



Pediatric Nutrition Surveillance



2001 Report



2003
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

This report summarizes selected data on health and nutritional status received from state, territorial, and tribal governments that contributed to the Centers for Disease Control and Prevention (CDC) Pediatric Nutrition Surveillance 2001 Report.

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Suggested Citation

Polhamus B, Dalenius K, Thompson D, Scanlon K, Borland E, Smith B, Grummer-Strawn L. *Pediatric Nutrition Surveillance 2001 Report*. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2003.

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 to collect and use nutrition surveillance systems make the national PedNSS possible.

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Pediatric Nutrition Surveillance

The Pediatric Nutrition Surveillance System (PedNSS) is a child-based public health surveillance system that monitors the nutritional status of low-income children in federally funded maternal and child health programs. Data on birthweight, short stature, underweight, overweight, anemia, and breastfeeding 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. When multiple records are submitted for a child during a year-long reporting period, CDC creates a unique child record that may contain some data from all available records. National nutrition surveillance reports are produced using PedNSS data. Surveillance reports are also produced for each contributor (defined as a state, U.S. territory, or tribal government). In 2001, a total of 39 states, the District of Columbia, Puerto Rico, American Samoa, and six tribal governments participated in PedNSS (Figure 1). Together in 2001, they contributed records for more than 5 million children from birth to 5 years of age.

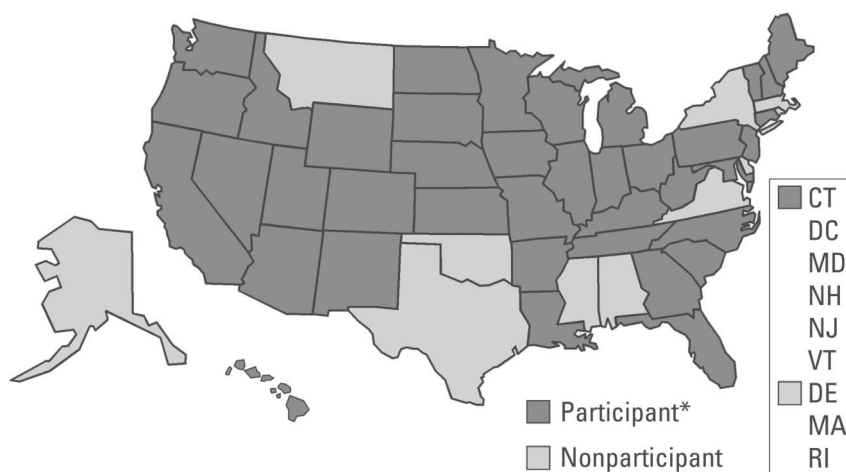
Data for the 2001 PedNSS were collected from children enrolled in the following federally funded programs that serve low-income children: the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (82%); the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program (8%); the Title V Maternal and Child Health Program (6%); and Head Start and other

programs (4%). 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 plan, implement, and evaluate nutrition programs. This report summarizes 2001 data and highlights trends from 1992 through 2001.

Demographic Characteristics

In the 2001 PedNSS, 40% of the records were from non-Hispanic white children, 32% from Hispanic children, 22% from non-Hispanic black children, 3% from Asian or Pacific Islander children, 1% from American Indian or Alaska Native children, and 2% from children of all other or unspecified races and ethnicities. Most PedNSS records (63%) were from children aged 1 to 5 years; 37% were from infants aged less than 1 year. These proportions have been stable since 1992.

Figure 1. Contributors to the 2001 Pediatric Nutrition Surveillance Report



* Includes American Samoa, Puerto Rico, and the following tribes: Cheyenne River Sioux (SD), InterTribal Council (AZ), Rosebud Sioux (SD), Chickasaw Nation (OK), Navajo Nation (AZ), and Standing Rock Sioux (ND).

Table 1. State-specific prevalence of selected nutritional indicators of children aged <5 years, 2001 Pediatric Nutrition Surveillance System

Contributor	LBW*	HBW†	Short Stature‡	Over-weight§	Anemia	Ever Breastfed	Breastfed at 6 Months
American Samoa	na	na	9.6	16.1	49.9	na	na
Arizona	8.1	7.9	7.9	11.9	19.6	na	na
Arkansas	9.7	7.1	7.7	11.2	10.4	10.3	10.3
California	6.7	9.1	5.0	16.6	13.5	na	na
Cheyenne River Sioux (SD)	6.1	10.8	3.0	17.6	13.7	34.2	na
Chickasaw Nation (OK)	7.8	10.1	7.3	10.9	16.4	53.0	15.4
Colorado	9.0	4.9	8.4	8.5	7.1	69.7	25.4
Connecticut	9.0	7.9	6.2	18.7	10.4	49.3	23.4
District of Columbia	12.4	6.0	7.6	12.3	20.4	41.8	23.6
Florida	9.3	7.3	4.6	12.9	16.2	60.2	23.2
Georgia	9.9	6.7	7.1	11.3	12.7	46.9	16.1
Hawaii	9.4	7.7	7.5	10.4	11.6	65.3	25.8
Idaho	7.4	7.7	6.4	10.7	10.0	78.5	32.0
Illinois	9.3	7.4	8.4	14.7	12.7	48.4	18.5
Indiana	9.0	7.7	6.6	12.3	17.3	48.8	18.7
InterTribal Council (AZ)	7.0	9.3	6.4	21.4	11.8	63.9	26.1
Iowa	7.8	9.6	5.5	13.2	9.6	54.1	22.6
Kansas	8.1	7.1	7.0	11.1	10.7	61.0	20.8
Kentucky	9.5	7.9	5.0	14.4	12.3	na	na
Louisiana	12.2	5.6	10.2	12.1	14.5	20.4	0.5
Maine	6.8	12.0	7.7	14.3	9.9	50.7	21.3
Maryland	11.1	6.5	8.6	13.1	22.9	49.6	22.0
Michigan	9.7	8.5	7.7	12.2	13.8	44.8	12.2
Minnesota	7.7	10.0	4.3	13.1	9.6	na	na
Missouri	8.9	7.6	6.5	11.6	16.8	47.3	28.5
Navajo Nation (AZ)	7.3	7.6	5.8	13.3	6.2	na	na
Nebraska	7.9	7.7	6.5	11.9	13.0	56.2	20.9
Nevada	8.1	7.4	7.8	11.7	11.2	56.8	29.2
New Hampshire	9.5	10.4	7.9	14.6	16.2	52.4	20.0
New Jersey	9.0	7.4	6.2	16.8	19.3	53.7	32.7
New Mexico	8.9	5.3	8.2	9.4	4.7	na	na
North Carolina	9.4	7.5	5.3	12.3	11.7	49.8	16.4
North Dakota	6.5	11.3	4.1	11.4	8.6	54.4	22.2
Ohio	10.0	6.8	6.2	11.1	16.2	36.6	14.7
Oregon	5.6	23.4	5.9	14.0	11.5	na	na
Pennsylvania	10.2	7.4	6.0	11.9	15.5	39.1	13.4
Puerto Rico	11.5	3.1	8.5	22.2	10.2	48.2	19.5
Rosebud Sioux (SD)	8.1	12.6	3.3	18.9	17.2	58.7	na
South Carolina	11.8	6.2	11.6	11.9	11.3	na	na
South Dakota	7.5	9.8	5.8	12.2	7.0	49.9	22.6
Standing Rock (ND)	6.2	8.5	2.5	18.9	7.0	39.3	na
Tennessee	10.4	6.4	5.1	11.0	8.3	na	na
Utah	8.5	6.0	6.7	7.6	10.5	77.2	39.9
Vermont	7.3	10.8	5.2	13.0	10.1	65.3	28.6
Washington	6.6	10.9	4.8	12.9	9.3	79.6	34.8
West Virginia	9.2	7.8	4.5	12.0	6.2	38.9	15.9
Wisconsin	8.3	8.9	5.6	11.3	13.1	53.4	21.4
Wyoming	11.1	4.5	7.9	8.1	8.8	53.9	21.5
Nation	9.0	7.9	6.4	13.4	13.3	50.9	20.8

* Low birthweight: < 2,500 grams.

† High birthweight: > 4,000 grams.

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

§ Overweight: Based on the 2000 CDC growth reference for children age 2 and older, BMI-for-age ≥ 95th percentile.

|| Anemia: Based on 1998 CDC MMWR Recommendations to Prevent and Control Iron Deficiency in the United States, altitude adjusted, children aged 6 months or older included in the analysis.

2 Pediatric Nutrition Surveillance

Pediatric Health Indicators

Low Birthweight

The single most important factor affecting neonatal mortality and a significant determinant of postneonatal mortality is low birthweight (< 2,500 grams). Low-birthweight infants who survive are at increased risk for health problems ranging from neurodevelopmental disabilities to respiratory disorders. In the 2001 PedNSS, 9.0% of infants were low birthweight, compared with 7.7% of U.S. infants.¹ In PedNSS, the prevalence of low birthweight was higher for black infants (12.6%) than for white (8.4%), Asian or Pacific Islander (8.2%), American Indian or Alaska Native (7.3%), and Hispanic (7.0%) infants. One of the *Healthy People 2010* objectives (16-10a) calls for a reduction in low birthweight to no more than 5% of all live births.²

The overall prevalence of low birthweight decreased slightly from 9.3% in 1992 to 9.0% in 2001; however, variations were observed among racial and ethnic groups (Figure 2). During this time period, low-birthweight rates improved for Hispanic infants, remained the same for black and Asian or Pacific Islander infants, and worsened for white and American Indian or Alaska Native infants.

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

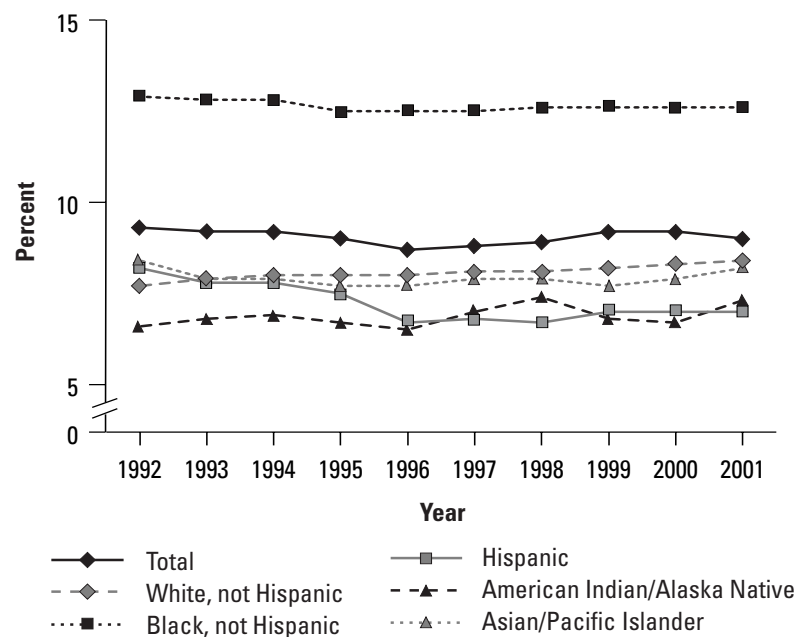
High Birthweight

High birthweight (> 4,000 grams) puts infants at increased risk for death and birth injuries such as shoulder dystocia. In the 2001 PedNSS, 7.9% of infants were high birthweight, compared with 9.4% of U.S. infants.¹ Twelve PedNSS contributors had overall prevalences higher than the national rate (Table 1). The prevalence of high birthweight was higher for American Indian or Alaska Native (11.0%) infants than for white (9.2%), Hispanic (8.4%), Asian or Pacific Islander (6.2%), and black (5.0%) infants.

The overall prevalence of high birthweight decreased slightly from 1992 (8.4%) to 2001 (7.9%); however, the greatest decrease was among white and Asian or Pacific Islander infants.

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

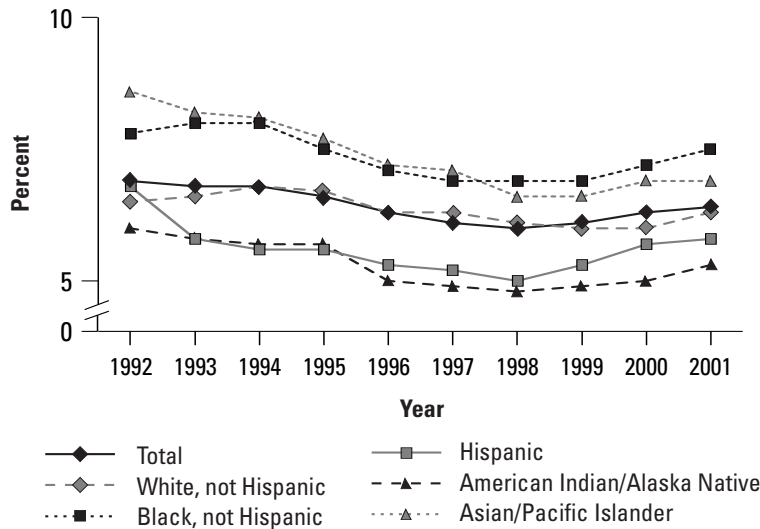
Figure 2. Trends in prevalence of low birthweight,* by race and ethnicity



* < 2,500 grams among infants born during the reporting period. Year 2010 target: reduce low birthweight to 5% of live births.

2001 National PedNSS Table 18D

Figure 3. Trends in prevalence of short stature* among children aged < 5 years, by race and ethnicity



* \leq 5th percentile length or height-for-age, CDC Growth Charts, 2000. Year 2010 target: reduce growth retardation (short stature) among low-income children under age 5 years to 5%.

2001 National PedNSS Table 18D

slight decrease in short stature was evident in all racial and ethnic groups; the largest decrease was in Asian or Pacific Islander children (Figure 3). The highest prevalence of short stature was in black infants younger than age 1 (11.4%), which may reflect the high rate of low birthweight in this group.

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

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 can also result from growth retardation due to chronic malnutrition caused by inadequate food intake, recurrent illness, or both. In the 2001 PedNSS, 6.4% of children from birth to age 5 were of short stature, compared with 3.1% of U.S. children (Unpublished CDC data analysis, 2002).³ The prevalence of short stature in PedNSS is somewhat above the expected level (5%) and the *Healthy People 2010* objective (19-4) to reduce growth retardation among low-income children under 5 years of age to 5%.² Eight contributors achieved this *Healthy People 2010* objective in 2001 (Table 1). The prevalence of short stature declined slightly from 6.9% in 1992 to 6.4% in 2001. A

Underweight

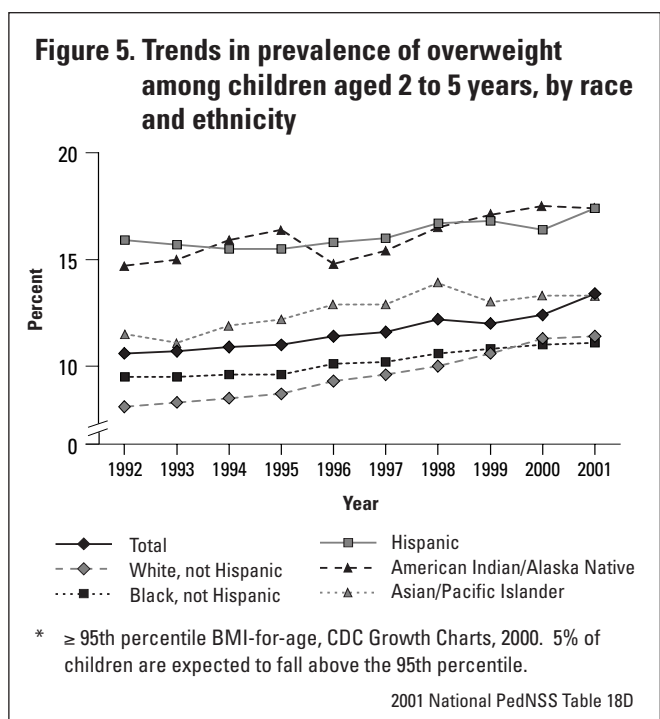
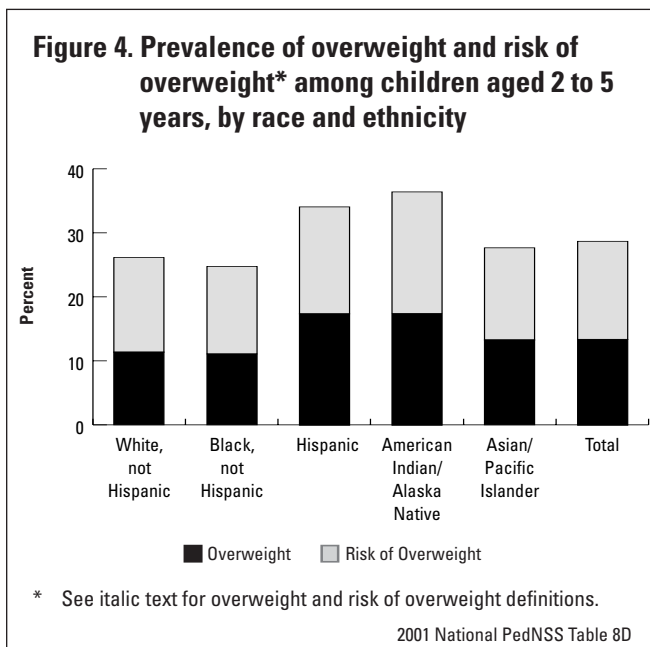
Data on underweight (low weight-for-length/ BMI-for-age) in children from birth to age 5 indicate that acute malnutrition is not a public health problem in the PedNSS population; the prevalence of 5.4% is similar to the expected level (5%). The prevalence of underweight for U.S. children in this age group is 3.8% (Unpublished CDC data analysis, 2002).³ The highest prevalence of underweight in PedNSS was in black children (6.6%). Black infants aged 0–11 months had an underweight rate of 8.6%, which may reflect the high rate of low birthweight in this group. The overall prevalence of underweight decreased from 6.9% in 1992 to 5.4% in 2001.

Underweight: Based on the 2000 CDC 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 or older.

Overweight and Risk of Overweight

Overweight (high weight-for-length/BMI-for-age) in children and adolescents has reached epidemic proportions in recent years. The prevalence of overweight in children in PedNSS from birth to age 5 is 13.1%. Overweight in children younger than age 2 does not pose the same risk as it does in children aged 2 or older because little association has been found between their weight and increased risk for adult obesity. Expert committees have recommended a two-level screening for overweight among children aged 2 years or older. The recommendations are to use BMI-for-age at or above the 95th percentile to define overweight and between the 85th and 95th percentile to define risk of overweight.^{4,6}

In PedNSS, the prevalence of overweight was 13.4% for children aged 2 to 5. The highest rates were among American Indian or Alaska Native (17.4%) and Hispanic (17.4%) children, the lowest among black (11.1%) children (Figure 4). Of particular concern is that the prevalence of overweight in children aged 2 to 5 has steadily increased: from 10.6% in 1992 to 13.4% in 2001 (Figure 5). Overweight has increased among all racial and ethnic groups, with the greatest increase occurring among white children. In this group, the relative



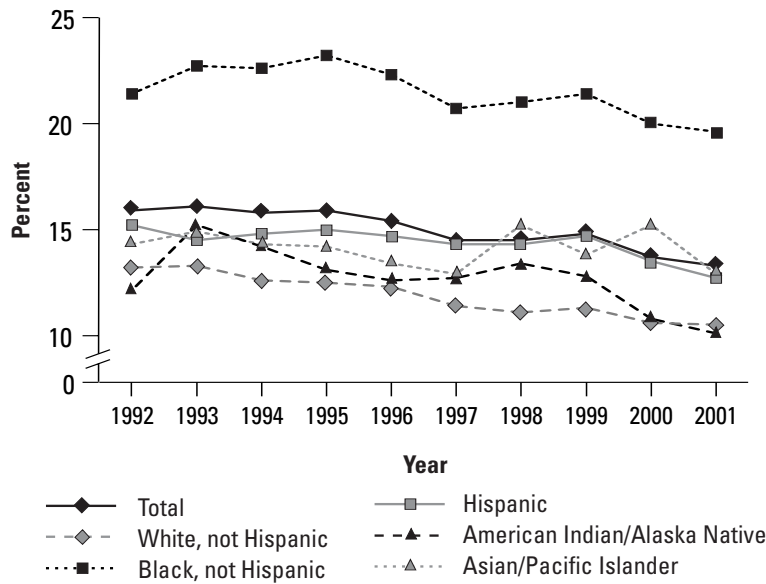
increase in overweight was more than 27.0% between 1992 and 2001, and 15.3% of children aged 2 or older were at risk of becoming overweight. In PedNSS, only three states had a prevalence of overweight less than 10% (Table 1).

The prevalence of risk of overweight increased from 13.5% in 1992 to 15.3% in 2001. This increase was seen in all racial and ethnic groups except American Indian and Alaska Native children, whose prevalence has remained stable, although consistently higher than all other groups. Findings from PedNSS are consistent with trends of increasing overweight in children in the U.S. population; however, the prevalence of overweight (7.2%) and risk of overweight (10.9%) is considerably lower in U.S. children.⁷

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

Risk of overweight: Based on the 2000 CDC growth chart percentiles of the 85th to the 95th percentile BMI-for-age for children 2 years of age or older.

Figure 6. Trends in prevalence of anemia* among children aged < 5 years, by race and ethnicity



* Hb or Hct < 5th percentile. CDC. Recommendations to prevent and control iron deficiency in the United States. MMWR Recomm Rep 1998;47(RR-3):1-30.

2001 National PedNSS Table 18D

children (19.6%). The overall prevalence of anemia in PedNSS declined from 15.9% in 1992 to 13.3% in 2001. While a decline was observed among all racial and ethnic groups, black and Asian or Pacific Islander children had the smallest declines during this period (Figure 6).

Anemia: Children aged 1 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 33.0%; children aged 2 to 5 years are considered anemic if their Hb concentration is less than 11.1 g/dL or their Hct level is less than 33.3%.⁸

Anemia

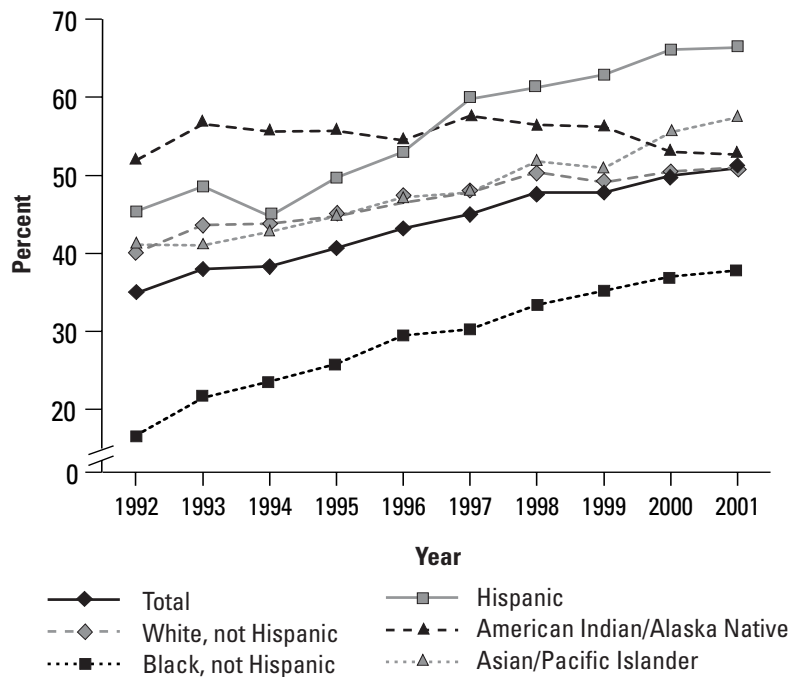
Anemia (low hemoglobin/hematocrit) is an indicator of iron deficiency, the most common known nutrient deficiency in the world. Iron deficiency in children is associated with developmental delays and behavioral disturbances. In the 2001 PedNSS, the prevalence of anemia was 13.3%, compared with 8.1% in U.S. children (Unpublished CDC data analysis, 2002).³ The highest prevalence of anemia in PedNSS and U.S. children is in children younger than age 2; the prevalence decreases as children get older. In PedNSS, the highest prevalence of anemia was in infants aged 6–11 months (16.6%), followed by children aged 12–17 months (15.3%); the lowest prevalence was in children aged 3 to 5 years (9.8%). The prevalence is lower in the U.S. population: 10.8% in children aged 12–17 months and 5.3% in children aged 3 to 5 years (Unpublished CDC data analysis, 2002).³ The prevalence of anemia also varies among racial and ethnic groups in PedNSS. The highest prevalence of anemia was among black

Breastfeeding

The nutritional, immunologic, allergenic, economic, and psychologic advantages of breastfeeding are well recognized. In the 2001 PedNSS, 50.9% of infants were ever breastfed, 20.8% were breastfed for at least 6 months, and 13.6% were breastfed for at least 12 months. The *Healthy People 2010* objective (16-19a-c) to increase the proportion of children ever breastfed to 75%, of children breastfed at 6 months to 50%, and at 1 year to 25%² is far from being achieved in the PedNSS population. However, Idaho, Utah, and Washington met the *Healthy People 2010* objectives for breastfeeding initiation (Table 1), and Idaho, Missouri, and Vermont met the *Healthy People 2010* objectives for breastfeeding at 12 months. National data from other sources indicate that 69.5% of mothers initiate breastfeeding; 32.5% are still breastfeeding at 6 months,⁹ and 18.0% at 12 months.¹⁰

Infant and Child Health Advances and Concerns

Figure 7. Trends in the percentage of infants ever breastfed,* by race and ethnicity



* Among infants born during the reporting period. Year 2010 target: increase the proportion of mothers who breastfeed their babies in the early postpartum period to 75%.

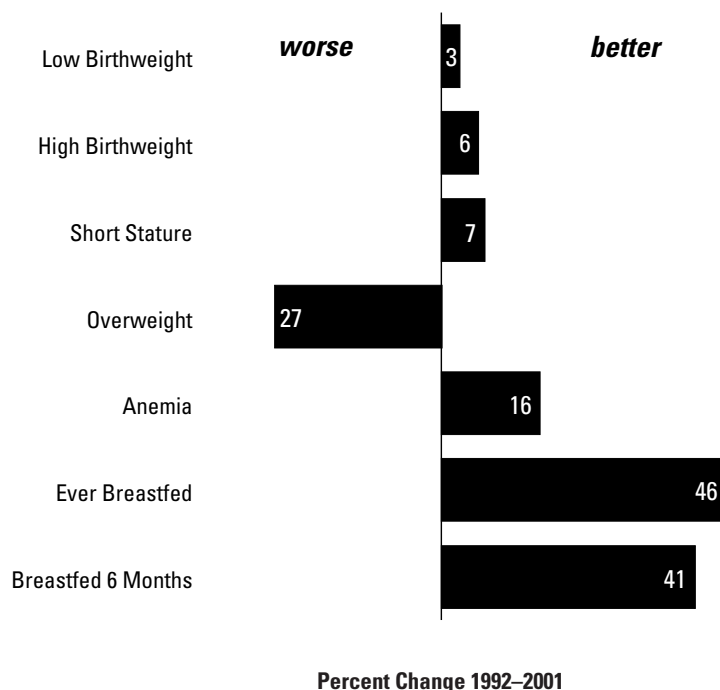
2001 National PedNSS Table 19D

Several advances in nutrition and health indicators were observed in the PedNSS population from 1992 to 2001 (Figure 8). Small improvements were made in both low and high birthweight, with the largest improvement in low birthweight among Hispanic infants. Short stature decreased slightly, with the greatest improvement among Asian or Pacific Islander children. Significant reductions occurred in the prevalence of anemia. A decrease occurred among all racial and ethnic groups, with the smallest change among black and Asian or Pacific Islander children. Major improvements have occurred in both the prevalence of infants

The prevalence of breastfeeding for children in PedNSS has increased more than 45% from the 1992 rate of 34.9%, and these improved breastfeeding rates are evident among all racial and ethnic groups (Figure 7). Although black infants still have the lowest prevalence of breastfeeding (37.8%), this prevalence has more than doubled since 1992 (16.6%). National data from other sources indicate that the breastfeeding rate for all U.S. mothers increased from 54.2% in 1992 to 69.5% in 2001.⁹

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

Figure 8. Infant and child health advances and concerns: percent change 1992 to 2001



2001 National PedNSS Table 2D

ever breastfed and those breastfed for at least 6 months. Prevalence of breastfeeding remains lowest for black infants, but this group showed the largest improvement in prevalence of ever breastfed and breastfed for at least 6 months.

Areas of concern remain, however. No racial or ethnic group achieved the *Healthy People 2000*¹¹ objective to reduce the low-birthweight prevalence to 5%, and increases in low birthweight occurred among white and American Indian or Alaska Native infants.

Although there has been a decrease in the prevalence of anemia, it is still high among all racial and ethnic groups. Very few states achieved the *Healthy People 2000*¹¹ objective that 75% of infants be breastfed.

Overweight is a major public health problem that has steadily increased; 27% more children aged 2 to 5 years are overweight than in 1992. Although Hispanic and American Indian or Alaska Native children still have the highest prevalence of overweight, increases occurred among all racial and ethnic groups, with the largest increase among white children aged 2 to 5 years.

Pediatric Nutrition Recommendations

PedNSS data indicate that national and state public health programs are needed to support the following actions:

- Implement innovative strategies to reverse the rising trend of overweight in young children by promoting consumption of five or more servings of fruits and vegetables each day, increasing physical activity, increasing breastfeeding, and decreasing television viewing.
- Establish breastfeeding as a societal norm.
- Promote adequate dietary iron intake and screening of children at risk for iron deficiency.
- Prevent low birthweight by providing preconception nutrition care and outreach activities to promote early identification of pregnancy and 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.
- Expand participation of states, U.S. territories, and tribal governments in PedNSS and increase collaboration between CDC and participating government agencies to support system initiation and maintenance and improved data quality.

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