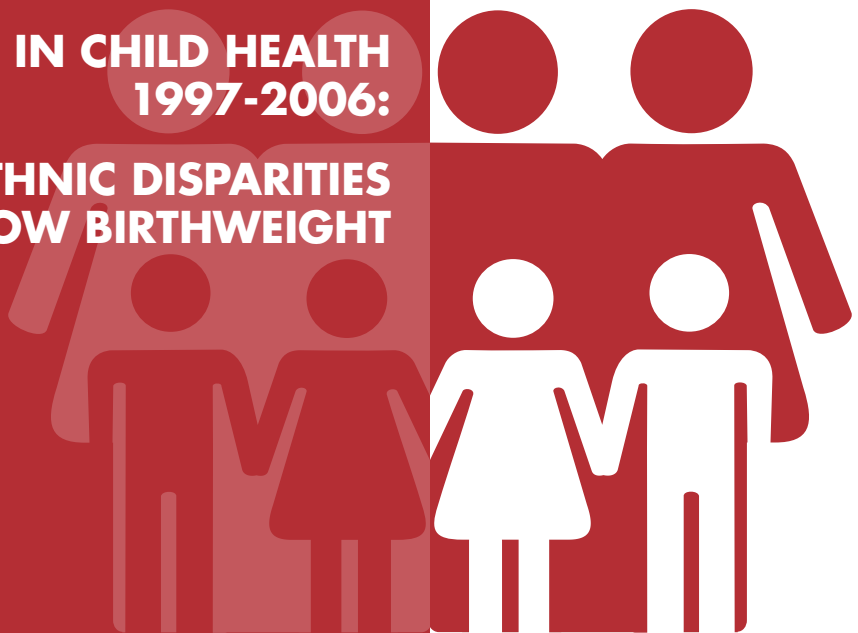


**TRENDS IN CHILD HEALTH
1997-2006:**

**ASSESSING RACIAL/ETHNIC DISPARITIES
IN LOW BIRTHWEIGHT**



**WILHELMINA A. LEIGH, PH.D.
ANNA L. WHEATLEY**

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FOREWORD

The health of children is a direct reflection and a critical measure of a nation's overall quality of life. For that reason, the persistent disparities in child health indicators across racial and ethnic lines—such as the fact that nearly twice as many black children as white children are born low-weight—should raise concern in every American community. Our country can do and be better than this.

Promoting greater knowledge and understanding of these disparities is a key objective of the Joint Center for Political and Economic Studies, which, with generous support from the W.K. Kellogg Foundation, has analyzed data for selected indicators on the health of children and has examined trends over time (1997-2006). These indicators—specifically, low birthweight, rated health status, unmet dental care need, ADHD/ADD diagnosis, asthma diagnosis, learning disability diagnosis and activity limitation—provide insight into an array of factors that can influence health and quality of life throughout the lifespan.

The findings from this analysis are presented in a series of issue briefs, each of which highlights differences in health outcomes by race/ethnicity (for black, white and Hispanic children). In this brief, disparities in the prevalence of low birthweight among African American children, Hispanic children and white children are explored.

I would like to extend a special thanks to Dr. Wilhelmina Leigh of the Joint Center and her research assistant, Anna L. Wheatley. Their work, along with that of many other Joint Center staff members, has produced a series of briefs that will prove invaluable to our national policymakers as they look to improve our health care system. In particular, we hope that the information herein will help them in their efforts to craft new policies and programs that will deliver the broadest possible benefits and, at the same time, have the greatest impact on expanding hope, opportunity and improving the quality of life for all Americans.

Ralph B. Everett
President and CEO
Joint Center for Political and Economic Studies

Low-weight babies are born weighing less than 5 pounds, 8 ounces (or 2,500 grams) (US DHHS 2008). Because babies born low-weight are at increased risk for serious health problems or even death, low birthweight is widely used as an indicator of infant health. Low birthweight has been linked to certain chronic conditions in adulthood, such as hypertension, Type 2 diabetes and heart disease (March of Dimes 2008). It has also been associated with adult outcomes such as educational attainment, later pregnancy complications and the birthweight of the next generation (Royer 2009). About one in every 12 babies in the United States is born low-weight (Martin et al. 2007). Children of African American women are the most likely to be born low-weight. The rate of low-weight births to Puerto Rican women is second to that for African American women, indicating that these Hispanic children also are at increased risk for associated health problems (Martin et al. 2007).

This brief examines the prevalence of low birthweight among children under the age of 18 who are African American, Hispanic or white. Differences between and similarities among the groups are noted in the frequency with which low birthweight occurs. This analysis makes comparisons between the racial/ethnic groups of children overall and between children of various racial/ethnic groups in families with comparable sociodemographic characteristics.

METHODOLOGY

Birthweight data from the National Health Interview Survey (NHIS) for the years 1997 through 2006 were used to compare non-Hispanic white (white) children, non-Hispanic black (black) or African American children and Hispanic (Latino) children under age 18. The NHIS collects data for the major Hispanic subpopulations (Mexican American, Puerto Rican and Cuban) as well as for all the Hispanic subpopulations combined. Of these three Hispanic subgroups, the health outcomes for Puerto Ricans are generally less robust than for the other two groups. The data for Hispanic subpopulations were not used, however, because of small sample sizes in each year between 1997 and 2006. Thus, the data analyzed for Hispanic children combine children of the various Latino subpopulations.

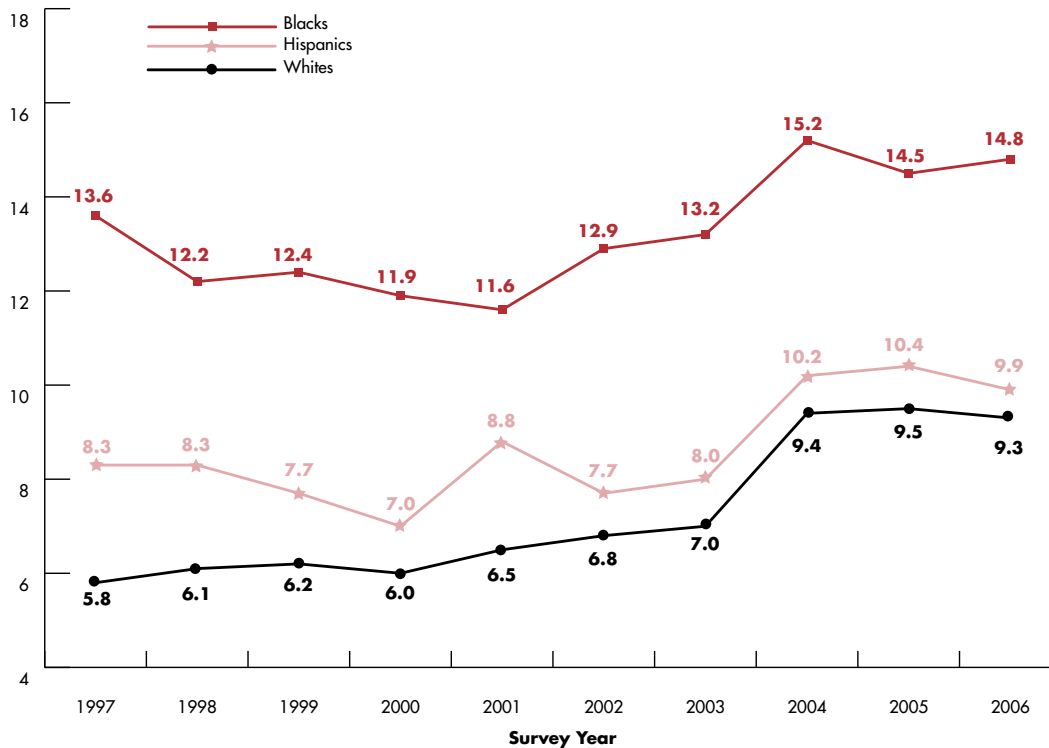
Comparisons of the percent of children with low birthweight were made between African Americans and whites, African Americans and Hispanics, and whites and Hispanics using NHIS data collected in each year between 1997 and 2006. Then, to examine the ways in which differences in sociodemographic (i.e., socioeconomic, familial and demographic) characteristics are associated with differences in the prevalence of low-weight births between children belonging to pairs of races/ethnicities, children in families with characteristics corresponding to the following nine sociodemographic variables were compared.

- Region of residence—Northeast; North Central; South; West
- Legal marital status (of householder)—Married; Widowed, divorced, separated, never married or unknown
- Family type—Married-couple; Single-parent
- Educational attainment (of householder/spouse)—Less than high school; High school; Some college; Bachelor's degree (or higher)
- Employment status (of household)—Zero-earner; Single-earner; Two-earner
- Poverty status (of household or individual)¹—At or above poverty; Below poverty
- Private health insurance coverage status (of child)—Not covered; Covered

¹ The federal poverty threshold is determined by the U.S. Census Bureau, which uses a set of “money income” thresholds that vary by family size and ages of the members to determine who is in poverty. The official poverty thresholds are updated annually for inflation using the Consumer Price Index for All Urban Consumers (CPI-U). For example, in 2006, the poverty threshold for a family of four, including two related children under age 18, was \$20,444. If a family of this composition has an income below this threshold, they are officially considered to be in poverty (U.S. Census Bureau 2008).



Figure 1
Children born low-weight, by race/ethnicity, 1997-2006
(Percent)



Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

- Medicaid coverage status (of child)—Not covered; Covered
- Health insurance coverage status (of child)—Not covered; Covered

These nine sociodemographic variables include a total of 23 categories and thus provide 23 subgroups of children for comparison.

The statistical significance of gaps in the prevalence of low-weight births between black children and white children, between Hispanic children and white children and between black children and Hispanic children was assessed using t-tests of differences of proportions with 90-percent confidence intervals.² The difference in low-weight prevalence between paired groups of children was determined to be significant if the gap was significant in at least seven years (out of the 10 years 1997 through 2006). The term “indeterminate” is used to characterize gaps that are neither significant nor insignificant in a majority of years during the study period.

² For additional information about the tests of significance conducted at both the 90-percent confidence level and the 95-percent confidence level, contact Wilhelmina Leigh at wleigh@jointcenter.org.



FINDINGS

Over the 1997-2006 period, it was reported that 13.2 percent of black children had low birthweight, compared to only 7.2 percent of white children and 8.7 percent of Latino children (**Figure 1**). Our findings show that black children are significantly more likely than white children to have been born low-weight. Black children are also significantly more likely than Hispanic children to have been born low-weight. It is indeterminate whether the difference between low birth-weight rates for white children overall and Hispanic children overall is significant. Thus, it is unclear whether these two groups of children are equally likely to have been born low-weight, or whether one ethnic group is significantly more likely than the other to have been born low-weight.

Gaps by Sociodemographics

Even when cross tabulated by sociodemographic variables, rates of low-weight births for black children remain consistently higher than those for whites and for Hispanics. In a majority of sociodemographic subgroups, when black children and white children are compared, black children are more likely than white children to have been born low-weight (**Table 1**).

Table 1
Black-White Differences in Low Birthweight by Sociodemographic Variables

Sociodemographic Variables	Findings
Region of residence: South	Black children who live in the South are more likely than white children who live in the South to have been born low-weight.
Marital status: married	Black children in families in which householder's marital status is married are more likely than white children in this same type of family to have been born low-weight.
Marital status: 'widowed, divorced, separated, never married or unknown'	Black children in families in which the householder's marital status is widowed, divorced, separated, never married or unknown are more likely than white children in this same type of family to have been born low-weight.
Family type: married-couple	Black children in married-couple families are more likely than white children in this same type of family to have been born low-weight.
Family type: single-parent	Black children in single-parent families are more likely than white children in this same type of family to have been born low-weight.
Educational attainment: high school	Black children in families in which the educational attainment of the householder/spouse is high school are more likely than white children in this same type of family to have been born low-weight.
Educational attainment: some college	Black children in families in which the educational attainment of the householder/spouse is some college are more likely than white children in this same type of family to have been born low-weight.
Educational attainment: Bachelor's degree (or higher)	Black children in families in which the educational attainment of the householder/spouse is a Bachelor's degree or higher are more likely than white children in this same type of family to have been born low-weight.
Employment status: zero-earner household	Black children in zero-earner households are more likely than white children in zero-earner households to have been born low-weight.



Sociodemographic Variables	Findings
Employment status: single-earner household	Black children in single-earner households are more likely than white children in single-earner households to have been born low-weight.
Poverty status: at or above poverty threshold	Black children in families with incomes at or above the poverty threshold are more likely than white children in this same type of family to have been born low-weight.
Private insurance coverage status: not covered	Black children who are not privately insured are more likely than white children who are not privately insured to have been born low-weight.
Private insurance coverage status: covered	Black children who are privately insured are more likely than white children who are privately insured to have been born low-weight.
Medicaid coverage status: not covered	Black children who are not covered by Medicaid are more likely than white children who are not covered by Medicaid to have been born low-weight.
Any health insurance coverage status: covered	Black children who are covered by any form of health insurance are more likely than white children who are covered by any form of health insurance to have been born low-weight.

Latino children and white children in each of the sociodemographic subgroups included in this study, however, are equally likely to have been born low-weight. When black children and Hispanic children are compared, on the other hand, in many of the sociodemographic subgroups, black children are more likely than Hispanic children to have been born low-weight (Table 2).

Table 2
Black-Hispanic Differences in Low Birthweight by Sociodemographic Variables

Sociodemographic Variables	Findings
Region of residence: South	Black children who live in the South are more likely than Hispanic children who live in the South to have been born low-weight.
Marital status: married	Black children in families in which the householder's marital status is married are more likely than Hispanic children in this same type of family to have been born low-weight.
Marital status: 'widowed, divorced, separated, never married or unknown'	Black children in families in which the householder's marital status is widowed, divorced, separated, never married or unknown are more likely than Hispanic children in this same type of family to have been born low-weight.
Family type: married-couple	Black children in married-couple families are more likely than Hispanic children in this same type of family to have been born low-weight.



Sociodemographic Variables	Findings
Educational attainment: less than high school	Black children in families in which the educational attainment of the householder/spouse is less than high school are more likely than Hispanic children in this same type of family to have been born low-weight.
Employment status: single-earner household	Black children in single-earner households are more likely than Hispanic children in single-earner households to have been born low-weight.
Poverty status: at or above poverty threshold	Black children in families with incomes at or above the poverty threshold are more likely than Hispanic children in this same type of family to have been born low-weight.
Private insurance coverage status: not covered	Black children who are not privately insured are more likely than Hispanic children who are not privately insured to have been born low-weight.
Medicaid coverage status: not covered	Black children who are not covered by Medicaid are more likely than Hispanic children who are not covered by Medicaid to have been born low-weight.
Any health insurance coverage status: covered	Black children who are covered by any form of health insurance are more likely than Hispanic children who are covered by any form of health insurance to have been born low-weight.

Family Structure

In particular, in families headed by a married householder and in families headed by a householder whose marital status is widowed, divorced, separated, never married or unknown, black children are more likely than white children (in families of the same householder marital status) to have been born low-weight (**Table 1**). African American children are also more likely than Hispanic children to have been born low-weight for both measures of householder marital status (**Table 2**).

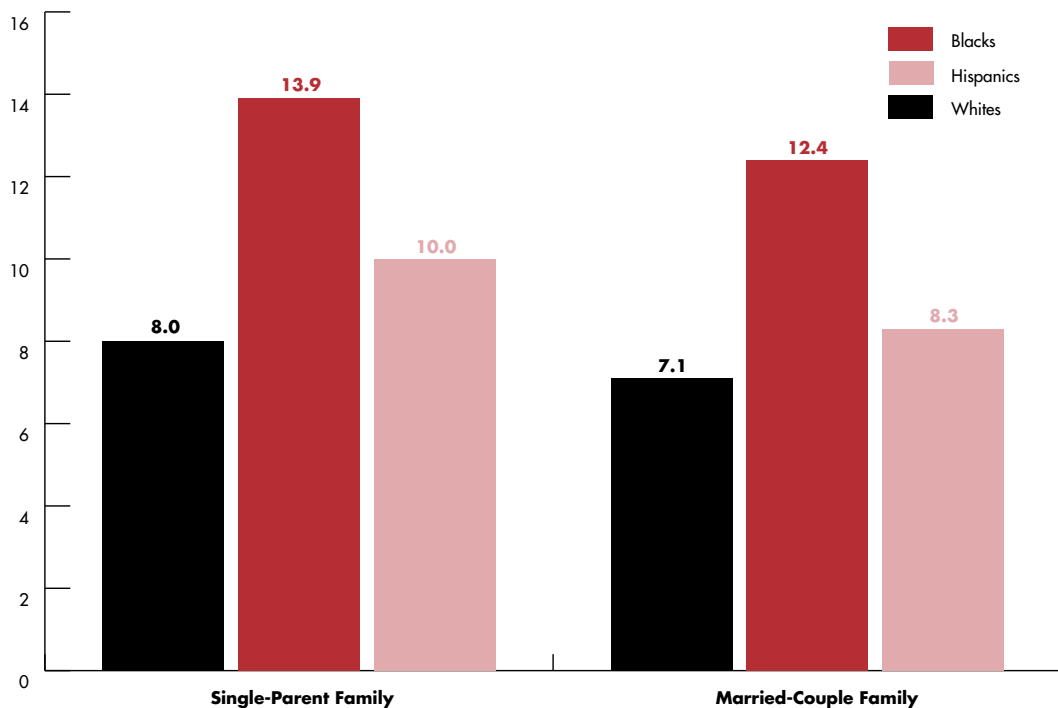
The birthweight disparity between black children and white children also is evident for both measures of family type—married-couple and single-parent (**Figure 2**). In other words, neither householder marital status nor family type makes a difference in the significance of the gap between the percent of low-weight births among black children and white children. When comparing black children and Latino children, however, a significant birth-weight disparity is evident for married-couple families only. The relationship is indeterminate when comparing black children and Hispanic children in single-parent families.

These findings suggest a twist on the historical association between marital status and birthweight. For example, in 1992, the rate of low-birthweight babies among unmarried mothers was 10.4 percent, compared to 5.7 percent among married mothers (Reichman 2005). For African American children, the high prevalence of low birthweight seems to persist regardless of family structure. For white children and Hispanic children, a lower prevalence seems to persist regardless of family structure.

Region of Residence

When low-birthweight data are cross tabulated by region of residence, black children who live in the South are more likely to have been born low-weight than both white children and Hispanic children who live in the South. Findings from the other

Figure 2
Children born low-weight, by family type and by race/ethnicity, 1997-2006 average
(Percent)



Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

regions are less definitive, however. The gaps between the percent of African American children and the percent of white children born low-weight in the Northeast and in the North Central regions are indeterminate. (The size of the sample that is the basis for the low-birthweight rate calculation among black children in the West is so small that the comparison for that region is not reported.) Thus, as a geographic indicator, region of residence seems not to explain much of the difference in the prevalence of low-weight births.

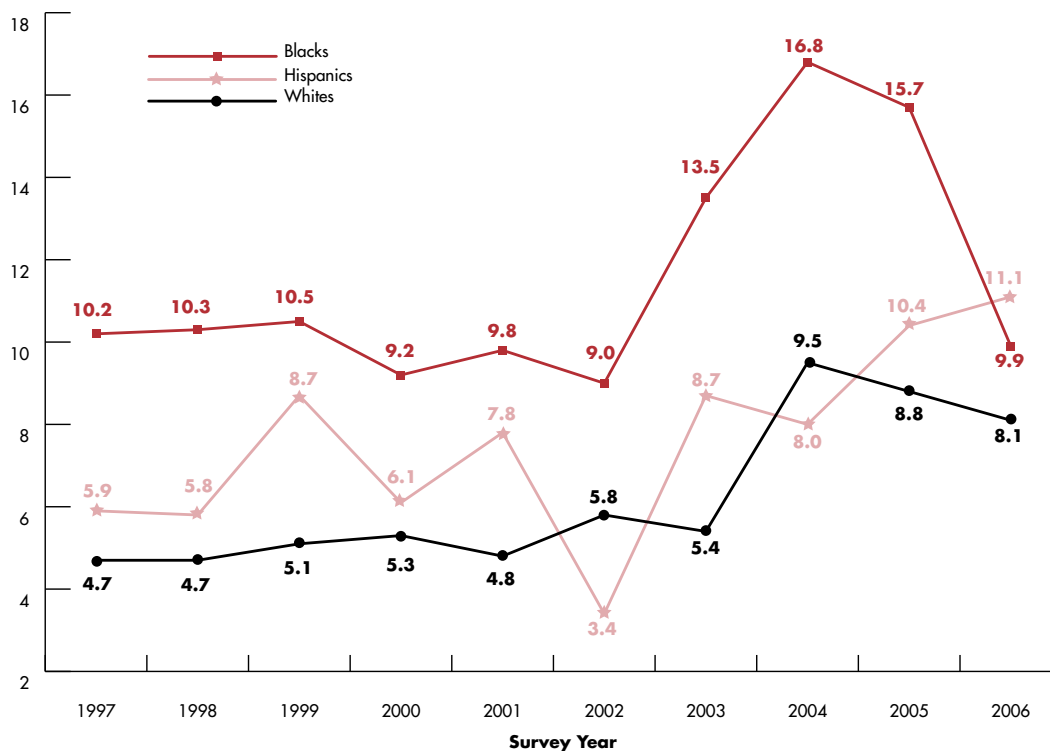
Educational Attainment

Educational attainment appears to play an important role in explaining racial/ethnic disparities in the prevalence of low-weight births. Among children in families in which the householder/spouse did not complete high school, black children and white children are equally likely to have been born low-weight. Among children in this same type of family, however, black children are *more* likely than Hispanic children to have been born low-weight.

At higher levels of educational attainment, however, the prevalence of low birthweight differs between black children and white children. In families in which the householder/spouse has any of the following levels of educational attainment—high school, some college education or Bachelor’s degree (or higher)—black children are more likely than white children in the same type of family to have been born low-weight. For example, black children in families in which the householder/spouse has a Bachelor’s degree (or higher) are more likely to have been born low-weight than white children in families in which the householder/spouse has a Bachelor’s degree (or higher) (**Figure 3**). The rates of low-weight births are not significantly



Figure 3
Children born low-weight in families in which householder/spouse earned a Bachelor's degree or higher, by race/ethnicity, 1997-2006
(Percent)



Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

different between black children and Hispanic children in families in which the householder/spouse has a Bachelor's degree (or higher).

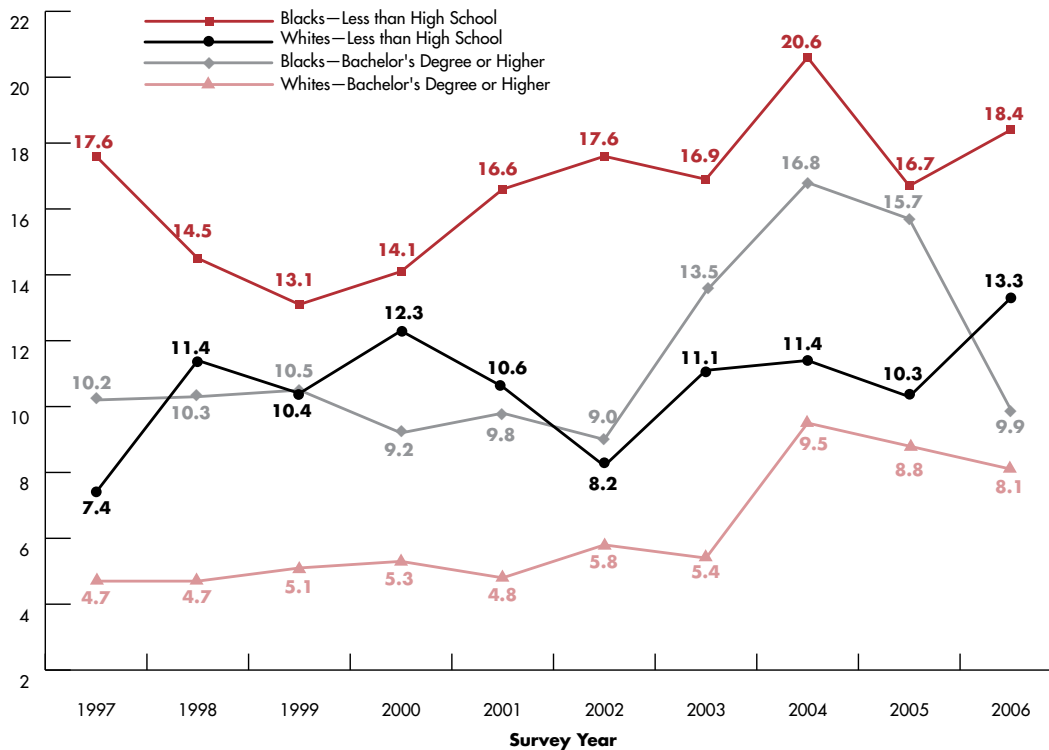
Data for black children and white children in families whose householder/spouse is a high school dropout and in families whose householder/spouse has a Bachelor's degree (or higher) are combined in **Figure 4**. As **Figure 4** shows, black children in families in which the householder/spouse did not complete high school had the highest rates of low-weight birth during the study period. White children in families in which the householder/spouse earned a Bachelor's degree (or higher) had the lowest rates of low-weight birth during the study period. Interestingly, black children in families in which the householder/spouse earned a Bachelor's degree (or higher) have similar low-birthweight outcomes to white children in families in which the householder/spouse did not complete high school.

Data for black children and Hispanic children in families whose householder/spouse did not complete high school and in families whose householder/spouse has a Bachelor's degree (or higher) are combined in **Figure 5**. As **Figure 5** shows, black children in families in which the householder/spouse did not complete high school had the highest rates of low-weight birth during the study period. Thus, black children in these families are more likely to have been born low-weight than black children in families in which the householder/spouse earned a Bachelor's degree (or higher) and than Hispanic children in families whose householder/spouse has either of these two levels of educational attainment.



Figure 4

Children born low-weight, by educational attainment of householder/spouse, by race, 1997-2006 (Percent)



Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

Health Insurance

Health insurance coverage did not appear to reduce the risk of low birthweight. For example, private health insurance coverage status seems to make no difference in the prevalence of low birthweight among black children relative to white children. Black children both with and without private health insurance coverage are more likely than white children (with and without private health insurance, respectively) to be born low-weight.

Even among children who are covered by any form of health insurance, black children are more likely than both white children and Latino children to have been born low-weight. Of black children with any form of health insurance, 13.2 percent were low-weight at birth, compared to only 7.3 percent of comparable white children and 8.5 percent of comparable Hispanic children (Figure 6). These gaps are noteworthy in that adequate and timely prenatal care is believed to be important for healthy pregnancies and birth-weight outcomes for infants (Martin et al. 2007).

Moreover, the rates of children who lack any form of health insurance and who were born low-weight (i.e., 12.8 percent of blacks, 9.6 percent of Hispanics and 7.8 percent of whites) are almost identical to the corresponding rates for black children and white children who are insured. This finding suggests that health insurance coverage may not fully explain the substantial racial/ethnic differences in birth-weight outcomes.



Figure 5
Children born low-weight, by educational attainment of householder/spouse,
by race/ethnicity, 1997-2006
(Percent)



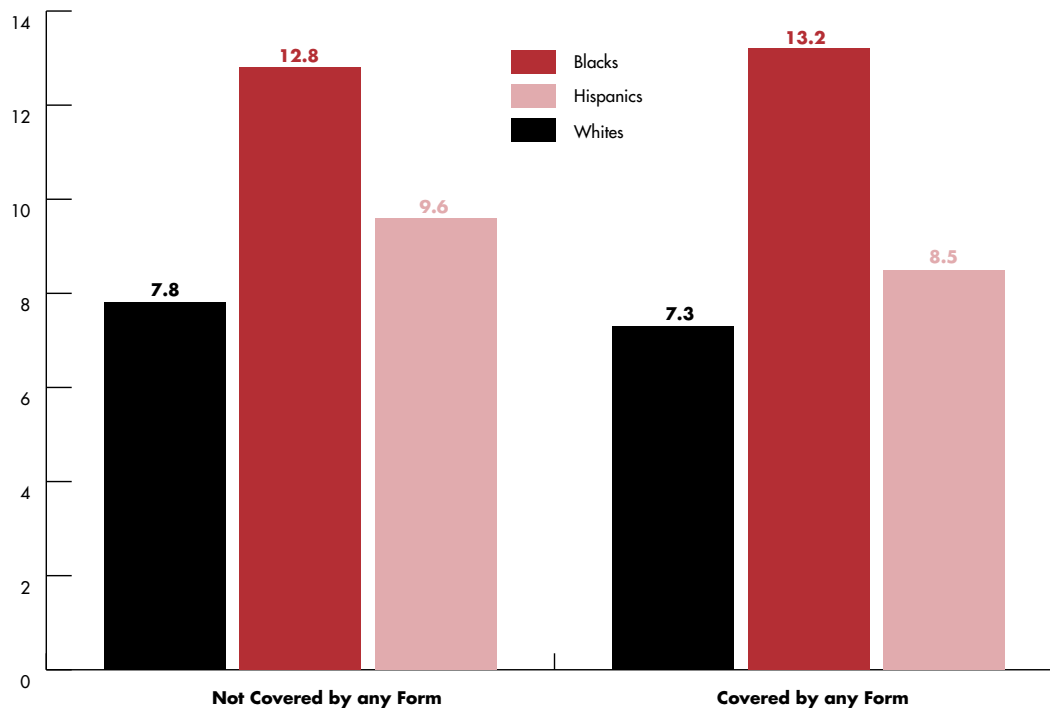
Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

IMPLICATIONS

One would expect that children born into settings with equal educational attainment, within married relationships, with the same poverty status and with access to insurance coverage (and thereby presumably equal access to and receipt of proper care during pregnancy) would have similar birth outcomes—or would not have significantly different outcomes. Our results indicate, however, that large disparities exist between blacks and whites in the prevalence of low-weight births across many subgroups, even among children in families with relatively advantaged sociodemographic characteristics.

Our analysis shows that in families with generally low sociodemographic status (e.g., low educational attainment), black children and white children appear to fare equally poorly with respect to low birthweight. It remains unclear as to why this “equality” between black children and white children does not exist at all sociodemographic levels. One possibility is that gradients in socioeconomic status may be associated with racial/ethnic differences in low birthweight. These gradients indicate that as socioeconomic status improves, so does a given health outcome. In addition, the relationship between a given measure of socioeconomic status (education, for example) and a given health outcome (e.g., birthweight) may vary in strength depending on the population analyzed. Specifically, the strength of socioeconomic status and health gradients has been noted for white children (Chen, Martin, Matthews 2006). This may help to explain the “equality” of the likelihood

Figure 6
Children born low-weight, by health insurance coverage status, by race/ethnicity,
1998-2006 average
(Percent)



Source: Joint Center tabulations of data from the National Health Interview Survey (NHIS)

of poor birth outcomes at lower sociodemographic levels, while at higher sociodemographic levels birth outcomes for white children improve disproportionately to those for black children.

The finding of equally poor birthweight outcomes at disadvantaged sociodemographic levels may also reflect a “ceiling effect.” With a ceiling effect, the effect of socioeconomic status (or SES) on health is less apparent among blacks than among whites when base rates of a given outcome (in this case low-weight births) are higher among blacks than among whites. In other words, because black children in general are more likely than white children in general to be born low-weight, the influence of socioeconomic factors—a subset of the sociodemographic characteristics analyzed herein—on low birthweight prevalence among black children is not as substantial as the influence of socioeconomic factors on low birthweight prevalence among white children.

Latino children and white children, however, are equally likely to have been born low-weight when children in families in any of the sociodemographic subgroups in our analysis are compared. This finding also seems counterintuitive—especially given the lower rates of insurance coverage for Hispanics in the United States (Perry 2008). Our results are consistent with other studies, however, that have found Hispanic women to have birth-weight outcomes more similar to white women than to black women (Chung et al. 2003; Leslie et al. 2003; National Research Council 2006). The so-called “Hispanic paradox” or “epidemiological paradox” is one explanation put forth for this finding. The Hispanic paradox is that Hispanics have more



favorable health outcomes (on certain indicators) than whites, despite their generally less favorable sociodemographic profiles (Chen, Martin, Matthews 2006; Kimbro, Bzostek, Goldman, Rodriguez 2008; National Research Council 2006).

The “healthy immigrant effect” also has been put forth to explain the similarity in birth outcomes between Latinas and white women, because the Hispanic population in the United States has a large component of foreign-born individuals.³ This effect finds that foreign-born individuals, regardless of race/ethnicity, tend to have better outcomes on a wide variety of health indicators when compared to their U.S.-born counterparts (Kimbro, Bzostek, Goldman, Rodriguez 2008). Also, the effect suggests that the health differences between foreign-born and native-born individuals are driven by higher migration rates among healthier people. Looking at the prevalence of low-weight births among Hispanic mothers of all national origins combined, however, may obscure the disparities that exist *within* the Hispanic population. Specifically, in 2005, 9.9 percent of births to women of Puerto Rican origin were low-weight, versus 6.5 percent for Mexican American women and 7.3 percent for non-Hispanic white women (Martin et al. 2007). The rate of low-weight births to women of Puerto Rican origin was second only to that of African American women, for whom the rate was 14 percent. Additional research is needed to fully understand the differences in birthweights for Hispanic children both among Hispanic nationality groups and when compared to other racial and ethnic groups.

Many of the findings also raise the issue of the ways in which current policies are working to reduce health disparities and the benchmarks by which equality is gauged. For example, education is widely viewed as a pathway to economic mobility and socioeconomic success. However, it is disconcerting that among children in families with equally high educational attainment (e.g., Bachelor’s degree or higher), black children, on average, do not have birthweights equivalent to their white peers (**Figure 4**). Moreover, it is neither comforting nor encouraging that only when their families are disadvantaged are birthweights for black infants and white infants not significantly different from one another.

The consistency with which black children are disproportionately more likely than both white children and Hispanic children to be born low-weight highlights the plausibility of recent research that supports a broader examination of the factors, such as family history and stress, that affect healthy pregnancies and thus influence the birth of healthy weight babies (Emanuel, Kimpo, and Mocerri 2004; David and Collins 1997). Alternative hypotheses regarding the factors that may contribute to low-weight births are also supported by our findings with respect to differences, or lack thereof, between the frequency with which Hispanic children and white children are born low-weight.

3 In 2005, 40.2 percent of the U.S. Hispanic population was foreign-born, compared to 3.9 percent of the U.S. non-Hispanic white population (Pew Hispanic Center 2006).

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About the Authors

Dr. Wilhelmina A. Leigh, a senior research associate at the Joint Center for Political and Economic Studies since 1991, conducts research in the areas of income security, housing and health. Prior to joining the Joint Center, she was a principal analyst at the U.S. Congressional Budget Office and worked for the Bureau of Labor Statistics, U.S. Department of Labor; the U.S. Department of Housing and Urban Development; the Urban Institute; and the National Urban League Research Department. She received her PhD in economics from the Johns Hopkins University and her AB, also in economics, from Cornell University.

Anna L. Wheatley is a research assistant at the Joint Center for Political and Economic Studies. A native of St. Thomas, U.S. Virgin Islands, Ms. Wheatley came to the Joint Center upon graduating from Georgetown University with a B.S. in Management and a minor in Sociology. Her areas of interest include health disparities, education and anti-poverty policy.

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The Joint Center for Political and Economic Studies is one of the nation's leading research and public policy institutions and the only one whose work focuses exclusively on issues of particular concern to African Americans and other people of color. For over three decades, our research and information programs have informed and influenced public opinion and national policy to benefit not only African Americans, but every American.

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