits

A follow-up community meeting in January 2020 then asked participants to rank overall topics by voting on their top three choices. This showed that two topics – improve community resources and reduce barriers to obtaining public benefits – were ranked much lower than the other five topics. Within the five prioritized topics, participants then used group discussion to assign strategies as low, medium, or high need for Black women in Montgomery County.

The PPOR Subcommittee considered the medium and high need strategies to create priorities within the community action plan.
# MontCo Mamas: Hope for All, Life for All

## Our vision
A Montgomery County where each child born brings hope for our future and where all African American/Black women receive the resources, opportunities, and support needed to have healthy pregnancies and to welcome thriving children in the world.

## Our mission
To remove inequities surrounding race and infant mortality to support healthy births for Black women in Montgomery County.

## Our principles
- The voice of the community is an equal partner
- Racial inequities are not caused by individual behaviors
- Racial biases in healthcare exist and must be addressed
- Cultural humility and trauma-informed practices are necessities
- All women deserve a safe and healthy pregnancy
- Resources must be physically, financially and culturally accessible to families

## Our strategic plan

<table>
<thead>
<tr>
<th>Educate the community about topics &amp; resources</th>
<th>Improve provider-patient relationships &amp; communication</th>
<th>Enhance care for pregnant and parenting women</th>
<th>Expand social support and mental health counseling</th>
<th>Strengthen service delivery across providers, organizations &amp; sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide targeted education about reproductive health, overall health, parenting and other topics, such as empowerment</td>
<td>Increase providers’ understanding of Black women’s experiences</td>
<td>Provide increased medical and social support after birth</td>
<td>Create peer support groups and safe spaces for community gatherings</td>
<td>Improve referral systems</td>
</tr>
<tr>
<td>Improve nutrition support (i.e. nutrition consults, WIC eligibility screenings, food access)</td>
<td>Provide ongoing training on trauma-informed care, cultural humility, and respect for reproductive choices to all providers, including office staff</td>
<td>Improve nutrition support (i.e. nutrition consults, WIC eligibility screenings, education) and food access (i.e. grocery stores, WIC access)</td>
<td>Improve individual therapy options, i.e. family therapy and postpartum depression treatment</td>
<td>Increase connections between minority patients and minority providers</td>
</tr>
<tr>
<td>Increase awareness of community resources and services</td>
<td>Remove stigma around mental health treatment</td>
<td></td>
<td>Remove stigma around mental health treatment</td>
<td>Increase use of allied health providers: doulas, home visiting nurses, lactation consultants, and patient advocates</td>
</tr>
</tbody>
</table>

**Background:** In Montgomery County, Black/African American women are 2.6 times more likely to have a fetal or infant death compared to White women. This strategic plan was developed in response to a study of racial inequities in local birth outcomes and was created with community residents and stakeholders.

**Contact:** Janet Panning, jpanning@montcopa.org, 610-278-5117, ext. 6724

Last Updated: 2.24.20
Get involved in promoting racial equity

We need all hands on deck, and we need champions across many sectors. We would love to partner with you and your network. There are many ways to get involved and to learn more about racial equity.
**We need you**

This effort needs all hands on deck. To improve outcomes for babies and families in Montgomery County, people from all sectors, roles, and communities are needed. PPOR in Montgomery County will benefit from the involvement of moms, dads, parents, and families; social services providers; health care providers; people in leadership and supportive roles; and people who are passionate about advancing racial equity.

We welcome you to get involved with the implementation process, share your experience, become a champion at your organization and in your community, and help make a difference. Consider sharing this report or other information with your friends, family, and coworkers. We would love to partner with you and your network.

For more information, contact Chareese Wilson at cwilson2@montcopa.org.

**Recommended resources**

PPOR in Montgomery County
[montcopa.org/3256/Get-Involved-Disparities-In-Infant-Health](montcopa.org/3256/Get-Involved-Disparities-In-Infant-Health)

CityMatCH PPOR resources:

“Closing the Black-White Gap in Birth Outcomes: A Life-course Approach” article by Dr. Lu et al.
[ncbi.nlm.nih.gov/pmc/articles/PMC4443479](ncbi.nlm.nih.gov/pmc/articles/PMC4443479)

American Public Health Assoc. Racism & Health resources:
[apha.org/topics-and-issues/health-equity/racism-and-health](apha.org/topics-and-issues/health-equity/racism-and-health)

The Nation article “What’s Killing America’s Black Infants?”
[thenation.com/article/whats-killing-americas-black-infants](thenation.com/article/whats-killing-americas-black-infants)

Center for American Progress report “Exploring African Americans’ High Maternal and Infant Death Rates”
Methods used to understand racial inequity in feto-infant mortality

We analyzed nearly 36,000 fetal death, infant death, and live births from 2012 to 2016 for Black women and White women living in Montgomery County. We calculated and compared feto-infant mortality rates, conducted a Kitagawa analysis, and performed logistic regression. To learn from Black women directly, we also held three community focus groups with Black women living in Montgomery County who had ever been pregnant.
Birth and death records

PHMC requested birth and death records from the Pennsylvania Department of Vital Statistics. Data were securely transferred and included 44,170 live births and fetal deaths to women living in Montgomery County from 2012 to 2016, with live births, fetal deaths, and live births linked with infant deaths as three separate datasets. The datasets included personal identifiers such as the woman’s birthdate, the baby’s birthdate, the woman’s race and ethnicity, etc. but did not include names. Other information included father age, education, race/ethnicity, birthdate and birth state; mother marital status, education, nutrition information, birth history, and smoking history; pregnancy care, risk factors, and infections; delivery procedures, characteristics, and insurance source; and newborn characteristics and anomalies. Birth and death record information is typically gathered by a combination of self-report and from medical/funeral staff. Information is limited to the accuracy and consistency of reporting, and is limited to individual-level factors (such as weight, smoking history, and education history) many of which are driven by larger, more impactful, structural-level factors (such as trauma and racism experienced and generational wealth).

To analyze the datasets via the PPOR framework (Sappenfield, Peck, Gilbert, Haynatzka, & Bryant 2010a), each record must have gestation and birthweight information, the gestational age must be greater than or equal to 16 weeks, and birthweight and gestation must meet plausibility criteria. PPOR traditionally suggests a birthweight of at least 24 weeks, but PA death reporting requirements allow for earlier consistent data collection. 43,984 (99.6% of the full dataset) live births and fetal deaths met this inclusion criteria.

To analyze racial inequities, data were subset by race (regardless of ethnicity). Analysis included 31,496 live births and fetal deaths to White women (71.6% of included sample) and 4,482 live births and fetal deaths to Black women (10.2% of included sample).

Data were analyzed in a statistical software program to understand characteristics of the women, to sort each birth and death into the PPOR categories of intervention, and to perform bivariate and multivariate analysis to quantify statistical associations.

First, we calculated feto-infant mortality rates for babies born to Black women and babies born to White women according to the PPOR categories. These categories sort each birth or death by birthweight and age at birth. This allows us to identify the category of greatest disparity, which suggests certain types of interventions most likely to be most impactful. The PPOR feto-infant mortality rate is calculated as \[
\frac{(\text{number of deaths in that PPOR category} \times 1000)}{\text{(total number of fetal deaths + live births)}}.
\]
Then, we analyzed the overall excess death rate by calculating (feto-infant mortality rate for Black women – feto-infant mortality rate for White women). We determined the number of preventable Black deaths by calculating \[\text{(number of live births + fetal deaths) \times (excess death rate/1000)}\] (Sappenfield et al., 2010a). We performed a Kitagawa analysis using a publicly available spreadsheet (CityMatCH, 2008). The Kitagawa formula calculates the contributions of birthweight distribution and birthweight-specific mortality among Black and White women across seven birthweight categories. The comparison allows us to identify the driver of excess mortality (Sappenfield et al., 2010b).

Last, we analyzed the impact of potential risk factors among Black women only. We compared the influence of factors (via unadjusted separate logistic regression models) for very low birthweight births (less than 1500 grams; \(n=161\)) to normal weight births (greater than or equal to 2500 grams; \(n=3,869\)). This lets us see which factors are driving very low birthweights among Black women in Montgomery County. This does not include comparing the factors to White women or the overall population; instead, we hone in on the factors of interest to Black women specifically and see what differences exist between those with very low birthweight and those with normal weight births. Factors analyzed were weight gained during pregnancy, receiving WIC, having a prior preterm birth, smoking within three months before or during pregnancy, living in an area with higher income inequity, having a prior live birth that resulted in death, having an STI during pregnancy, body mass index before pregnancy, entering prenatal care late or not at all, and history of pre-pregnancy diabetes, pre-pregnancy hypertension, and/or gestational hypertension.

We then controlled for (in adjusted separate logistic regression models) the effects of education, health insurance, plurality, marital status, and age to compare factors of interest with the outcome of very low birthweight. This produces adjusted odds ratios (AORs). By analytically holding constant these factors, we can see the association of the factors of interest without the effects of these other factors.

We then determined population attributable risk percentages by calculating \[\frac{\text{risk factor incidence} \times (\text{AOR} - 1)}{\text{risk factor incidence} \times (\text{AOR} - 1) + 1}\]. The population attributable risk percent tells us, theoretically, what percent of very low birthweight births could be eliminated if the factor was addressed, which points us towards interventions of greatest impact (Sappenfield et al., 2010b).
Community focus groups

In September & October 2019, members of the PPOR Subcommittee conducted three focus groups with 20 participants. Sixty percent of participants were 31 years old or older. Participants had a range of 1 to 4 children (median 2). Twenty percent of participants had personally experienced an infant death or fetal loss.

The purpose was to hear Black women’s experiences with health and pregnancy to help inform efforts to reduce inequities in birth outcomes. Participants were recruited via fliers posted in community organizations. Participants were eligible if they identified as Black or African American, lived in Montgomery County, and had ever been pregnant. Participants received a $40 gift card.

Questions asked were as follows (facilitated in an order that responded to participant responses):

1. Black women around the country, as well as here in Montgomery County, are more likely to have low birthweight babies and fetal and infant deaths than White women. What have you heard about this through your network of friends and family members?

2. Let’s talk about pregnancy in more detail. What do you think helps Black women in the area have positive and healthy pregnancy experiences?

3. What are some things that make it hard for Black women in the area to have healthy and positive pregnancies?

4. Let’s think beyond pregnancy. Are there other things we haven’t yet mentioned that help support Black women in their reproductive health journeys?

5. Are there other things we haven’t yet mentioned that challenge Montgomery County Black women’s reproductive health?

6. Let’s talk a little more about women’s experiences with health care providers and health care, both negative and positive. Can you describe some positive experiences with health care providers or the health care system?

7. How about more negative experiences with health care and health care providers? Can you describe some of those?

8. Imagine a Montgomery County that supports the overall reproductive health of Black women. What does that look like – what changes would you like to see in the community that will help Black women in their health journeys?

9. Of all the things we’ve just mentioned, which of these do you think are the most important in supporting Black women in Montgomery County?

Focus group recordings were transcribed by a third party vendor. Transcripts were analyzed according to emerging themes.
References


References


Acknowledgements

Thank you to everyone who has taken part in the PPOR process so far. The MECC PPOR subcommittee is very grateful for our focus group participants; all who attended a PPOR subcommittee meeting; the Montgomery County MECC; the Pennsylvania Department of Health, Bureau of Health Statistics & Registries; Gary Klein, Senior Data Analyst at R&E Group at PHMC; attendees of MECC PPOR community meetings; the Norristown Public Library for being a community meeting venue; Carmina Taylor and the Ambler NAACP for partnering in hosting community events; Maternity Care Coalition for recruiting focus group participants; and all valued partners, current and future. We appreciate your time, ideas, energy, commitment, and vision.