

This report summarizes selected data on child health and nutrition indicators received from state, territorial, and Indian Tribal Organizations that contributed to the Centers for Disease Control and Prevention (CDC) Pediatric Nutrition Surveillance 2006 Report.

Centers for Disease Control and Prevention .....Julie Louise Gerberding, MD, MPH,  
Director

Coordinating Center for Health Promotion ..... Kathleen Toomey, MD, MPH,  
Director

National Center for Chronic Disease Prevention  
and Health Promotion ..... Janet Collins, PhD, Director

Division of Nutrition, Physical Activity and Obesity... William Dietz, MD, PhD, Director

Nutrition Branch ..... Laurence Grummer-Strawn, PhD, Chief

Program Development and Evaluation Branch ..... Casey Hannan, MPH, Acting Chief

### **Suggested Citation**

Polhamus B, Dalenius K, Borland E, Smith B, Grummer-Strawn L. Pediatric Nutrition Surveillance 2006 Report. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2007.

### **Acknowledgments**

We gratefully acknowledge and thank all contributors to the Pediatric Nutrition Surveillance System (PedNSS). The efforts of state surveillance coordinators, data processing staff, and local clinic staff in collecting data and using nutrition surveillance systems make the national PedNSS possible.

This report is available at <http://www.cdc.gov/nccdphp/dnpa/pednss.htm>.

Division of Nutrition, Physical Activity and Obesity  
National Center for Chronic Disease Prevention and Health Promotion  
Centers for Disease Control and Prevention  
4770 Buford Highway NE  
Mail Stop K-25  
Atlanta, GA 30341-3717  
(770) 488-5702

## **Pediatric Nutrition Surveillance**

The Pediatric Nutrition Surveillance System (PedNSS) is a public health surveillance system that monitors the nutritional status of low-income children in federally funded maternal and child health programs. Data on birthweight, breastfeeding, anemia, short stature, underweight, and overweight are collected for children who attend public health clinics for routine care, nutrition education, and supplemental food. Data are collected at the clinic level then aggregated at the state level and submitted to the Centers for Disease Control and Prevention (CDC) for analysis. A national nutrition surveillance report is produced using PedNSS data. Surveillance reports also are produced for each contributor (defined as a state, U.S. territory, or Indian Tribal Organization [ITO]). In 2006, a total of 47 contributors, including 40 states, the District of Columbia, Puerto Rico, and 5 ITOs, participated in PedNSS (Figure 1) and submitted records for approximately 7.6 million children from birth to 5 years of age.

Figure 1. This is a map of the United States indicating contributors to PedNSS in 2006. Contributors include Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, and Wisconsin. Contributors not shown on the map include the District of Columbia, Puerto Rico, and the following Indian Tribal Organizations: Cheyenne River Sioux (SD), Inter Tribal Council (AZ), Navajo Nation (AZ), Rosebud Sioux (SD), and Standing Rock Sioux (ND).

Data for the 2006 PedNSS were collected from children enrolled in federally funded programs that serve low-income children, including the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (84%) and non-WIC programs (16%) that include the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program, the Title V Maternal and Child Health Program, and other federally funded programs. The goal of PedNSS is to collect, analyze, and disseminate surveillance data to guide public health policy and action. PedNSS information is used to set priorities and to plan, implement, and evaluate nutrition programs. This report summarizes 2006 data and highlights trends from 1997 through 2006.

## **Demographic Characteristics**

In the 2006 PedNSS, 42% of the records were from Hispanic children, 32% were from non-Hispanic white children, 19% were from non-Hispanic black children, 3% were from Asian or Pacific Islander children, 1% were from American Indian or Alaska Native children, and 2% were from children of all other or unspecified races and ethnicities.

From 1997 through 2006, the proportion of records submitted to PedNSS for Hispanic children increased from about 25% to 42%. During the same period, the proportion of records for non-Hispanic and black children declined. Most PedNSS records (62%) were from children aged 1–5 years; 38% were from infants aged less than 1 year.

**Table 1. State-specific prevalence of selected nutrition indicators for children aged < 5 years, 2006 Pediatric Nutrition Surveillance System**

Contributor	LBW *	HBW †	Ever Breastfed	Breastfed 6 Months	Anemia ‡	Short Stature§	Overweight
Alabama	12.4	4.9	33.9	2.0	19.0	6.8	13.7
Arizona	8.4	6.9	61.1	25.1	16.5	7.8	13.5
Arkansas	9.7	5.9	45.2	9.2	15.7	8.2	13.2
California	6.4	7.7	na	na	14.0	5.1	17.0
Cheyenne River Sioux (SD)	8.3	7.7	na	na	16.1	1.5	18.4
Colorado	10.1	4.6	74.2	28.9	12.1	8.1	9.6
Connecticut	9.5	6.7	57.8	24.6	9.4	3.9	16.2
District of Columbia	12.0	4.9	na	na	28.8	9.1	15.4
Florida	9.7	5.9	66.3	24.4	16.7	4.8	13.9
Georgia	10.4	5.4	52.4	18.4	13.2	7.3	14.5
Idaho	7.5	7.5	78.9	27.8	12.7	7.0	12.4
Illinois	9.7	6.2	61.2	18.2	10.9	7.4	14.4
Indiana	9.5	6.3	60.0	19.2	15.9	6.7	14.0
Inter Tribal Council (AZ)	7.7	9.2	60.2	31.7	10.4	7.0	24.1
Iowa	8.8	7.7	na	na	9.4	5.8	14.6
Kansas	8.3	6.7	66.0	22.2	9.4	6.2	13.8
Kentucky	10.2	6.1	na	na	12.3	7.0	17.4
Maryland	11.2	6.0	55.5	39.6	22.3	6.6	14.8
Massachusetts	9.0	7.5	70.1	26.2	12.4	4.8	16.7
Michigan	9.8	7.3	51.2	15.8	12.9	6.8	13.3
Minnesota	7.4	9.1	71.0	32.6	11.6	5.1	13.1
Missouri	9.1	6.6	51.6	21.9	17.5	7.1	13.6
Montana	8.1	7.6	74.5	31.5	9.1	5.2	12.1
Navajo Nation (AZ)	7.2	6.5	75.4	30.8	8.1	5.5	16.3
Nebraska	8.6	6.7	67.8	24.4	16.4	5.7	13.1
Nevada	8.3	6.5	54.2	23.4	10.7	8.3	14.0
New Hampshire	8.0	9.0	64.6	22.8	13.8	6.7	15.9
New Jersey	9.3	6.2	58.9	33.7	18.9	6.1	18.1
New Mexico	10.0	4.6	71.5	23.8	10.0	7.7	11.5
New York	8.9	6.7	69.0	39.3	11.0	4.1	15.3
North Carolina	9.7	6.7	57.1	19.6	12.2	5.7	15.4
Ohio - WIC	11.1	5.7	44.4	16.6	13.6	6.6	11.7
Oregon	6.6	9.8	90.4	44.5	14.9	4.9	14.3
Pennsylvania	10.6	6.1	42.6	20.8	16.6	6.0	11.1
Puerto Rico	na	na	54.5	13.9	5.9	12.0	19.2
Rhode Island	8.8	7.6	54.3	17.3	16.4	6.6	16.5
Rosebud Sioux (SD)	8.3	6.6	60.7	na	19.1	1.8	21.7
South Carolina	12.4	5.1	na	na	16.0	13.6	13.7
South Dakota	8.4	7.9	na	na	7.9	6.6	14.3
Standing Rock Sioux (ND)	3.2	8.4	na	na	13.7	1.5	24.8
Tennessee	10.9	5.4	40.7	15.6	7.5	5.9	13.1
Texas	9.0	6.0	67.6	37.8	18.2	7.2	15.6
Vermont	8.5	10.8	69.9	31.8	6.1	5.3	12.9
Virginia	9.9	6.3	58.3	23.1	14.8	6.7	17.0
Washington	7.4	9.6	83.1	38.8	11.0	5.3	14.2
West Virginia	10.8	5.5	42.1	11.8	5.6	5.4	12.7
Wisconsin	8.6	7.6	62.6	26.0	10.4	5.7	13.0
<b>National PedNSS</b>	<b>9.2</b>	<b>6.6</b>	<b>60.1</b>	<b>25.2</b>	<b>14.0</b>	<b>6.4</b>	<b>14.8</b>

\* Low birthweight: < 2,500 grams.

† High birthweight: > 4,000 grams.

‡ Anemia: Based on CDC. Recommendations to prevent and control iron deficiency in the United States. MMWR Recomm Rep 1998;47 (RR-3). Children aged 1 to 2 years: Hb < 11.0 g/dL or Hct < 32.9%; children aged 2 to 5 years: Hb < 11.1 g/dL or Hct < 33.0%. Altitude adjusted, children aged 6 months or older included in the analysis.

§ Short stature: Based on the 2000 CDC growth reference, < 5 percentile length-for-age for children younger than 2 years of age or height-for-age for children aged 2 years or older.

|| Overweight: Based on the 2000 CDC growth reference for children aged 2 years or older, BMI-for-age ≥ 95th percentile.

## Pediatric Health Indicators

### *Low Birthweight*

Low birthweight (<2,500 grams) is an important determinant of neonatal and postneonatal mortality. Low birthweight infants who survive are at increased risk for health problems ranging from neurodevelopmental disabilities to respiratory disorders. In the 2006 PedNSS, 9.2% of infants were low birthweight, compared with 8.2% of all U.S. infants.<sup>1</sup> In PedNSS, the prevalence of low birthweight was higher for black infants (13.5%) than for white (8.9%), American Indian or Alaska Native (8.1%), Hispanic (7.2%), and Asian or Pacific Islander (6.4%) infants. Healthy People 2010 Objective 1610a proposes reducing low birthweight to no more than 5% of all live births.<sup>2</sup>

The overall prevalence of low birthweight increased slightly from 1997 (8.8%) through 2006 (9.2%), with increases among all racial and ethnic groups (Figure 2). During the 10-year period from 1997 through 2006, the greatest increases in low birthweight rates were seen among American Indian or Alaska Native (1.1%), black (1.0%), and white (0.8%) infants, compared with Hispanic (0.4%) and Asian (0.4%) infants.

*Low Birthweight: Less than 2,500 grams at birth.*

Figure 2: This is a line graph showing trends in the prevalence of low birthweight by race and ethnicity. Low birthweight is defined as birth weight <2500 grams, among infants born during the reporting period. Year 2010 target: reduce low birthweight to 5% of live births. Data for this table came from 2006 National PedNSS Table 18D and is available at [http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White										
Not Hispanic	8.1	8.1	8.3	8.3	8.4	8.4	8.6	8.8	9.1	8.9
Black										
Not Hispanic	12.5	12.6	12.6	12.6	12.7	12.6	12.9	13.1	13.6	13.5
Hispanic	6.8	6.7	6.7	6.7	6.7	7.1	7.3	7.7	7.4	7.2
Am Indian/ Alaska Native	7.0	7.4	6.8	6.7	7.3	6.8	7.4	7.9	7.9	8.1
Asian/Pacific Islander	7.9	7.9	7.7	8.0	8.3	8.0	8.3	8.4	8.5	8.3
Total	8.8	8.9	8.9	8.9	9.0	9.0	9.0	9.3	9.4	9.2

### *High Birthweight*

High birthweight (>4,000 grams) puts infants at increased risk for death and birth injuries such as shoulder dystocia. In the 2006 PedNSS, 6.6% of infants were high birthweight, compared with 8.5% in 1997. The high birthweight rate for PedNSS was lower than the overall U.S. rate (8.5%).<sup>3</sup> Twenty-three PedNSS contributors reported prevalence of high

birthweight higher than the national PedNSS rate (Table 1). In 2006, the prevalence of high birthweight was higher for American Indian or Alaska Native (9.0%) infants than for white (7.4%), Hispanic (7.1%), Asian or Pacific Islander (4.8%), and black (4.2%) infants. The largest decreases in high birthweight during the 10-year period occurred among American Indian or Alaska Native (3.2%) and white (2.6%) infants.

*High Birthweight: More than 4,000 grams at birth.*

***Breastfeeding***

The nutritional, immunologic, and economic advantages of breastfeeding are well recognized. In the 2006 PedNSS, 60.1% of infants were ever breastfed, 25.2% were breastfed for at least 6 months, and 18.1% were breastfed for at least 12 months.

The Healthy People 2010 objective (1619a-c) to increase the proportion of children ever breastfed to 75%, breastfed at 6 months to 50%, and breastfed at 1 year to 25%<sup>2</sup> is far from being achieved in the PedNSS population. However, Idaho, the Navajo Nation, Oregon, and Washington met the Healthy People 2010 objectives for ever breastfeeding (Table 1). Nationally representative data from the National Immunization Survey (NIS) indicate that 73.8% of infants were ever breastfed, 41.5% breastfed for 6 months, and 20.9% breastfed for 12 months.<sup>4</sup>

From 1997 to 2006, the absolute increase in the prevalence of breastfeeding initiation for infants in PedNSS was 8.8%. The breastfeeding initiation rate was 47.8% in 1997. Improved breastfeeding rates were evident among all racial and ethnic groups (Figure 3). Hispanic infants had the highest rates of breastfeeding initiation (72.9%), while black infants had the lowest rates (47.3%). Data from the NIS indicate that the ever breastfed rate in the United States increased from 38.2% in 1999 to 73.8% in 2003.<sup>4</sup>

*Breastfeeding: Child ever breastfed, breastfed until 6 months of age, or breastfed until 12 months of age.*

Figure 3. This is a line graph showing trends in percentage of infants ever breastfed by race and ethnicity among infants born during the reporting period. Data for this table came from 2006 National PedNSS Table 19D.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White										
not Hispanic	47.8	50.5	49.0	48.5	50.6	51.0	52.6	53.8	55.4	56.6
Black										
not Hispanic	30.5	33.5	35.3	34.5	36.1	40.0	41.6	42.6	46.4	47.3
Hispanic	59.4	61.1	62.8	65.5	68.4	67.5	68.0	68.7	71.1	72.9
Am Indian/ Alaska Native	57.7	56.7	55.9	53.2	52.2	58.6	55.7	62.4	61.5	65.8
Asian/Pacific Islander	47.7	51.8	50.3	53.5	55.3	51.0	53.6	58.8	59.4	59.7

Total	45.1	47.8	47.8	48.0	50.1	52.5	55.1	56.1	58.5	60.1
-------	------	------	------	------	------	------	------	------	------	------

Healthy People 2010 target: increase the proportion of mothers who breastfed their babies in the early postpartum period to 75%.

### **Anemia**

Anemia (low hemoglobin/hematocrit) is an indicator of iron deficiency, which is associated with developmental delays and behavioral disturbances in children. In the 2006 PedNSS, the prevalence of anemia was 14.0%. The highest prevalence of anemia was in infants aged 6–11 months (16.9%) and infants aged 12–17 months (17.0%); the lowest prevalence was in children aged 3–5 years (10.3%).

The prevalence of anemia also varied among racial and ethnic groups in PedNSS. The highest prevalence of anemia was among black children (21.0%), while the lowest prevalence was among white children (11.1%). The overall prevalence of anemia in PedNSS children declined only slightly, from 14.5% in 1997 to 14.0% in 2006. Only slight declines were observed among racial and ethnic groups, with the exception of American Indian or Alaska Native (1.2%) and Hispanic (0.8%) children who had greater improvements (Figure 4).

*Children aged 6 months to 2 years are considered anemic if their hemoglobin (Hb) concentration is less than 11.0 g/dL or hematocrit (Hct) level is less than 32.9%; children aged 2–5 years are considered anemic if their Hb concentration is less than 11.1 g/dL or Hct level is less than 33.0%. Values are adjusted for altitude. Hb concentration and Hct level are not reported for children younger than 6 months.<sup>5</sup>*

Figure 4: This is a line graph showing trends in prevalence of anemia among children aged < 5 years by race and ethnicity. Anemia is defined as Hemoglobin or Hematocrit < 5th percentile, CDC MMWR vol. 47 (No. RR-3), 1998. Data for this table came from 2006 National PedNSS Table 18D and is available at [http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White										
not Hispanic	11.4	11.1	11.3	10.6	10.4	10.1	10.5	10.8	10.4	11.1
Black										
not Hispanic	20.7	21.0	21.2	20.0	19.6	19.1	19.1	19.4	20.0	21.0
Hispanic	14.3	14.3	13.8	13.3	13.0	12.5	13.3	13.1	13.2	13.5
Am Indian/ Alaska Native	12.7	13.4	12.9	11.0	9.9	10.0	10.9	11.5	10.7	11.5
Asian/Pacific Islander	12.9	15.2	13.8	15.1	12.8	12.4	12.6	12.7	12.4	12.5
Total	14.5	14.5	14.5	13.7	13.4	13.0	13.4	13.5	13.6	14.0

### **Short Stature**

Short stature (low length/height-for-age) may reflect the long-term health and nutritional status of a child or a population. Although short stature can be associated with short parental stature or low birthweight, it also can result from growth retardation due to chronic malnutrition, recurrent illness, or both. In the 2006 PedNSS, 6.4% of children from birth to age 5 were of short stature, compared with 2.4% of all U.S. children (Dr. Zuguo Mei, CDC, unpublished data analysis, the National Health and Nutrition Examination Survey [NHANES], 1999–2002).

Short stature was considerably higher in the PedNSS population than in the general population, which may reflect the nutritional risk of children participating in the WIC program. The prevalence of short stature in PedNSS was above the expected level (5%) and the Healthy People 2010 objective (19-4) of 5% among low-income children younger than 5 years of age.<sup>2</sup> Eight contributors achieved this Healthy People 2010 objective in 2006 (Table 1). The prevalence of short stature remained stable from 1997 (6.1%) through 2006 (6.4%).

Some variation in short stature was evident among racial and ethnic groups. Short stature remained stable among white, black, Hispanic, and American Indian or Alaska Native children, while a decrease was seen among Asian or Pacific Islander children (Figure 5). The highest prevalence of short stature was among black infants younger than 1 year of age (11.2%), which may reflect the high rate of low birthweight in this group.

*Short Stature: Based on the 2000 CDC gender-specific growth chart percentiles of less than the 5th percentile length-for-age for children younger than aged 2 years and less than the 5th percentile height-for-age for children aged 2 years or older.*

Figure 5: This is a line graph showing trends in prevalence of short stature among children aged < 5 years by race and ethnicity. Short stature is defined as  $\leq$  5th percentile length or height-for-age, CDC Growth Charts, 2000. Year 2010 target: reduce short stature among low-income children aged <5 years to 5%. Data for this table came from 2006 National PedNSS Table 18D and is available at [http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White										
not Hispanic	6.3	6.1	6.0	6.0	6.3	6.3	6.5	6.6	6.6	6.5
Black										
not Hispanic	6.9	6.9	6.9	7.2	7.5	7.0	7.1	6.9	6.9	7.1
Hispanic	5.2	5.0	5.0	5.2	5.5	6.0	6.0	6.0	5.9	5.6
Am Indian/ Alaska Native	4.9	4.8	5.0	5.1	5.2	5.1	5.1	5.0	5.1	5.0
Asian/Pacific Islander	7.1	6.6	6.6	6.7	7.0	6.4	6.0	6.7	6.6	6.4
Total	6.1	6.0	5.9	6.0	6.3	6.3	6.4	6.4	6.4	6.4

### ***Underweight***

Data on underweight (low weight-for-length/BMI\*-for-age) in children from birth to age 5 years indicate that acute malnutrition was not a public health problem in the PedNSS population. In 2006, the prevalence of underweight (4.7%) was similar to the expected level (5%). The prevalence of underweight for all U.S. children in this age group was 3.8% (Zuguo Mei, MD; CDC; unpublished data analysis, NHANES, 1999–2002).

The highest prevalence of underweight in PedNSS occurred among black (6.1%) and Asian or Pacific Islander (6.2%) children. Black infants younger than 1 year of age had an underweight rate of 8.0%, which may reflect the high rate of low birthweight in this group. The overall prevalence of underweight decreased from 5.9% in 1997 to 4.7% in 2006.

*Underweight: Based on the 2000 CDC gender-specific growth chart percentiles of less than the 5th percentile weight-for-length for children younger than 2 years of age and less than the 5th percentile BMI-for-age for children aged 2 years or older.*

### ***Overweight and At Risk of Overweight***

Overweight in children has increased in recent years, and the associated health consequences warrant preventive efforts. The American Academy of Pediatrics recommends two categories to screen for overweight in children aged 2 years or older. Children whose BMI-for-age is at or above the 95th percentile are considered overweight. Those with a BMI-for-age between the 85th and 95th percentiles are considered at risk of overweight.<sup>6</sup>

In the 2006 PedNSS, the prevalence of overweight in children aged 2–5 years was 14.8%, compared with 13.9% for all U.S. children of a similar age.<sup>7</sup> In PedNSS, the highest rates of overweight were among American Indian or Alaska Native (19.4%) and Hispanic (18.0%) children; the lowest rates were among black (11.9%), white (12.3%), and Asian or Pacific Islander (12.4%) children (Figure 6). Of particular concern is that the prevalence of overweight among children aged 2–5 years increased from 11.6% in 1997 to 14.8% in 2006 (Figure 7). Overweight increased among all racial and ethnic groups with the exception of Asian or Pacific Islander children. However, since 2003, overall rates have remained stable.

The data in the 2006 prevalence map illustrating overweight among children in PedNSS by contributor (Figure 8) show that only Colorado had a prevalence of overweight less than 11%, while 10 contributors had a prevalence of overweight greater than or equal to 17%. Although the map shows no clear geographic pattern of overweight prevalence, it is noteworthy that four of the five ITOs participating in PedNSS were in the category with the highest rate.

No contributor had a prevalence of overweight at or less than the expected level of 5% (Table 1). The prevalence of at risk of overweight in children aged 2–5 years increased from 14.6% in 1997 to 16.4% in 2006.



*Overweight: Based on the 2000 CDC age- and sex-specific growth chart percentiles of equal to or greater than the 95th percentile BMI-for-age for children aged 2 years or older.*

*At Risk of Overweight: Based on the 2000 CDC age- and sex-specific growth chart percentiles of the 85th to the 95th percentile BMI-for-age for children aged 2 years or older.*

Figure 6: This is a vertical stacked bar graph that shows prevalence of overweight and at risk of overweight among children aged 2 to 5 years by race ethnicity for 2006. Overweight is defined as  $\geq 95^{\text{th}}$  percentile BMI-for-age; at risk of overweight is defined as  $\geq 85^{\text{th}}$  to  $\leq 95^{\text{th}}$  percentile BMI-for-age, CDC Growth Charts, 2000. Data for this table came from 2006 National PedNSS Table 8D and is available at [http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

	White non-Hispanic	Black	Hispanic	Am Indian/ Alaska Native	Asian/Pacific Islander	Total
Risk of overweight	15.9	14.4	17.8	20.1	14.0	16.4
Overweight	12.3	11.9	18.0	19.4	12.4	14.8

Figure 7: This is a line graph showing trends in prevalence of overweight\* among children aged 2 to 5 years by race and ethnicity. Overweight is defined as  $\geq 95^{\text{th}}$  percentile BMI-for-age, CDC Growth Charts, 2000. Data for this table came from 2006 National PedNSS Table 18D and is available at [http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

\* To calculate BMI (body mass index):  $\text{Weight (kg)} \div \text{Stature (cm)} \times 10,000$  or  $\text{Weight (lb)} \div \text{Stature (in)} \div \text{Stature (in)} \times 703$ .

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White										
Not Hispanic	9.6	10.0	10.6	11.3	11.5	11.8	12.2	12.6	12.4	12.3
Black										
Not Hispanic	10.2	10.6	10.8	11.1	11.0	11.9	12.1	12.2	12.0	11.9
Hispanic	16.0	16.7	16.9	17.2	17.0	19.0	18.4	18.2	18.0	18.0
Am Indian/ Alaska Native	15.4	16.5	17.2	17.4	17.1	17.5	17.7	19.0	19.0	19.4
Asian/Pacific										

Islander	12.9	13.9	13.3	13.8	13.4	13.4	13.0	12.5	12.3	12.4
Total	11.6	12.2	12.7	13.2	13.1	14.3	14.7	14.8	14.7	14.8

Figure 8

This is a map of the United States with states showing the prevalence of overweight among children aged 2 to 5 years by contributor. Overweight is defined as  $\geq 95$ th percentile BMI-for-age, CDC Growth Charts, 2000. The only state with a prevalence of overweight less than 11% was Colorado. States with a prevalence of overweight from 11% up to 13.9% include Arizona, New Mexico, Idaho, Montana, Nebraska, Kansas, Minnesota, Wisconsin, Michigan, Missouri, Arkansas, Ohio, Pennsylvania, West Virginia, Vermont, South Carolina, Tennessee, Alabama and Florida. Contributors with a prevalence of overweight from 14% up to 16.9% include Washington, Oregon, Nevada, Texas, South Dakota, Iowa, Illinois, Indiana, New Hampshire, New York, Massachusetts, Rhode Island, Connecticut, North Carolina, Georgia, Maryland, the District of Columbia, and the Navajo Nation. Contributors with a prevalence of overweight of 17% and higher include California, Kentucky, New Jersey, Virginia, Puerto Rico, Cheyenne River Sioux Tribe, Inter Tribal Council, Rosebud Sioux, and Standing Rock Sioux.

States with no data include Alaska, Hawaii, North Dakota, Wyoming, Utah, Oklahoma, Louisiana, Mississippi, and Maine. Data for this table came from 2006 National PedNSS Table 6D and is available at

[http://www.cdc.gov/pednss/pednss\\_tables/tables\\_numeric.htm](http://www.cdc.gov/pednss/pednss_tables/tables_numeric.htm).

### ***Pediatric Health Progress Review***

Several advances in nutrition and health indicators were observed in the PedNSS population from 1997 through 2006 (Figure 9). The prevalence of high birthweight decreased, with the greatest improvement occurring among American Indian or Alaska Native and white children. Substantial improvements occurred in both the prevalence of infants ever breastfed and those breastfed for at least 6 months.

The largest absolute improvement in the prevalence of ever being breastfed occurred among black children, while the greatest improvements in breastfeeding for at least 6 months occurred among Hispanic children. Overall, short stature improved during the 10-year period, with the greatest improvements seen among Asian or Pacific Islander children.

Areas of concern remain. The low birthweight rate increased during the 10-year period, and this increase was seen among all racial or ethnic groups. The Healthy People 2010 objective to reduce the low-birthweight prevalence to 5%<sup>2</sup> remains unmet. Although the prevalence of anemia decreased slightly, it remains high among all racial and ethnic groups.

Overweight is a major public health problem that has increased: 3.2% more children aged 2–5 years were overweight in 2006 than in 1997. This change is a relative increase of

28%. Although Hispanic and American Indian or Alaska Native children had the highest prevalence of overweight, increases occurred among all racial and ethnic groups, with the exception of Asian or Pacific Islander children. Advances have been made in breastfeeding initiation and breastfeeding for at least 6 months. However, few contributors achieved the Healthy People 2010 objective that 75% of infants are ever breastfed, and no contributors achieved the objective that 50% of infants breastfeed for at least 6 months.<sup>2</sup> The prevalence of breastfeeding remained lowest for black infants.

Figure 9: This is a horizontal bar graph that shows changes in infant and child health status from 1997 through 2006. All of the health indicators rates have improved during the ten-year period with the exception of low birthweight and overweight which have gotten worse. Changes include:

Low Birthweight has increased by 4% during the ten-year period.  
High Birthweight has decreased by 22% during the ten-year period.  
Ever Breastfed has increased 33% during the ten-year period.  
Breastfed at 6 months has increased 50% during the ten-year period.  
Anemia has decreased by 3% during the ten-year period.  
Short Stature has decreased by 5% during the ten-year period.  
Overweight has increased by 28% during the ten-year period.

### ***Pediatric Nutrition Recommendations***

PedNSS data indicate that public health programs need to support the following actions:

- Prevent low birthweight by promoting preconception nutrition care and outreach activities to identify pregnancy in its early stages and foster early entry into comprehensive prenatal care, including the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Title V Maternal and Child Health Program.
- Promote and support breastfeeding interventions through public health programs, medical care systems, work sites, and communities.
- Promote adequate dietary iron intake and screening of children at risk for iron deficiency.
- Implement promising approaches to preventing overweight and chronic diseases that are recommended by CDC's Division of Nutrition, Physical Activity and Obesity. These recommendations include 1) increase breastfeeding initiation, duration, and exclusivity; 2) increase physical activity; 3) increase the consumption of fruits and vegetables; 4) decrease the consumption of sugar-sweetened beverages; 5) reduce the consumption of high energy dense foods; and 6) decrease television viewing.
- Promote routine screening of weight status by physicians or allied health care providers in all children for overweight (BMI >95th percentile for age and sex) and at risk of overweight (BMI >85th percentile to <95th percentile for age and sex) based on the American Academy of Pediatrics policy statement.<sup>6</sup>

## ***References***

1. Hamilton BE, Martin JA, Ventura SJ. Births: preliminary data for 2005. Health E-Stats. Hyattsville, MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2006. Available at <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimbirths05/prelimbirths05.htm>.
2. U.S. Department of Health and Human Services. Healthy People 2010. 2nd edition. 2 volumes. Washington, DC: U.S. Government Printing Office; 2000. Available at <http://www.healthypeople.gov/publications>.
3. Martin JA, Hamilton BE, Sutton PD, et al. Births: final data for 2004. National Vital Statistics Reports 2005;55(1). Available at [http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55\\_01.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55_01.pdf).
4. Centers for Disease Control and Prevention. Breastfeeding practices: results from the National Immunization Survey by year of child birth. Available at [http://www.cdc.gov/breastfeeding/data/NIS\\_data/data\\_2004.htm](http://www.cdc.gov/breastfeeding/data/NIS_data/data_2004.htm).
5. Centers for Disease Control and Prevention. Recommendations to prevent and control iron deficiency in the United States. MMWR Recommendations and Reports 998;47(RR-3):1–30.
6. American Academy of Pediatrics Committee on Nutrition. Policy statement. Prevention of pediatric overweight and obesity. Pediatrics [serial online] 2003;112(2):424–430. Available at <http://aappolicy.aappublications.org;112/2/424>.
7. Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999–2004. Journal of the American Medical Association 2006;295(13):1549–1555.