

TWO GENERATIONS OF LOW BIRTHWEIGHT: A WEST VIRGINIA STUDY



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EXECUTIVE SUMMARY

While there are many recognized influences on an infant's weight at birth, strong evidence exists that genetics play a significant role. Estimates of parental influence on birthweight range from 38% to 80%. A woman who was low birthweight (LBW), i.e., weighed less than 2,500 grams, or 5½ pounds at her birth, is approximately 50% more likely than a woman who had a normal birthweight (NBW) to have a low birthweight child herself.

In addition to being the single most important indicator of an infant's survival, birthweight has a strong impact on the subsequent health and psychosocial development of an individual. Research has shown that low birthweight can result in increased health risks in later life, as well as educational and economic deficits. Data show that low birthweight has been increasing in both the United States and West Virginia.

- ▶ **The percentage of LBW among singleton births increased in both West Virginia and the United States between 1996 and 2004, from 6.9% to 7.6% in the state and from 6.1% to 6.2% in the nation.**
- ▶ **West Virginia ranked 1st in the nation in 2002-2004 in the percentage of LBW births among white women (7.4%). The percentage of LBW births among the state's African American mothers in 2002-2004 (11.8%, or 15th in the nation) was 59% higher than that among white mothers.**
- ▶ **Over the decade from 1997 through 2006, low birthweight in West Virginia increased an average of 2.3% among white mothers and 0.4% among African American mothers each year.**

The current study examined data on (1) West Virginia white and African American women born as singletons from 1960 through 1992 who gave birth to (2) singleton infants from 2002 through 2006. These two cohorts of mothers and children were further divided into (1) those who were born at low birthweight and (2) those who were born at normal birthweight. There were 60,791 mothers in the matched birth files for 2002-2006. Of these 3,695 (6.1%) were born at a low birthweight. Among white women in the cohort, 5.9% were born low birthweight. Among African American women in the cohort, however, 12.3% were born low birthweight. Some of the other findings of our study showed that:

- ▶ **Compared with NBW mothers, LBW mothers were 73.7% more likely to have a LBW infant, 29.5% more likely to have a premature infant, 39.5% more likely to have diabetes, 19.4% more likely to smoke during pregnancy, and 41.5% more likely to have their infant die before age one.**
- ▶ **LBW mothers were 13.8% more likely to be teenaged, 33.0% more likely to have less than 12 years of education, and 9.9% more likely to be unmarried than NBW mothers.**
- ▶ **Compared with LBW white women, LBW African American women were 17.7% more likely to have a LBW infant, 13.3% more likely to have a premature infant, 56.2% more likely to be teenaged, and 61.8% more likely to have their infant die before age one.**

It is essential for public health and medical professionals to recognize and understand the intergenerational socioeconomic and genetic components of low birthweight in order to develop viable strategies to prevent these poor birth outcomes.

Intergenerational Low Birthweight: A West Virginia Study

Birthweight not only affects a newborn's chances of survival, it is also an important factor in an individual's health and well-being during his or her entire lifetime. There are many influences on an infant's weight at birth, including environmental factors such as maternal nutrition, cigarette smoking and exposure to secondhand smoke, alcohol and drug use, and prenatal exposure to toxic substances. Evidence exists, however, that genetics also play a significant role in determining an infant's size at birth. Numerous studies have suggested such an influence, with estimates of the parental influence ranging from 38% to 80% of the variance in birthweight (1). There is agreement that parental influence is likely polygenic; however, the exact genes involved are not yet identified. While the birth size of both parents appears to factor into their offspring's size at birth, maternal birthweight is the stronger determinant according to a Norwegian study published in 2001 (2). National studies have found that a woman who had a low birthweight (LBW), i.e., less than 2,500 grams, or 5½ pounds, is approximately 50% more likely than a woman who had a normal birthweight (NBW) to have a low birthweight child (3). While it is difficult to isolate the interconnected socioeconomic, environmental, and genetic components of low birthweight, the many factors influencing this negative birth outcome and its effects must be understood to address solutions.

Low birthweight has been increasing in both the state and the nation, pointing to a potential increase in the problem as these LBW children begin giving birth to their own children. The present study examines intergenerational low birthweight in West Virginia by linking the birth records of children born in the state from 2002 through 2006 with the records of their mothers born from 1960 through 1992¹.

Background

Birthweight is the single most important indicator of an infant's survival. In addition, it is a strong indicator of the subsequent health and psychosocial development of an individual. Children born weighing less than 2,500 grams (5½ pounds) face increased health risks as they grow, risks lasting their entire lives. A study presented in 2007 at the National Summit on America's Children used data from the Panel Study of Income Dynamics conducted by the University of Michigan Institute for Social Research to link birthweight with adult health and socioeconomic success (4). The analysis, authored by Rucker Johnson of the University of California and Robert Schoeni of the University of Michigan, included 35 years of data collected on more than 12,000 individuals. The results showed that children with low birthweights can suffer subsequent and serious deficits in cognitive development, adult health status, and educational and economic attainment, effects that are then passed on to their own children.

Johnson and Schoeni found that LBW children are 30% less likely to be in excellent or very good health in childhood, with small birth size aging individuals by 12 years by the time they are in their 30s and 40s. Being born at less than 5½ pounds increases an individual's likelihood of dropping out of high school by about one-third, lowers labor force participation by 5%, and lowers wages earned by approximately 22% by the ages of 35-52, compared with individuals who were normal birthweight (4).

¹ One reason for the increase in low birthweight has been the rise in the number of multiple births. In order to control for the increase in multiple births, this study includes only singleton births so that other factors may be examined.

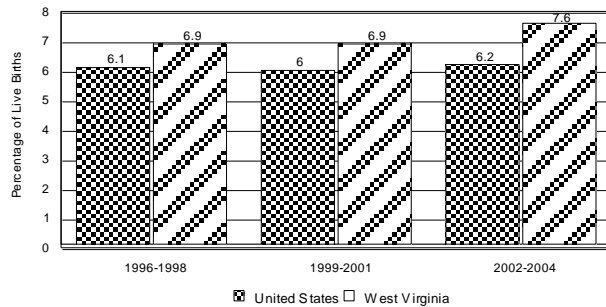
Other studies, including the Bogalusa Heart Study, have found associations between LBW and cardiovascular disease, high blood pressure, and type 2 diabetes in later life (5,6). The link between LBW and heart disease has been found among both men and women, especially among those who became obese in adult life (7). At increased risk for the cardiovascular risk factors that constitute the metabolic syndrome in middle age are those individuals who were born at LBW but had an accelerated growth period, or catch up, during childhood (8). Increased risk for type 2 diabetes was found among participants in the long-term Nurses' Health Study who were LBW, with the strongest association found among those women whose mothers had no history of diabetes (9). While evidence is inconclusive connecting LBW with later obesity, percentage of lean muscle mass has been shown to be less in LBW individuals, regardless of body weight (10).

Poorer cognitive development and psychological health have also been linked to small birth size, as well as a significantly increased risk of hyperactivity disorder (11). Johnson and Schoeni reported that LBW children scored significantly lower on reading, comprehension, and math achievement tests. British researchers found an increased risk of having an IQ of less than 100 at age seven, as well as a 50% increased risk of psychological distress in later life (12).

National and State Trends in Low Birthweight, 1996-2004

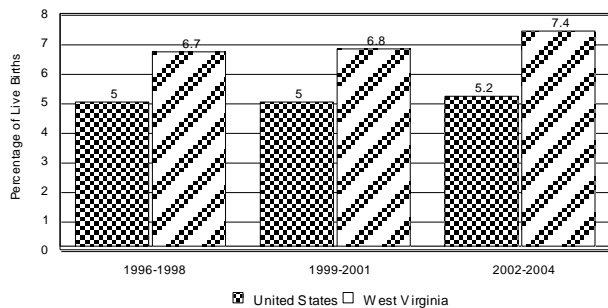
Despite efforts to reduce the LBW rate, the percentage of babies born weighing less than 2,500 grams has increased over the last decade. Figure 1 compares low birthweight in West Virginia and the United States in three-year aggregates from 1996 through 2004. The percentage of singleton live births² that were low birthweight increased slightly in the nation, from 6.1% in 1996-1998 to 6.2% in 2002-2004, with a larger increase seen in the state, from 6.9% in 1996-1998 to 7.6% in 2002-2004. The percentage of LBW was significantly higher in West Virginia than in the United States in all three time periods.

Figure 1. Low Birthweight (<2,500 grams) Births as Percentage of Total Births
West Virginia and United States
1996-1998, 1999-2001, 2002-2004



NOTE: Singleton births only

Figure 2. Low Birthweight (<2,500 grams) Births as Percentage of Total Births
White Mothers Only, West Virginia and United States
1996-1998, 1999-2001, 2002-2004



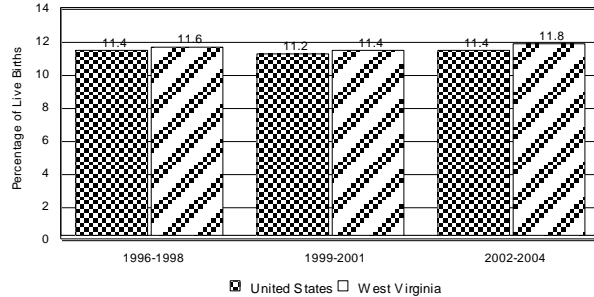
NOTE: Singleton births only

Figures 2 and 3 compare percentages for the same time periods by race. Significant differences between rates in the state and the nation were consistently seen in births to white women. **In fact, West Virginia ranked 1st in the nation in 2002-2004 in the percentage of LBW singleton births among white women (13).** The percentage of LBW births among African American women has been consistently higher than that among white women;

² Only singleton births were included to eliminate the effect of multiple births, which have been occurring more frequently in recent years.

however, no significant differences were noted between rates for African American women in the state and the nation. The state ranked 15th among the 50 states and the District of Columbia in 2002-2004 in the percentage of LBW singleton births among African American mothers (13).

Figure 3. Low Birthweight (<2,500 grams) Births as Percentage of Total Births
African American Mothers Only, West Virginia and United States
1996-1998, 1999-2001, 2002-2004

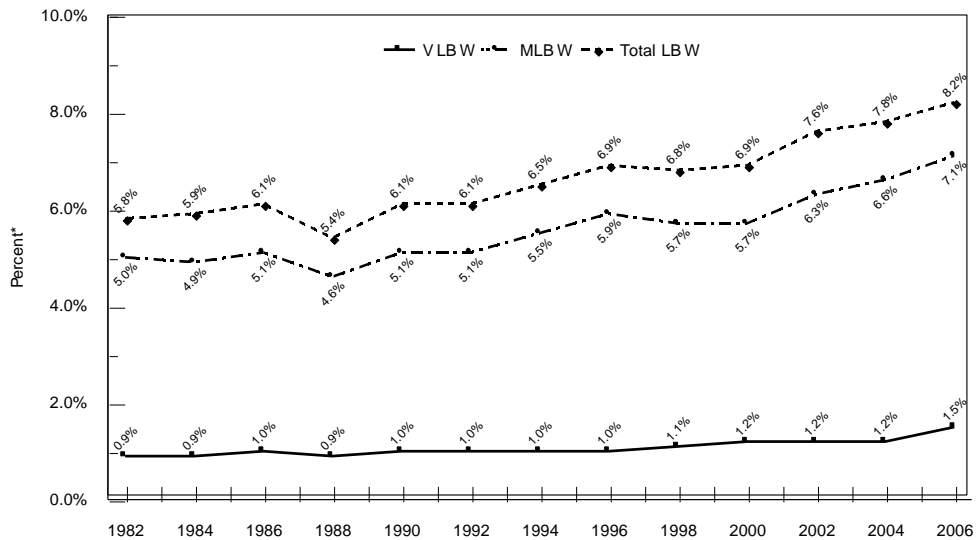


NOTE: Singleton births only

25-Year Trends in VLBW, MLBW, and Total LBW in West Virginia

The upward trend in low birthweight that has been occurring in West Virginia is clearly displayed in Figure 4. As the graph shows, the greatest increase has occurred among births described as moderately low birthweight (MLBW) births, or those weighing 1,500-2,499 grams. While remaining relatively stable through 2005, however, the percentage of very low birthweight (VLBW) births, i.e., those weighing less than 1,500 grams, increased to 1.5% of all births in 2006.

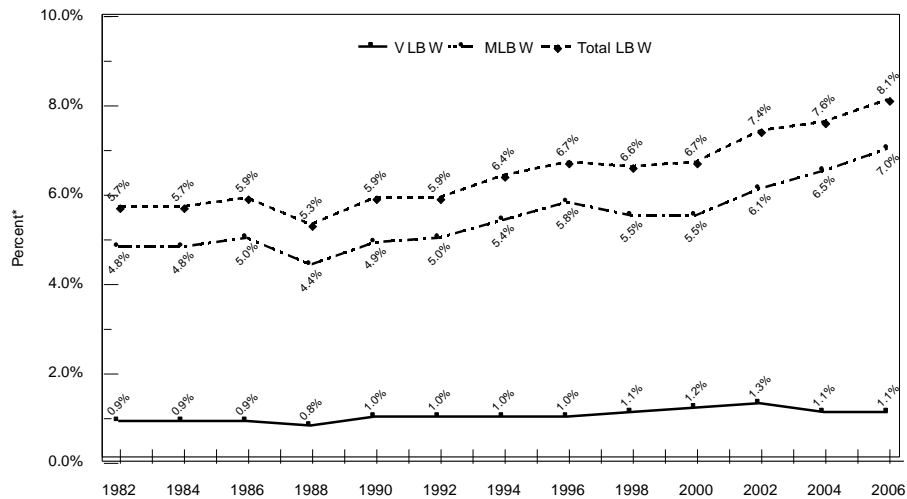
Figure 4. Percentage of Low Birthweight Births by Year
West Virginia Resident Births, 1982-2006
Singleton Births, All Races



*Excludes births with unknown birthweight

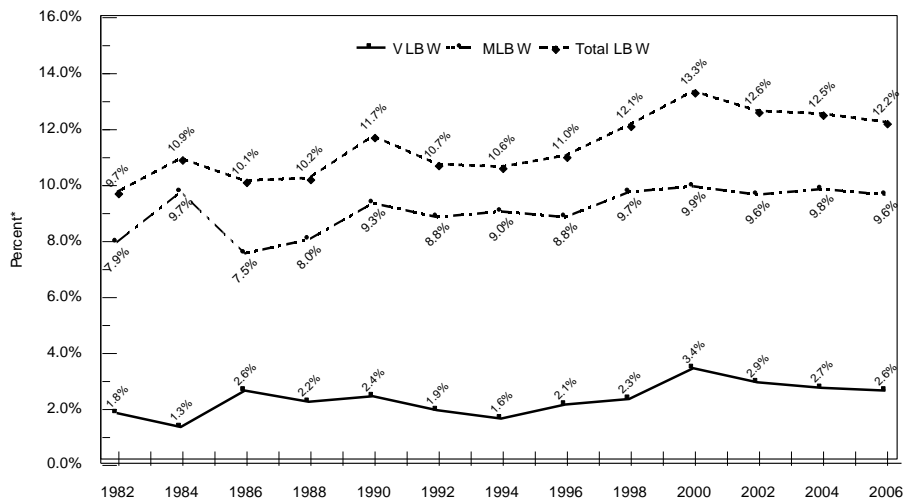
VLBW, MLBW, and Total LBW Rates by Race. As illustrated in Figures 5 and 6, the LBW rate among white mothers in West Virginia has been rising at a faster rate than that among African American mothers, although the latter have consistently had higher percentages of LBW babies than their white counterparts. Among white mothers, the rate of MLBW rose faster from 1982-2006 than VLBW: from 4.8% to 7.0% for the former and from 0.9% to 1.1% for the latter. Among African American mothers, on the other hand, VLBW increased from 1.8% in 1982 to 2.6% in 2006, while MLBW increased from 7.9% to 9.6%. **Over the most recent 10 years for which data are available (1997-2006), total LBW rose an annual average of 2.3% among births to white mothers and 0.4% among births to African American mothers. If that trend continues, the percentage of LBW births among white mothers in West Virginia will equal and then surpass the percentage of LBW births among African American mothers in the year 2028.**

Figure 5. Percentage of Low Birthweight Births by Year
West Virginia Resident Births, 1982-2006
Singleton Births, White Mothers Only



*Excludes births with unknown birthweight

Figure 6. Percentage of Low Birthweight Births by Year
West Virginia Resident Births, 1982-2006
Singleton Births, African American Mothers Only



*Excludes births with unknown birthweight

Two Generations of Low Birthweight in West Virginia

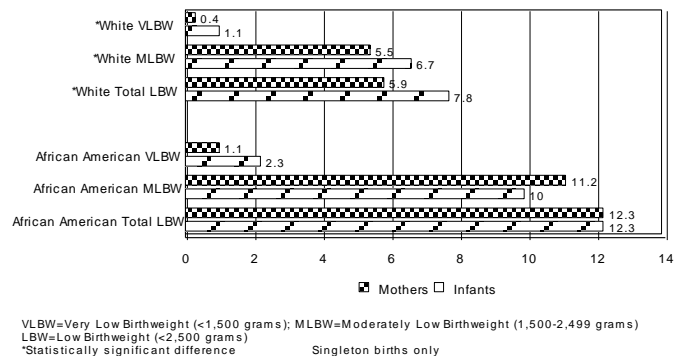
The current study examined live births occurring from 2002 through 2006 in West Virginia or to West Virginia residents giving birth out of state. Out of 117,988 total births during that time period, 60,791 were matched to the records of mothers who were born in West Virginia. In 42,994 cases, the births were excluded because the mother was not born in West Virginia. The remaining records could not be matched for various reasons, e.g., they involved multiple births, adoptions, or surrogate mothers; the mother was born before 1960; or the birth certificate information was incomplete. Only singleton births were included to eliminate the effect of LBW percentages created by multiple births, which have been occurring more frequently in recent years. Matching of the birth certificates was done using the mother's maiden surname, birth date, and other variables. Our data set included maternal birthweight, age, race, education, marital status, prenatal care, smoking status, and diabetes status, as well as the birthweight and gestational age³ of her infant. As a final step, the birth records for the infants born from 2002-2006 were matched with infant death records. Only data on white and African American mothers were used in racial comparisons because of the small numbers of total births to mothers of other races and the even smaller number of LBW infants born to these mothers.

The completed data set of 60,791 births used in the study comprised two cohorts: (1) West Virginia women born as singletons from 1960 through 1992 who gave birth to (2) singleton infants from 2002 through 2006. The two cohorts of mothers and children were compared on the basis of percentages of VLBW, MLBW, and total LBW. These cohorts were further divided into (1) those who were born LBW and (2) those who were born NBW. The mothers born at low birthweight were compared with those born at normal birthweight to examine the connection between LBW and selected socioeconomic variables, as well as with certain pregnancy risk factors and birth outcomes. Further analysis compared LBW and NBW mothers by the birthweight of their infants. (Throughout this report LBW mothers refers to those women who were themselves born at low birthweight and NBW mothers refers to those women who were themselves born at normal birthweight.) Statistical significance is noted where applicable; the methodology used in determining significance is explained in the Technical Note on page 13.

Comparison of LBW Prevalence between Mothers and Infants Cohorts

Figure 7 compares the VLBW, MLBW, and total LBW percentages by race and cohort among women who were born between 1960 and 1992 and gave birth from 2002 to 2006 with their infants born during that time period. Significant differences were found between white mothers and their infants. While total LBW comprised 5.9% of total births of white mothers, 7.8% of their infants were born at LBW. VLBW increased from 0.4% of the white mothers to

Figure 7. VLBW, MLBW, and Total LBW Births as Percentage of Total Births By Race and Cohort, West Virginia Matched Birth Files Mothers Born 1960-1992 Compared with Their Infants Born 2002-2006



³ Clinical estimate was used to determine gestational age.

1.1% of their infants; MLBW increased from 5.5% to 6.7%. There was no difference in the overall percentage of LBW between the mothers and their infants among African American mothers: 12.3% of total births in each cohort. VLBW increased from 1.1% in the mothers cohort to 2.3% in the infants cohort; MLBW, on the other hand, decreased from 11.2% among mothers to 10.0% among their infants. These differences, however, were not statistically significant.

Comparison of Selected Variables by Maternal Birthweight

Of the 60,791 mothers in the matched birth files for 2002-2006, 3,695 (6.1%) were born at a low birthweight. These women were compared with the 57,096 mothers who were born at a normal birthweight on the basis of selected socioeconomic and other variables obtained from the birth certificates of their infants. These findings are presented in Figures 8 and 9 and in Table 1.

When compared with NBW mothers, LBW mothers were

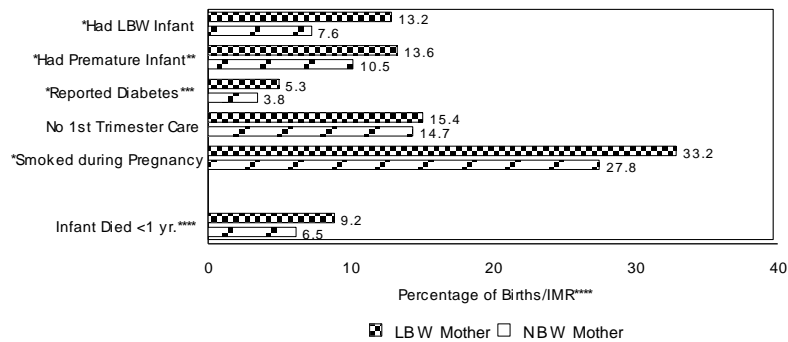
- **73.7% more likely to have a LBW infant,**
- 29.5% more likely to have a premature infant,
- 39.5% more likely to report diabetes⁴ as a medical risk factor,
- 19.4% more likely to smoke during pregnancy, and
- 41.5% more likely to have their infant die before age one.

When compared with NBW mothers, LBW mothers were also

- 13.8% more likely to be a teenaged mother (aged 15-19),
- 33.0% more likely to have less than a high school education,
- 24.3% less likely to have more than a high school education, and
- 9.9% more likely to be unmarried.

Little difference was noted between mothers who were LBW and those who were NBW in the initiation of prenatal care; 15.4% of LBW mothers did not begin care in the 1st trimester, compared with 14.7% of the NBW mothers.

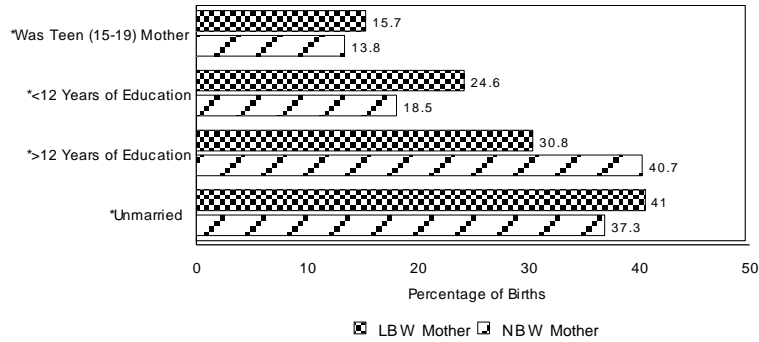
Figure 8. Pregnancy Characteristics and Birth Outcomes of Mothers Who Gave Birth from 2002-2006 by Their Own Birthweight Status West Virginia Matched Birth Files



*Statistically significant difference **Gestational age <37 weeks ***Unspecified as to gestational or preexisting diabetes
****Infant Mortality Rate (IMR) = Infant deaths per 1,000 live births
Singleton births only

⁴ Unspecified as to gestational or preexisting diabetes

Figure 9. Selected Socioeconomic Characteristics of Mothers Who Gave Birth from 2002-2006 by Their Own Birthweight Status West Virginia Matched Birth Files



*Statistically significant difference
Singleton births only

Table 1. Comparison of Selected Variables for LBW Mothers and NBW Mothers West Virginia Matched Birth Files, 2002-2006 Singleton Births Only				
	Mother Was LBW		Mother Was NBW	
	#	%	#	%
Total	3,695	100.0	57,096	100.0
Age				
15-19	578	15.7	7,887	13.8
20+	3,109	84.3	49,140	86.2
Education				
<12 Yrs.	901	24.6	10,456	18.5
12 Yrs.	1,628	44.5	23,031	40.8
>12 Yrs.	1,128	30.8	23,028	40.7
Married				
Yes	2,180	59.0	35,789	62.7
No	1,514	41.0	21,274	37.3
Prenatal Care				
1 st Trimester	3,034	84.6	47,402	85.3
2 nd Trimester	473	13.2	6,906	12.4
Late/No Care	80	2.2	1,271	2.3
Smoked during Pregnancy				
Yes	1,218	33.2	15,788	27.8
No	2,452	66.8	41,049	72.2
Reported Diabetes*				
Yes	195	5.3	2,183	3.8
No	3,483	94.7	54,641	96.2
Infant Birthweight				
LBW	486	13.2	4,332	7.6
NBW	3,205	86.4	52,727	92.4
Infant Gestational Age				
<37 Wks.	501	13.6	5,981	10.5
37+ Wks.	3,187	86.4	51,017	89.5
Infant Died <1 Yr. (IMR)**	34	9.2**	370	6.5**

*Unspecified as to gestational or preexisting diabetes
**Infant Mortality Rate (Infant deaths per 1,000 live births)
Note: Unknowns are deleted from each category.

Comparison of Selected Variables by Maternal Low Birthweight and Race

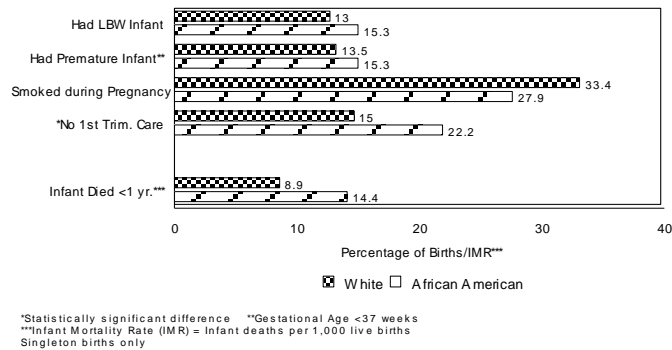
Among the white and African American women who gave birth from 2002-2006, African American women represented 2.8% of total births (1,697 out of 60,666). However, they comprised **5.7%** of the women who had been born at a low birthweight (209 out of 3,686).

Among white mothers only, 5.9% (3,477 out of 58,969) were LBW; among African American mothers only, **12.3%** (209 out of 1,697) were LBW. When LBW African American mothers were compared with LBW white mothers (Figures 10 and 11), the following differences were noted:

When compared with LBW white mothers, LBW African American mothers were

- **17.7% more likely to have a LBW infant,**
- 13.3% more likely to have a premature infant,
- 16.5% less likely to smoke during pregnancy,
- 48.0% more likely to not receive 1st trimester prenatal care, and
- 61.8% more likely to have their infant die before age one.

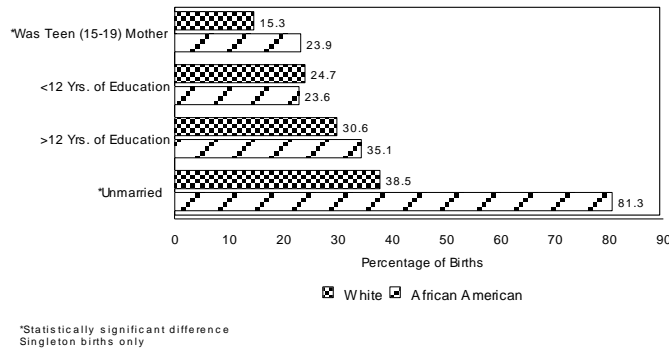
Figure 10. Pregnancy and Delivery Characteristics of LBW Women Who Gave Birth from 2002-2006 by Race West Virginia Matched Birth Files



When compared with LBW white mothers, LBW African American mothers were also

- 56.2% more likely to be a teen mother,
- 14.7% more likely to have more than 12 years of education, and
- more than twice as likely (111.2%) to be unmarried.

Figure 11. Selected Socioeconomic Characteristics of LBW Women Who Gave Birth from 2002-2006 by Race West Virginia Matched Birth Files



LBW and NBW Infants Born to LBW Mothers

Low birthweight births comprised **13.2%** (486 out of 3,691) of births to women who had been LBW themselves, compared with 7.6% (4,332 out of 57,059) of births to women who had been NBW. Overall, 7.9% (4,818) of the 60,750 births with a known birthweight that occurred in the 2002-2006 birth cohort were LBW.

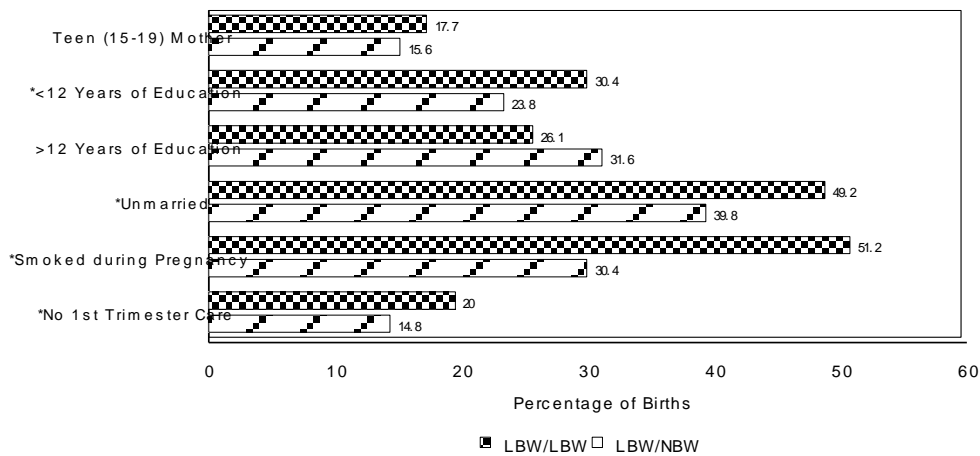
Low birthweight infants born to LBW mothers were less likely to be small because of prematurity than were LBW infants born to mothers who were NBW. Of the 486 LBW births to LBW mothers, 60.5% (292) were premature, i.e., born before 37 weeks of gestation; in comparison, 65.0% (2,807) of the 4,332 LBW births to NBW mothers were premature.

Low birthweight women who delivered LBW infants (LBW/LBW) were compared with LBW women who delivered NBW infants (LBW/NBW) to determine factors associated with higher risk among this population only (Figure 12). The following differences were noted between the two groups:

When compared with LBW mothers having NBW infants, LBW mothers having LBW infants were

- 13.5% more likely to be teenaged,
- 27.7% more likely to have less than a high school education,
- 23.6% more likely to be unmarried,
- 68.4% more likely to have smoked during pregnancy, and
- 35.1% more likely to have not received 1st trimester prenatal care.

Figure 12. Selected Characteristics of LBW Women
By Their Infant's Birthweight
West Virginia Matched Birth Files, 2002-2006



*Statistically significant difference
Singleton births only

Comparison of LBW and NBW Mothers by Infant's Birthweight

Figures 13 and 14 and Tables 2 and 3 compare the four groupings in our study, i.e., LBW mothers with LBW infants (LBW/LBW), LBW mothers with NBW infants (LBW/NBW), NBW mothers with LBW infants (NBW/LBW), and NBW mothers with NBW infants (NBW/NBW). Women giving birth to LBW infants were more likely to be teenaged, have less than 12 years of education, smoke during pregnancy, and not receive 1st trimester prenatal care than women giving birth to NBW infants, regardless of their own birthweight. However, the mothers who were themselves born at low birthweight (LBW/LBW) were more likely than those born at normal birthweight (NBW/LBW) to have these risk factors.

Figure 13. Selected Socioeconomic Characteristics of Women Giving Birth from 2002-2006
By Their Own Birthweight Status and Their Child's Birthweight Status
West Virginia Matched Birth Files

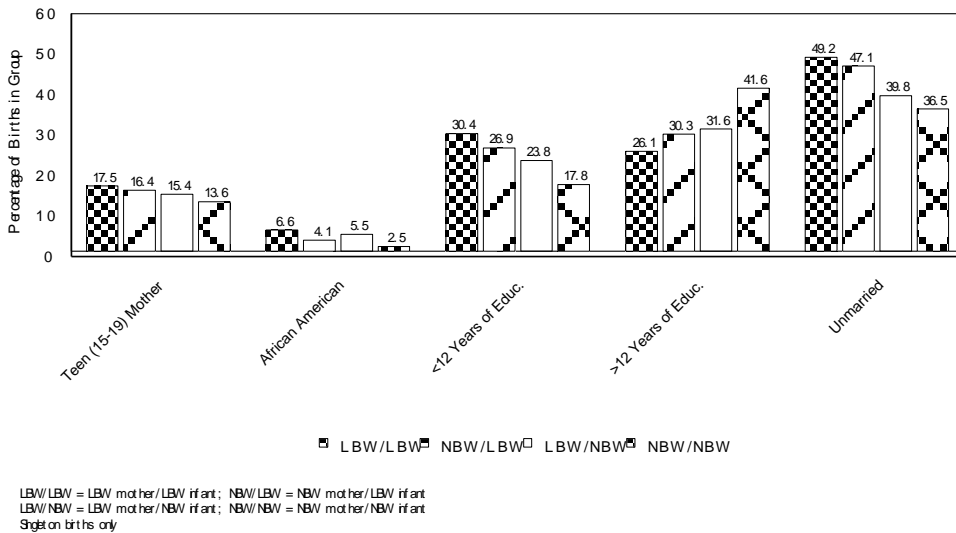
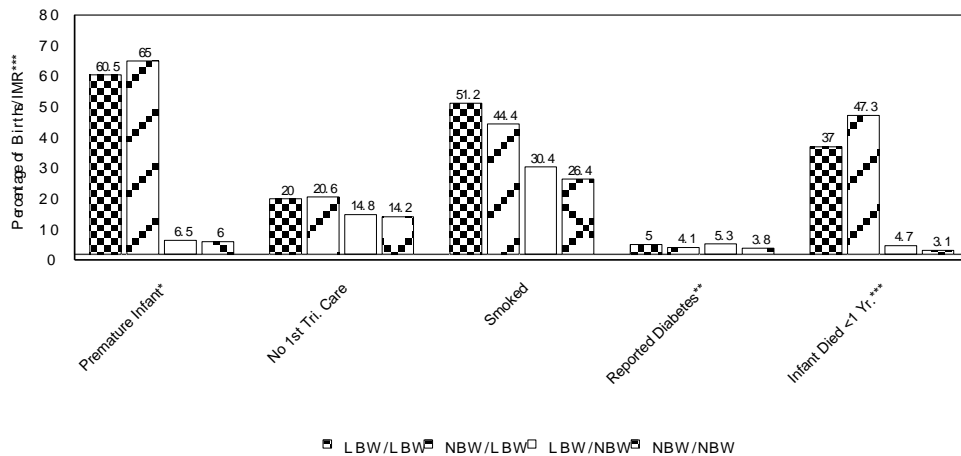


Figure 14. Selected Pregnancy and Delivery Characteristics of Women Giving Birth
From 2002-2006 by Their Own Birthweight Status and Their Child's Birthweight Status
West Virginia Matched Birth Files



*Gestational age <37 wks. **Unspecified as to gestational or preexisting ***Infant mortality rate = Infant deaths per 1,000 live births
 LBW/LBW = LBW mother/LBW infant; NBW/LBW = NBW mother/LBW infant; LBW/NBW = LBW mother/NBW infant; NBW/NBW = NBW mother/NBW infant
 Significant on births only

Table 2. Selected Socioeconomic Characteristics By Birthweight of Mother and Infant West Virginia Matched Birth Files, 2002-2006								
	LBW Mother				NBW Mother			
	LBW Child		NBW Child		LBW Child		NBW Child	
	#	%	#	%	#	%	#	%
Total	486	100.0	3,205	100.0	4,332	100.0	52,727	100.0
Age								
15-19	85	17.5	493	15.4	708	16.4	7,172	13.6
20+	400	82.5	2,705	84.6	3,617	83.6	45,493	86.4
Race								
White	453	93.4	3,020	94.5	4,139	95.9	51,317	97.5
African American	32	6.6	177	5.5	177	4.1	1,310	2.5
Education								
<12 yrs.	146	30.4	755	23.8	1,147	26.9	9,301	17.8
12 yrs.	209	43.5	1,416	44.6	1,827	42.8	21,190	40.6
12+ yrs.	126	26.1	1,001	31.6	1,290	30.3	21,723	41.6
Married								
Yes	247	50.8	1,929	60.2	2,289	52.9	33,488	63.5
No	239	49.2	1,275	39.8	2,040	47.1	19,219	36.5

Note: Unknowns are excluded from each category; other/unknown races excluded from Race category.

Table 3. Selected Pregnancy Characteristics and Birth Outcomes By Birthweight of Mother and Infant West Virginia Matched Birth Files, 2002-2006								
	LBW Mother				NBW Mother			
	LBW Child		NBW Child		LBW Child		NBW Child	
	#	%	#	%	#	%	#	%
Total	486	100.0	3,205	100.0	4,332	100.0	52,727	100.0
Gest. Age								
<37 wks.	292	60.5	209	6.5	2,808	65.0	3,168	6.0
37+ wks.	191	39.5	2,994	93.5	1,513	35.0	49,482	94.0
Prenatal Care								
1 st Tri.	364	80.0	2,668	85.2	3,269	79.4	44,112	85.8
2 nd Tri.	78	17.1	395	12.6	692	16.8	6,210	12.1
Late/No Care	13	2.9	67	2.2	157	3.8	1,112	2.1
Smoked								
Yes	247	51.2	969	30.4	1,911	44.4	13,866	26.4
No	235	48.8	2,215	69.6	2,389	55.6	38,640	73.6
Reported Diabetes*								
Yes	24	5.0	171	5.3	174	4.1	2,009	3.8
No	457	95.0	3,026	94.7	4,104	95.9	50,507	96.2
Infant Died								
< 1 yr.	18	37.0**	15	4.7**	205	47.3**	163	3.1**

Note: Unknowns are excluded from each category.

*Unspecified as to gestational or preexisting diabetes

**Infant Mortality Rate=Infant deaths per 1,000 live births

Conclusion

Numerous studies have found associations between small size at birth and negative short- and long-term effects on an individual's health and socioeconomic status. Evidence has also shown an intergenerational correlation between maternal and infant birthweights, with women born at a low birthweight more likely to have LBW infants than those born at a normal birthweight. These findings are of great concern given the fact that, despite efforts to the contrary, the rate of low birthweight has been increasing in both West Virginia and the United States, pointing to a dire forecast if this trend is not reversed.

Data from the present study show an even greater risk of low birthweight births among women in West Virginia who were themselves low birthweight than that found in the previously cited Currie and Moretti study (3). LBW women who gave birth in West Virginia from 2002 through 2006 were 73% more likely to have a LBW infant than NBW women; nearly one in eight births to LBW mothers was a LBW infant. An even stronger correlation was found among African American women: nearly one in six babies born to LBW African American women was low birthweight. Women who had been low birthweight themselves were more likely to be young, undereducated, and unmarried, to have diabetes, and to smoke during pregnancy when they had their own children than were women who had been normal birthweight. The LBW mothers who gave birth to NBW infants, however, reported lower prevalences of all these risk factors. Most tragic, LBW mothers were nearly half again as likely to have their babies die in their first year of life as were NBW mothers.

The problem of low birthweight is a multifactorial one, as are most of the challenges facing public health and medical professionals today. It is necessary to recognize and understand the intertwined socioeconomic and genetic components of low birthweight, in addition to individual environmental factors such as maternal nutrition, prenatal care, and smoking, to develop better strategies to prevent these poor birth outcomes. A multidisciplinary approach is essential in unraveling the complexities of the cofactors influencing the prevalence and consequences of low birthweight.

Technical Note on Statistical Significance

Confidence intervals for rates and percentages were calculated based on methods used by the National Center for Health Statistics (NCHS). The 95% confidence interval methodology is dependent on the number of births or deaths used in the calculation of the rates and percentages. This report uses a conservative method for determining statistical significance. Two rates or percentages are said to be significantly different when the 95% confidence limits associated with each of the rates or percentages do not overlap.

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