



## Issue Brief

### Disparities and Inequities in Maternal and Infant Health Outcomes

Maternal and infant health inequities and disparities are serious public health concerns that have many social and economic implications, such as poor health outcomes and increased direct and indirect healthcare costs. Maternal and infant health disparities are diverse and can exist among different groups, including insured and uninsured populations, urban and rural communities, privately and publicly insured individuals, and racial or ethnic minorities. Health disparities are influenced by various factors, such as socioeconomic status (SES), educational attainment, discrimination, biologic and genetic characteristics, behavior, environment, and quality of care. This issue brief will explore the importance of maternal and infant health disparities by delving into topics such as racial and ethnic disparities, economic impact, infant mortality, maternal disparities, and prenatal care as well as highlight different programs states have implemented to address these issues.

In recent years, maternal and infant health has been at the forefront of policymaking agendas. The Association of State and Territorial Health Officials (ASTHO) and its affiliates are committed to reducing maternal and infant health disparities. The 2011 ASTHO's President's Challenge led by John Auerbach, former commissioner of health from Massachusetts, focused on achieving health equity by eliminating health disparities. The 2012 ASTHO's President's Challenge led by Dr. David Lakey, Commissioner of the Texas Department of State Health Services, focused on healthy babies and reducing prematurity and infant mortality. In ASTHO's [health equity policy statement](#), health equity is defined as the "attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and healthcare disparities."<sup>1</sup> In contrast, health inequity is defined as "differences in health outcomes which are...unnecessary and avoidable...unfair and unjust. Health inequities are systematic disparities in health, or in the major social determinants of health, between groups with different levels of underlying social advantage/disadvantage (for example, by virtue of being poor, female, and/or members of a disenfranchised racial, ethnic, or religious group)."<sup>2</sup> In many cases, health inequities and health disparities are used interchangeably.

#### **Racial and Ethnic Disparities**

Understanding the factors contributing to health disparities is largely based on socioeconomic, geographical, and racial and ethnic differences in health outcomes. Maternal and infant health disparities are more pronounced in racial and ethnic communities due to a wide range of social

determinants of health which are linked to the same inequities that racial and ethnic communities experience in the larger social context. Racial and ethnic minorities suffer a disproportionately high burden of diseases and experience higher rates of mortality.<sup>3</sup> Approximately 83,000 preventable deaths occur each year as a result of racial and ethnic health disparities, including high infant mortality rates.<sup>4</sup> Racial and ethnic minority women, particularly African-American and Hispanic/Latino/Latino women, continue to experience worse health outcomes when compared to non-Hispanic/Latino white women.

Discrimination contributes to the wide gap in maternal and infant health disparities in racial and ethnic communities. A landmark report by the Institute of Medicine (IOM) showed substantial disparities in the quality of care for minority communities even when accounting for healthcare insurance coverage and income.<sup>5</sup> Linguistic barriers also contribute to maternal and health disparities, particularly in the Hispanic/Latino community. Pregnant women whose first language is not English have difficulty navigating the healthcare system and are more likely to have unmet health needs, such as adequate prenatal care services.<sup>6</sup> A 2006 study found that “infants with parents whose primary language was not English were half as likely to received recommended preventative care as infants whose parents’ primary language is English.”<sup>7</sup> Disparities in healthcare, combined with linguistic and other cultural factors, result in poorer health outcomes.

### **Economic Impact**

In addition to adverse health outcomes, health disparities have severe economic consequences for society and the healthcare system. A 2009 study found that \$229.4 billion in direct medical costs were associated

with health inequities and there were another \$1.24 trillion in indirect costs, such as loss of wages and work productivity between 2003—2006.<sup>8</sup> An estimated 30 percent of direct medical care expenditures for African-American, Asians, and Hispanic/Latinos were excess costs due to health inequalities.<sup>9</sup> Addressing health disparities at an early age in infants will reduce excess costs and improve health outcomes in the long run.

### **Health inequities lead to:**

- \$1.24 trillion in indirect medical costs
- 30 percent of direct medical care expenditures for racial and ethnic minorities

### **Healthy Babies Project**

In 2011, as his President’s Challenge, Commissioner of the Texas Department of State Health Services and ASTHO Immediate Past President David Lakey challenged state health officials to implement strategies and policies that would help reduce prematurity and infant mortality in the United States. In response, ASTHO launched the Health Babies Initiative, a nationwide challenge that supports states in

### **Healthy Babies Project Objectives**

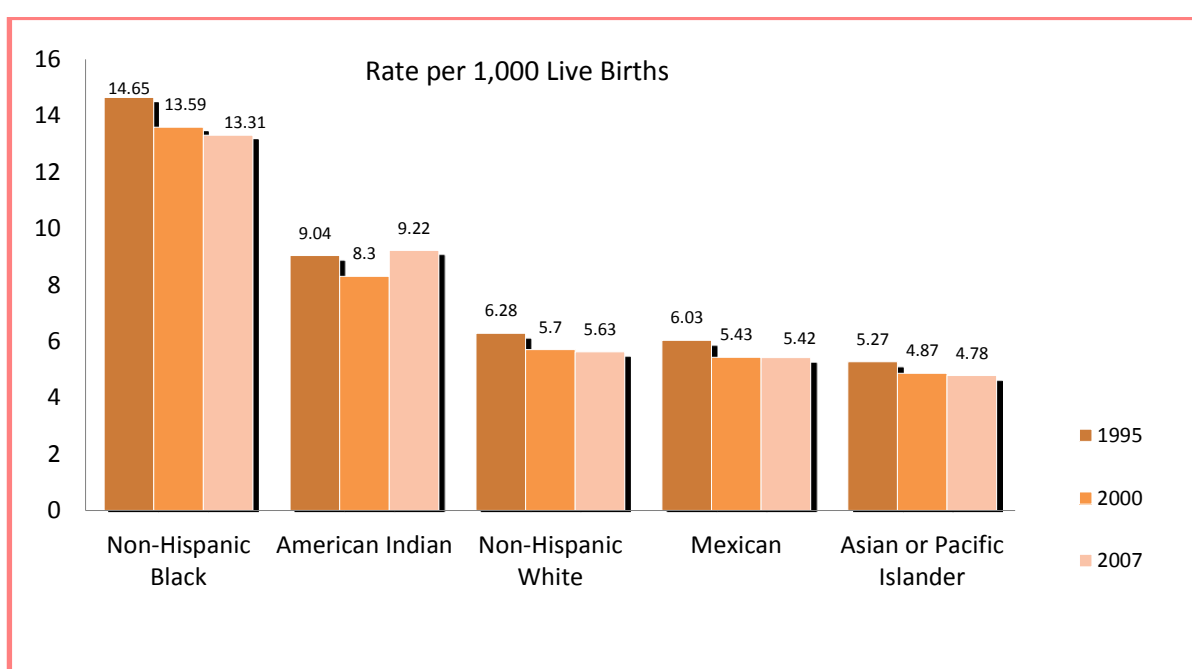
1. Reduce infant mortality and prematurity by 8 percent by 2014.
2. Focus on improving birth outcomes as state health officials and state leadership teams work with state partners on health and community system changes.
3. Create a unified message that builds on the best practices from around the nation and the efforts from Regions IV and VI, which can be adopted by states, U.S. territories, and the District of Columbia.
4. Develop clear measurements to evaluate targeted outreach, progress, and return on investment.

their efforts to improve healthcare outcomes in pregnant women and infants by reducing infant mortality and prematurity by 8 percent by 2014.<sup>10</sup> ASTHO is collaborating with the Human Resources and Services Administration's Maternal and Child Health Bureau, the Association of Maternal and Child Health Programs (AMCHP), the March of Dimes, CDC, and other partners to develop a national strategy that addresses infant mortality and poor birth outcomes.

### **Infant Mortality**

Racial and ethnic populations consistently rank among the highest rates of infant mortality despite significant improvements to reduce infant mortality in the United States. The infant mortality rate for African-Americans is 2.4 times the rate of non-Hispanic/Latino white women.<sup>11</sup>

Disparities in Infant Mortality by Race/Ethnicity, United States, 1995, 2000, and 2007<sup>12</sup>



In the chart above, the infant mortality rate per 1,000 live births for African-American women was 13.3 deaths compared to 5.6 deaths for non-Hispanic/Latino white women in 2007. Asian/Pacific islanders had the second highest rate (8.3 percent), followed by American Indian/Alaskan Natives (7.2 percent).<sup>13</sup> Although the Hispanic/Latino and the African-American populations share similar socioeconomic conditions—including low levels of education, healthcare coverage, and income—African-Americans experience significantly higher infant mortality.

The leading cause of infant mortality is low birth weight, which is defined as an infant born weighing less than 2,500 grams, or 5.51 lbs. Low birth weight is a significant risk factor that contributes to childhood developmental disorders. African-Americans have a three to four times higher risk than non-Hispanic/Latino whites for low birth weight.<sup>14</sup> The incidence of low birth weight varies by maternal age range. For example, the rate of low birth weight is highest among women younger than 15 years of age

(12.4 percent) and the second highest rate is among women between the ages of 40 and 54 years (11.8 percent).<sup>15</sup> Although racial and ethnic disparities in infant mortality and low birth weight are evident, their root causes are complex and varies among different communities.

### **Maternal Disparities: Focus on Mental Health and Gestational Diabetes**

In addition to experiencing higher rates of infant mortality than the Hispanic/Latino and non-Hispanic/Latino white population, the African-American community also faces higher rates of maternal deaths per 1,000 live births, even after controlling for socioeconomic status. The World Health Organization defines maternal death as the “death of a woman while pregnant or within 42 days of termination of pregnancy.” Moreover, low-income minority women experience higher rates of maternal depression than affluent non-Hispanic/Latino white women. Maternal depression in this population may reach as high as 40 percent.<sup>16</sup>

### **Case Study: Illinois and Medicaid Waivers for Mental Health**

In 2004, Illinois became the first state to provide additional reimbursement to clinicians who perform maternal depression screenings.<sup>17</sup> Since then, an increasing number of states have utilized Medicaid 1115 waivers to cover post-partum depression services. Illinois also provides training opportunities and free consultation services for clinicians who have questions about detection, diagnosis, and treatment, and a 24-hour crisis hotline. The University of Illinois at Chicago Women’s Mental Health Program provides the staff for the consultation service and more than 700 consultations have taken place since the program started.<sup>18</sup>

Gestational diabetes, a form of diabetes that is diagnosed in some women during pregnancy, affects African-American, Hispanic/Latino, and American Indian women more frequently.<sup>19</sup> It occurs more frequently among obese women and women with a family history of diabetes. Managing gestational diabetes is critical to improve the health of the infant.

### **Case Study: Massachusetts and Gestational Diabetes Mellitus Project**

Massachusetts’ Gestational Diabetes Mellitus (GDM) Project underscores the value of integrating chronic disease prevention strategies for the maternal and child health population. By engaging a broad-based group of public, private, and nonprofit stakeholders, the Massachusetts Diabetes Prevention and Control Program (DPCP) leverages resources to address some of its most pressing needs related to gestational diabetes prevention and treatment.

DPCP, with support from CDC and ASTHO, convened public health agencies, public and private health insurers, consumers, healthcare providers, and community based organizations at a gestational diabetes summit in Framingham, Massachusetts. The participants identified missed opportunities for screening, managing, and follow-up of gestational diabetes and worked together to develop an action plan to realize those opportunities.

Three priorities rose to the top of the list:

- Increase patient and provider awareness about GDM diagnosis and treatment.
- Improve continuity of care for women diagnosed with GDM and their children.
- Improve surveillance systems to gather accurate and timely data.

The diabetes program launched a television and poster campaign to encourage Hispanic/Latino women who have been diagnosed with gestational diabetes to talk to their doctors about reducing their risk of developing Type 2 diabetes. Two new public service announcements aired in June 2011 encouraging women with a history of gestational diabetes to get follow-up screening, reinforcing the benefits of healthy lifestyles for women with gestational diabetes and their children, and encouraging an open dialogue with primary care doctors and pediatricians to prevent the onset of Type 2 diabetes.

The diabetes program also developed an informational poster in English and Spanish and a resource guide to educate women about the risks of gestational diabetes. In addition to internal partnerships, DPH is collaborating with Brigham and Women's Hospital in Boston on a research endeavor to develop and test an online behavioral change curriculum aimed at reducing the risk for development of Type 2 diabetes in women with a recent GDM pregnancy. Once complete, DPH will help to disseminate findings and promote the curriculum to healthcare providers and the public.

DPH also focuses on educating providers about managing GDM and preventing Type 2 diabetes among women who have had gestational diabetes. For example, DPCP has coordinated a workgroup of clinical experts in endocrinology, obstetrics, and nutrition to develop clinical guidelines that will help providers identify and treat women with gestational diabetes and prevent future development of Type 2 diabetes.<sup>20</sup> As gestational diabetes affects racial and ethnic minority women more frequently, addressing this health issue is another step in eliminating health disparities for women.

### **Socioeconomic Status (SES)**

Socioeconomic status is a complex term used to characterize one's social position, often defined by income and educational attainment. Recent studies suggest that SES plays a vital role in health outcomes, access to healthcare, and overall quality of care. For example, individuals who are poorer are more likely to have preventable diseases, physical and cognitive impairments, high mortality rates, substandard healthcare, and lack access to care. An individual's SES is one of the most important predictors of health because it can influence the extent to which other factors may provide protection from health inequities. Individuals with a low SES are more likely to experience poor nutrition, inadequate housing, and greater exposure to environmental hazards—all factors that contribute to overall health.<sup>21</sup>

Educational attainment is often associated with SES and regarded as an important indicator of health status. Studies have shown that infants with less educated parents are more likely to experience adverse health outcomes than infants born to educated parents.<sup>22</sup> The infant mortality rate is higher among groups with less than a high school education when compared to groups with a high school education and above, regardless of race or ethnicity.<sup>23</sup>

### **Case Study: Contra Costa Health Department and Economic Development Program**

California's Contra Costa Health Services launched the Life Course Initiative, a program that uses the "12-Point Plan to Close the Black-White Gap in Birth Outcomes." The 12-Point Plan is a framework for reducing birth outcomes disparities by race and ethnicity through a paradigm shift away from traditional prenatal care and toward focusing on socioeconomic. To change the health of the next generation and achieve health equity, the life course program addresses social determinants of health, such as education, economic stability, and financial security through its Building Economic Security Today (BEST) pilot project. The BEST project helps reduce economic inequities by providing financial education classes, one-on-one support to families, and asset development educational materials.

The plan's 12 points are:

1. Provide interconception care to women with prior adverse pregnancy outcomes.
2. Increase access to preconception care for African-American women.
3. Improve the quality of prenatal care for African-American women.
4. Expand healthcare access over the life course for African-American women.
5. Strengthen father involvement in African-American families.
6. Enhance systems coordination and integration for family support services.
7. Create reproductive social capital in African-American communities.
8. Invest in community building and urban renewal.
9. Close the education gap.
10. Reduce poverty among African-American families.
11. Support working mothers and families.
12. Undo racism.<sup>24</sup>

The Life Course Initiative also provides training, tools, and technical assistance to staff at Contra Costa Health Department Services, as well other family and child health programs.<sup>25</sup>

### **Prenatal Care and Health Outcomes**

Harmful maternal health risk behaviors during pregnancy, such as smoking, alcohol consumption, and illegal and prescription drug use, contribute to adverse birth outcomes, including preterm births, low birth weight, and infant mortality.<sup>26</sup> Disparities exist among different populations during pregnancy. Studies have shown that African-American women are more likely to give up smoking during pregnancy than non-Hispanic/Latino white and Native American women.<sup>27</sup> However, African-American women are more likely to be diagnosed with pre-pregnancy diabetes and hypertension.<sup>28</sup>

Preconception and interconception care, or the health of reproductive-age women before pregnancy and between pregnancies, is a critical component of a woman's health. Many pregnancies are unplanned and a woman may not start prenatal care until months into her pregnancy. Yet the first few weeks of pregnancy and the time just before conception are the periods of time associated with the greatest risk of preterm birth and other adverse pregnancy outcomes. Therefore, interventions that

occur after conception do not address all of the risks associated with adverse pregnancy outcomes. Women need to be healthy before conception to address preventable risks for negative pregnancy outcomes.<sup>29</sup>

High-quality prenatal care is imperative to minimizing adverse health outcomes for both the mother and the infant. Women receive prenatal care throughout their pregnancy, ranging from healthcare-related services to education and counseling. Although it is considered a cornerstone to a healthy pregnancy, many women—particularly minorities—receive little or no prenatal care. According to a 2007 study by the Kaiser Family Foundation, an estimated 23 percent of all minority women receive late or no prenatal care services, compared to 11 percent of non-Hispanic/Latino white women.<sup>30</sup>

Disparities in prenatal care services are also present within the minority community. About 33 percent of American Indian/Alaskan Native women receive late prenatal care services or none at all, while the percent for Asian and Native Hawaiian/Pacific Islander women is only 11 percent.<sup>31</sup> Furthermore, women who have not completed high school are three times more likely not to receive prenatal care during the first trimester of pregnancy compared to women who have graduated high school.<sup>32</sup>

In addition to racial and ethnic disparities in prenatal care utilization, disparities also exist among uninsured and low SES populations. Uninsured pregnant women are five times more likely than privately insured women to begin prenatal care in their third trimester.<sup>33</sup> A 2005 study showed that one-third of mothers who did not receive prenatal care services delivered before 36 weeks of gestation and over 10 percent of births occurred under 32 weeks.<sup>34</sup> Moreover, women with late or no prenatal care were more likely to be young and with low educational attainment.<sup>35</sup> Although prenatal care services have improved in recent decades, largely due to an expansion of Medicaid services, disparities continue to persist in uninsured, low SES, and racial and ethnic minority women.

### **Case Study: West Virginia and Prenatal Risk Screening Instrument**

In 2011, with infant mortality and premature birth rates on the rise in West Virginia, the Department of Health and Human Resources (DHHR), wanted to improve birth outcomes statewide. In accordance with West Virginia Legislative Rule §64-97-5, all healthcare providers offering maternity services are required to implement the West Virginia Prenatal Risk Screening Instrument (PRSI) to promote early and accurate identification of prenatal risk factors and then submit these forms to DHHR for review.

After one year of implementation, DHHR received data from 11,082 PRSIs that were completed by 336 maternity service providers, representing approximately 50 percent of all West Virginia pregnancies from 2011. All maternity service healthcare providers are now required to implement the PRSI at all initial prenatal appointments. This one-page tool collects information about: demographics, vital physiological statistics, pregnancy history, oral health, breastfeeding, family history, medical conditions, prenatal care entry delay, various obstetrical risk factors, and substance abuse.

The PRSI tool allows West Virginia maternity healthcare providers to perform efficient and effective prenatal risk screenings. Although it is still early in the PRSI's implementation, it allows the state to look

toward improving birth outcomes for mothers and infants. Without compensation or consequence, about 60 percent of maternity service providers participated in the first year of the program. Through the PRSI forms received, DHHR was able to determine the most common risk factors, (such as oral health, psychosocial, vital physiological, substance use, and prior pregnancies), reported by medical practitioners in West Virginia and can now work to address these issues through policy, programs, and services.

### **Case Study: Colorado Prenatal Plus Program<sup>36</sup>**

In 2002, the Colorado Department for Public Health and Environment sponsored a study to determine the cost-savings associated with its Prenatal Plus program, which provides comprehensive services to pregnant Medicaid-eligible women. The study showed that for every dollar invested in prenatal care services, Medicaid saved \$2.48 in an infant's first year of life. Overall, women and babies enrolled in the Prenatal Plus Program saved the state approximately \$6 million when compared to women and babies not enrolled in the program. Additionally, women who completed the program through delivery had an average low birth weight rate of 12.6 percent compared to an estimated 13.8 percent among women receiving no intervention services. The study findings helped the state Medicaid agency receive a rate increase for the program.

#### **Economic Savings for Prenatal Plus:**

- \$1 Prenatal Care = \$2.48 in Medicaid Savings.
- Prenatal Plus saved Medicaid an estimated \$2.9 million in health care costs.

### **Geographical Disparities and Telemedicine**

Pregnant rural women continue to experience inadequate prenatal care and increased risks of poor birth outcomes when compared to pregnant urban women. Among rural populations, Hispanic/Latino women are more likely to receive inadequate prenatal care. Various factors contribute to the wide range of disparities between urban and rural communities, including poverty and shortage of physicians in rural areas. In addition, rural women—regardless of race or ethnicity—tend to have less education, more children, and fewer health resources.<sup>37</sup>

Telemedicine is a relatively new and growing approach to address the issue of health disparities in rural communities. It employs cameras, microphones, and other medical monitoring devices to diagnose and treat patients in remote locations. Telemedicine, also known as telehealth and ehealth, reduces travel costs for patients, increases access to specialist care, and improves overall health outcomes.

Studies have shown telemedicine to be more cost-effective than routine care and on-site care. For example, medical costs for telemedicine are \$335 per patient/year, while on-site care is \$1,166 per

patient/year.<sup>38</sup> Telemedicine has also proven to be a cost-effective alternative to pediatric emergency rooms. A study done by the University of Rochester Medical Center showed that children with access to telemedicine had 28 percent fewer ER visits.<sup>39</sup> Although relatively new, telemedicine has shown to be an effective tool for rural communities and areas with physician shortages. Telemedicine can address poor birth outcomes by increasing access to services for women and families in geographically-remote and isolated areas.

### **Case Study: Alaska Telemedicine**

To address the needs and health disparities of Alaskan women and families living in hard-to-reach areas, the Alaska eHealth Network is developing a health information exchange network that will allow Alaskans to manage their own health records and authorize providers to exchange records in a timely and secure fashion. The project will create an electronic health record network linking community health centers. The Alaska eHealth Network is also a forum where organizations involved in telehealth initiatives can communicate and collaborate with each other.

Under the Alaska Psychiatric Institute Telebehavioral Health Care Services program, healthcare providers and their patients can access real-time videoconferences with psychiatrists, psychologists, and social workers in Anchorage. To keep patients in community settings, the program launched a new effort to help primary care physicians in rural areas identify and treat behavioral health issues with the input of psychiatrists, psychologists, and social workers.

Another innovative program came from Indian Health Service. They sponsored a pilot program for the Eastern Aleutian Tribes, a low-population dense community that lives in isolated areas of northeastern Alaska. They issued remotely monitored blood pressure equipment to patients who live in isolated villages and are unable to travel, which is a cost-effective alternative to office visits.<sup>40</sup> The program provides funds to purchase approximately 20 remote blood pressure (BP) monitors which will include a special BP cuff and HIPAA-compliant transmission equipment. Patients who want to control their blood pressure can use the equipment, and once they have improved their numbers, other people can use the device. The 20 units will cover more than 20 individuals, thereby increasing people's access in this hard-to-reach community.<sup>41</sup>

### **Breastfeeding**

Breastfeeding benefits are well-documented and are widely considered the best method to nourish a newborn baby. The American Association of Pediatrics, along with other maternal and child health organizations, has consistently recommended breastfeeding and human milk as the standard for infant feeding and nutrition.<sup>42</sup> Despite its nutritional benefits, breastfeeding rates vary among different groups. According to a 2010 study, African-American women have the lowest prevalence of breastfeeding.<sup>43</sup> An estimated 54.4 percent of African-American women breastfed after giving birth compared to 74.3 percent of white women and 80.4 percent of Hispanic/Latino women. Disparities in breastfeeding rates were also present among less educated women. Mothers who had not completed college were less likely to breastfeed (65.2%) when compared to mothers with a college degree (85.4%).

### **Case Study: Rhode Island Breastfeeding Advocacy**

Breastfeeding friendly hospital initiatives have shown to increase the prevalence of breastfeeding. Policy interventions can have a big impact on health disparities. The state of Rhode Island has pursued aggressive policies to promote breastfeeding. In 2000, Rhode Island's South County Hospital became the first in the state to eliminate free formula distribution as part of their "Baby Friendly Hospital Initiative." The initiative helped increase the percentage of new breastfeeding mothers from 51 percent to 58 percent in 2010.<sup>44</sup> Due to its success, in November 2011, Rhode Island became the first state to discontinue free infant formula bags in all birthing hospitals.<sup>45</sup>

### **Conclusion**

Disparities lead to increased adverse health outcomes and excess medical expenses. Reducing infant health disparities is a critical step towards reducing disparities in the rest of the population. Despite significant improvements in maternal and infant health outcomes, certain populations continue to experience wide inequities, resulting in poorer outcomes for many infants later in life. ASTHO's Healthy Babies Project is just one example of crucial projects nationwide to reduce maternal and infant health disparities. Other featured state stories show the variety of state strategies to address maternal and infant health inequities. Finally, meaningfully engaging with the social determinants of health is a critical component of any comprehensive health equity strategy to improve birth outcomes and the health of everyone in the nation.

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