

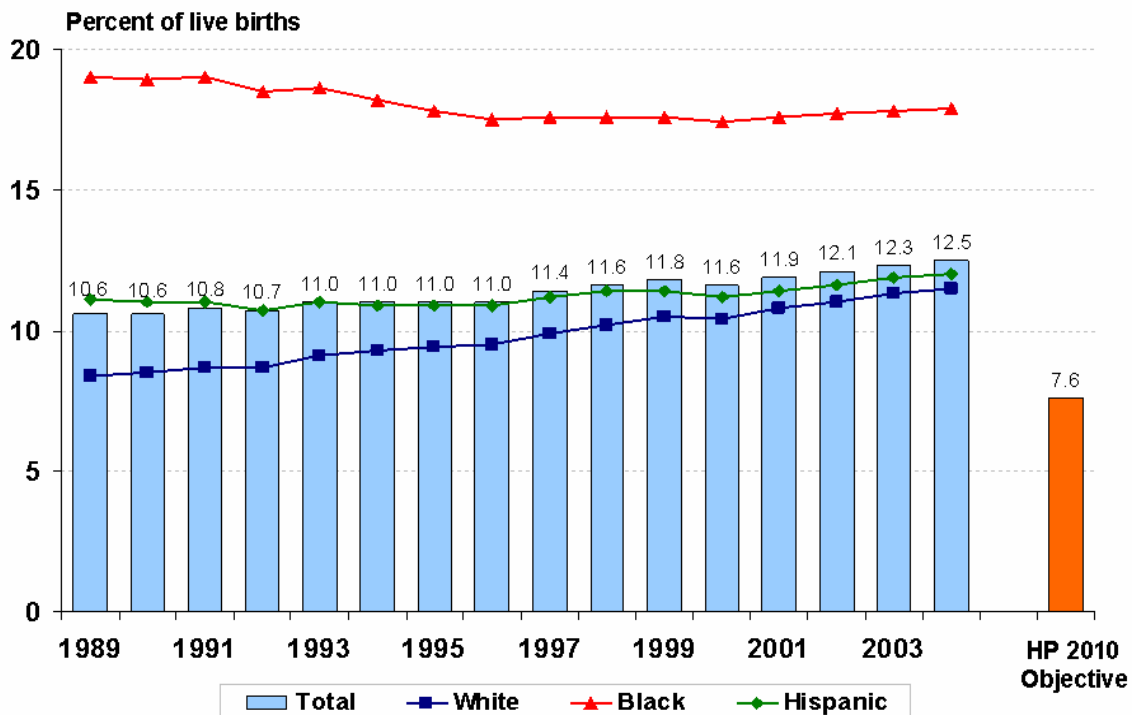
Born Too Soon: *Premature Birth in the U.S. Black Population*

A History of Addressing Racial/Ethnic Disparities

Population disparities in health outcomes, including racial and ethnic disparities, have been a public health concern for decades and have been relevant since the early days of the March of Dimes when it was known as the National Foundation for Infantile Paralysis. During that time when polio was a great problem, the Foundation facilitated the provision of appropriate medical care to black children and adults who were stricken with polio, mainly through the effective outreach efforts of Charles H. Bynum, a prominent black civil rights leader and educator who served as the Director of Interracial Activities for the Foundation. The Foundation's successes in providing equal access to care for black polio patients during this era of segregation led to renewed efforts to address racial and ethnic disparities when it changed its mission from polio to the prevention of birth defects and infant mortality in 1958.

While polio has been eradicated in the United States, racial/ethnic disparities in many health outcomes persist.¹ As the March of Dimes now focuses on the problem of babies who are born too soon and too small, we are working hard to address population disparities, in particular the excessively high rate of premature birth among black infants.

Figure 1: Preterm Births by Race/Ethnicity, U.S., 1989-2004



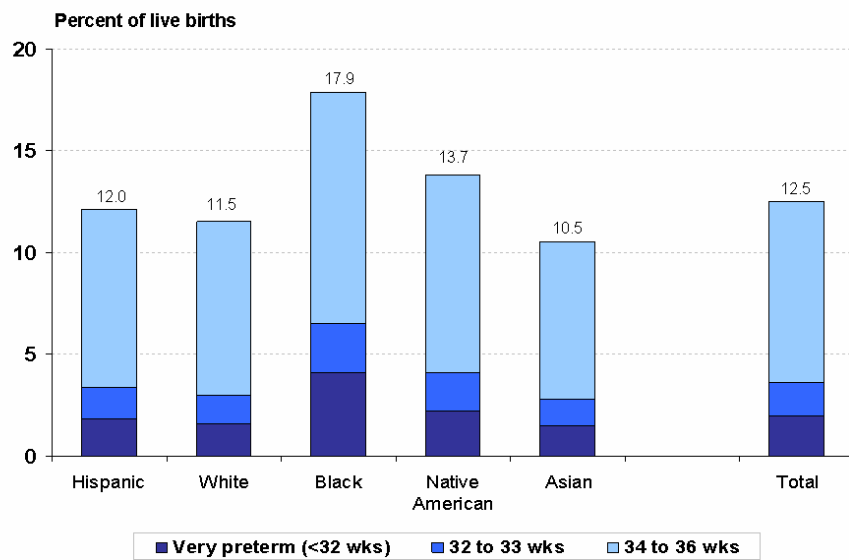
Source: National Center for Health Statistics, final natality data.
 Note: All race categories exclude Hispanic births.
 Prepared by the March of Dimes Perinatal Data Center.

One in Six Black Babies Born Preterm

Premature (or preterm) birth -- when a baby is born before the 37th completed week of pregnancy -- is the leading obstetric problem impacting both mothers and babies in the United States. While infant mortality has reached historic lows, preliminary 2005 data show that more than half a million babies were born premature in the U.S. (1 in 8 babies or 12.7% of live births).² Approximately 100,000 infants were born premature to black mothers*, which translates into a stark reality that more than 1 in 6 black infants was born premature.³ Over the past decade, preterm birth rates have fallen slightly among black infants, but this decline masks a small increase in the preterm birth rate over the past five years -- from 17.4% in 2000 to 17.9% in 2004. The reasons for this disturbing trend have not been clearly identified (Figure 1).

Black infants also have a greater chance of being born very preterm (less than 32 completed weeks of gestation) (Figure 2). In 2004, 4.1% of black infants were born very preterm, compared to 1.8% of Hispanic infants, 1.6% of white infants, 2.2% of Native American infants and 1.5% of Asian infants. Very preterm infants face the highest risk for death and serious lifelong disabilities.

Figure 2: Preterm Births by Gestational Age and Race/Ethnicity, U.S., 2004



Source: National Center for Health Statistics, final natality data, 2004.
 Note: All race categories exclude Hispanic births.
 Prepared by the March of Dimes Perinatal Data Center.

There is also considerable variation in the preterm birth rate among black infants by geography (Table 1). Using data aggregated from 2002 to 2004, the three states with the lowest rate of premature birth were Idaho (9.9%), Vermont (11.8%), and South Dakota (12.3%). The three states with highest rates of premature birth were Mississippi (21.8%), Alabama (21.1%), and Louisiana (20.1%). For very preterm births, the states with the lowest rates were South Dakota (1.4%), Alaska (2.1%) and Oregon (2.5%), and the states with the highest rates were Alabama (4.9%) and Mississippi (4.7%). North Carolina, District of Columbia, and Louisiana were tied for third highest at 4.6%. These and other data presented in this report are available and easily retrievable at the March of Dimes PeriStats Web site --- marchofdimes.com/peristats.

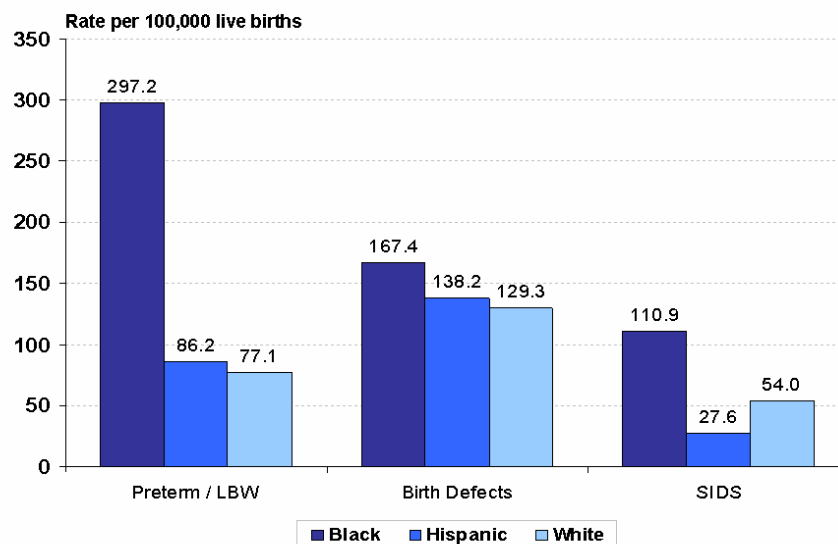
* All race categories exclude Hispanic births.

Consequences of Preterm Birth

Since 1999, prematurity/low birthweight has been the leading cause of neonatal mortality (death in the first month of life) in the U.S., surpassing birth defects.⁴ In addition, prematurity is the second leading cause of infant death (first year of life) in the U.S. and the leading cause of death among black infants.⁵ In 2004, the mortality rate among black infants was 13.6 infant deaths per 1,000 live births – more than two times higher than white infants (5.7) and Hispanic infants (5.6).⁵ As Figure 3 shows, prematurity plays a disproportionate role in black infant mortality. According to the National Center for Health Statistics, 28% of the elevated infant mortality among black infants when compared to white infants can be accounted for by their higher rate of low birthweight.⁵ While cause of death reporting attributes 22% of black infant deaths directly to prematurity,⁵ a new method⁶ with improved sensitivity for accounting for prematurity-related infant deaths suggests that prematurity may play a greater role, contributing to 46% of black infant deaths in 2004.⁵

In addition to being the leading cause of infant death among black babies, premature birth is a major contributor to infant and childhood morbidity for all infants. Currently available medical interventions and treatments are not sufficient to protect many premature babies from lifelong disabilities such as cerebral palsy, mental retardation, and learning problems. Even those babies born late preterm – between 34 and 36 weeks gestation – are at greater risk for serious health problems^{7,8} related to brain development,⁹ breathing,^{10,11,12,13,14,15} and feeding.^{16,17}

Figure 3: Leading Causes of Infant Death by Race/Ethnicity, U.S., 2004



Source: National Center for Health Statistics, period linked infant death data, 2004.
 Note: All race categories exclude Hispanic births.
 Prepared by the March of Dimes Perinatal Data Center.

There are also substantial economic costs associated with premature birth. Premature infants are more likely to require care in a neonatal intensive care unit and their average length of stay in the hospital is longer: 13 days on average for a preterm infant compared to 1.5 days for a full term infant.¹⁸ A recent Institute of Medicine report, supported by the March of Dimes, estimated the annual U.S. medical, educational and lost productivity costs associated with preterm birth to be at least \$26.2 billion in 2005.¹⁸ Costs associated with low birthweight and preterm birth extend well beyond the first few weeks of life.¹⁹



Eliminating Disparities in Preterm Birth

A U.S. Department of Health and Human Services Healthy People 2010 objective is to reduce the rate of preterm birth to no more than 7.6% of live births. While the rate among black infants has the furthest to go to meet this target, no racial/ethnic group is close.²⁰ In 1994, the rate of preterm birth among black infants was 18.2%, nearly twice the rate of premature birth among white (9.3%) and more than 1½ times the rate among Hispanic infants (10.9%). While the disparity in preterm birth rates observed in 1994 has improved, this is mostly due to increasing preterm birth rates among white infants. Figure 1 shows that in 2004 black infants were about 1½ times as likely to be born preterm as white infants (11.5%). One of the priority recommendations of the Institute of Medicine report mentioned above was to investigate racial/ethnic and socioeconomic disparities in the rates of preterm birth.¹⁸

Understanding Disparities

There is ongoing research to understand the factors that contribute to disparities in perinatal outcomes. Some areas that have been considered are: infections and inflammation (e.g., urogenital,²¹ periodontal disease²²), effects of stress/racism,^{23,24} socioeconomic status,^{25,26} clotting abnormalities,^{27,28} nutritional factors,²⁹ and genetic predispositions.³⁰ Compared to non-U.S.-born, U.S.-born residents have been shown to have higher rates of preterm birth and low birthweight.^{18,31,32} While race is often discussed as proxy for socioeconomic status, differences in preterm birth by race/ethnicity cannot be attributed exclusively to differences in socioeconomic status.¹⁸

Although none of the identified factors fully explains racial/ethnic disparities in preterm birth, multidisciplinary approaches that examine the relationship between social and biologic factors may enhance progress to explain the differences in preterm birth rates and ultimately lead to promising interventions. Research in these areas and on gene-environment interactions appears to be providing invaluable insights into underlying mechanisms and may shed new light on these discussions.^{33,34}

March of Dimes Strategies and Action Steps

To accomplish the mission of the March of Dimes and to achieve the goals of the Prematurity Campaign, the Foundation exerts special effort toward understanding the causes of preterm birth and addressing the needs of populations at high risk of delivering too soon and too small. A variety of current March of Dimes activities at the local and national levels demonstrate our commitment to eliminating disparities in preterm birth rates. These include raising public awareness through partnerships with media outlets that serve black audiences, and providing chapter community programs and grants in communities at high risk of adverse outcomes. Annually, the March of Dimes reaches thousands of health professionals with continuing education opportunities such as the Grand Rounds lecture series and conferences. The Foundation also advocates for legislation to increase access to health insurance coverage.

The March of Dimes has been committed to helping find the answers, not currently available in the biomedical literature, by funding epidemiologic and basic science research on the causes of premature birth and potential theories for racial/ethnic disparities. One program – the “Perinatal Epidemiological Research Initiative” (PERI) – has provided grants totaling nearly \$9 million to investigate the social determinants and biologic markers associated with preterm labor and delivery. Research by PERI grantee Dr. Claudia Holzman at Michigan State University has shown that factors associated with an increase in physiological measures of stress (specifically, CRH in the second trimester of pregnancy) is associated with an increased risk of preterm birth, particularly for black women.³⁵

A more recent program – the “Prematurity Research Initiative” – has already invested nearly \$8 million in research grants to understand biological mechanisms underlying preterm births. The research funded through these grants covers a breadth of topics on prematurity with a focus on maternal and fetal genetics



and the biological triggers of preterm and term labor. Dr. Jerome F. Strauss at Virginia Commonwealth University is particularly interested in the high premature birth rates among African Americans. His research is designed to identify gene markers in the fetus and newborn that predict prematurity and adverse newborn outcomes after preterm birth. Dr. Martin Kharrazi with the Genetic Disease Branch of the California Department of Health has also focused his research on the role of maternal and fetal genetics in controlling the inflammatory response to infections and the impact that genetic variations could have on very preterm births among African Americans, non-Hispanic whites and Mexican Americans.

Other March of Dimes grantees have pursued important new theories and research directions, including Dr. James Collins, who has published work showing that low income African American women living in Chicago who reported experiences of racial discrimination during pregnancy were twice as likely to deliver very low birthweight/preterm births.²⁴

The March of Dimes, through its chapters, is also supporting six pilot projects to empower individuals and communities to address racial disparities in birth outcomes through strategies such as: patient and provider education, community health workers, enhancement of patient-provider communication and trust, social marketing campaigns, and community outreach including faith-based initiatives. These pilots are located in California, Florida, Pennsylvania, Illinois, South Carolina and Texas. Based on the findings from this pilot phase, new sites will be chosen to replicate the models of group prenatal care, interconception care for high risk women and community education in a variety of settings. Through this program, the March of Dimes plans to enhance national and local initiatives to improve the health and well-being of minority women before, during and after pregnancy and to reduce adverse reproductive outcomes.

Conclusion

Premature birth is a major problem in the U.S., and disproportionately impacts black families. Baseline data have been provided to give an overview of some of the issues that require immediate attention if progress is to be realized. The March of Dimes, with its committed volunteers, staff and grant supported basic, clinical and social scientists, is striving to work with all communities to increase awareness of the persistent disparities in premature birth, working to reduce risk factors for mothers and newborns, and helping all babies get a healthy start in life.

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Table 1: Preterm and Very Preterm Births by State and Race/Ethnicity, 2002-2004

	<u>Preterm Births</u>				<u>Very Preterm Births</u>			
	Non-Hispanic		Non-Hispanic	All Births	Non-Hispanic		Non-Hispanic	All Births
	Hispanic	White	Black		Hispanic	White	Black	
United States	11.8	11.3	17.8	12.3	1.7	1.6	4.0	2.0
Alabama	13.9	13.6	21.1	15.9	2.0	1.9	4.9	2.9
Alaska	9.7	8.7	13.7	10.5	1.3	0.9	2.1	1.3
Arizona	13.1	12.4	17.9	13.0	1.8	1.5	3.3	1.7
Arkansas	10.9	12.0	17.5	12.9	1.4	1.7	3.9	2.1
California	10.6	9.6	15.1	10.5	1.5	1.3	3.1	1.5
Colorado	12.7	11.5	16.9	12.1	2.1	1.6	4.1	1.8
Connecticut	10.7	9.3	13.5	9.9	2.2	1.4	3.9	1.8
Delaware	12.2	12.2	17.7	13.5	1.7	1.9	4.1	2.4
District of Columbia	13.2	8.7	17.5	14.6	2.2	1.1	4.6	3.4
Florida	11.9	11.7	18.0	13.1	1.7	1.6	4.0	2.1
Georgia	9.4	11.6	16.6	12.8	1.4	1.5	3.4	2.1
Hawaii	13.2	10.5	15.3	12.8	1.9	1.6	3.3	2.1
Idaho	11.3	10.6	9.9	10.7	1.9	1.4	3.4	1.5
Illinois	11.7	11.7	18.8	12.8	1.9	1.8	4.5	2.3
Indiana	12.2	12.2	18.4	12.9	1.9	1.8	4.1	2.1
Iowa	12.6	11.3	16.7	11.6	2.0	1.7	3.5	1.8
Kansas	10.8	11.2	16.3	11.4	1.6	1.5	3.5	1.7
Kentucky	14.1	13.5	19.0	14.0	2.0	2.0	4.3	2.2
Louisiana	12.4	12.3	20.1	15.4	1.8	1.6	4.6	2.8
Maine	7.6	10.3	13.4	10.3	1.8	1.6	2.9	1.6
Maryland	12.4	11.1	17.0	13.1	1.8	1.6	4.2	2.5
Massachusetts	11.3	10.3	15.3	10.8	2.0	1.5	3.5	1.8
Michigan	10.8	10.8	18.1	12.0	1.8	1.6	4.4	2.1
Minnesota	9.4	9.9	12.6	10.2	1.3	1.3	3.0	1.5
Missouri	12.2	11.9	19.6	13.0	2.0	1.7	4.4	2.1
Mississippi	14.1	14.5	21.8	17.7	2.1	1.9	4.7	3.1
Montana	11.1	10.8	15.6	11.4	1.4	1.5	3.9	1.6
Nebraska	11.7	11.7	16.4	12.0	1.6	1.7	3.9	1.8
Nevada	13.1	12.3	19.4	13.3	1.7	1.6	3.7	1.8
New Hampshire	8.2	9.7	14.3	9.6	1.2	1.4	4.0	1.5
New Jersey	12.6	10.9	17.4	12.2	2.1	1.6	4.3	2.1
New Mexico	12.8	11.6	17.7	12.6	1.8	1.8	3.4	1.9
New York	12.0	10.0	16.0	11.5	2.0	1.5	3.8	2.0
North Carolina	11.8	11.9	18.7	13.5	1.7	1.8	4.6	2.4
North Dakota	10.8	11.6	13.7	11.9	1.7	1.7	4.2	1.8
Ohio	12.3	11.5	17.5	12.4	2.0	1.7	4.0	2.0
Oklahoma	11.8	12.2	17.4	12.7	1.7	1.8	3.5	1.9
Oregon	9.8	9.9	13.1	10.0	1.3	1.3	2.5	1.3
Pennsylvania	13.0	10.5	17.0	11.6	2.4	1.7	4.0	2.1
Rhode Island	12.8	10.5	15.5	11.6	2.3	1.8	3.4	2.1
South Carolina	11.7	12.6	19.5	14.8	1.8	1.8	4.5	2.7
South Dakota	10.6	10.5	12.3	11.2	1.3	1.3	1.4	1.5
Tennessee	11.2	13.2	18.7	14.1	1.3	1.9	4.1	2.3
Texas	13.4	12.6	18.8	13.6	1.9	1.7	3.9	2.0
Utah	11.6	10.3	17.0	10.6	1.7	1.2	3.1	1.3
Vermont	7.8	8.9	11.8	8.9	n/a	1.3	3.3	1.3
Virginia	10.8	10.7	16.8	12.0	1.6	1.5	3.8	2.0
Washington	10.5	9.6	13.5	10.1	1.6	1.3	2.8	1.5
West Virginia	13.0	13.4	18.0	13.5	2.1	1.9	3.6	2.0
Wisconsin	10.6	10.4	17.5	11.1	1.9	1.5	4.3	1.8
Wyoming	13.2	11.3	12.6	11.7	1.9	1.6	3.8	1.7

Source: National Center for Health Statistics, final natality data, 2002-2004.
Retrieved July 10, 2007 from www.marchofdimess.com/peristats.