The Boston Public Health Commission has a goal to reduce low birth weight rates among Boston residents, and reduce the gap in low birth weight rates between Black and White residents by 25% over the next five years.

In Boston, we have made significant progress improving the health status for many of our residents. Mortality rates have dropped steadily for the past 10 years, there are significantly fewer teen pregnancies, a near disappearance of lead-poisoned children and fewer people are smoking tobacco. Our success is a result of improved surveillance; advances in medical research; increased access to prevention, screening, diagnosis and treatment; and policy changes that reduced exposure to harmful substances. Nevertheless, today there are groups of residents in Boston that have not benefited equally from our progress and who bear a severe and disproportionate burden of diseases. To tackle this imbalance, we must understand and address the many issues that influence our health, paying particular attention to finding approaches that allow all residents to have equal access to the conditions that promote the best possible health.

In the recent past, many of our programs have focused on individual-level interventions, intended to influence knowledge, attitudes and behaviors. As we move forward, we will need to prioritize strategies that address the interpersonal, community, and societal influences of disease transmission and health. We will need to understand how racism and poverty limit the opportunity for many Boston residents to make healthy choices and have led in particular, to significantly worse health outcomes for many Black residents in the city. Our health is influenced by where we live, the jobs we hold, our knowledge of risk, our access to resources, and our support systems, making it critically important that our public health programs acknowledge and address these broader realities and contexts.

This briefing paper describes a significant racial inequity in low birth weight rates and offers information to help us identify opportunities for reducing the gap. The purpose of the briefing paper is to allow our entire health department to work together through our practices, policies and research activities to advance the health of our communities and eliminate persistent racial inequities in health outcomes.
Executive Summary

Closing the Racial Gap in Low Birth Weight Births

The Boston Public Health Commission (BPHC) has set a priority to close the racial gap in low birth weight births in the city of Boston. The BPHC is committed to reducing low birth weight rates among all Boston residents, and reducing the gap in low birth weight rates between Black and White residents by 25 percent over five years.

The BPHC has set this important goal to protect the health of infants, and to lay the foundation for healthy development across the lives of Boston residents.

Being born at a low birth weight (less than 5.5 pounds) has serious health consequences. Low birth weight babies have a dramatically increased risk of dying in the first year of life. For infants who survive, there is a high chance of developing chronic health conditions in adulthood.

The BPHC will specifically target the low birth weight rate for Black infants. In the city of Boston, as nationally, Black babies are born at a low birth weight more frequently than babies of any other racial or ethnic group. The BPHC will focus on eliminating racial inequities in low birth weight. The difference in low birth weight rates between Black and White infants is considered an inequity because these differences are related to stresses and social conditions that more frequently affect Blacks.

The promising strategies for reducing racial inequities in low birth weight tend to:

- Target specific social factors that affect Black women and men, including stress
- Provide services and policies to make the mother healthy even before she becomes pregnant
- Emphasize collaboration and involvement of people across different disciplines such as government, health care providers and community organizers
- Make changes in programs and policies that affect individuals, organizations and communities
- Measure and report what they have done to understand what contributes to successes and challenges in reducing low birth weight inequities.

The BPHC has programs and policies that are already in place to contribute to reducing racial birth weight inequities. The causes of racial inequities in low birth weight are many, and each program and bureau has a role to play. Whether the role is in fighting vaginal infections that lead to low birth weight, or building community action to improve safety in neighborhoods, each team can contribute creative solutions to reduce the low birth weight rate in Boston. The BPHC leadership and staff are each empowered to address low birth weight inequities because the root causes of these inequities can be changed by creating healthy environments that provide equitable resources for achieving the best possible health for all populations.

By working together, the staff of the BPHC is in a unique position to make an important change in the lives of babies and to improve the overall health of residents in the city of Boston.

One important step toward change is learning more about the issue of low birth weight. The enclosed brief has been developed to provide information on low birth weight racial inequities and to provide information to help build solutions to reduce this inequity in Boston.

Find Out More

Visit the Commission-wide goals page on the BPHC Intranet for more information and to view an online presentation on this topic.
Addressing Inequities in Low Birth Weight Births in Boston

Being born at a low birth weight deeply affects an individual’s health and life-chances in several ways. First, being born at a low birth weight is an important cause of infant death during the first year of life. In fact, more than 74% of infant deaths in the U.S. are due to being born at a low birth weight. Second, even when low birth weight babies survive, they face serious risks of developmental difficulties during childhood and adolescence. Also, low birth weight infants are at high risk of having chronic health conditions in later life, such as kidney disease and diabetes in adulthood.

When differences in birth outcomes between groups occur in the setting of unequal and unfair access to resources and services, an inequity exists. The Boston Public Health Commission’s (BPHC) framework on social determinants of health identifies the social and environmental issues that lead to inequities in health (see pg.5).

In the city of Boston, Black babies are born at a low birth weight more frequently than babies of any other racial or ethnic group. As such, it is critical that the BPHC acts to eliminate factors that lead to racial inequities in birth weight.

The Racial Divide in Low Birth Weight Rates

What is a “low birth weight” birth?

A “low birth weight” birth is a live-born baby who weighs less than 5.5 pounds. Babies weighing less than 3.3 pounds are called “very low birth weight.” As discussed above, babies who weigh less than 5.5 pounds at birth are at greater risk for health problems.

How does low birth weight differ by race in Boston?

As the graph to the right demonstrates, the low birth weight rate among Black infants is consistently higher than any other racial or ethnic group in Boston.

"Disparity" and "Inequity": There's a difference.

**Health Disparities** are differences between the health of one population and another in measures of who gets disease, who has disease, who dies from disease and other adverse health conditions that exist among specific population groups in the United States. (adapted from NIH)

**Health Inequities** are differences in health status and mortality rates across population groups that are systemic, avoidable, unfair, and unjust. These differences are rooted in social and economic injustice and are attributable to social, economic and environmental conditions in which people live, work, and play.
What Causes Racial Inequities in Low Birth Weight?

The racial differences in low birth weight are not explained by the factors we commonly think of as being related to low birth weight.

Racial differences in low birth weight are not explained by factors we commonly think of as being related to low birth weight. Common factors, such as smoking, alcohol use, drug use, spacing between pregnancies and teen parenthood, are linked to birth outcomes, but they have been shown not to explain much of the racial difference in low birth weight.

We see this reality in Boston statistics. For example, the low birth weight rate for Black women who are non-smokers is actually higher than that of White women who are smokers. The mother’s smoking habit does not account for the birth weight difference between Black and White infants. It is the position of the BPHC that racial inequities in low birth weight births between Blacks and Whites are related to unjust and preventable inequities in access to social well-being and economic resources.

Specific Social Inequities
While better studies are needed, there are data showing specific social factors that are related to birth weight inequities between Blacks and Whites (Appendix A, Table 3). One such study, The Black Women’s Health Study (2002), found that discrimination in the workplace was related to preterm birth. Further studies on this and other forms of racism, may help us build interventions for Black men and women.

Experiences of Interpersonal Racism
Many studies connect Black women’s experience of interpersonal racism to the risk of having low birth weight infants. Women from the study “It’s the Skin You’re In” describe the stress Black women feel when faced with racism, even in subtle forms.

Low Social Support During Pregnancy
Researchers have also shown that Black women were more likely to have low birth weight births when they had low social supports. The CenteringPregnancy (see Appendix B) model has successfully enhanced prenatal care with social support to improve birth outcomes. This suggests that social support may be linked to low birth weight inequities, but additional research on that question is needed.

Other factors that may be related to the racial inequity in low birth weight include:

- Neighborhood poverty
- Residential segregation
- Neighborhood violence
- Access to health insurance

There are several different forms of racism.

<table>
<thead>
<tr>
<th>Internalized</th>
<th>Interpersonal</th>
<th>Institutional</th>
<th>Structural</th>
</tr>
</thead>
<tbody>
<tr>
<td>A set of private beliefs, prejudices and ideas that individuals have about the superiority of Whites and the inferiority of people of color. Among people of color, it manifests as internalized racial oppression. Among Whites, it manifests as internalized racial superiority.</td>
<td>The expression of racism between individuals. These are interactions occurring between individuals that often take place in the form of harassing, racial slurs, or telling of racial jokes.</td>
<td>Discriminatory treatment, unfair policies and practices, inequitable opportunities and impacts within organizations and institutions, based on race.</td>
<td>Racial bias across institutions and society. It’s the cumulative and compounded effects of an array of factors such as public policies, institutional practices, cultural representations, and other norms that work in various, often reinforcing, ways to perpetuate racial inequity.</td>
</tr>
</tbody>
</table>
Low Birth Weight Births: What do we know about the medical causes?

Two basic medical factors lead to low birth weight births; being born too early, and being born too small. First, being born early, known as preterm (less than 37 weeks of pregnancy), is the leading cause of low birth weight births in the United States. Almost 80% of the infant mortality difference between Black and White infants is due to greater preterm births for Black infants. Second, when babies are born smaller than expected because of abnormally slow growth inside the womb, this is called “fetal growth restriction” (FGR). FGR can happen because of poor nutrition, or health problems in the mother, father, or fetus. FGR is thought to lead to chronic diseases later in life (See Appendix A, Table 1).

Many women with low birth weight infants do not fit into any "high risk" category. While we don't know all of the health conditions that may contribute to low birth weight deliveries, there are some medical problems that we know are risk factors. Two such health conditions, vaginal infections and high blood pressure disproportionately affect Black women. (Other medical conditions that affect Black women more heavily are listed in Appendix A, Table 2.)

The Challenge of Low Birth Weights in Boston: Rooted in Inequalities

In Boston there is considerable overlap between neighborhoods that have poor health outcomes and those that experience economic and social stresses.

The difference in Boston, the percentage of Black babies born at low birth weight is 50% higher than that of White babies. Despite the efforts of many organizations in the city of Boston the gap, or inequity, in low birth weights has been consistent for more than a decade.

Find Out More
Visit the Commission-wide goals page on the BPHC Intranet for more information and to view an online presentation on this topic.

As an example, in the graphics displayed, one can see the similarity in the neighborhoods with a high rate of low birth weight births (darker shades of blue), and the neighborhoods with a high rate of home foreclosures in 2008 (red dots).
Other Theories on the Causes of Low Birth Weight Inequities

Additional ideas are expanding our way of thinking about inequities in low birth weight, and ways to build interventions to eliminate them.

“Weathering” and Racism
“Weathering” is a term used to describe a theory that African American women and girls are “older” than their chronological age due to a lifetime of exposure to social inequities.18,19

Allostatic Load and Stress
Allostatic load is a theory that describes the physiological wear and tear that the body experiences due to chronic, and repeated, stressful experiences.20 The stress of racism has been proposed as a way that racism leads to low birth weight inequities.21-23

Life-Course Perspective
The life-course perspective suggests that the buildup of stressors over a mother’s lifetime causes health problems that may lead to low birth weight births. The life-course perspective is important as it suggests a holistic focus across the lifetime of the parent, rather than a strict focus on prenatal care.24

Factors that do not completely explain racial inequities in low birth weight births

Socioeconomic status alone
While low socioeconomic status (SES), income, education and one’s occupation, are known to be related to low birth weight events, multiple studies show that SES alone does not fully explain racial inequities in low birth weight between Blacks and Whites.13-15 For example, the gap between Black and White birth outcomes has been shown to increase with rising education.16,17 This is also seen in Boston data where the differences in low birth weight outcomes between White and Black women are significant at every level of education.

Access to prenatal care
There is growing understanding that access to prenatal care does not seem to explain the racial inequities in low birth weight. In Boston, 80% of Black LBW births and 91% of White LBW births were among women who received adequate prenatal care. This suggests that factors other than inadequate prenatal care should be considered when trying to understand the reasons behind most of the LBW births among women in Boston.

Paulina's Story:
Paulina's story is similar to many Black women who face challenges in giving birth to babies who are born at a healthy birth weight. Her story defies the stereotypes and reflects the complex burden faced by Black women.

Find Out More
Watch a video on Paulina's story by visiting the Commission-wide goals page on the BPHC Intranet.
Social Determinants of Health Framework

Social determinants of health are the circumstances in which people are born, grow, live, work, play, and age that influence access to resources and opportunities that promote health. The social determinants of health include housing, education, employment, environmental exposure, health care, public safety, food access, income, and health and social services.

Policies & Promising Best Practices to Reduce the Inequities in Low Birth Weight

A number of programs have been able to reduce the rate of low birth weight births among participants. A variety of promising and best practices are described in Appendix B.

Successful programs included a range of different components and tended to:

• Target specific social factors that affect Black women and men, including stress.
• Provide services and policies to make the mother healthy even before she becomes pregnant.
• Emphasize collaboration and involvement of people across different disciplines such as government, health care providers and community organizers.
• Make changes in programs and policies that affect individuals, organizations and communities.
• Measure and report what they have done to understand what contributes to successes and challenges in reducing low birth weight inequities.

As we have reviewed other programs, several observations emerge that may be helpful as BPHC expands its efforts to reduce low birth weight inequities in Boston:

• Many of the existing programs focus on the prenatal period and do not address risk factors that may occur before childbearing years. Examining the effects of factors on pregnancy, such as the influence of low socioeconomic status in early life or exposure to racism and discrimination can help improve current programs.
• Most of the successful programs target specific “high-risk” subgroups such as teen mothers. However, these programs may miss a large group of Black women that do not fall into an identified risk category such as women dealing with the wear and tear of daily stressors.
• Many programs do not focus on systems-level changes. Instead, programs are often compartmentalized to address specific, modifiable risk factors -- such as smoking cessation -- among the individuals enrolled and subsequently have a small-scale impact on the population.
• Few low birth weight prevention programs address the social determinants of health that specifically pertain to Black women, such as racism and residential segregation. We need better evaluation of programs that do address such factors.
• The success of many programs has not been determined because evaluation results are not presented for the low birth weight outcome or other intermediate outcomes.

It is important to recognize that the current programming occurs in the context of policies that may positively or negatively impact the racial inequities in low birth weight. Examples of policies that may affect the risks faced by Black women are included in Appendix C.
Current BPHC Programs in Place to Impact Racial Inequities in Low Birth Weight:

The BPHC has several programs and policies to address racial inequities in low birth weight. There are “lessons learned” when the programs are viewed together as a whole. First, each program is unique, and does not seem to duplicate efforts of other programs. Second, many programs address the same audience, opening opportunities for collaboration between programs. Third, many programs target “high risk” women, low-income women, or pregnant women, which could miss Black women who have low birth weight babies, but who do not have obvious “risk factors” (e.g. women with high levels of education). Fourth, few programs serve men and address the partner stresses that they may face. Additionally, many, but not all programs collaborate with “non-health” related agencies (e.g. schools, employers). Last, many but not all programs have evaluation data, which might enhance our understanding of the programs’ impact on inequities.

Specific focus of BPHC programs in place to reduce low birth weight inequities:

Prenatal Care, Inter-conception Care and Social Support: These programs impact women during pregnancy and post-pregnancy. These programs provide health and parenting education, maternal depression services, and social support through a case manager. Boston Healthy Start Initiative provides job placement help for fathers.

- Boston Healthy Start Initiative (BHSI)
- Healthy Baby Healthy Child (HBHC)

“Life-course” interventions: These programs address youth development or adult health, and provide preconception care education to improve future reproductive health. The youth programs are conducted in concert with other non-health organizations (e.g. schools). Adult-targeted programs promote healthy lifestyles as a holistic approach to women’s health and men’s health, including oral health for women.

- Child and Adolescent Health Division (CAHD)/Health Education: Peer Leadership Institute; BAHEC
- School Based Health Centers
- Youth Development Network
- Chronic Disease Prevention and Control /Healthy Eating and Active Living (HEAL)
- Office of Oral Health

Father’s Well Being: This program serves low-income men of color, particularly post-incarceration. Case management provides referrals and training to support fatherhood and family well-being.

- Father Friendly Initiative (FFI)

Vaginal Infections: These programs provide services, education or funding to reduce sexually transmitted infections, including vaginal infections.

- Infectious Disease Bureau
- Outreach and Education Office
- Homeless Services
- Women & Families Programs (Entre Familia, MORE, Mom’s Project, Safe and Sound Return)

Substance Abuse Reduction and Environmental Exposures: Entre Familia provides residential services for Latinas during pregnancy and post-partum. Tobacco Control provides cessation support and promotes policies to reduce smoking exposure at home and in the workplace.

- Entre Familia
- Tobacco Control
- Healthy Homes

Social Determinants of Health: These programs address aspects of social determinants of health, including food access (Women, Infants, Children or WIC, and Supplemental Nutrition Assistance Program or “food stamps”), neighborhood violence, interpersonal violence victimization, and building a platform for community engagement.

- Mayor’s Health Line (MHL)
- Violence Intervention Program (VIP)
- Center for Health Equity and Social Justice
- Family Justice Center (FJC)
- Boston REACH Coalition
- Chronic Disease Prevention and Control /Healthy Eating and Active Living (HEAL)
In summary, there is a great deal of information about the problem of low birth weight, and causes of racial inequities in birth weight. There are also some model programs and helpful policies in place. However, Black infants in Boston and nationally continue to be at high risk of being born low birth weight. The Commission is committed to reducing the low birth weight difference between Blacks and Whites by 25%. The following recommendations may contribute to the strategic planning process for achieving this target over the next five years:

1. Set and announce the priority for reducing low birth weight births for Black infants with the intention of increasing awareness and buy-in among stakeholders.

2. Use a systems change approach
   - Develop opportunities for cross-sector partnerships to address social determinants of health (education, housing, economic development).
   - Leverage relationships with hospitals, health centers, community-based organizations and insurance payers to find incentives and opportunities for collaboration to make seamless systems of care and referrals.
   - Identify opportunities and barriers for collaboration.
   - Identify joint funding opportunities to facilitate systems-level programming.
   - Identify needs for education/training between institutions.
   - Use public health campaigns/social media for broad-based education to build public support for goals, and public demand for action.
   - Convene stakeholders in public health and medical care to define, create and evaluate preconception care models that address medical and social determinants. Models should be implemented and sustained.

3. Prioritize community engagement
   - Support women, men and youth to contribute to the development of health programs in their communities.
   - Promote models of health care that emphasize empowerment as a health strategy (CenteringPregnancy).
   - Expand focus beyond maternal-child health to engage men and meet men's health needs.
   - Provide employment for community leaders and activists to support community action steps toward target goals.

4. Increase integration of programs within BPHC
   - Provide regular forums for joint education and inter-bureau sharing and collaboration
   - Enhance cross-program referral and joint programming (e.g. sexually transmitted vaginal infection treatment and low birth weight prevention).
   - Encourage protocol creation and training within each bureau to address the key priority of low birth weight reduction (e.g. EMS training and consultation to determine whether there is potential to create protocols for emergency management of preterm labor).

5. Continue addressing the medical causes of low birth weight and promote improved medical care among Boston providers
   - Support programming in substance abuse treatment, infection prevention and treatment, and connection to primary care and preconception care.
   - Promote programs and policies that help women return to pre-pregnancy weight prior to a next pregnancy, particularly those that encourage breastfeeding.
6. Expand programming and policies that address the social determinants that lead to low birth weight, and build partnerships where necessary. Key areas or opportunities include:

- Residential segregation (fair housing policies)
- Institutional racism, e.g., workplace policies and practices such as; sick leave policies, promotions and job qualifications.
- Neighborhood economic development (business collaborations and consultants/partnerships for neighborhood level economic development).

7. Encourage civic participation

- Target action to educate policy makers on issues that contribute to low birth weight births for Black women.
- Target action to reform policies that contribute to stress for women, male partners and families.

8. Ensure data collection and evaluation for all programs

- Create some common metrics across BPHC programming to understand whether and how systems-level programs achieve their own targets, and joint targets.

9. Support research on social determinants of racial inequities in low birth weight

- Develop stronger evidence base for understanding the causes of low birth weight inequities, both medical and social.
- Collect better information on how to support potential fathers and partners to reduce low birth weight.

10. Set a commitment to reach both short term and long term goals

- Build short-term metrics within and across bureaus, and recognize and reward progress made toward change.
- Provide attention to sustainability for long-term and short-term efforts.

Summary

Low birth weight results from being born too early, or being born too small. Low birth weight can cause death or health problems for infants, developmental difficulties for children, and chronic health problems for adults. Racial inequities in low birth weight are deeply rooted in social factors that disproportionately affect Blacks. Specific factors that may, in part, explain racial inequities in low birth weight include poor social support, residential segregation, neighborhood poverty, and discrimination experienced in the workplace. Recognizing and understanding the social determinants of racial inequity in low birth weight puts public health practitioners in a position to develop social change strategies to improve the health of Black infants.
Reference List & Resources:


## Appendix A

### Table 1. Summary of Low Birth Weight Targets for Select Public Health Agencies

<table>
<thead>
<tr>
<th>Department of Health (DOH)</th>
<th>Baseline LBW Rate: Overall</th>
<th>Baseline LBW Rate: Black</th>
<th>Baseline LBW Rate: White</th>
<th>Target LBW Rate: Overall</th>
<th>Target for Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin, TX – Travis County DOH</td>
<td>7.8% in 2006</td>
<td>14.3%</td>
<td>NA</td>
<td>6.6% by 2010 (90th percentile, County Health Rankings)</td>
<td>NA</td>
</tr>
<tr>
<td>Boston, MA – Boston Public Health Commission</td>
<td>9.6% in 2007</td>
<td>12.7%</td>
<td>8.0%</td>
<td>NA</td>
<td>11.5% by 2014</td>
</tr>
<tr>
<td>Charlotte, NC – Mecklenburg County DOH</td>
<td>8.9% in 2000-2004</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Colorado Department of Public Health</td>
<td>8.9% in 1997</td>
<td>13.4%</td>
<td>8.5%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Connecticut Dept. of Public Health</td>
<td>8.2% in 2006</td>
<td>12.7%</td>
<td>7.0%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>El Paso, TX – El Paso County DOH</td>
<td>8.8% in 2004</td>
<td>NA</td>
<td>NA</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Fort Worth, TX – Tarrant County DOH</td>
<td>7.7% in 2001</td>
<td>13.5%</td>
<td>6.7%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Las Vegas, NV – Clark County DOH</td>
<td>8.2% in 2004</td>
<td>14.0%</td>
<td>7.7%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Madison, WI – Dane County DOH</td>
<td>6.5 per 1,000 was IMR in 1990-2001</td>
<td>19.4 per 1,000</td>
<td>5.8 per 1,000</td>
<td>Achieved 4.2 per 1,000 in 2002-04</td>
<td>Achieved 6.4 per 1,000 in 2002-04</td>
</tr>
<tr>
<td></td>
<td>5.9% of infants weighed 1,500 - &lt;2,500 g in 1990-2001</td>
<td>13.3%</td>
<td>5.3%</td>
<td>Achieved 6.3% in 2002-04</td>
<td>Achieved 12.4% in 2002-04</td>
</tr>
<tr>
<td></td>
<td>1.1% of infants weighed &lt; 1,500 g in 1990-2001</td>
<td>3.1%</td>
<td>1.0%</td>
<td>Achieved 0.9% in 2002-04</td>
<td>Achieved 2.0% in 2002-04</td>
</tr>
<tr>
<td>Nashville, TN – Davidson County DOH</td>
<td>9.5% in 2003</td>
<td>13.9%</td>
<td>7.5%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Pittsburgh, PA (data shown) – Allegheny County DOH</td>
<td>10.4% in 1998-2002</td>
<td>15.0%</td>
<td>7.4%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Portland, OR – Multnomah County DOH</td>
<td>NA</td>
<td>11.9% in 1990-1994</td>
<td>5.2% in 1990-1994</td>
<td>Eliminate racial/ethnic disparities</td>
<td>Achieved 11.0% in 2000-04</td>
</tr>
<tr>
<td>New Jersey DOH</td>
<td>7.9% in 2002</td>
<td>13.2%</td>
<td>6.5%</td>
<td>Target: 6.0% Preferred Endpoint: 5.0% (HP2010)</td>
<td>Target: 7.5%</td>
</tr>
<tr>
<td>St. Paul, MN – Ramsey County DOH</td>
<td>5.8% in 2005</td>
<td>8.9%</td>
<td>4.4%</td>
<td>3.5% (MN Goal)</td>
<td>NA</td>
</tr>
<tr>
<td>St. Petersburg, FL – Pinellas County DOH</td>
<td>8.2% in 2003-2005</td>
<td>14%</td>
<td>NA</td>
<td>5% by 2009-2011</td>
<td>9%</td>
</tr>
<tr>
<td>Vancouver, WA – Clark County DOH</td>
<td>5.6% in 2004-2006</td>
<td>NA</td>
<td>NA</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>Washington DC – District of Columbia DOH</td>
<td>13.2% in 1998</td>
<td>15.9%</td>
<td>6.0%</td>
<td>5% (HP2010)</td>
<td>NA</td>
</tr>
<tr>
<td>HP2010</td>
<td>7.8% in 1998</td>
<td>13.0%</td>
<td>6.5%</td>
<td>5.0%</td>
<td>NA</td>
</tr>
</tbody>
</table>
Table 2. Clinical Conditions and Consequences of Low Birth Weight Births that Disproportionately Affect Black Women

<table>
<thead>
<tr>
<th>Clinical Conditions Causing LBW that Disproportionately Affect Black Women</th>
<th>Consequences of LBW birth, Preterm Birth, and Fetal Growth Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>High blood pressure</td>
<td>High blood pressure</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>Heart disease</td>
</tr>
<tr>
<td>Intrauterine/vaginal infections/sexually transmitted infections</td>
<td>Kidney disease</td>
</tr>
<tr>
<td>Weakened immune response to infection during pregnancy</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Autoimmune diseases (e.g. Lupus)</td>
<td>Weight gain in adolescence</td>
</tr>
<tr>
<td>Previous LBW delivery</td>
<td>Early learning difficulties</td>
</tr>
<tr>
<td>Short cervix</td>
<td>Feeding and weaning difficulties</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Breathing difficulties at birth</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>Neurological complications</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>Infant mortality</td>
</tr>
<tr>
<td>Obesity and overweight</td>
<td></td>
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<tr>
<td>Low maternal weight gain</td>
<td></td>
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<tr>
<td>Malnutrition/vitamin deficiency</td>
<td></td>
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<tr>
<td>Severe periodontal (tooth) disease</td>
<td></td>
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<tr>
<td>Shortened inter-pregnancy interval</td>
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</tbody>
</table>

Table 3. Social Determinants of Racial Inequities in Low Birth Weight

<table>
<thead>
<tr>
<th>Social Determinants of Low Birth Weight</th>
<th>Social Determinants of Racial Inequities in Low Birth Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremes of maternal and paternal age</td>
<td>Weathering</td>
</tr>
<tr>
<td>(very young or old)</td>
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</tr>
<tr>
<td>Psychosocial stress/allostatic load</td>
<td>Lifetime interpersonal racism</td>
</tr>
<tr>
<td>across the life-course*</td>
<td></td>
</tr>
<tr>
<td>Low socioeconomic status</td>
<td>Work place discrimination</td>
</tr>
<tr>
<td></td>
<td>Racial residential segregation</td>
</tr>
<tr>
<td></td>
<td>Neighborhood poverty</td>
</tr>
<tr>
<td>Poor social support</td>
<td>Poor social support and partner stress</td>
</tr>
<tr>
<td></td>
<td>Low neighborhood social support</td>
</tr>
<tr>
<td>Lack of health insurance/access to</td>
<td>Lack of health insurance/access to care</td>
</tr>
<tr>
<td>care</td>
<td></td>
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<tr>
<td>Lack of prenatal care</td>
<td></td>
</tr>
<tr>
<td>Lack of preconception care*</td>
<td></td>
</tr>
<tr>
<td>Epigenetic influences*</td>
<td></td>
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</tbody>
</table>

*Not enough evidence to judge contribution to racial inequities in low birth weight
Appendix B

Promising and Best Practices that Address Risk Factors Associated with Low Birth Weight

Preconception Care

The Magnolia Project – Jacksonville, Florida

Sources: http://www.magnolioproject.org
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1592161/

Mission/Goal/Purpose: The Magnolia Project is intended to reduce the risk of poor birth outcomes through social and behavioral interventions.

Target Population: The Magnolia Project targets high risk Black women who are currently not pregnant but are at risk of becoming pregnant in the near future (e.g. women with a previous poor birth outcome, substance-abusers, history of mental health or psychosocial problems, lack regular source of healthcare).

Activities/Services: The Magnolia Project engages high risk women through an empowerment model that promotes improved wellness and health, rather than future childbearing. The program distinguishes itself from other Health Start programs by focusing on building resilience to negative social determinants. The project offers a comprehensive array of services including outreach, health education, social support, well-woman care, prenatal care, case management and care coordination, and the development of a participant care and goal plan.

Evaluation Results: The Black-to-White infant mortality ratio was better for the babies born to women participating in the project as compared to national rates. Various qualitative research efforts confirmed that the case management approach including goal setting for the broad range of social issues was a major part of the intervention.

Access to Care

California Black Infant Health Program (BIH)

Sources: http://tinyurl.com/BlackInfantHealth
http://tinyurl.com/BIH-PolicyDoc
History: The Black Infant Health (BIH) was started in 1989 by the California Department of Health in response to the high rate of infant mortality among black families.

Mission/Goal/Purpose: The goal of the BIH intervention program was to improve the health of black women, infants and children thereby reducing the infant mortality rate. The objectives were to 1) increase the 1st trimester prenatal care visits and the health of black women, infants and children thereby reducing the infant mortality rate.

Activities/Services: BIH identified pregnant and parenting black women. Services included prenatal care and outreach, case management, health behavior modification, social support and empowerment and role of men education. The BIH also provided women with assistance in using appropriate medical care and other family support services. In addition, the BIH educated the community on the causes of infant mortality and the relationship between low birth weight and infant survival. Four best practice models comprise the BIH intervention: the Prenatal Care Outreach model, the Case Management model, the Social Support and Empowerment model, and the Role of Men model.

Resources/Funding/Infrastructure: Federal and state funds supported the program and the California Department of Public Health administered the program.

Evaluation Results: The rates of low birth weight and preterm birth among BIH participants were comparable to the geographic area overall. The rate of very low birth weight was 1.9% among BIH participants vs. 3.0% among the comparison group.

Interconception Care

Interpregnancy Care (IPC) Program – Grady Memorial Hospital in Atlanta, Georgia

Sources: http://tinyurl.com/PreconceptionCarePDF
History: In 1996, the Georgia Statewide Task Force on Perinatal Care recommended initiating and evaluating interpregnancy care for women at risk of having recurrence very low birth weight birth.

Target Population: The IPC targeted Black women who delivered a very low birth weight infant at Grady Memorial Hospital and who qualified for indigent or charity care.

Activities/Services: The IPC provided primary health care and dental services, enhanced case management and other outreach services. The IPC services were provided for 2 years in the community setting via a Resource Mother. Health care visits addressed 7 key areas linked to low birth weight delivery: 1) poorly-controlled chronic diseases, 2) short interpregnancy intervals, 3) reproductive tract infections, including bacterial vaginosis, 4) periodontal disease, 5) nutritional disorders, 6) substance abuse and 7) psychosocial stressors including depression and domestic violence. Group educational experiences were integrated into IPC health care visits.

Evaluation Results: Approximately 1/3 of the women enrolled were affected by unrecognized or poorly managed chronic health problems. Women in the control cohort had on average 2.6 (95% CI: 1.1-5.8) times as many pregnancies within 18 months of the index very low birth weight delivery and had 3.5 (95% CI: 1.0-11.7) times as many adverse pregnancy outcomes as women in the IPC.

Oral Health

Prenatal Oral Hygiene (Dental Hygiene Kit) – Clinton County, New York

Sources: http://tinyurl.com/PrenatalOralHyg
http://www.clintoncountygov.com/
http://tinyurl.com/PrenatalDenHyg

Mission/Goal/Purpose: The goal of the Prenatal Oral Hygiene program would be to improve the individual oral hygiene practices of the prenatal women. Ultimately this preventive measure could improve oral hygiene habits in the prenatal population as well as contribute to the reduction in the number of low birthweight and preterm infants born.

Activities/Services: Patients enroll in the Clinton County Health Department’s MOMS program (Medicaid Obstetrical Maternal Services). When each patient completes her enrollment in MOMS and the nursing assessment (which includes a dental assessment/screening), the nurse will give her a “dental kit” (toothbrush, toothpaste, dental floss, mouthwash, and brochure on prenatal oral hygiene). The MOMS nurse provides instruction on the importance of dental care and makes a referral to the Medicaid dental clinic or to an alternative dental practice that may provide services. The MOMS clients are given a replacement toothbrush to reinforce the concepts of regular replacement of the toothbrush, reduce potential bacteria exposure, and promote effective cleaning.

Evaluation Results: After the first year of implementation, the program received positive feedback from participants and showed positive changes in oral hygiene habits within the MOMS population.

HIV and STDs

Choices

Sources: http://tinyurl.com/CHOICESstd

Mission/Goal/Purpose: Choices is a small-group intervention for low-income women to prevent new sexually transmitted diseases (STDs) and decrease high-risk sexual behaviors. The goals of the intervention are to prevent new sexually transmitted diseases (STDs) and increase use of safer sex strategies such as abstinence, monogamy, and/or condom use.

Activities/Services: Choices is a small group (5-10 women) that focuses on skills that emphasize initial behavior change as well as the maintenance of behavior change over time. Motivational and decision-making exercises help women learn how to choose safer sex strategies best suited for their circumstances. Safer sex skills include using condoms correctly, creating lifestyle balance, negotiating safe sex with partners, and abstaining from risky sexual behaviors. The intervention also focuses on relationship choices and how they affect health and well being.

Evaluation Results: Women in the Choices group were significantly less likely to acquire a new STD than women in the comparison group (8.6% vs. 15.4%, p = 0.05).

Consumer Involvement

Northern Manhattan Perinatal Project and the Central Harlem Healthy Start

Sources: http://www.sisterlink.com/
http://www.sisterlink.com/images/NMPPCHHS.doc
History: Northern Manhattan Perinatal Partnership (NMPP) started in 1990 to fight low birth weight in Harlem. In 1995, NMPP became its own 501c3 nonprofit corporation. Today, under the leadership of Mario Drummonds, NMPP offers over 22 services and programs with an operating budget over $8 million.

Mission/Goal/Purpose: NMPP’s mission is to save babies by helping women and men take charge of their reproductive, social and economic lives. NMPP targets women, children, men and families in many neighborhoods throughout Manhattan.

Activities/Services: NMPP works with a network of hospitals, health care providers and community based organizations to reach and serve some of the poorest and most vulnerable women living in the city. Examples of NMPP programs include:

- Comprehensive Perinatal Service Network (CPSN): CPSN is responsible for coordinating perinatal services, outreach and educational campaigns, collection and analysis of perinatal data, identification of gaps in the delivery system and filling them programatically.
- Infant Mortality Reduction Initiative (IMRI): IMRI targets women of reproductive age and provides education on interconception and preconception health.
- Sisters of Strength: “Sisters of Strength” targets pregnant and parenting
teens, and teens at risk for pregnancy. Services include case management, and linkage and referral for services such as WIC, public assistance, food stamps, health services, substance abuse and family planning, parenting skills, education and job skills training.

- Healthy Steps Healthy Start (HSHS): HSHS is a healthy start program that offers case management, health education and other services for pregnant and parenting women.
- Fatherhood/Mankind Program: The program targets fathers who have been incarcerated, need counseling, are married and unemployed and/or seeking to navigate the social service system. Services include promoting the positive involvement of fathers in the lives of their children, effective parenting skills, individual or group counseling, mediation, paternity arrangement, father-to-father mentoring, employment assistance. The program also provides trainings around father’s legal rights, job preparedness, complete GED classes, and college preparation.
- SisterLink: Community Action for Prenatal Care Program (CAPC): SisterLink CAPC is an HIV prevention program focused on reducing the incidence of perinatal transmission of HIV.

Evaluation Results: NMMP was responsible for executing a community plan that reduced the infant mortality rate in Central Harlem from 27.7 deaths per 1000 live births to 6.1 from 1990 to 2008. In 2003, the low birth weight rate for Central Harlem Healthy Start participants was 3.1% compared to 10.8% among Central Harlem residents.

Community Involvement

ABCs for Healthy Families, Wisconsin

Mission/Goal/Purpose: The purpose of ABCs (Applied Behavior Change) for Healthy Families is to integrate the life-course perspective into a social marketing campaign to improve birth outcomes among Black women in Wisconsin. There are four specific goals of the campaign. First, the campaign should increase the public’s and providers’ knowledge of the importance of integrating the life-course perspective into preconception/interconception care to improve birth outcomes for Black infants. Second, the campaign should integrate the life-course perspective into current MCH awareness campaigns. Third, the campaign should increase positive birth outcomes by providing linkages to preconception/interconception, prenatal, family support, and social services for low-income Black women and men. Fourth, the campaign should increase the father’s involvement and support couples transitioning into their roles as new parents.

Outcomes: Through this campaign, an expected outcome is to meet the health care needs of low-income Black women throughout the life span, especially through the provision of culturally relevant, high-quality, timely preconception, interconception, and prenatal care.

Resources/Funding/Infrastructure: For Healthy Families, the Wisconsin Department of Public Health received $497,777 from a 2-year federal grant from HRSA.

Father Involvement

Male Initiative Program (MIP) – Healthy Start of Pittsburgh/Fayette County Sources: http://www.healthystartpittsburgh.org/index.php?clid=106 History: The Pittsburgh/Fayette County project area was one of the sites originally included in the demonstration phase of the Healthy Start program. The Healthy Start of Pittsburgh/Fayette County offers the Male Initiative Program (MIP).

Mission/Goal/Purpose: The primary goal of the MIP is to assist fathers and other positive male role models to maintain involvement with their children and families through the promotion of parenting skills and the benefits derived from peer and program support.

Activities/Services: The MIP was designed to educate fathers and other men involved in the life of a child about how important they are to the outcome of a pregnancy and the ongoing health and well being of the baby. Specific program tenets include:

- Provide active participation, support and encouragement to the child’s mother and her prenatal and pediatric visits;
- Understanding the importance of choices made regarding maternal and infant nutrition, substance use and family planning;
- Reinforcement of the philosophy of personal responsibility and the importance of providing financial and material support to the family;
- Grasping the significance of the direct role a father must play in the care and nurturing of a child.

Evaluation Results: Healthy Start (overall) achieved remarkable results. The infant mortality rate dropped nearly 20% between 2000 and 2003. 82% of the Black women who were enrolled (a 16% increase) received prenatal care during their first trimester.

Social Support


Mission/Goal/Purpose: The goal of the CenteringPregnancy Program is to improve perinatal outcomes for low-income women and their infants through group prenatal care. Activities/Services: CenteringPregnancy is a multifaceted model of group care that integrates health assessment, education and support into a unified program within a group setting. CenteringPregnancy primarily serves low-income minority women at high risk for low birth weight and preterm delivery. Groups of women over gestational age receive basic prenatal risk assessments, share support, and gain knowledge and skills related to pregnancy, childbirth, and parenting. The ten sessions focus sequentially on topics such as nutrition, labor preparation, the birth experience, infant care and feeding, and postpartum adjustment. Women also learn self-care activities to track changes associated with pregnancy and receive individual assessments at each session. This model is endorsed by March of Dimes.

Resources/Funding/Infrastructure: CenteringPregnancy is a reimbursable service and does not impose additional costs to the clinic running the sessions.

Evaluation Results: The infants of women in group prenatal care had a significantly higher birth weight than those women in a control group that received standard individual prenatal care (p < 0.01).

Addressing Racism


History: Racial disparities in infant mortality rates persist in Flint and Genesee County, Michigan. The Genesee County Health Department coordinated the Genesee County REACH 2010 Team, a coalition of 12 groups working with people at the community level to reduce health disparities in infant death rates among Black populations. Racial and Ethnic Approaches to Community Health (REACH) is a community-based public health program funded by CDC to eliminate racial and ethnic health disparities.

Mission/Goal/Purpose: The Genesee County REACH 2010 Team has implemented a community action plan designed to mobilize people at the community level, improve health care services for infants, and reduce racism at individual, institutional, and systems levels.

Activities/Services: The REACH 2010 Team conducts activities to reduce racism, foster community mobilization and enhance the babycare system. Activities include community dialogue sessions, workshops that address racism, a media campaign, educational sessions for parents, and cultural competency classes for health care providers and university students. Other activities include Maternal and Child Health advocates to mentor and support women from pregnancy through their child’s first birthday, help the women navigate the medical system, and teach the women healthy eating through community dinners called Harambee dinners.

Evaluation Results: Achievements include:

- The team conducted 20 Undoing Racism workshops that were attended by 794 people, including 48 doctors, 95% of attendees felt it changed their knowledge about racism, 90% felt it changed their attitude about racism, 89% stated it would change the way they will act in the workplace.
- Advocates have provided support and mentoring to 691 Black women
- More than 1,079 Black women and 105 men have attended “One Stop Village” classes which teach parenting skills, care seat safety, and provide information about breast feeding.
- The REACH 2010 Team published several articles in local journals and peer-reviewed journals.

Financial Literacy


History: Launched in 2005, it is a 15-year Family, Maternal and Child Health Program initiative based on the Life Course Perspective. This framework suggests that a complex interplay of biological, behavioral, psychological and social protective and risk factors contributes to health outcomes across the span of a person’s life. These determinants include social factors such as financial security and stability, which have an impact across generations.

Mission/Goal/Purpose: Building Economic Security Today (BEST) is an asset development pilot project that utilizes innovative strategies to reduce disparities and inequities in health outcomes for this and future generations of low-income California families by improving their financial security and stability. The BEST goal is to reduce disparities in birth outcomes and change the health of the next generation in Contra Costa County by achieving health equity, optimizing reproductive potential and shifting the paradigm of the planning, delivery, and evaluation of maternal, child, and adolescent health services.

Activities/Services: BEST helps families to maximize their income for daily living, another birth weight and increase their financial assets. This will increase families’ access to health care, improve their housing situations, offer opportunities to live in safer and healthier neighborhoods, increase their food security, etc. BEST offers one-on-one support to families, financial education, and asset development educational materials and referrals. BEST works with staff from home visiting programs – Black Infant Health, Life Every Voice, Prenatal Care Guidance
Appendix B, cont:

Program, WIC – to integrate asset development activities and financial education into their services for pregnant and parenting women.

Outcomes: Intermediate markers of success include:
- Staff will demonstrate increased knowledge of asset development strategies and resources, improved skills in engaging clients to adopt asset development strategies
- Clients will demonstrate increased knowledge of asset development strategies and resources, increase their confidence and readiness to adopt an asset development strategy, adopt at least one asset development strategy
- Local system changes include stronger community partnerships to create a supportive environment for asset development, a health and human services system that supports clients in utilizing asset development strategies, integration of asset development strategies into MCH programs’ infrastructure

Appendix C

Examples of Current Policies that May Impact Racial Inequities in Low Birth Weight

Workplace Discrimination: Federal and state anti-discrimination laws protect workers against employment discrimination on the basis of race. Workplace anti-discrimination policies are in place to make the workplace safer and more inclusive of all workers. Policies and training that specifically target workplace bullying might present an opportunity to prevent racial discrimination from occurring. In addition, workplace wellness programs might consider incorporating social/mental health into their programs for workers. “English only” workplace policies are not supportive of anti-discrimination policies and should be eliminated.

Residential Segregation: Federal law prohibits discrimination in housing based on race and “red-lining” or steering of Black homeowners to predominantly Black neighborhoods. However, this law requires proof of discrimination and in many cases needs to be verified through “testers” in order to have a solid case. Thus, while the federal law was successful in punishing overt acts of housing discrimination, it has not been as effective at preventing the more subtle forms of discrimination that maintain racial segregation.

Neighborhood Poverty/Food Subsidies: WIC (Women, Infants and Children) is a federal program that provides food assistance to pregnant and lactating women and children up to age 5. SNAP (Supplemental Nutrition Assistance Program), provides food assistance for low-income families with children, the elderly and disabled. School breakfast and lunch programs exist for qualified families.

Partner Stress: Some policies such as supporting employment/training opportunities for men or providing health insurance coverage for counseling, could reduce partner stress and enable to men to be supportive of pregnant partners.

Health Insurance: Federal health reform will be changing the health care system over the next five years. For example, all private insurers will be required to offer preventive care without co-pays or deductibles. Despite health care reform in Massachusetts since 2006, only 80% of Boston residents in 2008 received adequate prenatal care. This suggests that our focus might be on other barriers to access that are created by the insurance/health care system.

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