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WIC Participant and Program Characteristics 2018 Final Report

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Authors

Nicole Kline, Betsy Thorn, Denise Bellows, Kathy Wroblewska, Elaine Wilcox-Cook

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Office of Policy Support
Food and Nutrition Service
U.S. Department of Agriculture
1320 Braddock Place
Alexandria, VA 22314

Project Officer

Grant Lovellette

Submitted by

Insight Policy Research, Inc.
1901 North Moore Street
Suite 1100
Arlington, VA 22209

Project Directors

Betsy Thorn and Nicole Kline

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Executive Summary

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered by the U.S. Department of Agriculture's Food and Nutrition Service (FNS).[1] WIC benefits include nutritious supplemental foods; nutrition education and counseling, including breastfeeding promotion and support; and referrals to healthcare, social services, and other community providers for pregnant, breastfeeding, and postpartum women,[2] and infants and children up to age 5. WIC delivers food benefits to participants through food instruments in the form of vouchers, checks, or electronic benefit transfer cards. Participants may redeem these benefits from authorized retail vendors.

WIC was initially launched as a pilot program in 1972 and permanently established in 1974 by an amendment to the Child Nutrition Act of 1966 (Pub. L. 89–642, as amended in 2010 through Pub. L. 111–296). A total of 7.8 million women, infants, and children participated in WIC in April 2018. For fiscal year 2018, Congress appropriated $6.18 billion for the program. Since 1988, FNS has produced biennial reports on WIC participant and program characteristics (PC). This information is used for program monitoring and for managing WIC information needs such as estimating budgets, submitting civil rights reports,[3] identifying research needs, and reviewing current and proposed WIC policies and procedures. Federal regulations require that the biennial reports include information on participants' income and nutritional risk characteristics, breastfeeding initiation rates and duration estimates, and migrant farmworker characteristics.[4]

WIC provides services through 90 State agencies: the 50 States; the District of Columbia; 5 U.S. territories (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands); and 34 Indian Tribal Organizations. These 90 State agencies operated nearly 1,800 local agencies nationwide in April 2018.

A. PC Data and Reporting

This publication is the 16th report in the WIC PC study series. Similar to all WIC PC reports issued since 1988, the 2018 report (PC2018) is based on participant data submitted to FNS by State agencies. Each of these reports has presented information on a census of WIC participants conducted in the sample month of April of the reference year.

For each PC report, a WIC participant is defined as a person who was certified to receive WIC benefits in April of the reference year, including individuals who did not claim a food instrument in April.[5] In contrast, for administrative purposes, FNS measures monthly WIC participation based on the number of certified individuals who claimed their food instruments each month. As a result of the difference in how participation is defined for PC reports versus FNS administrative data, participation as measured for

[1] See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[2] Current WIC regulations allow food packages to be prescribed to women up to 6 months postpartum who are nonbreastfeeding or minimally breastfeeding; these women are included in the definition of postpartum women in this report. See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[3] Federally required reports on the race and ethnicity of WIC participants
[4] Federal regulations define a migrant farmworker as an individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who has established a temporary abode for the purposes of such employment.
[5] In accordance with Federal regulations, this definition includes fully breastfed infants who were certified to receive benefits but were not prescribed a food package, as well as partially breastfeeding women more than 6 months postpartum who were not prescribed a food package but whose infants were prescribed a food package.

PC2018 was 15.3 percent greater than participation as measured for program reports based on FNS administrative data for April 2018.

The current system for reporting PC data is based on the automated transfer of a set of 20 data items, known as the Minimum Data Set (MDS), by State agencies to FNS. The data items represent information State and local WIC staff collect to confirm applicant eligibility for WIC benefits and issue food instruments. FNS developed the MDS in collaboration with the Information Committee of the National WIC Association and the Centers for Disease Control and Prevention (CDC).

For PC data reporting, all 90 State agencies are asked to submit the MDS data on a census of participants.[6] The State agency-maintained information systems that served as the data sources for PC2018 did not always contain complete information on every WIC participant; this was also the case for prior PC reports.

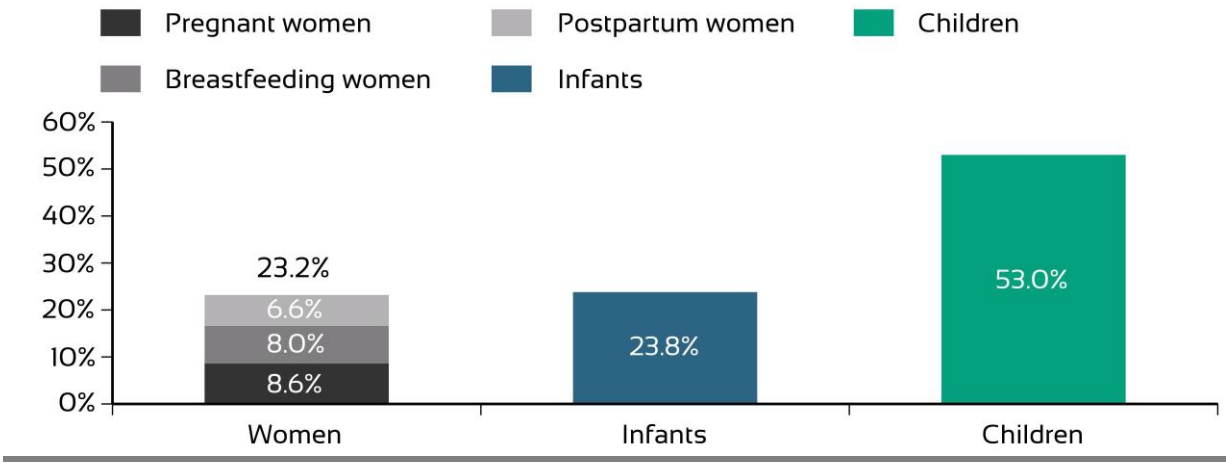
B. Participant Characteristics in 2018

This report describes findings in seven main topic areas: enrollment and demographic characteristics, participation in other benefit programs and income, assigned nutritional risks, anthropometric status, anemia status, breastfeeding initiation and duration, and comparisons of participants with the overall U.S. population. This section describes key findings for 2018 for each of these topic areas; trends over time are noted where they exist.

1. Enrollment and Demographic Characteristics

A total of 7,837,672 women, infants, and children participated in WIC in April 2018. More than half (53.0 percent) of participants in 2018 were children (see figure ES.1).

Figure ES.1. Distribution of Participants by Participant Category



Note
The data for this figure are also presented in tables 3.1 and appendix table A.1.

Infants accounted for 23.8 percent of participants, and women accounted for 23.2 percent. Since 1992, the proportion of infants has decreased, whereas the proportion of children has increased. In 2018,

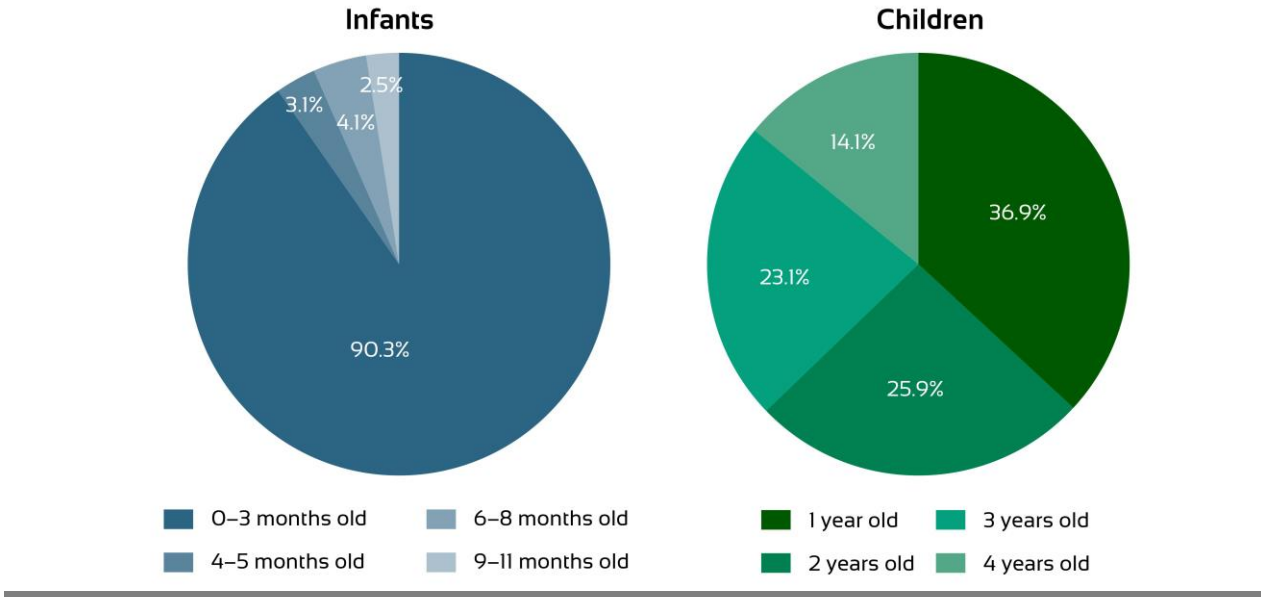
[6] In 2018, the study team weighted data for New Mexico based on participant category reporting for four clinics the State agency was unable to include in its data submission.

pregnant women made up 8.6 percent of participants overall, followed by breastfeeding women at 8.0 percent and postpartum women at 6.6 percent. In 2012, the proportion of breastfeeding women was higher than that of postpartum women for the first time in the history of WIC; this trend continued through 2018. This shift toward higher rates of breastfeeding among WIC women is consistent with continually increasing rates of breastfeeding initiation for WIC infants.

a. Age at certification

Most infants (90.3 percent) were initially certified for WIC benefits during their first 3 months of life (see figure ES.2). Child participation decreased as age increased; at the time of most recent certification, 36.9 percent of children were 1 year old, whereas 14.1 percent were 4 years old. The proportion of children who were 1 year old has increased since 2012, whereas the proportion who were 4 years old has decreased.

Figure ES.2. Distribution of Infants and Children by Age at Certification



Note
The data for this figure are also presented in tables 3.2b–c and appendix tables A.3 and A.4.

Most (84.6 percent) women were 18 to 34 years old in April 2018; 2.5 percent of women were aged 17 or younger. The proportion of women aged 35 and older was 12.8 percent in 2018, a substantial increase from the 5.2 percent of women in this age category in 1992.

b. Trimester of enrollment

In 2018, more than half of pregnant women (52.5 percent) enrolled in the program during the first trimester of pregnancy. Most of the remainder (37.1 percent) of pregnant participants enrolled during the second trimester. Ten percent enrolled during the third trimester. The proportion of pregnant women who enrolled during the first trimester has decreased steadily from a high of 56.9 percent in 2012.

c. *Risk priority*

When a local agency reaches its maximum caseload—which is determined by FNS based on the agency's funding level and predicted case turnover—it uses a ranking system, in accordance with policy set by the State agency, with seven federally defined risk priority levels[7] to prioritize eligible applicants according to their relative levels of nutritional risk (see text box). In April 2018, no State agency was required to use risk priority levels to determine which applicants would receive benefits.

Risk Priorities

Risk Priority	Type	Participant Categories
I	Medically based	Pregnant women, breastfeeding women, and infants
II		Infants up to 6 months old
III		Children
IV	Dietary based	Pregnant women, breastfeeding women, and infants
V		Children
VI		Postpartum women
VII	Other	All categories

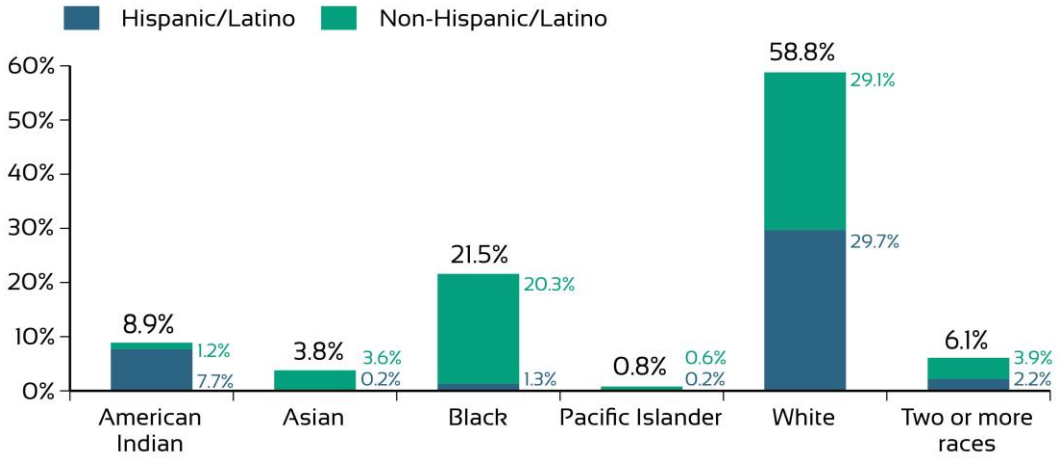
The information in this table is also presented in table 3.4.

About two-thirds of all participants were assigned Priority Level I (32.7 percent) or Priority Level III (32.6 percent) in 2018. Nearly all pregnant and breastfeeding women (92.4 and 94.0 percent, respectively) were assigned Priority Level I; most postpartum women (52.7 percent) were assigned Priority Level VI. About two-thirds of infants (68.7 percent) were assigned Priority Level I, and more than half of children were assigned Priority Level III (57.1 percent).

d. *Race and ethnicity*

More than half of participants (58.8 percent) were reported as White in 2018, 21.5 percent as Black, 8.9 percent as American Indian, 3.8 percent as Asian, and 0.8 percent as Pacific Islander (see figure ES.3).[8] Two or more races were reported for 6.1 percent of participants, and 41.3 percent of participants were reported as Hispanic/Latino.

Figure ES.3. Distribution of Participants by Race and Ethnicity



Notes
Percents may not add to 100.0, and subtotals may not add to totals, because of rounding.
The data for this figure are also presented in table 3.6 and appendix tables A.8 and A.9.

[7] See 7 C.F.R. 246.7(e)(4) (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[8] Reporting categories based on the Office of Management and Budget (1997) definitions and reporting requirements were first used in the PC2006 report. Some of the reporting category names were modified for 2018 to help streamline table and figure text in the report (see table 2.3 for more detail). The shortened category names are used across this report.

e. Migrant farmworker status

Federal regulations define a migrant farmworker as an individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who has established a temporary abode for the purposes of such employment. In total, 29,967 WIC participants were identified as migrant farmworkers in 2018. Migrant farmworker participants made up less than half of 1 percent of the Nation's total WIC population. Almost two-thirds (62.4 percent) of these participants were located in California or Florida.

2. Participation in Other Benefit Programs and Income

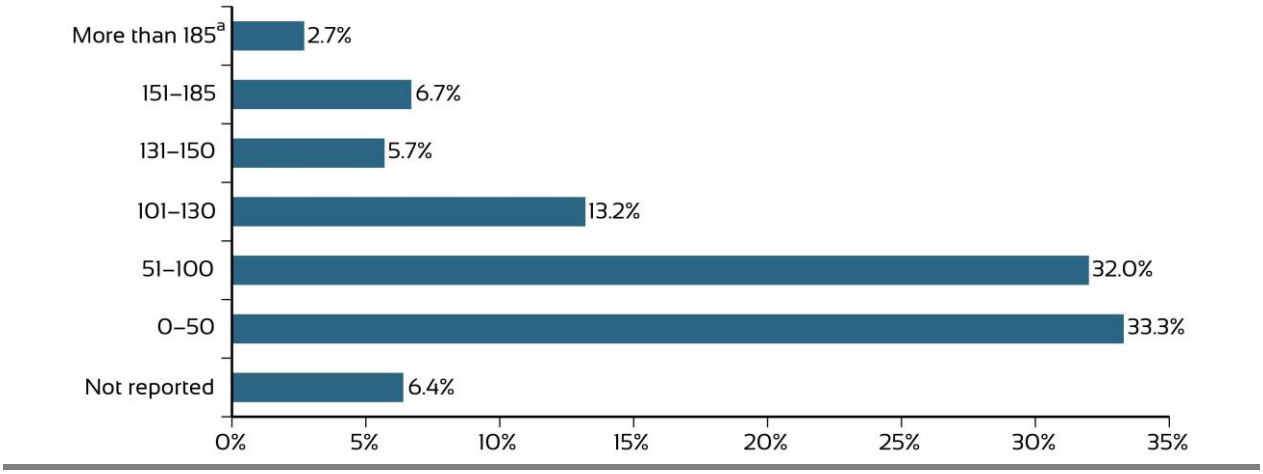
WIC legislation allows applicants to meet income eligibility requirements through participation in qualifying means-tested benefit programs such as Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP), and Medicaid. Most (80.1 percent) WIC participants reported receiving benefits from at least one of these three national public assistance programs in 2018; 5.3 percent received TANF benefits, 33.3 percent received SNAP benefits, and 76.8 percent received Medicaid benefits.[9] Only 4.2 percent of participants reported receiving benefits from all three programs.

The average annualized income of WIC households in 2018 was $19,355. Across participant categories, household income was highest for breastfeeding women ($20,343) and lowest for postpartum women ($16,631) in 2018. Across racial and ethnic groups, average household income was highest for Asian participants ($23,999) and lowest for Black participants ($15,033).

State agencies must set income eligibility restrictions of between 100 and 185 percent of the Federal Poverty Guidelines established by the U.S. Department of Health and Human Services (HHS);[10] all State agencies set this threshold at 185 percent of the Federal Poverty Guidelines in April 2018. These income guidelines for poverty vary based on household size and residency,[11] but in most areas served by WIC, the poverty guideline for a household of four was $24,600 per year (HHS, 2017). Based on this guideline, a household of four earning $45,510 per year would have an income of 185 percent of the Federal Poverty Guidelines. In April 2018, the mean household size for participants was 4.1 individuals. In 2018, nearly all participants (90.9 percent) reported income equal to or less than 185 percent of the Federal Poverty Guidelines, almost two-thirds (65.3 percent) reported income at or below the guidelines, and one-third reported income equal to or less than 50 percent of the guidelines (see figure ES.4).[12, 13]

[9] These findings likely underestimate participation in these programs. See chapter 2 for more detail on study considerations.
[10] The Federal Poverty Guidelines established in January 2017 were used by WIC to establish eligibility from July 2017 through June 2018, so these guidelines covered most of the period for which WIC participants active in April 2018 were certified.
[11] The Federal Poverty Guidelines are the same for the 48 contiguous States, the District of Columbia, and the 5 U.S. territories served by WIC; they are different for Alaska and Hawaii.
[12] Participants may be adjunctively eligible for WIC through Medicaid. In some State agencies, the income threshold for Medicaid is greater than 185 percent of the Federal Poverty Guidelines.
[13] Income data were missing for an additional 6.4 percent of participants.

Figure ES.4. Participants With Reported Income as a Percentage of the Federal Poverty Guidelines



Notes
The data for this figure are also presented in table 4.6 and appendix table A.15.
[a] Participants may be adjunctively eligible for WIC through Medicaid. In some State agencies, the income threshold for Medicaid is greater than 185 percent of the Federal Poverty Guidelines.

3. Assigned Nutritional Risks

For PC2018, State agencies could report up to 10 nutritional risk criteria for each participant. The greatest percentage of participants, 44.2 percent, were assigned one nutritional risk; 30.9 percent were assigned two nutritional risks; and 15.5 percent were assigned three nutritional risks.

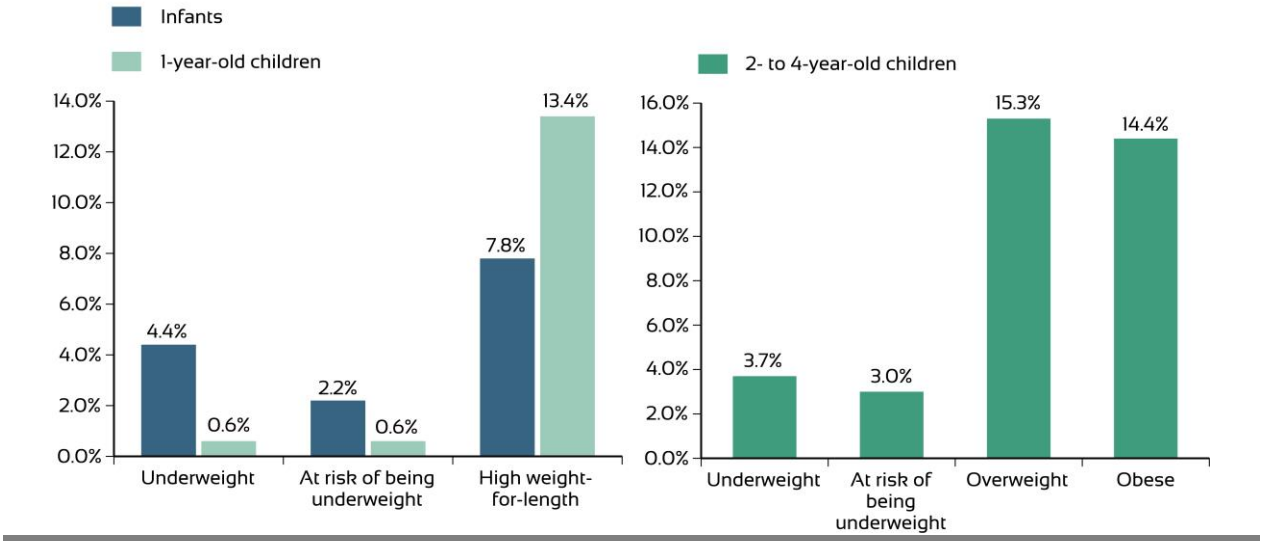
Women, across all categories, were most commonly assigned the nutritional risk of *high weight-for-height* (57.7 percent), which includes overweight and obesity nutritional risk criteria. About 75 percent of infants were recorded to be at risk because their mothers participated in WIC during pregnancy (and therefore met WIC's nutritional risk criteria). Children were most frequently assigned the nutritional risks of *inappropriate nutrition practices* (62.0 percent) and *high weight-for-height* (28.4 percent).

4. Anthropometric Status

A participant's weight and height (or length) is measured and recorded during the eligibility determination process and used to determine anthropometric nutritional risks. FNS first implemented national standards to categorize anthropometric status in 1999. World Health Organization (WHO) growth standards are used to assess weight and length for infants and 1-year-old children (WHO, 2006); CDC growth charts are used to assess weight, height, and body mass index for 2- to 4-year-old children (Kuczmarski et al., 2002); and body mass index calculations are used for women.

Fewer than 5.0 percent of infants and children were *underweight* (see figure ES.5). About 7.8 percent of infants and 13.4 percent of 1-year-old children had *high weight-for- length*; whereas 29.7 percent of 2-to-4-year-old children were *overweight or obese*.

Figure ES.5. Percentage of Anthropometric Status Among Infants and Children



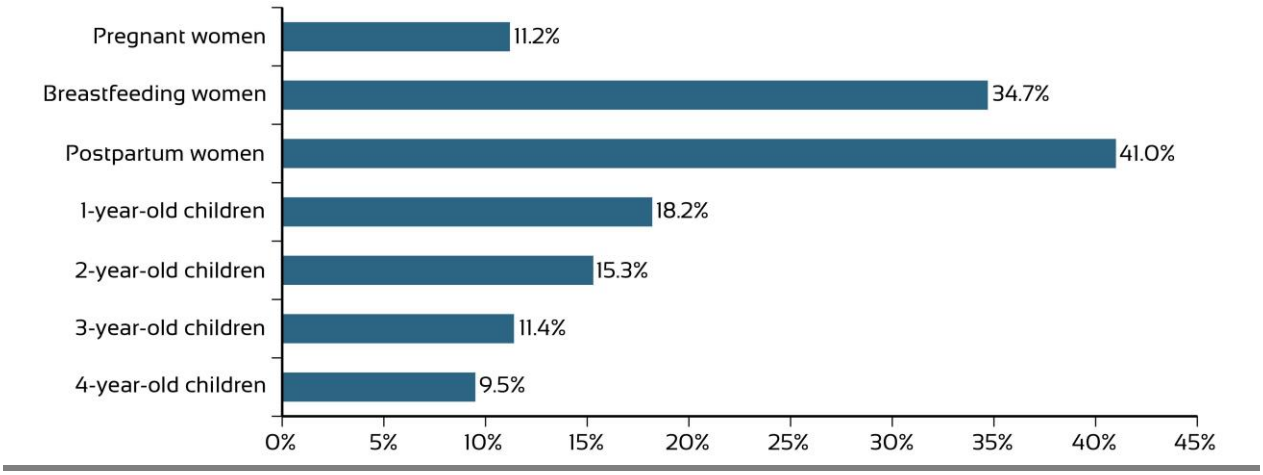
Note
The data for this figure are also presented in tables 6.3, 6.6, and 6.9 and appendix tables A.18, A.21, and A.24.

5. Anemia Status

State agencies test (or collect through referral data) the hemoglobin and/or hematocrit levels of participants aged 9 months or older. FNS established standard criteria in 1999 for determining anemia status using these test results based on CDC recommendations (CDC, 1998).

Anemia rates were higher after pregnancy, with 34.7 percent of breastfeeding women and 41.0 percent of postpartum women categorized as anemic compared with 11.2 percent of pregnant women (see figure ES.6). Among children, rates of anemia decreased with age; 18.2 percent of 1-year-old children's hematological tests indicated anemia, whereas 9.5 percent of 4-year-old children were determined to be anemic.

Figure ES.6. Percentage of Women and Children With Anemia



Note
The data for this figure are also presented in tables 7.4, 7.5a–e, 7.6a–d, and appendix tables A.29 and A.30.

6. Breastfeeding Initiation and Duration

The 2018 estimated rate of breastfeeding initiation was based on data from 88 State agencies.[14] Overall, 71.8 percent of these infants and children reported initiating breastfeeding.

Breastfeeding rates at 3 and 6 months of age were calculated using data for 9- to 13-month-old infants and children from 85 State agencies.[15] Among these infants and children, 33.1 percent were breastfeeding at 3 months, and 23.3 percent were breastfeeding at 6 months. Approximately 14 percent of 12- to 13-month-old children were breastfeeding at 12 months. This estimate was calculated using data from 78 State agencies.[16]

7. Comparison of WIC Population With Overall U.S. Population

Nationally representative surveys provided data on the overall U.S. population in comparison with the WIC population for several key measures:

- **Race and ethnicity.** A smaller percentage of WIC participants were identified as White, and greater percentages of WIC participants were identified as Black, American Indian, and Hispanic/Latino, compared with the overall U.S. population (U.S. Census Bureau, n.d.).
- **Income.** More than five times as many WIC participants lived in poverty compared with the general U.S. population (U.S. Department of Labor, Bureau of Labor Statistics [DOL BLS], n.d.).
- **Overweight and obesity.** The percentage of overweight or obese 2- to 4-year-old child WIC participants was higher (yet within the margin of error) than estimates of overweight and obesity for children 2–4 years old in the overall U.S. population (CDC, National Center for Health Statistics [NCES], n.d.).
- **Anemia.** Child WIC participants were more likely to be anemic than children in the general U.S. population, although both groups of children were less likely to be anemic at 3–4 years of age than 1–2 years of age (CDC NCES, n.d.).
- **Breastfeeding.** Breastfeeding initiation rates were lower among infant WIC participants than infants in the overall U.S. population. Fewer than half as many infant WIC participants as infants in the general U.S. population were breastfed at 6 months of age (CDC, n.d.).

C. Food Package Data

Among the MDS items State agencies were required to provide were food prescription data and food package type. These data are described in a separate report on PC2018 food packages (expected to be released in July 2020).

[14] National breastfeeding initiation rates include data for State agencies that reported breastfeeding initiation data for at least 75.0 percent of all infants and children aged 6–13 months. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC) and North Carolina.

[15] National breastfeeding rates at ages 3 and 6 months include data for State agencies that reported breastfeeding duration data for at least 75.0 percent of all 9- to 13-month-old infants and children. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC), New Mexico, North Carolina, Oklahoma, and Puerto Rico.

[16] National breastfeeding rates at 12 months of age included data for State agencies that reported breastfeeding duration data for at least 75.0 percent of all 12- to 13-month-old children. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC), Hawaii, Indiana, Inter Tribal Council of Arizona, Kansas, New Hampshire, New Mexico, North Carolina, Oklahoma, Pueblo of Isleta (NM), Puerto Rico, and Texas.

D. PC2018 Data Products

In conjunction with the biennial PC reports and the companion PC food package reports, FNS produces several data products to enable further research on WIC. A national sample dataset is available for use by researchers upon request. PC data are often used in other research studies conducted by FNS. Other organizations—such as CDC and the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine—use PC data in their research efforts related to WIC participants and low-income women and children in general.

Chapter 1. Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is administered by the U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS).[17] WIC provides benefits such as nutritious supplemental foods; nutrition education and counseling, including breastfeeding promotion and support; and referrals to healthcare, social services, and other community providers for pregnant, breastfeeding, and postpartum[18] women, and infants and children up to age 5. By intervening during the prenatal period, WIC seeks to improve fetal development and reduce the incidence of low birth weight, short gestation, and maternal anemia. WIC benefits help maintain and improve the health and development of infants and children who are at nutritional risk. For breastfeeding and postpartum women, WIC seeks to improve dietary intake and promotes breastfeeding as the best source of infant nutrition. WIC was established in 1972 by an amendment to the Child Nutrition Act of 1966 (Pub. L. 89–642, as amended) to counteract the negative effects of poverty on prenatal and pediatric health. A total of 7.8 million women, infants, and children participated in WIC in April 2018. For fiscal year (FY) 2018, Congress appropriated $6.18 billion for WIC.

Since 1988, FNS has produced biennial reports on WIC participant and program characteristics (PC). FNS uses this regularly updated information for program monitoring and for managing WIC information needs such as estimating budgets, submitting civil rights reports,[19] identifying research needs, and reviewing current and proposed WIC policies and procedures. Federal regulations require that the biennial reports include information on participants' income and nutritional risk characteristics, breastfeeding initiation rates and duration estimates, and migrant farmworker characteristics.[20]

For each PC report, a WIC participant is defined as a person who was certified to receive WIC benefits in April of the reference year, including individuals who did not claim a food instrument that month. The reference period for PC2018 is April 2018. In accordance with WIC guidelines, this definition includes fully breastfed infants who were certified for WIC benefits but were not prescribed a food package during the first 6 months after the infant's birth.

This introduction provides a brief overview of the WIC program. Section A describes the program operations, section B outlines the benefits, and section C describes the eligibility requirements. Section D outlines the organization of the chapters that follow in this report.

A. Program Operations

WIC provides services through 90 State agencies: the 50 States; the District of Columbia; 5 U.S. territories (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands); and 34 Indian Tribal Organizations (ITOs). There were 90 State agencies and nearly 1,800 local agencies nationwide in April 2018. Participants receive services at local agencies or clinics. Table 1.1 presents information on the number of local agencies operated by State agencies. Ten State agencies

[17] See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[18] Current WIC regulations allow food packages to be prescribed to women up to 6 months postpartum who are nonbreastfeeding or minimally breastfeeding; these women are included in the definition of postpartum women in this report. See 7 C.F.R. 246 (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).
[19] Federally required reports on the race and ethnicity of WIC participants
[20] Federal regulations define a migrant farmworker as an individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who has established a temporary abode for the purposes of such employment.

served nearly three-fifths (57.4 percent) of all participants.[21] Two State agencies—California and Texas—provided services to a quarter (26.0 percent) of all participants.

At the Federal level, FNS—through its seven administrative regional offices—provides cash grants to State agencies to support nutrition services and program administration, sets nutritional risk eligibility standards, issues regulations and monitors compliance with these regulations, offers technical assistance, and conducts studies of program operation and performance. State agencies allocate funds to local agencies, monitor compliance with Federal and State agency regulations, and supply technical assistance to local agency staff.

Since 1987, State agencies have negotiated rebates provided by manufacturers of WIC-eligible foods to reduce food costs; since 1989, State agencies have been Federally required to obtain manufacturer rebates on infant formula (Oliveira, Prell, Smallwood, & Frazão, 2004). The savings gained from using these rebates allow State and local agencies to provide WIC services to greater numbers of eligible applicants.

Table 1.1. Distribution of Participants and Local Agencies by State Agency

State Agency	Participants		Local Agencies	
	Number	Percent	Number	Percent
Total Participants	7,837,672	100.0	1,797	100.0
Alabama	130,739	1.7	11	0.6
Alaska	18,963	0.2	13	0.7
Arizona	151,081	1.9	4	0.2
Arkansas	79,859	1.0	1	< 0.1
California	1,194,194	15.2	83	4.6
Colorado	94,470	1.2	38	2.1
Connecticut	54,509	0.7	12	0.7
Delaware	19,766	0.3	2	0.1
District of Columbia	15,539	0.2	4	0.2
Florida	543,711	6.9	44	2.4
Georgia	241,407	3.1	19	1.1
Hawaii	32,197	0.4	16	0.9
Idaho	37,264	0.5	9	0.5
Illinois	232,543	3.0	98	5.5
Indiana	168,412	2.1	39	2.2
Iowa	70,601	0.9	20	1.1
Kansas	62,761	0.8	63	3.5
Kentucky	113,382	1.4	63	3.5
Louisiana	127,365	1.6	80	4.5
Maine	20,172	0.3	8	0.4
Maryland	144,160	1.8	18	1.0
Massachusetts	117,693	1.5	31	1.7
Michigan	238,396	3.0	47	2.6
Minnesota	117,229	1.5	84	4.7
Mississippi	94,445	1.2	22	1.2
Missouri	122,864	1.6	117	6.5
Montana	18,288	0.2	29	1.6

[21] California, Florida, Georgia, Illinois, Michigan, New York, North Carolina, Ohio, Pennsylvania, and Texas

State Agency	Participants		Local Agencies	
	Number	Percent	Number	Percent
Nebraska	40,080	0.5	13	0.7
Nevada	73,301	0.9	16	0.9
New Hampshire	14,961	0.2	4	0.2
New Jersey	140,842	1.8	16	0.9
New Mexico	52,006	0.7	3	0.2
New York	487,913	6.2	92	5.1
North Carolina	267,289	3.4	85	4.7
North Dakota	13,326	0.2	21	1.2
Ohio	218,648	2.8	74	4.1
Oklahoma	94,876	1.2	14	0.8
Oregon	88,970	1.1	33	1.8
Pennsylvania	232,320	3.0	24	1.3
Rhode Island	21,504	0.3	13	0.7
South Carolina	102,845	1.3	6	0.3
South Dakota	17,405	0.2	61	3.4
Tennessee	156,119	2.0	14	0.8
Texas	839,770	10.7	66	3.7
Utah	54,221	0.7	13	0.7
Vermont	12,403	0.2	12	0.7
Virginia	141,741	1.8	35	1.9
Washington	161,947	2.1	59	3.3
West Virginia	39,927	0.5	8	0.4
Wisconsin	101,966	1.3	69	3.8
Wyoming	9,690	0.1	19	1.1
U.S. Territories				
American Samoa	5,396	< 0.1	1	< 0.1
Guam	7,175	< 0.1	1	< 0.1
Northern Mariana Islands	3,087	< 0.1	1	< 0.1
Puerto Rico	113,449	1.4	1	< 0.1
U.S. Virgin Islands	3,201	< 0.1	2	0.1
Indian Tribal Organizations				
Acoma, Canoncito, Laguna (NM)	427	< 0.1	1	< 0.1
Cherokee Nation (OK)	8,250	0.1	1	< 0.1
Cheyenne River Sioux Tribe (SD)	784	< 0.1	1	< 0.1
Chickasaw Nation (OK)	3,850	< 0.1	1	< 0.1
Choctaw Nation (OK)	3,921	< 0.1	1	< 0.1
Citizen Potawatomi Nation (OK)	1,740	< 0.1	1	< 0.1
Eastern Band of Cherokee Indians (NC)	665	< 0.1	1	< 0.1
Eastern Shoshone Tribe (WY)	154	< 0.1	1	< 0.1
Eight Northern Indian Pueblos Council (NM)	247	< 0.1	1	< 0.1
Five Sandoval Indian Pueblos (NM)	267	< 0.1	1	< 0.1
Indian Township Passamaquoddy Reservation (ME)	66	< 0.1	1	< 0.1
Inter Tribal Council of Arizona	10,729	0.1	13	0.7
Inter-Tribal Council of Nevada	1,736	< 0.1	1	< 0.1
Inter-Tribal Council of Oklahoma	786	< 0.1	1	< 0.1
Mississippi Band of Choctaw Indians	774	< 0.1	1	< 0.1
Muscogee Creek Nation (OK)	2,662	< 0.1	1	< 0.1

State Agency	Participants		Local Agencies	
	Number	Percent	Number	Percent
Navajo Nation	8,840	0.1	1	< 0.1
Northern Arapaho Tribe (WY)	272	< 0.1	1	< 0.1
Omaha Nation (NE)	265	< 0.1	1	< 0.1
Osage Nation (OK)	3,207	< 0.1	1	< 0.1
Otoe-Missouria Tribe (OK)	440	< 0.1	1	< 0.1
Pleasant Point Passamaquoddy Reservation (ME)	61	< 0.1	1	< 0.1
Pueblo of Isleta (NM)	1,723	< 0.1	1	< 0.1
Pueblo of San Felipe (NM)	249	< 0.1	1	< 0.1
Pueblo of Zuni (NM)	655	< 0.1	1	< 0.1
Rosebud Sioux Tribe (SD)	1,081	< 0.1	1	< 0.1
Santee Sioux Nation (NE)	137	< 0.1	1	< 0.1
Santo Domingo Pueblo (NM)	229	< 0.1	1	< 0.1
Seneca Nation (NY)	228	< 0.1	1	< 0.1
Standing Rock Sioux Tribe (ND)	545	< 0.1	1	< 0.1
Three Affiliated Tribes (ND)	232	< 0.1	1	< 0.1
Ute Mountain Ute Tribe (CO)	159	< 0.1	1	< 0.1
Wichita, Caddo, Delaware (OK)	3,691	< 0.1	1	< 0.1
Winnebago Tribe (NE)	212	< 0.1	1	< 0.1

Note
Percents may not add to 100.0 because of rounding.

B. Participant Benefits

WIC seeks to improve the health of program participants by providing supplemental nutritious food; nutrition education and counseling, including breastfeeding promotion and support; and referrals to healthcare. This section describes the benefits provided by WIC.

1. Food Packages

State agencies issue a prescribed set of supplemental foods to participants, who purchase the foods from authorized retail vendors. The set of prescribed supplemental foods, referred to as a food package, is designed to provide nutrients known to be lacking in the diets of target populations. Infant food packages reflect the developmental needs of infants and the infant feeding practice guidelines of the American Academy of Pediatrics.[22] Other food packages align with the recommendations provided in the Dietary Guidelines for Americans (DGA) (U.S. Department of Health and Human Services [HHS] & USDA, 2015).[23] Federal regulations specify different food packages for different categories of participants.

FNS implemented final regulations[24] for WIC food packages in March 2014 that completed the implementation of the first comprehensive revisions to the WIC food packages since 1980. At the time PC2018 data were collected, food packages for women and children included milk and milk substitutes (cheese, soy-based beverage, tofu, and yogurt); eggs; legumes (dry beans, canned beans, and peanut butter); whole grains (whole-grain bread, brown rice, oatmeal, soft corn and whole-wheat tortillas,

[22] See 79 Fed. Reg. 12274 (Special Supplemental Nutrition Program for Women, Infants and Children, 2014) and National Academies of Science, Engineering, and Medicine (2017) for more information.
[23] These guidelines, which are developed jointly and updated every 5 years by HHS and USDA, provide recommendations on how to attain and maintain a healthy weight, reduce risks of chronic disease, and promote overall health.
[24] See 79 Fed. Reg. 12274 (Special Supplemental Nutrition Program for Women, Infants and Children, 2014)

bulgur, barley, and whole-wheat pasta); hot and cold breakfast cereals; juice; and a cash-value benefit to be used for the purchase of fruits and vegetables. Fully breastfeeding women (up to 1 year postpartum) were also allowed canned fish. Food packages for infants provided infant formula as well as cereal, fruits and vegetables, and meats appropriate for infants. Infant formulas and WIC-eligible nutritionals were allowed for participants with qualifying conditions.[25]

WIC issues food benefits to participants through food instruments in the form of vouchers, checks, or electronic benefit transfer (EBT) cards. Participants may redeem these benefits from authorized retail vendors for the foods they have been prescribed. Thirty-nine State agencies delivered benefits statewide through EBT as of April 2018. All State agencies using checks or vouchers are in the process of planning for or piloting EBT to meet the USDA deadline to issue benefits solely through EBT by October 1, 2020 (USDA FNS, 2019).

2. Nutrition Education and Counseling

Nutrition education plays a crucial role in WIC as an essential benefit intended to achieve positive changes in participant knowledge, attitudes, and behaviors about food consumption. FNS regulations require State and local agencies to offer participants (or their mothers or other care providers) at least four nutrition education sessions per year. Participants receive nutrition education and counseling through a variety of methods, including one-on-one or online classes on a variety of topics related to health and nutrition. As part of nutrition education and counseling, State agencies promote breastfeeding as the best source of infant nutrition to pregnant and new mothers and provide breastfeeding information and support through anticipatory guidance, counseling, and breastfeeding educational materials.

3. Access to Healthcare and Social Services

Each State agency refers participants to other social and healthcare services. Through either the provision of onsite health services or referrals to other social service agencies, WIC serves as a link between participants and healthcare providers or systems. Coordination between such programs and WIC increased after 1989 with the passage of the Child Nutrition and WIC Reauthorization Act (Pub. L. 101–147). This act requires local agencies to refer clients to a variety of social service programs that provide income support, child support, childcare services, and substance abuse counseling; it also established adjunctive and automatic income eligibility for WIC benefits. Applicants are adjunctively income-eligible if they or certain family members can document participation in Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP), or Medicaid. Federal regulations also allow State agencies to extend automatic WIC income eligibility to applicants participating in other qualifying means-tested benefit programs.

C. Eligibility for WIC Benefits

Eligibility for receipt of WIC benefits is based on four factors:

1. **Categorical eligibility.** A participant must be a member of one of the following groups: women during pregnancy and up to the first 6 weeks after pregnancy; women up to 1 year postpartum if breastfeeding or up to 6 months postpartum if not breastfeeding; infants up to age 1 (the first birthday); and children up to age 5 (the fifth birthday).

[25] The 2018 food package data will be described in a separate report (expected to be released in July 2020).

2. **Residency.** An applicant must apply for and receive benefits from the State agency in the State or U.S. territory of residence. For example, a Kansas resident cannot be certified to receive WIC benefits in Nebraska. An individual applying for benefits through an ITO must meet the residency requirements established by that ITO.

3. **Income eligibility.** Participants must meet the income eligibility standards set by the State agency in the State or U.S. territory of residence. These agencies must set income restrictions of between 100 and 185 percent of the Federal Poverty Guidelines issued annually by HHS. These income guidelines for poverty are based on household size and residency (HHS, 2017).[26] As of April 2018, the income eligibility threshold set by all State agencies was 185 percent of the Federal Poverty Guidelines. In most areas served by WIC in 2018, a household of four with an annual income of $45,510 or less was income-eligible for WIC at the 185-percent threshold (USDA FNS, 2017a).[27,28]

   Applicants who participate in TANF, SNAP, or Medicaid are adjunctively eligible for WIC. An applicant who participates in other means-tested benefit programs with income-eligibility thresholds at or below those for WIC can be considered automatically income-eligible for WIC if the applicant's State agency has approved those programs for eligibility determinations. Since the passage of the William F. Goodling Child Nutrition Reauthorization Act of 1998 (Pub. L. 105–336), applicants not certified under adjunctive or automatic eligibility provisions have been required to provide proof of household income.[29]

4. **Nutritional risk.** An applicant must be determined to be at nutritional risk based on a medical and/or nutritional assessment by a competent professional authority such as a physician, nutritionist, nurse, or other health professional or paraprofessional. At a minimum, height (or length) and weight are recorded; moreover, with the exception of infants younger than 9 months of age, a hematological test is administered to screen for anemia (an indicator of iron deficiency). To assess an applicant's level of nutritional risk, State and local agencies must use criteria that meet or exceed the national nutritional risk criteria implemented in April 1999. FNS and the National WIC Association developed this set of approximately 100 detailed criteria with applicable thresholds for determining eligibility based on nutritional risk in response to recommendations issued by the Institute of Medicine[30] (IOM, 1996).

WIC must operate within annual funding levels established by appropriations law. The number of participants WIC is able to serve each year depends on the funding available as well as FNS's allocation of these funds to individual State agencies. Changes in the cost of food may also affect the number of participants WIC is able to serve. To help State and local agencies prioritize WIC applicants according to need, FNS defined seven risk priority levels based on applicant categorical status and type of nutritional risk. The general purpose of the existing priority system is to give preference to medically based nutritional risks over risks based only on inadequate diet. In 2018, WIC served all eligible individuals who sought benefits, regardless of assigned priority level.

[26] The Federal Poverty Guidelines are the same for the 48 contiguous States, the District of Columbia, and the 5 U.S. territories served by WIC; they are different for Alaska and Hawaii.
[27] The Federal Poverty Guidelines established in January 2017 were used by WIC to establish eligibility from July 2017 through June 2018, so these guidelines covered most of the period for which WIC participants active in April 2018 were certified.
[28] In April 2018, the WIC income eligibility threshold for a household of four based on annual household income was $56,888 in Alaska and $52,337 in Hawaii.
[29] Although Federal regulations distinguish means-tested programs that qualify applicants for adjunctive income eligibility from programs that qualify applicants for automatic income eligibility, the two mechanisms work similarly with respect to income eligibility.
[30] Now the National Academies of Science, Engineering, and Medicine

D. Organization of the Report

This report presents the results of the 2018 data collection efforts. In prior reports, the chapters and tables were presented in the same order to preserve consistency. For 2018, the chapters were reorganized to enhance and maximize the flow and organization of the information presented. The tables were reorganized and reformatted for consistency in appearance and content across chapters.

Chapter 2 details the methods used to collect and analyze PC data and discusses several limitations to the data. Chapters 3 through 8 present data on different aspects of participants and the program. Chapter 3 provides information on overall participation as well as demographic data, and chapter 4 describes the economic status of WIC households. Chapter 5 provides information on assigned nutritional risks, chapter 6 describes anthropometric characteristics, and chapter 7 provides information on anemia status. Chapter 8 presents information on breastfeeding initiation and duration. Chapter 9 provides comparisons between WIC participants and the U.S. population.

Appendices A and B are new in this report. Appendix A provides historical data tables from 1992 through 2018, and appendix B provides 2018 State agency-level data tables corresponding to most tables included in the report. Appendix C presents tables of 2018 Supplemental Data Set (SDS) data; see chapter 2 for more detail about the SDS.

Chapter 2. Methodology

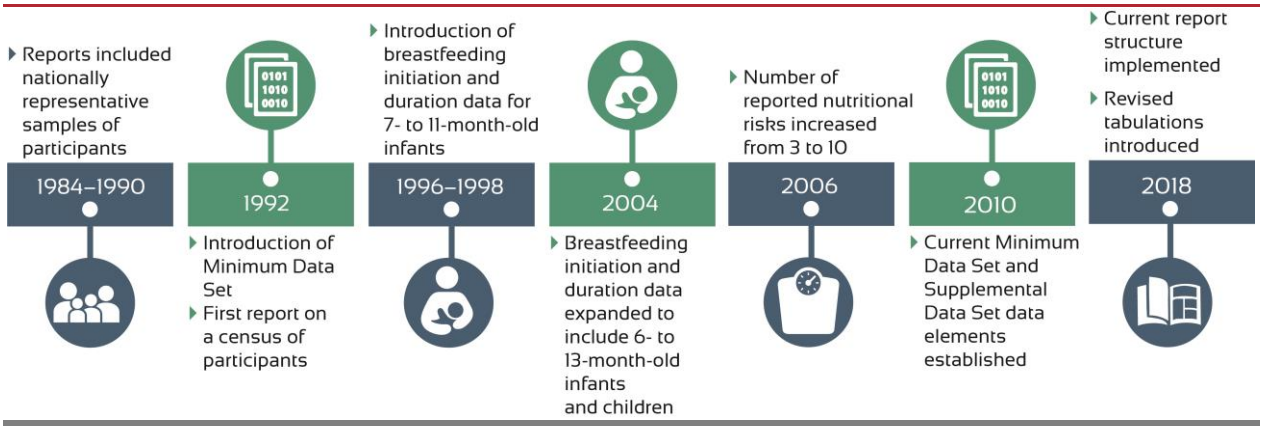
The PC2018 report provides the results of a census of WIC participants FNS conducts every 2 years to monitor WIC and manage its information needs. This chapter describes the WIC PC reports issued to date and provides an overview of the methods the study team used to collect and prepare PC2018 data for analysis, develop the datafile, and produce the report.

Section A describes the previous reports, section B details the data elements, and section C describes the study universe. Section D provides an overview of the data collection and processing procedures, and section E outlines several study considerations and limitations. More detail on the methods used for reporting participation in other benefit programs and income, nutritional risks, anthropometric status, anemia status, and breastfeeding data is provided in chapters 4 through 8, respectively.

A. Previous Reports on WIC Participant and Program Characteristics

The first several PC reports used a nationally representative sample of participants; for example, PC1984 used data from 28 State agencies, 204 local agencies, 356 service sites, and 6,444 participant records. A goal for PC1990 and all subsequent studies of WIC participant characteristics has been to limit burden on State agencies to encourage them to continue biennial participation in the WIC reporting system. Therefore, PC1990 served as a transitional study; it was based on the PC1984 and PC1988 research designs, but it minimized sample size to conserve research expenditures. For PC1990, field researchers abstracted data from 2,343 participant records and surveyed all State agencies to obtain information on WIC program operations.

Figure 2.1. PC Report Timeline



The methodology Insight Policy Research (Insight) used for the PC2018 report is based on the methodology that was originally developed in 1992 and used until 2018, when Insight implemented revisions to the data cleaning procedures and report outline (see section B). The PC1992 report differed substantially from earlier reports with respect to collecting WIC participation data because FNS began routinely collecting a set of data elements known as the Minimum Data Set (MDS) for a census of participants. FNS developed the MDS in collaboration with the Information Committee of the National WIC Association and the Centers for Disease Control and Prevention (CDC). State agencies are also encouraged to submit Supplemental Data Set (SDS) data when it is available. State agency staff collect these data to certify applicants for WIC benefits, guide nutrition education, and issue food instruments. Elements in the MDS and SDS have been consistent since 2010.

B. PC2018 Data Elements

State agencies are required to submit all MDS elements (see table 2.1) and are encouraged to submit the SDS elements (see table 2.2) when they are available. For this report, 85 of the 90 State agencies submitted some or all of the 11 SDS data items (see appendix table C.1).

Table 2.1. MDS Items

Item Number	Item Name	Item Description
1	State Agency ID	A unique number that permits linkage to the State agency where the participant was certified; it is the first 7 digits of the 10-digit Local Agency Code maintained by FNS in the WIC Local Agency Directory (WIC LAD)
2a	Local Agency ID	A unique number that permits linkage to the local agency where the participant was certified as eligible for WIC benefits; it is the last 3 digits of the 10-digit Local Agency Code maintained by FNS in the WIC LAD
2b	Service Site ID	A unique number that permits linkage to the service site where the participant was certified; for State agencies that submitted service site- or clinic-level data for the WIC LAD, service site IDs appear in the WIC LAD as the 3-digit codes under Administering Agency *For PC2018, State agencies were asked not to substitute Service Site ID for Local Agency ID (item 2a)*
3	Case ID	A unique record number assigned to each participant to maintain individual privacy at the national level *For each participant, State agencies were asked to construct a Case ID for their PC2018 data submissions; they were asked not to use the case number of the participant as listed in State agency-held files*
4	Date of Birth	Month, day, and year of the participant's birth reported in MMDDYYYY format
5	Race and Ethnicity	Requires classification of participants based on one ethnicity category (Hispanic/Latino or Non-Hispanic/Latino) and five racial categories, which consist of (1) American Indian or Alaska Native; (2) Asian; (3) Black or African American; (4) Native Hawaiian or Other Pacific Islander; and (5) White[a] These categories are required by the Office of Management and Budget; one or more racial categories may be selected State agencies may report race and ethnicity using one of two formats: ▪ Yes/No for each of the categories, generating a six-digit code (1 = Yes; 2 = No) ▪ Three digits to represent key combinations of racial selections, with the first digit representing ethnicity and the last two representing race combinations
6a	Certification Category	One of five possible categories under which a person is certified as eligible for WIC benefits: (1) pregnant woman; (2) breastfeeding woman; (3) postpartum woman (not breastfeeding); (4) infant (younger than 12 months of age); and (5) child (12–59 months of age)
6b–c	Expected Date of Delivery or Number of Weeks Gestation	For pregnant women, the projected date of delivery (MMDDYYYY format) or the number of weeks since the last menstrual period as determined at WIC certification

Item Number	Item Name	Item Description
7	Date of Certification	The date the person was declared eligible for the most recent WIC certification as of April 2018; month, day, and year should be reported in MMDDYYYY format
8	Sex	For infants and children, male or female
9	Risk Priority Code	The participant priority level for WIC certification at the time of the most recent WIC certification as of April 2018
10a–c	Participation in SNAP, TANF, Medicaid	The participant's reported participation in each of these programs at the time of the most recent WIC certification as of April 2018
11	Migrant Status	The participant's migrant status according to the definition of a migrant farmworker in Federal regulations[b]
12	Number in Family or Economic Unit	The number of individuals in the family or economic unit upon which WIC income eligibility was based States may report a self-declared number in the family or economic unit for a participant whose income was not required to be determined as part of the WIC certification process. These participants consist of— ▪ Adjunctively income-eligible participants (eligible because of TANF, SNAP, or Medicaid participation) ▪ Participants deemed income-eligible under optional procedures available to the State agency in *section 7 C.F.R. § 246.7.*[b] These optional procedures are means-tested programs identified by the State to determine automatic WIC income eligibility, income eligibility of pregnant women, and income eligibility of American Indian and instream migrant farmworker applicants
13a–c	Family or Economic Unit Income	▪ For individuals whose income was determined during the certification process, the income amount that was determined to qualify the participant for WIC at the time of the most recent WIC certification as of April 2018. FNS will convert income expressed in nonannual measures (weekly, monthly, etc.) to annual amounts ▪ For descriptive purposes only, for participants whose income was not required to be determined as part of the WIC certification process, the self-reported income at the time of certification; these participants include adjunctively income-eligible participants and those individuals deemed eligible under optional procedures available to the State agency in section *7 C.F.R. § 246.7.*[b] State agencies should not use zero to indicate income values that are missing or not available; zero should indicate only an actual value of zero *Because a large proportion of WIC participants are adjunctively income-eligible, their income information is essential to describe income among the overall WIC population. State agencies are required to provide income information on those adjunctively eligible for WIC according to 7 C.F.R. § 246.7*[b]
14a–j	Nutritional Risks Present at Certification	Highest priority nutritional risks assigned for the most recent WIC certification as of April 2018, up to a maximum of 10; uniform coding is required in submissions from all State agencies according to WIC Policy Memorandum 2011-5
15a–b	Hemoglobin or Hematocrit	Value for the measure of hemoglobin or hematocrit to assess anemia status that applies for the most current WIC certification period as of April 2018

Item Number	Item Name	Item Description
15c	Date of Hemoglobin or Hematocrit Test	Month, day, and year (in MMDDYYYY format) that hemoglobin or hematocrit measure was collected and reported; State agencies must submit this for all participants reporting a hematologic measure
16a–b	Weight	Participant's weight measured according to CDC nutrition surveillance program standards (nearest one-quarter pound); State agencies may report weight in grams if weight is not measured in pounds and quarter pounds
17a–b	Height	Participant's height (or length) measured according to CDC nutrition surveillance program standards (nearest one-eighth inch); State agencies may report height in centimeters if height is not measured in inches and eighth inches
18	Date of Height and Weight Measure	Date (in MMDDYYYY format) of the height and weight measures used during the most recent WIC certification period as of April 2018
19a	Currently Breastfed	For infants and children aged 6 through 13 months in April 2018, whether the participant was being breastfed at that time
19b	Ever Breastfed	For infants and children aged 6 through 13 months in April 2018, whether the participant ever breastfed
19c	Length of Time Breasted	For infants and children aged 6 through 13 months in April 2018, the number of weeks the participant breastfed
19d	Date Breastfeeding Data Collected	For infants and children aged 6 through 13 months in April 2018, the date (in MMDDYYYY format) on which breastfeeding status was reported
20a–n	Food Codes	State agencies have the option of providing food data in an item-quantity format or a food package format; the agencies were asked to provide the food package codes or item codes and quantities for all foods prescribed for the participant during the month of April 2018
20o	Food Package Type	A code representing the final rule food package descriptor; this descriptor uniquely represents the FNS food package number (I through VII), participant type, breastfeeding status, and (for infants and children only) age associated with the reported food code(s) for that participant

[a] Reporting categories based on the Office of Management and Budget (1997) definitions and reporting requirements were first used in the PC2006 report. Some of the reporting category names were modified for 2018 to help streamline table and figure text in the report (see table 2.3 for more detail). The updated category names are used across this report.
[b] See 7 C.F.R. 246.7(d)(2)(vi–viii) (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

Table 2.2. SDS Items

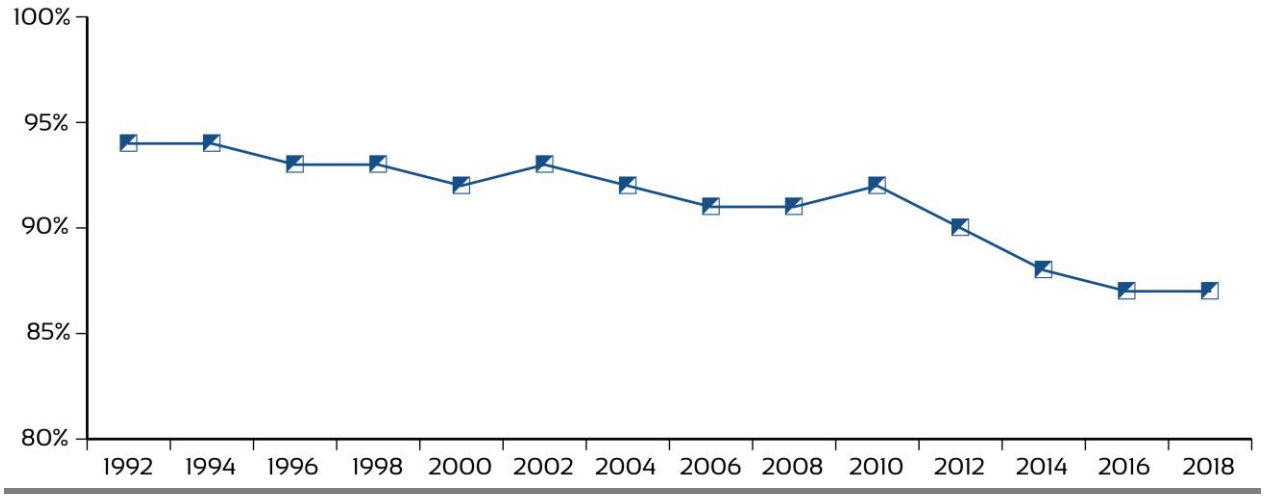
Item Number	Item Name	Item Description
21	Date of First WIC Certification	Date the participant was first certified for WIC in MMDDYYYY format; for pregnant, breastfeeding, and postpartum women, this applies to the current/most recent pregnancy and not to prior pregnancies
22	Education Level	For pregnant, breastfeeding, and postpartum women, the highest grade or year of school completed; for infants and children, the highest grade or year of school completed by the mother or primary caretaker
23	Number in Household in WIC	The number of people in the participant's household receiving WIC benefits
24	Date Previous Pregnancy Ended	For pregnant women, the date the participant's previous pregnancy ended in MMDDYYYY format
25	Total Number of Pregnancies	For pregnant women, the total number of times the participant has been pregnant, including this pregnancy; all live births; and any pregnancies resulting in miscarriage, abortion, or stillbirth
26	Total Number of Live Births	For pregnant women, the total number of babies born alive to the participant, including babies who may have died shortly after birth

Item Number	Item Name	Item Description
27a–b	Prepregnancy Weight	For pregnant women, the participant's weight immediately prior to pregnancy; weight may be reported either in pounds and ounces or in grams
28a–b	Weight Gain During Pregnancy	For breastfeeding and postpartum women, the participant's weight gain during pregnancy is taken immediately at or prior to delivery; weight gain during pregnancy may be reported in either pounds and quarter pounds or in grams
29a–b	Birth Weight	For infants and children, the participant's weight at birth measured according to CDC nutrition surveillance program standards (pounds/ounces); birth weight may be reported either in pounds and ounces or in grams
30a–b	Birth Length	For infants and children, the participant's length measured according to CDC nutrition surveillance program standards (nearest one-eighth inch); birth length may be reported either in inches and eighth inches or in centimeters
31	Participation in the Food Distribution Program on Indian Reservations (FDPIR)	The participant's reported participation in FDPIR at the time of the most recent WIC certification as of April 2018

C. PC2018 Study Universe

For 2018, as was done for previous reports, the study team requested MDS data on a census of individuals who were certified to receive WIC in April of the study year (2018) from each State agency. The census included those who did not claim a food instrument and those who were not prescribed a food package, as was the case with certain partially breastfeeding women and fully breastfed infants. Measures of participation using PC data therefore differ from measures using FNS administrative data, which is based on the number of certified individuals who claimed their food instruments from State agencies. A comparison of FNS administrative data (6,795,491 food instruments claimed) with PC data (7,837,672 certified enrollees) from April 2018 found 86.7 percent of WIC participants claimed their monthly benefits. Although there was a steady decrease between 2010 and 2016, the percentage of WIC participants who claimed their monthly benefits in 2018 was the same as in 2016 (see figure 2.2).

Figure 2.2. Percentage of Participants Who Claimed Their Monthly Benefits: 1992–2018



D. Data Collection, Processing, and Analysis

The PC2018 data collection and processing phase consisted of (1) receiving data and documentation from State agencies, (2) performing diagnostic tests, (3) data cleaning, and (4) analysis. At each stage, the data were reviewed by multiple members of the project team for quality assurance and the consistent treatment of data across State agencies. Descriptions of these three stages follow:

1. **Received documentation and data from State agencies.** State agencies submitted a single datafile and three pieces of supporting documentation to Insight via a secure file transfer protocol, or FTP, site:
    a. **Nutritional risk worksheet.** Submitted by State agencies that used their own nutritional risk codes, this worksheet included a crosswalk between State agency codes and Federal codes.
    b. **Food package documentation.** Submitted by all State agencies, this documentation described the foods, items, and quantities of the contents of each participant's food package.
    c. **Transmittal worksheet.** Submitted by all State agencies, this worksheet provided additional information about the data, which included the format of race and ethnicity data, State agency procedures for the collection of breastfeeding data, and other details necessary for data processing.
2. **Performed diagnostics.** The study team analysts conducted diagnostic reviews of the data to confirm that all variables were within valid ranges and internally consistent, that frequency distributions did not differ substantially from 2016 data, and that no systematic errors occurred.
3. **Cleaned data.** Once all the diagnostic issues were noted and/or resolved through discussions with State agencies, analysts cleaned the data. The following types of data cleaning occurred:
    a. **State-specific cleaning** included recoding data that State agencies submitted in nonstandard formats and resolving systematic errors discovered during the diagnostic phase
    b. **Universal cleaning** included consistency edits and setting outliers to missing
    c. **Creation of analytic variables** for ease of analysis and use of software programs from CDC to calculate anthropometric percentiles for infants and children based on height and weight measurements[31]
4. **Analyzed data and developed final files.** After the analysts completed all cleaning procedures and final data checks, the data were considered approved, and each datafile was finalized. The final datafiles created at the conclusion of data cleaning were used for analysis. The analyses culminated in the development of report tabulations, maps, and figures.

During previous PC data collections, some State agencies were unable to submit a full census of WIC participants, so those agencies' datafiles were weighted to best represent a full census. All but one State agency, New Mexico, submitted a full census of participants for PC2018. The study team weighted the data for New Mexico based on participant category reporting for four clinics the State agency was unable to include in its data submission (representing 2.3 percent of its participants).

[31] Analysts used the versions of the World Health Organization (2006) and CDC (2016b) SAS programs available in January 2017.

Appendix C provides the tabulations of SDS data, including tables that break down the SDS variables by race and ethnicity within each State agency. Some of these tables contain cells with small values. To protect participants' privacy, results have been suppressed in cells that contain information on fewer than five participants.

E. Changes for the PC2018 Report

Insight implemented several changes for the PC2018 report, including how missing data are handled, breastfeeding data are presented, and age is calculated, and the methodology for cleaning income data. All these changes are reflected within the body of the report and appendices as follows:

- **Missing data.** In previous reports, participants with missing data on a given measure were included in calculations (including rates for the measure), and a category for missing data was included in most tables (i.e., income data, anthropometric data, anemia data, and breastfeeding data estimates). For this report, participants with missing data were not included in calculations of anthropometric and anemia statistics, so the rates for measures presented here are rates for participants with reported data. The annual rates for 1992–2018 included in appendix A do not include participants with missing data on the measure presented. For this reason, the recalculated rates in appendix A differ from the rates provided in prior PC reports. Caution should be used in comparing results across groups or over time. Missing data must always be considered in gauging differences among groups or categories of participants or in analyzing trends across years, especially in early PC years with higher levels of missing data. Results with high levels of missing data are noted in the tables in appendix A.
- **Breastfeeding duration tables.** For this report, the breastfeeding duration tables were revised to present estimates that more closely matched those provided in other reports (e.g., CDC's National Immunization Survey [NIS]), as follows:
  - Percentage of infants breastfed at 3 and 6 months among 9- to 13-month-old infants and children
  - Percentage of infants breastfed at 12 months among 12- to 13-month-old children
- **Age calculations.** For this report, the study team updated the SAS code for determining age (age at certification, age at height/weight measurement, and age at hematologic test measurement) to (1) calculate age in a consistent way across measures and (2) more accurately align with the participant's true age at the time of each measurement (e.g., age calculations for anthropometric data reporting use age at measurement date).
- **Income.** In previous reports, the number of participants with zero income may have been underreported because of assumptions in the data cleaning procedures. For this report, the study team's universal cleaning programs no longer set $0 income values to missing for adjunctively eligible participants unless State agency staff reported using $0 in lieu of missing income. The universal cleaning programs also no longer set $1 income values to missing. The study team set $1 values to $0 if the State agency indicated it had policies in place that prohibited staff from entering $0. Caution should be used in comparing results across groups or over time. Because the necessary information needed to reclean previous years' data was unavailable, the study team left $0 income as originally reported in the tables in appendix A.

- **Anthropometric data tables.** Since 2014, measurements for infants have been compared with World Health Organization (WHO) growth standards (WHO, 2006) as required by the anthropometric guidance provided in the May 2011 memorandum issued by FNS (USDA FNS, 2011). Prior to 2014, growth percentiles for infants were calculated using CDC growth charts. Appendix tables A.18–A.28 provide recalculated measures using WHO growth standards to facilitate analysis of trends over time. The numbers presented in the historical tables differ from numbers in previous PC reports because of this change from CDC growth charts to WHO growth standards, as well as slight changes in the technique for calculating age (see above).

Chapters 3 through 8 include discussions of variation across State agencies. The study team focused on the 50 States and the District of Columbia for most of these discussions because the small number of participants in many ITOs and territories resulted in unreliable percentages. Where trends over time exist, they are noted in these chapters. Some tables in these chapters present results by selected characteristics: participant category, race, and ethnicity.

To help streamline the table and figure text in this report, the study team modified some of the reporting category names for race and ethnicity that have been used since 2006 and that were based on Office of Management and Budget (OMB) definitions for race and ethnicity (OMB, 1997; see table 2.3). For example, for PC2018, "Black or African American" was modified to "Black."

Table 2.3. Race and Ethnicity Definitions

OMB Reporting Category	OMB Definition	PC2018 Reporting Category
American Indian or Alaska Native	A person having origins in any of the original peoples of North America who maintain cultural identification through tribal affiliation or community recognition (includes Aleuts and Eskimos)	American Indian
Asian	A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent. This area includes Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam	Asian
Black or African American	A person having origins in any of the Black racial classification groups of Africa	Black
Native Hawaiian or Other Pacific Islander	A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands	Pacific Islander
White	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East	White
Two or more races	A person with two or more races reported	Two or more races
Hispanic/Latino	A person having origin, culture, or descent from Mexico, Puerto Rico, Cuba, Central or South America or other Spanish culture regardless of race	Hispanic/Latino
Non-Hispanic/Latino	A person who does not have origin, culture, or descent from Mexico, Puerto Rico, Cuba, Central or South America or other Spanish culture regardless of race	Non-Hispanic/Latino

F. Study Considerations/Limitations

Findings related to several variables in PC2018 data should be interpreted with caution. Most data quality challenges resulted from inconsistent variable definitions and limitations within State agency management information systems (MIS). This section details the challenges related to each of these variables.

1. Race and Ethnicity

For PC2006, the guidelines for reporting race were revised to be consistent with the updated OMB (1997) definitions. The new guidelines require WIC participants to indicate both ethnicity (Hispanic/Latino or non-Hispanic/Latino) and race, choosing from one or more of five racial categories (see table 2.3 and chapter 3). The proportion of participants for whom a race of American Indian was reported increased substantially around the time of the introduction of the revised OMB race and ethnicity reporting in 2006, likely as a result of the new guidelines and requirements.

If a participant does not indicate race during the application process, WIC staff are required to do so based on observation. Some WIC staff may record a race of American Indian for Hispanic/Latino participants when race must be designated based on observation. The proportion of Hispanic/Latino WIC participants who were also identified as American Indian varied widely across State agencies. Caution should be used in the analysis of the race and ethnicity of WIC participants, particularly for American Indians.

2. Participation in Other Programs

Individuals who can document participation in TANF, SNAP, or Medicaid, or other qualifying means-tested benefit programs, are adjunctively eligible for WIC. Participation in other programs is often underreported for the WIC population for several reasons. First, staff at WIC local agencies may refer participants to other programs; therefore, participant enrollment in other programs subsequent to WIC certification may not be captured in the estimates presented in this report. Second, some State agencies reported an applicant's participation in a program only when the applicant verified enrollment and did not accept clients' self-reports of participation in these programs. Third, some State agency systems prompt users to collect information for only one program, so WIC staff were unlikely to enter information on other programs. For these reasons, caution should be used in analyzing data on participation in other programs by WIC participants.

3. Breastfeeding Initiation and Duration Rates

To be included in national calculations of breastfeeding initiation and duration, State agencies must provide sufficient data for at least 75 percent of infants and children in the appropriate age range. To be included in State agency-level calculations, State agencies must provide the data for at least 85 percent of infants and children in the appropriate age range. For initiation, rates were calculated for 6- to 13-month-old infants and children; for duration, rates at 3 and 6 months of age were calculated for 9- to 13-month-old infants and children, and rates at 12 months of age were calculated for 12- to 13-month-old children.

For breastfeeding initiation rates in 2018, data for 88 State agencies (serving 97.8 percent of all 6- to 13-month-old infants and children) were included for national estimates, and data for 87 State agencies were included for State agency-level estimates. For breastfeeding duration rates at 3 and 6 months of age, data for 85 State agencies (serving 94.4 percent of all 9- to 13-month-old infants and children) were included for national estimates, and data for 81 State agencies were included for State agency-level estimates. For breastfeeding duration rates at 12 months of age, data for 78 State agencies (serving 86.7 percent of all 12- to 13-month-old children) were included for national estimates, and data for 76 State agencies were included for State agency-level estimates.

4. Old Data

State agencies submit the most recent data available for their caseloads as of April of the reference year. Often, these data were collected at the time of certification, which may be up to 12 months prior to the reference month. In some cases, data might predate the most recent certification date if new data were not collected at that time; this is particularly common for anthropometric data, hematological data, and breastfeeding data. For this reason, analyses of these measures incorporate the participants' age at the time of data collection.

5. SDS Variables

Two of the largest State agencies, California and New York (which accounted for 21.5 percent of participants), did not report any SDS data in 2018. Table 2.4 shows the five most frequently reported SDS items.

Table 2.4. Five Most Frequently Reported SDS Items

Data Element	State Agencies That Reported Data	Percent of Participants
Prepregnancy weight	83	69.1 percent of pregnant women
Weight gain during pregnancy	80	66.4 percent of breastfeeding and postpartum women
Birth weight	80	64.1 percent of infants and children
Date of first WIC certification	78	59.0 percent of all participants
Number in household on WIC	76	58.5 percent of all participants

6. Small Cell Sizes

To protect the identities of participants whose data are provided in this report, all tables that show results by State agency (appendices B and C) have small cell sizes ($n \leq 5$) suppressed. To prevent the suppressed information from being derived from other information, if the table includes row totals, the study team also suppressed the next smallest value. All these suppressed cells are noted with an asterisk.

Chapter 3. WIC Participation and Demographic Characteristics

For the purposes of this report, a WIC participant is defined as a person who was certified to receive WIC benefits in April 2018, including individuals who did not claim a food instrument in April.

This chapter presents data on WIC participation and the demographic characteristics of participants. Section A describes the overall participation levels and the distribution of participants across participant categories. Sections B through F present data on participant age, trimester of enrollment during pregnancy for pregnant women, risk priority level, race and ethnicity, and migrant farmworker status. Table 3.1 provides an overview of the distribution of participants by each of these demographic characteristics.

Table 3.1. Distribution of Participants by Demographic Characteristics

Characteristic	Number	Percent
Total Participants	7,837,672	100.0
Participant Category		
Pregnant women	675,227	8.6
Breastfeeding women	628,152	8.0
Postpartum women	514,009	6.6
Total women	1,817,388	23.2
Infants	1,868,344	23.8
Children	4,151,940	53.0
Race		
American Indian	696,174	8.9
Asian	296,303	3.8
Black	1,687,947	21.5
Pacific Islander	63,639	0.8
White	4,609,636	58.8
Two or more races	476,797	6.1
Race not reported	7,175	< 0.1
Ethnicity		
Hispanic/Latino	3,239,136	41.3
Non-Hispanic/Latino	4,596,072	58.6
Ethnicity not reported	2,464	< 0.1
Migrant Status		
Migrant farmworker	29,967	0.4
Not migrant farmworker	7,773,997	99.2
Not reported	33,708	0.4

Characteristic	Number	Percent
Age at Certification		
Women		
Younger than 15	1,805	< 0.1
15–17 years	44,556	2.5
18–34 years	1,537,395	84.6
35 years or older	232,668	12.8
Age not reported	964	< 0.1
Infants		
0–3 months	1,687,694	90.3
4–5 months	57,043	3.1
6–8 months	76,485	4.1
9–11 months	46,262	2.5
Age not reported	859	< 0.1
Children		
1 year	1,530,048	36.9
2 years	1,075,971	25.9
3 years	958,537	23.1
4 years	585,544	14.1
Not reported	1,839	< 0.1
Trimester at Certification		
First trimester	354,627	52.5
Second trimester	250,832	37.1
Third trimester	67,848	10.0
Trimester not reported	1,919	0.3
Risk Priority Level		
Priority I	2,559,042	32.7
Priority II	464,184	5.9
Priority III	2,556,848	32.6
Priority IV	217,049	2.8
Priority V	1,738,854	22.2
Priority VI	273,104	3.5
Priority VII	11,338	0.1
Priority not reported	17,253	0.2

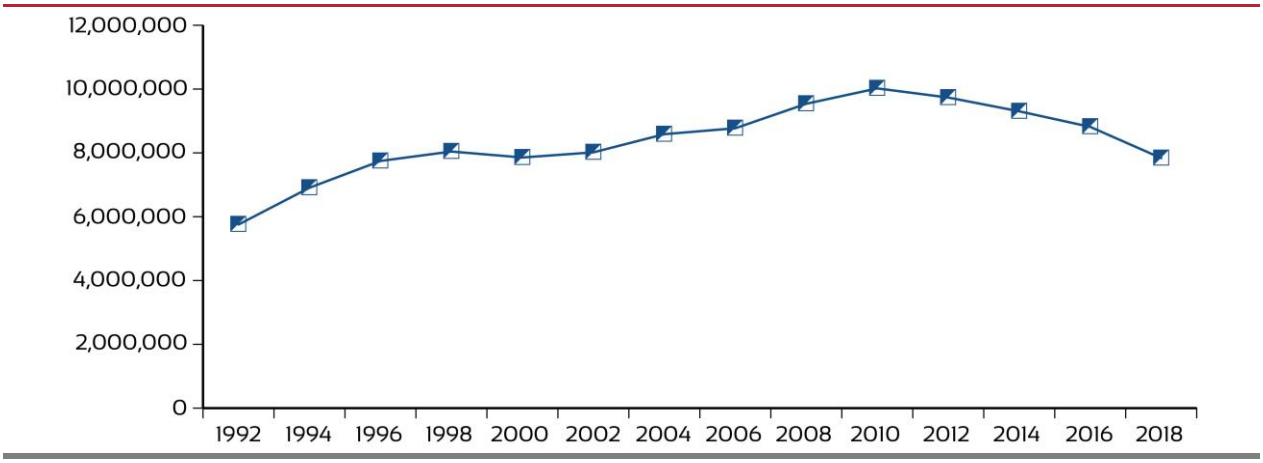
Note
Percents may not add to 100.0, and subtotals may not add to totals, because of rounding.

A. WIC Participation

For approximately the last two decades, Congress has funded WIC at the level needed for the program to serve all eligible women, infants, and children. Therefore, changes in participation during this timeframe reflect changes in participant eligibility and participation rates among the eligible population. About 7.8 million women, infants, and children were certified to receive WIC in April 2018.

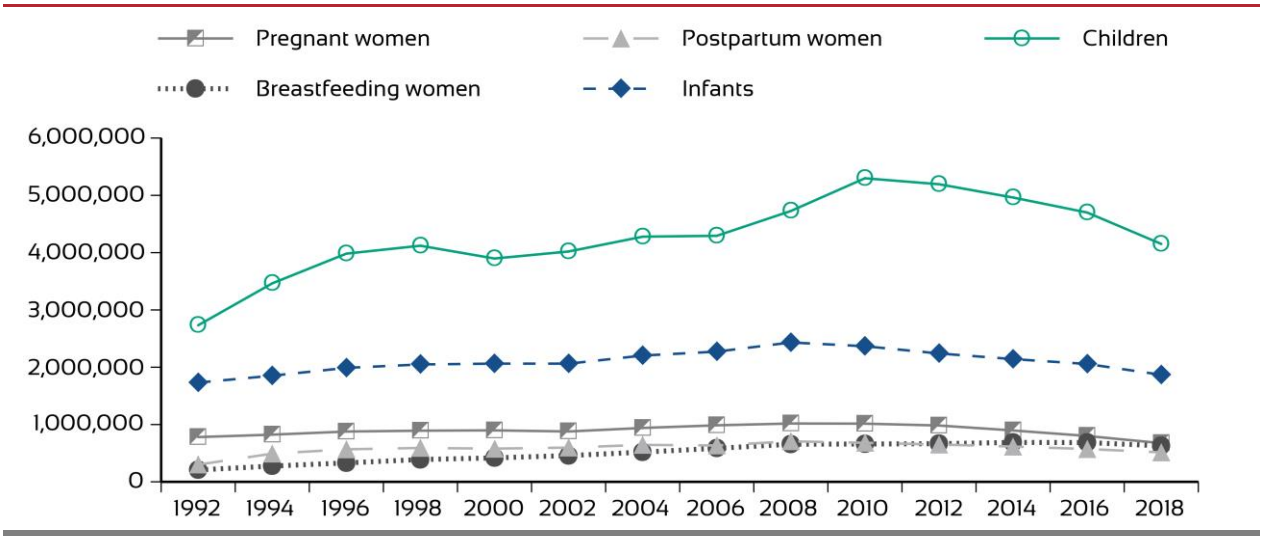
Historically, the number of participants increased from 1992 through 2010 (see figure 3.1 and appendix table A.1). The number of participants has steadily decreased since then. Participation declined by 12.0 percent from 2010 to 2016 and an additional 11.1 percent from 2016 to 2018. Improved economic conditions as well as a decrease in the U.S. birth rate have been cited as reasons for continued declining participation (Oliveira, 2017).

Figure 3.1. Number of Participants: 1992–2018



Women accounted for 23.2 percent, infants for 23.8 percent, and children for 53.0 percent of the total WIC population in 2018 (see table 3.1). Following the same trend as the overall WIC population, the number of participants in each participant category declined from 2016 to 2018 (see figure 3.2 and appendix table A.1). The greatest decrease was among pregnant women (15.7 percent), and the smallest decrease was among breastfeeding women (8.3 percent). Participation among postpartum women, infants, and children declined by 10.3, 9.2, and 11.7 percent, respectively.

Figure 3.2. Number of Participants by Participant Category: 1992–2018



Continuing a trend begun in 2012, the proportion of breastfeeding women remained greater than the proportion of postpartum women in 2018 (8.0 and 6.6 percent, respectively; see figure 3.2 and appendix table A.1). However, among the 50 States and the District of Columbia, the proportion of postpartum women was greater than the proportion of breastfeeding women in 23 State agencies (see appendix tables B.1a and B.1b). This difference was greatest in Alabama, Arkansas, and Louisiana, where the proportion of postpartum women was more than 7.0 percentage points greater than the proportion of breastfeeding women.

B. Age at Certification

The following section presents data for age at certification of women, infants, and children participating in WIC.

1. Women

Most women (84.6 percent), regardless of race, ethnicity, or participant category, were between 18 and 34 at the time of WIC certification in 2018 (see table 3.2a). A greater percentage of breastfeeding women (15.4 percent) than pregnant or postpartum women (11.8 and 10.9 percent, respectively) were older than 35. Compared with participants in other race categories, American Indian, Asian, and Pacific Islander women had the greatest percentages of women older than 35.

More than 80 percent of women across the 50 States and the District of Columbia were between 18 and 34 at the time of certification, which has been the case since 1992 (see appendix tables A.2 and B.2). By contrast, the percentage of women 17 or younger at certification decreased by 8.0 percentage points since 1992 (10.6 percent in 1992 and 2.6 percent in 2018), whereas the percentage of women 35 or older at certification increased by 7.6 percentage points during the same time period (5.2 percent in 1992 and 12.8 percent in 2018).

Table 3.2a. Distribution of Women by Age at Certification

Characteristic	Younger Than 15	15–17 Years	18–34 Years	35 Years or Older	Age Not Reported	Total Women Participants
			Number of Women Participants			
Total Women Participants	1,805	44,556	1,537,395	232,668	964	1,817,388
Participant Category						
Pregnant women	939	21,064	572,994	79,507	723	675,227
Breastfeeding women	329	9,498	521,137	97,049	139	628,152
Postpartum women	537	13,994	443,264	56,112	102	514,009
Race						
American Indian	136	3,664	123,142	24,132	34	151,109
Asian	11	271	56,088	13,568	32	69,970
Black	513	9,768	342,329	51,813	394	404,817
Pacific Islander	11	265	12,442	2,329	2	15,049
White	1,042	28,588	949,364	133,932	473	1,113,399
Two or more races	92	1,949	52,455	6,636	19	61,151
Race not reported	0	50	1,574	258	10	1,892
Ethnicity						
Hispanic/Latino	811	19,837	575,734	105,861	180	702,423
Non-Hispanic/Latino	994	24,697	961,208	126,725	780	1,114,404
Ethnicity not reported	0	22	453	82	4	561

Characteristic	Younger Than 15	15–17 Years	18–34 Years	35 Years or Older	Age Not Reported	Total Women Participants
			Percent of Women Participants			
Total Women Participants	< 0.1	2.5	84.6	12.8	< 0.1	100.0
Participant Category						
Pregnant women	0.1	3.1	84.9	11.8	0.1	100.0
Breastfeeding women	< 0.1	1.5	83.0	15.4	< 0.1	100.0
Postpartum women	0.1	2.7	86.2	10.9	< 0.1	100.0
Race						
American Indian	< 0.1	2.4	81.5	16.0	< 0.1	100.0
Asian	< 0.1	0.4	80.2	19.4	< 0.1	100.0
Black	0.1	2.4	84.6	12.8	< 0.1	100.0
Pacific Islander	< 0.1	1.8	82.7	15.5	< 0.1	100.0
White	< 0.1	2.6	85.3	12.0	< 0.1	100.0
Two or more races	0.2	3.2	85.8	10.9	< 0.1	100.0
Race not reported	0.0	2.7	83.2	13.6	0.5	100.0
Ethnicity						
Hispanic/Latino	0.1	2.8	82.0	15.1	< 0.1	100.0
Non-Hispanic/Latino	< 0.1	2.2	86.3	11.4	< 0.1	100.0
Ethnicity not reported	0.0	3.9	80.7	14.6	0.7	100.0

Note
Percents may not add to 100.0 because of rounding.

2. Infants

Federal regulations define an infant as a participant who at certification is younger than 1 year of age. For infants, the age at certification generally represents the age of initial receipt of WIC benefits because WIC does not require an infant to be recertified until the first birthday. Most infants (90.3 percent) were certified between 0 and 3 months of age regardless of race or ethnicity (see table 3.2b). The remainder of infants were split among the other three age categories (4–5 months, 6–8 months, and 9–11 months of age), with a greater percentage of infants certified between 6 and 8 months of age (4.1 percent) than in the other two age ranges (3.1 and 2.5 percent).

For 42 States and the District of Columbia, more than 80 percent of infants were between 0 and 3 months of age at certification (see appendix table B.3).[32] Since 2002, about 90 percent of infants were certified between 0 and 3 months of age (see appendix table A.3).

Table 3.2b. Distribution of Infants by Age at Certification

Characteristic	0–3 Months	4–5 Months	6–8 Months	9–11 Months	Age Not Reported	Total Infant Participants
			Number of Infant Participants			
Total Infant Participants	1,687,694	57,043	76,485	46,262	859	1,868,344
Race						
American Indian	123,262	2,382	2,722	1,117	24	129,508

[32] In 6 State agencies (Maine, Mississippi, Missouri, Montana, New Jersey, and Ohio), fewer than 55 percent of infants were certified at 0-3 months of age. These State agencies certify participants every 6 months.

Characteristic	0–3 Months	4–5 Months	6–8 Months	9–11 Months	Age Not Reported	Total Infant Participants
Asian	57,559	1,628	1,827	1,780	27	62,821
Black	405,080	13,538	19,662	12,164	352	450,796
Pacific Islander	12,669	488	628	212	4	14,001
White	970,885	34,031	45,627	27,389	405	1,078,336
Two or more races	116,549	4,539	5,539	3,420	47	130,094
Race not reported	1,691	437	480	180	0	2,788
Ethnicity						
Hispanic/Latino	669,802	14,809	18,058	11,052	204	713,925
Non-Hispanic/Latino	1,017,548	42,014	58,130	35,069	655	1,153,416
Ethnicity not reported	344	221	297	141	0	1,003
			Percent of Infant Participants			
Total Infant Participants	90.3	3.1	4.1	2.5	< 0.1	100.0
Race						
American Indian	95.2	1.8	2.1	0.9	< 0.1	100.0
Asian	91.6	2.6	2.9	2.8	< 0.1	100.0
Black	89.9	3.0	4.4	2.7	< 0.1	100.0
Pacific Islander	90.5	3.5	4.5	1.5	< 0.1	100.0
White	90.0	3.2	4.2	2.5	< 0.1	100.0
Two or more races	89.6	3.5	4.3	2.6	< 0.1	100.0
Race not reported	60.6	15.7	17.2	6.5	0.0	100.0
Ethnicity						
Hispanic/Latino	93.8	2.1	2.5	1.5	< 0.1	100.0
Non-Hispanic/Latino	88.2	3.6	5.0	3.0	< 0.1	100.0
Ethnicity not reported	34.3	22.0	29.6	14.1	0.0	100.0

Note
Percents may not add to 100.0 because of rounding.

3. Children

Participants are classified as children at the age of 366 days (the first birthday).[33] Because children can be recertified annually in most State agencies for up to 4 years, the distribution of children's age at last certification corresponds closely to their distribution of current age. Similar to previous years, in 2018, there were fewer older children than younger children (see table 3.2c and appendix table A.4). This trend has been consistent across race and ethnicity and across the 50 States and the District of Columbia (see appendix table B.4). Overall, 1-year-old children were the largest group (36.9 percent), and 4-year-old children were the smallest group (14.1 percent). Children 2 to 3 years old made up 25.9 and 23.1 percent of children, respectively.

The percentage of 4-year-olds as a proportion of all children decreased from 16.5 percent in 2012 to 14.1 percent in 2018, whereas the percentage of 1-year-olds increased from 34.8 percent in 2012 to 36.9 percent in 2018. This followed a 12-year period when the percentage of 4-year-old children remained steady at around 16 percent (see appendix table A.4). Historically, the percentage of 2- and 3-year-olds as a proportion of all children has remained relatively consistent since 1992.

[33] About 0.2 percent of participants who were classified as 1-year-old children in 2018 were in fact 11-month-old infants. These infants were typically recertified as children within 2 weeks of their first birthday.

Table 3.2c. Distribution of Children by Age at Certification

Characteristic	1 Year	2 Years	3 Years	4 Years	Age Not Reported	Total Child Participants
			Number of Child Participants			
Total Child Participants	1,530,048	1,075,971	958,537	585,544	1,839	4,151,940
Race						
American Indian	125,942	108,294	107,473	73,793	55	415,557
Asian	57,579	42,517	38,612	24,724	81	163,512
Black	324,498	212,995	185,445	108,628	768	832,334
Pacific Islander	12,215	8,991	8,368	5,010	4	34,589
White	903,387	627,938	552,873	332,835	869	2,417,901
Two or more races	105,450	74,589	65,232	40,223	57	285,551
Race not reported	977	647	535	332	5	2,496
Ethnicity						
Hispanic/Latino	638,464	472,843	434,448	276,524	510	1,822,788
Non-Hispanic/Latino	891,234	602,917	523,876	308,896	1,328	2,328,252
Ethnicity not reported	351	211	213	124	1	900
			Percent of Child Participants			
Total Child Participants	36.9	25.9	23.1	14.1	< 0.1	100.0
Race						
American Indian	30.3	26.1	25.9	17.8	< 0.1	100.0
Asian	35.2	26.0	23.6	15.1	< 0.1	100.0
Black	39.0	25.6	22.3	13.1	< 0.1	100.0
Pacific Islander	35.3	26.0	24.2	14.5	< 0.1	100.0
White	37.4	26.0	22.9	13.8	< 0.1	100.0
Two or more races	36.9	26.1	22.8	14.1	< 0.1	100.0
Race not reported	39.2	25.9	21.4	13.3	0.2	100.0
Ethnicity						
Hispanic/Latino	35.0	25.9	23.8	15.2	< 0.1	100.0
Non-Hispanic/Latino	38.3	25.9	22.5	13.3	< 0.1	100.0
Ethnicity not reported	39.0	23.4	23.7	13.8	0.1	100.0

Note
Percents may not add to 100.0 because of rounding.

C. Trimester of Enrollment

More than half of all pregnant women (52.5 percent) enrolled in WIC during the first trimester of pregnancy, and most of the remainder enrolled during the second trimester (37.1 percent; see table 3.3). Compared with women of other races, American Indian women were most likely to enroll in the first trimester (55.6 percent), and Pacific Islander women were least likely to do so (41.2 percent). A greater percentage of Pacific Islander women enrolled in the second trimester (43.4 percent) than in the first trimester.

Trimester of enrollment varied by State agency (see appendix table B.5). Among the 50 States and the District of Columbia, a greater percentage of participants in 11 State agencies (Delaware, the District of Columbia, Maine, Minnesota, Missouri, Montana, Nevada, New Jersey, New York, Pennsylvania, and Rhode Island) enrolled during the second trimester of pregnancy than in the first trimester.

Since 1998, more pregnant women have enrolled in WIC during the first trimester of pregnancy than in the second or third trimester (see appendix table A.5). However, enrollment during the first trimester

has decreased by 4.4 percentage points, from a peak of 56.9 percent in 2012 to 52.5 percent in 2018. During the same time period, the percentages of women who enrolled during the second and third trimesters increased by 2.4 and 2.2 percentage points, respectively.

Table 3.3. Distribution of Pregnant Women by Trimester at Certification

Characteristic	First Trimester	Second Trimester	Third Trimester	Trimester Not Reported	Total Pregnant Women Participants
Number of Pregnant Women Participants					
Total Pregnant Women Participants	354,627	250,832	67,848	1,919	675,227
Race					
American Indian	32,065	20,796	4,690	79	57,630
Asian	11,333	9,803	2,511	42	23,689
Black	69,090	57,116	16,088	511	142,806
Pacific Islander	2,214	2,332	810	14	5,370
White	227,523	151,754	41,365	1,183	421,825
Two or more races	12,021	8,749	2,293	79	23,143
Race not reported	381	282	91	11	765
Ethnicity					
Hispanic/Latino	141,243	96,565	23,597	438	261,843
Non-Hispanic/Latino	213,331	154,197	44,211	1,473	413,212
Ethnicity not reported	53	70	41	8	172
Percent of Pregnant Women Participants					
Total Pregnant Women Participants	52.5	37.1	10.0	0.3	100.0
Race					
American Indian	55.6	36.1	8.1	0.1	100.0
Asian	47.8	41.4	10.6	0.2	100.0
Black	48.4	40.0	11.3	0.4	100.0
Pacific Islander	41.2	43.4	15.1	0.3	100.0
White	53.9	36.0	9.8	0.3	100.0
Two or more races	51.9	37.8	9.9	0.3	100.0
Race not reported	49.8	36.9	11.9	1.4	100.0
Ethnicity					
Hispanic/Latino	53.9	36.9	9.0	0.2	100.0
Non-Hispanic/Latino	51.6	37.3	10.7	0.4	100.0
Ethnicity not reported	30.8	40.7	23.8	4.7	100.0

Note
Percents may not add to 100.0 because of rounding.

D. Risk Priority Level

FNS determines each local agency's maximum caseload, or the number of participants the agency can serve at one time. This number is based on the local agency's funding level and predicted caseload turnover. If Congress does not fully fund the WIC program, and a State agency reaches its maximum caseload, the State agency must then prioritize eligible applicants according to their relative levels of risk, known as risk priority levels. In the reference month of April 2018, no State agency was required to use risk priority levels to determine which applicants would receive benefits.

Federal regulations define seven risk priority levels. These levels are based on applicant categories and nutritional risk (see table 3.4). Priority Levels I through III are assigned based on anthropometric or

biochemical measurements or medical conditions, and Priority Levels IV through VI are assigned based primarily on dietary patterns. Priority Levels I and II are assigned to infants, pregnant women, and breastfeeding women. Priority Level III is assigned to children. State agencies may create sublevels for any priority level using factors such as income or age, and they may expand Priority Levels III, IV, and V to include high-risk postpartum women. State agencies also have the option to assign Priority Levels IV, V, and VI solely based on an applicant's homeless or migrant farmworker status. Homeless or migrant farmworker participants with no other risks may be assigned Priority Level VII regardless of their participant categories.

Table 3.4. Risk Priority Levels

Priority Level	Description
I	Pregnant women, breastfeeding women, and infants at nutritional risk as shown by hematological or anthropometric measurements or other documented, nutritionally related medical conditions that demonstrate the need for supplemental foods
II	Infants up to 6 months old born to women who were WIC participants during pregnancy, and infants up to 6 months old born to women who were not WIC participants during pregnancy but whose medical records documented they were at nutritional risk during pregnancy because of nutritional conditions detectable by biochemical or anthropometric measurements, or other documented nutritionally related medical conditions, that demonstrated the woman's need for supplemental foods. Excludes infants who qualify for Priority Level I
III	Children at nutritional risk as shown by hematological or anthropometric measurements or other documented medical conditions that demonstrate the child's need for supplemental foods
IV	Pregnant women, breastfeeding women, and infants at nutritional risk because of an inadequate dietary pattern
V	Children at nutritional risk because of an inadequate dietary pattern
VI	Postpartum women at nutritional risk
VII	Individuals certified for WIC solely because of homelessness or migrant status, and—at the discretion of the State agency and in accordance with the provisions of section 246(e)(1)(vi) of Federal regulations—previously certified participants who might regress in nutritional status without the continued provision of supplemental foods[a]

[a] Source: 7 C.F.R. 246.7(e)(4) (Special Supplemental Nutrition Program for Women, Infants and Children, 1985)

Most participants (71.2 percent) were assigned a medically based priority level (Priority Levels I–III; see table 3.5). Across all races and ethnicities, the most commonly assigned priority levels were I, III, and V. Priority Levels I and III were each assigned to almost one-third of participants (32.7 and 32.6 percent, respectively). Fewer than a quarter of participants (22.2 percent) were classified as Priority V. The smallest percentage of participants (0.1 percent) were assigned Priority VII.

The majority of pregnant and breastfeeding women (90 percent), as well as more than two-thirds of infants (68.7 percent), were classified as Priority I. Postpartum women were most frequently assigned Priority VI (52.7 percent), and children Priority III (57.1 percent).

Although Priority Level I should be assigned only to pregnant and breastfeeding women and infants, this priority level was applied to 6.5 percent of postpartum women and 0.7 percent of children. These individuals may not have had their State agency-level records or priority levels updated in State agency-maintained MIS when they were recertified into different participant categories.

Priority Levels I, III, and V were most frequently assigned across the 50 States and the District of Columbia (see appendix table B.6) in 2018, except in Mississippi, where Priority Level VI was more

frequently assigned than Priority Level V. Since 1994, Priority Levels I, III, and V have been the most commonly assigned (see appendix table A.6). In recent years, there has been an increase in the percentage of participants assigned Priority Levels I and III (about 2 percentage points since 2012), accompanied by a small decrease in the percentage of participants assigned Priority Level V (about 3 percentage points since 2012), reflecting increases in medically based priorities and complementary decreases in dietary priorities.

Table 3.5. Distribution of Participants by Risk Priority Level

Characteristic	I	II	III	IV	V	VI	VII	Not Reported	Total Participants
					Number of Participants				
Total Participants	2,559,042	464,184	2,556,848	217,049	1,738,854	273,104	11,338	17,253	7,837,672
Participant Category									
Pregnant women	623,617	36	52	48,158	518	855	82	1,909	675,227
Breastfeeding women	590,229	7,926	428	26,957	532	843	130	1,107	628,152
Postpartum women	33,172	587	182,097	12,337	11,509	270,892	214	3,201	514,009
Total women	1,247,019	8,549	182,577	87,451	12,559	272,590	426	6,217	1,817,388
Infants	1,283,216	454,046	4,672	116,069	6,040	44	771	3,486	1,868,344
Children	28,807	1,589	2,369,599	13,529	1,720,255	470	10,141	7,550	4,151,940
Race									
American Indian	210,086	26,212	246,604	11,318	177,395	22,258	1,676	625	696,174
Asian	93,743	17,210	91,091	9,092	75,394	9,125	249	397	296,303
Black	575,091	111,802	557,318	51,810	316,623	71,839	1,296	2,169	1,687,947
Pacific Islander	20,660	3,185	20,424	1,706	14,465	2,288	37	873	63,639
White	1,520,824	274,761	1,475,493	130,823	1,030,434	158,121	7,288	11,893	4,609,636
Two or more races	135,751	30,615	164,635	11,707	123,678	9,140	363	909	476,797
Race not reported	2,886	399	1,284	593	864	333	429	387	7,175
Ethnicity									
Hispanic/Latino	1,004,117	185,028	1,067,573	82,066	796,589	87,096	7,628	9,039	3,239,136
Non-Hispanic/ Latino	1,553,926	279,058	1,488,827	134,627	941,845	185,872	3,710	8,207	4,596,072
Ethnicity not reported	999	98	448	356	420	136	0	7	2,464
					Percent of Participants				
Total Participants	32.7	5.9	32.6	2.8	22.2	3.5	0.1	0.2	100.0
Participant Category									
Pregnant women	92.4	< 0.1	< 0.1	7.1	< 0.1	0.1	< 0.1	0.3	100.0
Breastfeeding women	94.0	1.3	< 0.1	4.3	< 0.1	0.1	< 0.1	0.2	100.0
Postpartum women	6.5	0.1	35.4	2.4	2.2	52.7	< 0.1	0.6	100.0
Total women	68.6	0.5	10.0	4.8	0.7	15.0	< 0.1	0.3	100.0
Infants	68.7	24.3	0.3	6.2	0.3	< 0.1	< 0.1	0.2	100.0
Children	0.7	< 0.1	57.1	0.3	41.4	< 0.1	0.2	0.2	100.0

Characteristic	I	II	III	IV	V	VI	VII	Not Reported	Total Participants
Race									
American Indian	30.2	3.8	35.4	1.6	25.5	3.2	0.2	< 0.1	100.0
Asian	31.6	5.8	30.7	3.1	25.4	3.1	< 0.1	0.1	100.0
Black	34.1	6.6	33.0	3.1	18.8	4.3	< 0.1	0.1	100.0
Pacific Islander	32.5	5.0	32.1	2.7	22.7	3.6	< 0.1	1.4	100.0
White	33.0	6.0	32.0	2.8	22.4	3.4	0.2	0.3	100.0
Two or more races	28.5	6.4	34.5	2.5	25.9	1.9	< 0.1	0.2	100.0
Race not reported	40.2	5.6	17.9	8.3	12.0	4.6	6.0	5.4	100.0
Ethnicity									
Hispanic/Latino	31.0	5.7	33.0	2.5	24.6	2.7	0.2	0.3	100.0
Non-Hispanic/ Latino	33.8	6.1	32.4	2.9	20.5	4.0	< 0.1	0.2	100.0
Ethnicity not reported	40.5	4.0	18.2	14.4	17.0	5.5	0.0	0.3	100.0

Note
Percents may not add to 100.0 because of rounding.

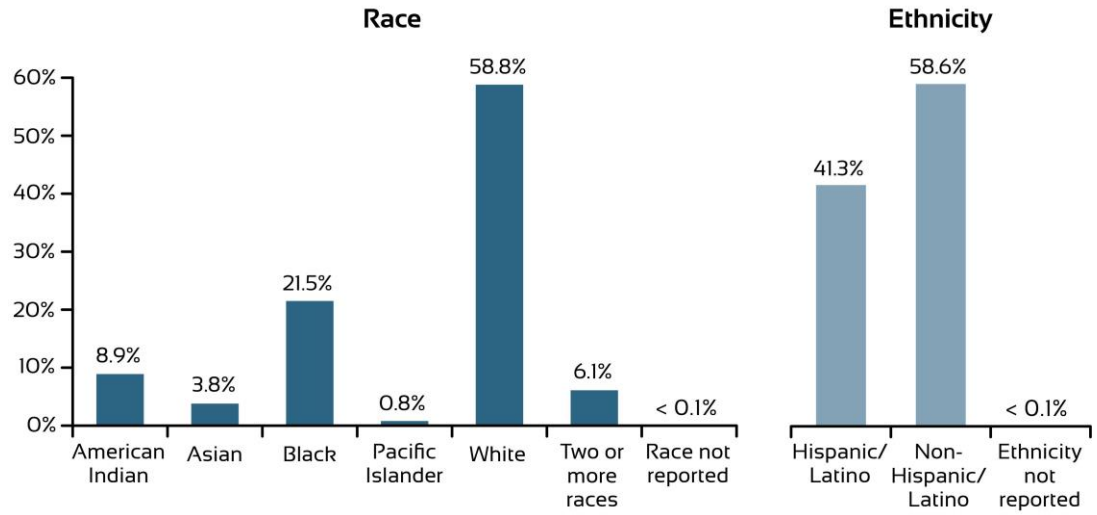
E. Race and Ethnicity

WIC participants can self-identify using one or more of the following five racial categories: (1) American Indian; (2) Asian; (3) Black; (4) Pacific Islander; and (5) White.[34] Participants are also asked to report ethnicity by indicating whether they are Hispanic/Latino. If a participant does not report race or ethnicity, WIC staff are instructed to record the information on behalf of the participant; race and ethnicity were not reported in 2018 for less than 0.1 percent of the WIC population.

Only one race was reported for most participants in 2018. The most commonly reported race across women, infants, and children was White (58.8 percent), followed by Black (21.5 percent; see figure 3.3 and table 3.6). Two or more races were reported for 6.1 percent of participants. The distribution of race across participant categories generally mirrored that of the overall WIC population with some exceptions (see table 3.7). The proportion of breastfeeding women was greater than the proportion of postpartum women except among Black women. There were at least 2.0 times as many children as infants among all categories except Black participants; there were 1.8 times as many Black children as Black infants. About 41 percent of participants reported Hispanic/Latino ethnicity.

[34] These categories are based on the OMB (1997) definitions and were first used in the PC2006 report. Some of the reporting category names were shortened for 2018 to help streamline table and figure text in the report (see table 2.3 for more detail).

Figure 3.3. Percentage of Participants by Race and Ethnicity



Of the 3.2 million Hispanic/Latino participants, 71.9 percent were reported as White, and 18.7 percent were reported as American Indian (see table 3.8). Compared with other participants, a greater proportion of Hispanic/Latino participants were children (56.3 percent Hispanic/Latino versus 50.7 percent non-Hispanic/Latino) and breastfeeding women (8.6 percent versus 7.6 percent). However, a smaller proportion of Hispanic/Latino participants than non-Hispanic/Latino participants were infants (22.0 percent versus 25.1 percent), pregnant women (8.1 percent versus 9.0 percent), and postpartum women (5.0 percent versus 7.7 percent).

The distribution of participants by race varied across all State agencies (see appendix table B.7). In more than 75 percent of State agencies, most participants were reported as White. However, ITOs reported a greater percentage of American Indian participants than other State agencies, ranging from 11.6 to 100.0 percent of participants, compared with an overall rate of 8.9 percent.[35] In Hawaii, American Samoa, Guam, and the Northern Mariana Islands, a greater-than-average percentage of participants were reported as Pacific Islander, ranging from 60.1 to 98.6 percent, compared with an overall rate of 0.8 percent.

The percentage of Hispanic/Latino participants varied among the 50 States and the District of Columbia, with a low of 3.0 percent in West Virginia to a high of 75.2 percent in New Mexico (see appendix table B.8). Since 2006, approximately 40 percent of participants were reported as Hispanic/Latino and 60 percent as non-Hispanic/Latino (see appendix table A.9).

Since 1992, the percentage of Hispanic/Latino participants has increased, the percentage of White non-Hispanic/Latino participants has decreased, and the percentage of Black non-Hispanic/Latino participants has remained relatively the same (see appendix table A.7). Since 2006,[36] the primary changes have been a decrease in the proportion of participants reported as American Indian (from 15.3

[35] The proportion of Hispanic/Latino WIC participants who were also identified as American Indian varied across State agencies because some State agencies identify Hispanic/Latino participants as American Indian in the absence of a race selection by the participant. Caution should be used in the analysis of the race and ethnicity of WIC participants, particularly for American Indians (see chapter 2 for more detail).
[36] The race and ethnicity categories were first used for the PC2006 report.

percent to 8.9 percent)[37] and an increase in the proportion of participants reported as being of two or more races (from 2.9 percent to 6.1 percent; see appendix table A.8).

Table 3.6. Distribution of Participants by Race and Ethnicity Characteristics and Participant Category

Characteristic	Pregnant Women	Breastfeeding Women	Postpartum Women	Total Women Participants	Infants	Children	Total Participants
			Number of Participants				
Total Participants	675,227	628,152	514,009	1,817,388	1,868,344	4,151,940	7,837,672
Race							
American Indian	57,630	57,407	36,072	151,109	129,508	415,557	696,174
Asian	23,689	30,747	15,534	69,970	62,821	163,512	296,303
Black	142,806	126,241	135,771	404,817	450,796	832,334	1,687,947
Pacific Islander	5,370	5,670	4,009	15,049	14,001	34,589	63,639
White	421,825	386,151	305,424	1,113,399	1,078,336	2,417,901	4,609,636
Two or more races	23,143	21,361	16,648	61,151	130,094	285,551	476,797
Race not reported	765	576	551	1,892	2,788	2,496	7,175
Ethnicity							
Hispanic/Latino	261,843	278,488	162,092	702,423	713,925	1,822,788	3,239,136
Non-Hispanic/Latino	413,212	349,487	351,705	1,114,404	1,153,416	2,328,252	4,596,072
Ethnicity not reported	172	177	212	561	1,003	900	2,464
			Percent of Participants				
Total Participants	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Race							
American Indian	8.5	9.1	7.0	8.3	6.9	10.0	8.9
Asian	3.5	4.9	3.0	3.9	3.4	3.9	3.8
Black	21.1	20.1	26.4	22.3	24.1	20.0	21.5
Pacific Islander	0.8	0.9	0.8	0.8	0.7	0.8	0.8
White	62.5	61.5	59.4	61.3	57.7	58.2	58.8
Two or more races	3.4	3.4	3.2	3.4	7.0	6.9	6.1
Race not reported	0.1	< 0.1	0.1	0.1	0.1	< 0.1	< 0.1
Ethnicity							
Hispanic/Latino	38.8	44.3	31.5	38.7	38.2	43.9	41.3
Non-Hispanic/Latino	61.2	55.6	68.4	61.3	61.7	56.1	58.6
Ethnicity not reported	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Note
Percents may not add to 100.0 because of rounding.

Table 3.7. Distribution of Participants With Selected Characteristics by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Participants
				Number of Participants				
Total Participants	696,174	296,303	1,687,947	63,639	4,609,636	476,797	7,175	7,837,672
Participant Category								
Pregnant women	57,630	23,689	142,806	5,370	421,825	23,143	765	675,227
Breastfeeding women	57,407	30,747	126,241	5,670	386,151	21,361	576	628,152

[37] The proportion of Hispanic/Latino WIC participants who were also identified as American Indian varied widely across State agencies because some State agencies identify Hispanic/Latino participants as American Indian in the absence of a race selection by the participant. Caution should be used in the analysis of the race and ethnicity of WIC participants, particularly for American Indians (see chapter 2 for more detail).

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Participants
Postpartum women	36,072	15,534	135,771	4,009	305,424	16,648	551	514,009
Total women	151,109	69,970	404,817	15,049	1,113,399	61,151	1,892	1,817,388
Infants	129,508	62,821	450,796	14,001	1,078,336	130,094	2,788	1,868,344
Children	415,557	163,512	832,334	34,589	2,417,901	285,551	2,496	4,151,940
Ethnicity								
Hispanic/Latino	605,208	11,753	98,115	19,473	2,329,280	174,244	1,062	3,239,136
Non-Hispanic/ Latino	90,963	284,550	1,589,799	44,166	2,280,334	302,551	3,710	4,596,072
Ethnicity not reported	3	0	33	0	23	2	2,403	2,464
Percent of Participants								
Total Participants	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Participant Category								
Pregnant women	8.3	8.0	8.5	8.4	9.2	4.9	10.7	8.6
Breastfeeding women	8.2	10.4	7.5	8.9	8.4	4.5	8.0	8.0
Postpartum women	5.2	5.2	8.0	6.3	6.6	3.5	7.7	6.6
Total women	21.7	23.6	24.0	23.6	24.2	12.8	26.4	23.2
Infants	18.6	21.2	26.7	22.0	23.4	27.3	38.9	23.8
Children	59.7	55.2	49.3	54.4	52.5	59.9	34.8	53.0
Ethnicity								
Hispanic/Latino	86.9	4.0	5.8	30.6	50.5	36.5	14.8	41.3
Non-Hispanic/ Latino	13.1	96.0	94.2	69.4	49.5	63.5	51.7	58.6
Ethnicity not reported	< 0.1	0.0	< 0.1	0.0	< 0.1	< 0.1	33.5	< 0.1

Note
Percents may not add to 100.0, and subtotals may not add to totals, because of rounding.

Table 3.8. Distribution of Participants With Selected Characteristics by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Participants
Number of Participants				
Total Participants	3,239,136	4,596,072	2,464	7,837,672
Participant Category				
Pregnant women	261,843	413,212	172	675,227
Breastfeeding women	278,488	349,487	177	628,152
Postpartum women	162,092	351,705	212	514,009
Total women	702,423	1,114,404	561	1,817,388
Infants	713,925	1,153,416	1,003	1,868,344
Children	1,822,788	2,328,252	900	4,151,940
Race				
American Indian	605,208	90,963	3	696,174
Asian	11,753	284,550	0	296,303
Black	98,115	1,589,799	33	1,687,947
Pacific Islander	19,473	44,166	0	63,639
White	2,329,280	2,280,334	23	4,609,636
Two or more races	174,244	302,551	2	476,797
Race not reported	1,062	3,710	2,403	7,175

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Participants
	Percent of Participants			
Total Participants	100.0	100.0	100.0	100.0
Participant Category				
Pregnant women	8.1	9.0	7.0	8.6
Breastfeeding women	8.6	7.6	7.2	8.0
Postpartum women	5.0	7.7	8.6	6.6
Total women	21.7	24.2	22.8	23.2
Infants	22.0	25.1	40.7	23.8
Children	56.3	50.7	36.5	53.0
Race				
American Indian	18.7	2.0	0.1	8.9
Asian	0.4	6.2	0.0	3.8
Black	3.0	34.6	1.3	21.5
Pacific Islander	0.6	1.0	0.0	0.8
White	71.9	49.6	0.9	58.8
Two or more races	5.4	6.6	< 0.1	6.1
Race not reported	< 0.1	< 0.1	97.5	< 0.1

Note
Percents may not add to 100.0, and subtotals may not add to totals, because of rounding.

F. Migrant Farmworker Status

State agencies are required to report migrant farmworker status for all individuals enrolled in WIC as part of the MDS.

Migrant Farmworker

An individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who has established a temporary abode for the purposes of such employment.

Migrant farmworkers made up 0.4 percent of all participants in 2018 (see table 3.1), a proportion consistent with migrant farmworker status records since 1992 (see appendix table A.10). Migrant farmworker participation was concentrated in a small number of State agencies. More than 90 percent of these participants resided in 10 States: California, Florida, Kentucky, Maryland, Michigan, New York, North Carolina, Ohio, Tennessee, and Texas (see appendix table B.9).

The percentages of women, infants, and children differed only slightly within the migrant farmworker population of participants compared with participants who were not migrant farmworkers. A greater percentage of migrant farmworkers were children (56.9 percent versus 52.9 percent who were not migrant farmworkers; see table 3.9), whereas a smaller proportion were infants (20.4 percent versus 23.9 percent). Women made up similar percentages of participants who were and were not migrant farmworkers (22.7 percent and 23.2 percent, respectively).

Seventy percent of migrant farmworkers were reported as White compared with 58.8 percent of who were not migrant farmworkers. Nearly 80 percent of migrant farmworkers were reported as Hispanic/Latino compared with 41.2 percent who were not migrant farmworkers.

Table 3.9. Distribution of Participants With Selected Characteristics by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Participants
Number of Participants				
Total Participants	29,967	7,773,997	33,708	7,837,672
Participant Category				
Pregnant women	2,465	671,293	1,469	675,227
Breastfeeding women	2,838	623,189	2,125	628,152
Postpartum women	1,490	512,057	462	514,009
Total women	6,793	1,806,539	4,056	1,817,388
Infants	6,114	1,858,786	3,444	1,868,344
Children	17,060	4,108,672	26,208	4,151,940
Race				
American Indian	4,313	688,258	3,603	696,174
Asian	722	290,900	4,681	296,303
Black	2,718	1,678,111	7,118	1,687,947
Pacific Islander	114	63,014	511	63,639
White	20,978	4,571,758	16,900	4,609,636
Two or more races	1,043	474,960	793	476,797
Race not reported	79	6,994	102	7,175
Ethnicity				
Hispanic/Latino	23,730	3,204,864	10,542	3,239,136
Non-Hispanic/Latino	6,228	4,566,762	23,082	4,596,072
Ethnicity not reported	9	2,371	84	2,464
Percent of Participants				
Total Participants	100.0	100.0	100.0	100.0
Participant Category				
Pregnant women	8.2	8.6	4.4	8.6
Breastfeeding women	9.5	8.0	6.3	8.0
Postpartum women	5.0	6.6	1.4	6.6
Total women	22.7	23.2	12.0	23.2
Infants	20.4	23.9	10.2	23.8
Children	56.9	52.9	77.8	53.0
Race				
American Indian	14.4	8.9	10.7	8.9
Asian	2.4	3.7	13.9	3.8
Black	9.1	21.6	21.1	21.5
Pacific Islander	0.4	0.8	1.5	0.8
White	70.0	58.8	50.1	58.8
Two or more races	3.5	6.1	2.4	6.1
Race not reported	0.3	< 0.1	0.3	< 0.1
Ethnicity				
Hispanic/Latino	79.2	41.2	31.3	41.3
Non-Hispanic/Latino	20.8	58.7	68.5	58.6
Ethnicity not reported	< 0.1	< 0.1	0.2	< 0.1

Note
Percents may not add to 100.0, and subtotals may not add to totals, because of rounding.

Chapter 4. Participation in Other Benefit Programs and Income of WIC Participants

Federal regulations require categorically eligible WIC applicants to meet income eligibility standards set by State agencies. State agencies must set income restrictions of between 100 and 185 percent of the Federal Poverty Guidelines established by HHS. These income guidelines for poverty are based on household size and vary by residency (HHS, 2016).[38] The income eligibility threshold set by all State agencies as of April 2018 was 185 percent of the Federal Poverty Guidelines. In most areas served by WIC in 2018, a household of four with an annual income of $45,510 or less was eligible for WIC.[39]

Annual Income ≤ 185 Percent of Federal Poverty Guidelines by Household Size (number of members)

1	$22,311
2	$30,044
3	$37,777
4	$45,510
5	$53,243
6	$60,976

Under Federal regulations, applicants are adjunctively income-eligible for WIC benefits if they or certain family members can document participation in at least one of three means-tested benefit programs: TANF, SNAP, or Medicaid.[40] All State agencies use a combination of TANF, SNAP, and/or Medicaid participation to determine adjunctive WIC income eligibility.[41] Applicants are also automatically income-eligible if they can document participation in other means-tested programs that apply income eligibility guidelines consistent with State agency regulations on WIC income; results presented in this report include data only for TANF, SNAP, and Medicaid participation.[42]

This chapter presents data on the income of WIC participants and related measures. Section A describes the participation of WIC participants in TANF, SNAP, and Medicaid. Section B discusses household size and income, and section C describes the poverty status of WIC participant households. Table 4.1 provides an overview of the distribution of WIC participants by these measures.

Table 4.1. Distribution of Participants With Income-Related Characteristics

Characteristic	Number	Percent
Total Participants	7,837,672	100.0
Reported Participation in Other Benefit Programs		
Participation in TANF, SNAP, or Medicaid	6,276,158	80.1
TANF	414,615	5.3
SNAP	2,608,355	33.3
Medicaid	6,017,618	76.8
No other programs	1,435,460	18.3
Not reported	126,054	1.6

[38] Income thresholds for the Federal Poverty Guidelines are higher for Alaska and Hawaii than for all other State agencies.

[39] See https://www.fns.usda.gov/wic/wic-2017-2018-income-eligibility-guidelines

[40] Because Medicaid permits recipients to have income equal to or greater than 185 percent of the Federal Poverty Guidelines, it is possible some WIC participant household incomes exceed this threshold.

[41] American Samoa, the Northern Mariana Islands, and Puerto Rico do not participate in SNAP, but participants in their respective nutrition assistance programs are automatically income-eligible for WIC. Medicaid recipients in American Samoa and the Northern Mariana Islands, and TANF and Medicaid recipients in Puerto Rico, are adjunctively income-eligible for WIC.

[42] Although Federal regulations distinguish means-tested programs used for adjunctive income eligibility from programs used to establish automatic income eligibility, the two mechanisms work similarly with respect to income eligibility.

Characteristic	Number	Percent
Reported Combinations of Other Benefit Programs		
TANF, SNAP, and Medicaid	328,752	4.2
TANF and SNAP	15,208	0.2
TANF and Medicaid	45,632	0.6
SNAP and Medicaid	2,046,088	26.1
TANF only	25,024	0.3
SNAP only	218,308	2.8
Medicaid only	3,597,147	45.9
Size of Family or Economic Unit (number of members)		
1	133,269	1.7
2	909,634	11.6
3	1,907,839	24.3
4	2,089,452	26.7
5	1,445,519	18.4
6+	1,302,298	16.6
Not reported	49,661	0.6
Annual Income		
Average (Mean)	19,355	–
Median	17,916	–
Percent of Federal Poverty Guidelines		
0–50	2,607,404	33.3
51–100	2,511,885	32.0
101–130	1,033,943	13.2
131–150	445,193	5.7
151–185	522,451	6.7
More than 185	212,919	2.7
Not reported	503,876	6.4

Notes
Percents may not add to 100.0 because of rounding.
Alaska was unable to provide sufficient data on participation in TANF, SNAP, and Medicaid. Illinois was unable to provide sufficient data on participation in TANF.

A. Participation in TANF, SNAP, and Medicaid

In total, 80.1 percent of participants reported participation in TANF, SNAP, or Medicaid in 2018 (see table 4.1).[43] Reported participation in other benefit programs varied by State agency (see appendix table B.10).

The distribution of participants with reported participation in other benefit programs varied across participant categories (see table 4.2). Participation in any of the three benefit programs was reported for a smaller percentage of infants compared with the overall WIC population. In contrast, participation in another benefit program was reported for a greater percentage of children compared with the overall

[43] Members of most ITOs can participate in the Food Distribution Program on Indian Reservations (FDPIR) as an alternative to SNAP. For PC2018, the SDS included data on FDPIR participation. Of the 34 ITOs, 22 chose to report FDPIR participation, resulting in data for 76.7 percent of all ITO WIC participants. Of the 45,457 participants with reported data on FDPIR participation, only 0.4 percent participated in the program.

WIC population. The rate of participation in other benefit programs was similar for pregnant and breastfeeding women and higher for postpartum women.

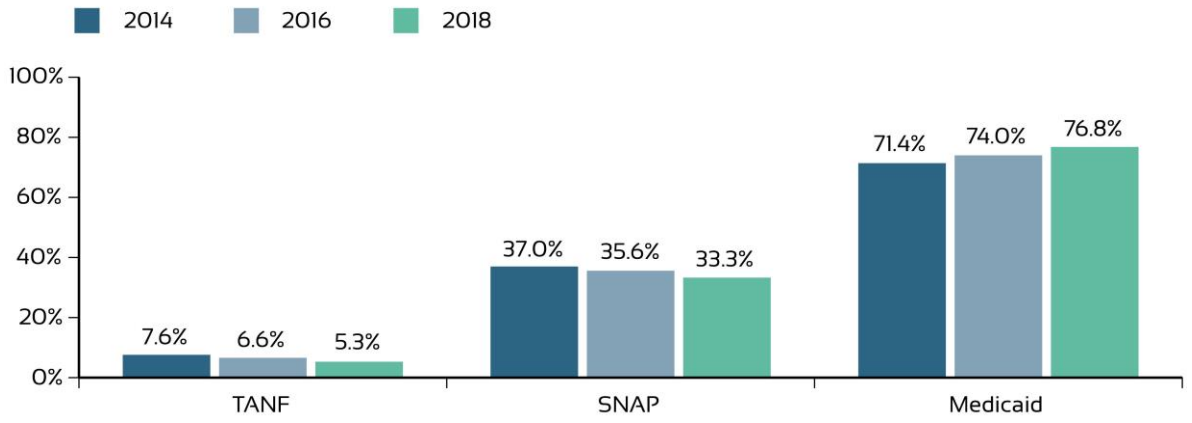
Reported participation in TANF, SNAP, or Medicaid also varied by race. Compared with the overall WIC population, fewer Asian participants reported participating in TANF or SNAP, and fewer Pacific Islanders reported participating in Medicaid.[44] Participation in other benefit programs did not vary by ethnicity.

In 2018, 45.9 percent of WIC participants also reported participation in Medicaid only, and 26.1 percent of participants reported participation in both SNAP and Medicaid (see table 4.3). Reported participation for Medicaid only was highest across all participant categories, races, and ethnicities.

Across all 50 States and the District of Columbia, WIC participants most frequently reported participation in Medicaid except in New Jersey, where more WIC participants reported participation in SNAP (see appendix table B.10). Seven State agencies reported higher participation rates in both SNAP and Medicaid compared with Medicaid only (see appendix table B.11). This may, however, reflect how State agencies gather data on participation in other programs rather than actual differences in participation across State agencies. For example, some State agencies do not record data for participation in programs other than the one used to establish adjunctive eligibility (see chapter 2 for more detail).

Since 2014, the proportion of participants reporting benefit receipt from TANF and SNAP decreased by 2.3 and 3.7 percentage points, respectively (see figure 4.1 and appendix table A.11). In contrast, reported participation in Medicaid among WIC participants increased by 5.4 percentage points from 2014. Several State agencies reported that increases in Medicaid enrollment stemmed from the implementation of Medicaid expansions under The Patient Protection and Affordable Care Act of 2010 (Pub. L. 111–148). Participation in at least one of these three benefit programs increased by 4.6 percentage points, from 75.5 percent in 2014 to 80.1 percent in 2018.

Figure 4.1. Percentage of Participants by Reported Participation in TANF, SNAP, Medicaid: 2014, 2016, 2018



Since 1998, almost half of WIC participants have reported participation in Medicaid only, and since 2010, about a third have reported participation in both SNAP and Medicaid (see appendix table A.12).

[44] More than 9 percent of Pacific Islanders reside in Guam, which does not provide Medicaid benefits.

The proportion of participants reporting receipt of both SNAP and Medicaid or Medicaid only has increased among WIC participants, whereas reported participation in all three programs (SNAP, TANF, and Medicaid) has decreased from a peak of 39.4 percent in 1992 to 5.2 percent in 2018.

Table 4.2. Distribution of Participants With Reported Participation in Other Benefit Programs

Characteristic	TANF	SNAP	Medicaid	No Other Programs	Not Reported	Total Participants
Number of Participants						
Total Participants	414,615	2,608,355	6,017,618	1,435,460	126,054	7,837,672
Participant Category						
Pregnant women	25,323	192,320	482,851	154,558	11,284	675,227
Breastfeeding women	21,561	165,097	453,842	146,977	10,032	628,152
Postpartum women	32,689	179,325	404,720	83,783	8,151	514,009
Total women	79,574	536,743	1,341,414	385,318	29,467	1,817,388
Infants	58,593	440,676	1,286,450	483,736	31,830	1,868,344
Children	276,448	1,630,936	3,389,755	566,406	64,757	4,151,940
Race						
American Indian	47,044	217,975	525,504	133,846	20,725	696,174
Asian	10,002	63,195	229,443	56,049	5,048	296,303
Black	109,467	657,909	1,320,102	275,305	12,212	1,687,947
Pacific Islander	3,498	21,259	41,527	17,550	2,375	63,639
White	206,123	1,473,464	3,526,380	869,537	74,850	4,609,636
Two or more races	38,268	173,552	372,295	81,321	8,074	476,797
Race not reported	212	1,001	2,367	1,851	2,770	7,175
Ethnicity						
Hispanic/Latino	186,860	1,059,249	2,454,374	641,287	49,318	3,239,136
Non-Hispanic/Latino	227,747	1,548,986	3,562,931	793,909	74,920	4,596,072
Ethnicity not reported	8	121	313	264	1,816	2,464
Percent of Participants						
Total Participants	5.3	33.3	76.8	18.3	1.6	100.0
Participant Category						
Pregnant women	3.8	28.5	71.5	22.9	1.7	100.0
Breastfeeding women	3.4	26.3	72.3	23.4	1.6	100.0
Postpartum women	6.4	34.9	78.7	16.3	1.6	100.0
Total women	4.4	29.5	73.8	21.2	1.6	100.0
Infants	3.1	23.6	68.9	25.9	1.7	100.0
Children	6.7	39.3	81.6	13.6	1.6	100.0
Race						
American Indian	6.8	31.3	75.5	19.2	3.0	100.0
Asian	3.4	21.3	77.4	18.9	1.7	100.0
Black	6.5	39.0	78.2	16.3	0.7	100.0
Pacific Islander	5.5	33.4	65.3	27.6	3.7	100.0
White	4.5	32.0	76.5	18.9	1.6	100.0
Two or more races	8.0	36.4	78.1	17.1	1.7	100.0
Race not reported	3.0	14.0	33.0	25.8	38.6	100.0

Characteristic	SNAP	TANF	Medicaid	No Other Programs	Not Reported	Total Participants
Ethnicity						
Hispanic/Latino	5.8	32.7	75.8	19.8	1.5	100.0
Non-Hispanic/Latino	5.0	33.7	77.5	17.3	1.6	100.0
Ethnicity not reported	0.3	4.9	12.7	10.7	73.7	100.0

Notes
Participants may participate in more than one benefit program.
Alaska was unable to provide sufficient data on participation in TANF, SNAP, and Medicaid. Illinois was unable to provide sufficient data on participation in TANF.

Table 4.3. Distribution of Participants With Reported Combinations of Other Programs

Characteristic	TANF, SNAP, and Medicaid	TANF and SNAP	TANF and Medicaid	SNAP and Medicaid	TANF Only	SNAP Only	Medicaid Only	Total Participants
				Number of Participants				
Total Participants	328,752	15,208	45,632	2,046,088	25,024	218,308	3,597,147	7,837,672
Participant Category								
Pregnant women	19,983	1,149	2,368	147,626	1,823	23,562	312,874	675,227
Breastfeeding women	17,442	751	2,164	131,558	1,204	15,346	302,677	628,152
Postpartum women	26,007	1,397	3,372	137,878	1,914	14,044	237,464	514,009
Total women	63,432	3,296	7,904	417,063	4,941	52,952	853,015	1,817,388
Infants	45,474	4,410	5,985	331,600	2,725	59,193	903,391	1,868,344
Children	219,846	7,502	31,743	1,297,425	17,357	106,164	1,840,741	4,151,940
Race								
American Indian	40,761	811	4,313	162,273	1,158	14,130	318,156	696,174
Asian	7,087	395	1,208	51,657	1,312	4,056	169,491	296,303
Black	84,886	5,840	10,237	501,198	8,504	65,984	723,781	1,687,947
Pacific Islander	3,006	173	219	16,166	100	1,914	22,136	63,639
White	161,896	6,823	25,327	1,184,777	12,078	119,968	2,154,381	4,609,636
Two or more races	30,927	1,150	4,320	129,388	1,870	12,087	207,660	476,797
Race not reported	188	15	7	629	2	169	1,543	7,175
Ethnicity								
Hispanic/Latino	158,615	4,997	16,737	812,989	6,512	82,648	1,466,034	3,239,136
Non-Hispanic/ Latino	170,134	10,208	28,894	1,233,050	18,510	135,594	2,130,853	4,596,072
Ethnicity not reported	3	2	1	49	2	67	260	2,464
				Percent of Participants				
Total Participants	4.2	0.2	0.6	26.1	0.3	2.8	45.9	100.0
Participant Category								
Pregnant women	3.0	0.2	0.4	21.9	0.3	3.5	46.3	100.0
Breastfeeding women	2.8	0.1	0.3	20.9	0.2	2.4	48.2	100.0
Postpartum women	5.1	0.3	0.7	26.8	0.4	2.7	46.2	100.0
Total women	3.5	0.2	0.4	22.9	0.3	2.9	46.9	100.0

Characteristic	TANF, SNAP, and Medicaid	TANF and SNAP	TANF and Medicaid	SNAP and Medicaid	TANF Only	SNAP Only	Medicaid Only	Total Participants
Infants	2.4	0.2	0.3	17.7	0.1	3.2	48.4	100.0
Children	5.3	0.2	0.8	31.2	0.4	2.6	44.3	100.0
Race								
American Indian	5.9	0.1	0.6	23.3	0.2	2.0	45.7	100.0
Asian	2.4	0.1	0.4	17.4	0.4	1.4	57.2	100.0
Black	5.0	0.3	0.6	29.7	0.5	3.9	42.9	100.0
Pacific Islander	4.7	0.3	0.3	25.4	0.2	3.0	34.8	100.0
White	3.5	0.1	0.5	25.7	0.3	2.6	46.7	100.0
Two or more races	6.5	0.2	0.9	27.1	0.4	2.5	43.6	100.0
Race not reported	2.6	0.2	< 0.1	8.8	< 0.1	2.4	21.5	100.0
Ethnicity								
Hispanic/Latino	4.9	0.2	0.5	25.1	0.2	2.6	45.3	100.0
Non-Hispanic/ Latino	3.7	0.2	0.6	26.8	0.4	3.0	46.4	100.0
Ethnicity not reported	0.1	< 0.1	< 0.1	2.0	< 0.1	2.7	10.6	100.0

Notes
Percents may not add to 100.0 because of rounding.
Alaska was were unable to provide sufficient data on participation in TANF, SNAP, and Medicaid. Illinois was unable to provide sufficient data on participation in TANF.

B. Household Size and Income

State agencies were asked to provide information on household or economic unit size and income for participants during April 2018.[45] Similar to previous years, in 2018, household size was reported for 99.4 percent of participants (see table 4.4), and income data were reported for 93.7 percent of participants (see table 4.5). Seven State agencies[46] were missing income data for at least 30 percent of their participants in 2018 (see appendix table B.14).

For some participants (i.e., income-eligible participants), State agencies reported actual income amounts—that is, the dollar amounts reported by WIC applicants. For many participants who were adjunctively eligible, State agencies reported income ranges rather than specific dollar amounts. For analytic purposes, the midpoints of the ranges were assigned as household income.[47] Both types of data were combined to compute the average annualized income and poverty status of participants.

Approximately half of participants—regardless of participant category, ethnicity, or State agency—resided in a household or economic unit with three or four members (see table 4.4 and appendix table B.12). This pattern was also true of all race categories except for Pacific Islanders; in this category, more than half of participants lived in households with at least five members. The distribution of three- and four-person households has remained steady since 1992 (see appendix table A.13). Small percentages of infants, children, and postpartum women (1.5, 1.8, and 0.5 percent, respectively) were classified as

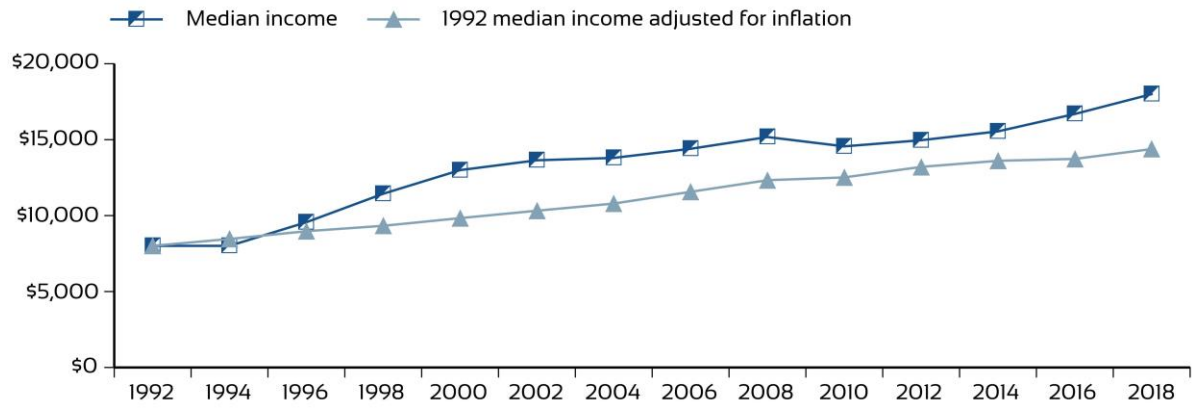
[45] The term "household or economic unit" refers to the group of people whose incomes are evaluated for WIC eligibility purposes.
[46] Arkansas, Citizen Potawatomi Nation (OK), Eight Northern Indian Pueblos Council (NM), Kentucky, Osage Nation (OK), and Pueblo of San Felipe (NM), and Tennessee
[47] State agencies reported income ranges in increments of $1,200 per year. Incomes of $77,004 per year were imputed for households reported to have incomes equal to or greater than $74,400 per year.

residing in one-person households for the purposes of WIC income eligibility determination in 2018. Women who miscarried, mothers of infants placed in foster care, and infants and children placed in foster care may be reported as one-person economic units.

The mean annualized household income across all participant categories was $19,355 in April 2018; the median income was $17,916 (see table 4.5). Among women participants, breastfeeding women reported the highest mean and median incomes ($20,343 and $18,972, respectively), and postpartum women reported the lowest mean and median incomes ($16,631 and $14,400, respectively). Across racial and ethnic groups, Asian participants reported the highest mean and median incomes ($23,999 and $22,908, respectively), and Black participants reported the lowest mean and median incomes ($15,033 and $12,000, respectively). Hispanic/Latino participants reported higher mean and median incomes ($20,000 and $18,330, respectively) than non-Hispanic/Latino participants ($18,875 and $16,484, respectively).

Both mean and median incomes varied considerably among the 50 States and the District of Columbia. The District of Columbia had the lowest mean income ($8,958), and West Virginia had the lowest median income ($3,000); Minnesota had the highest mean and median incomes ($28,675 and $28,200, respectively; see appendix table B.13). In general, without adjusting for inflation, mean and median incomes have been increasing over time (see appendix table A.14). Figure 4.2 shows median income as reported by participants between 1992 and 2018, and 1992 median income adjusted for inflation through 2018. Growth in participant median income has outpaced inflation since 1992, suggesting that participants in 2018 were earning higher incomes than participants in 1992. However, prior to 1997, WIC was not fully funded; therefore, not all eligible individuals were able to participate.

Figure 4.2. Median Income Adjusted for Inflation: 1992–2018



Source: Consumer Price Index Inflation Calculator (https://www.bls.gov/data/inflation_calculator.htm)

Table 4.4. Distribution of Participants by Size of Family or Economic Unit

Characteristic	1	2	3	4	5	6+	Not Reported	Total Participants
				Number of Participants				
Total Participants	133,269	909,634	1,907,839	2,089,452	1,445,519	1,302,298	49,661	7,837,672
Participant Category								
Pregnant women	29,996	121,700	174,270	156,004	100,738	90,686	1,833	675,227
Breastfeeding women	0	77,634	172,583	164,124	110,503	99,717	3,591	628,152
Postpartum women	2,719	78,060	147,536	130,232	82,345	69,904	3,212	514,009

Characteristic	1	2	3	4	5	6+	Not Reported	Total Participants
Total women	32,715	277,394	494,389	450,359	293,587	260,308	8,636	1,817,388
Infants	27,394	250,284	514,530	477,400	311,791	271,916	15,029	1,868,344
Children	73,161	381,956	898,919	1,161,692	840,142	770,074	25,996	4,151,940
Race								
American Indian	8,405	70,507	166,061	193,473	139,588	116,073	2,067	696,174
Asian	1,202	17,329	71,239	97,831	59,167	48,711	825	296,303
Black	29,360	266,669	448,081	413,945	266,676	251,692	11,524	1,687,947
Pacific Islander	545	4,518	11,660	14,672	12,416	19,492	335	63,639
White	82,300	485,327	1,085,018	1,244,955	886,308	796,737	28,993	4,609,636
Two or more races	11,269	64,677	124,646	123,367	80,542	68,877	3,419	476,797
Race not reported	188	608	1,134	1,210	821	716	2,498	7,175
Ethnicity								
Hispanic/Latino	40,386	324,253	741,041	880,157	658,061	579,439	15,797	3,239,136
Non-Hispanic/Latino	92,870	585,342	1,166,659	1,209,123	787,347	722,731	32,000	4,596,072
Ethnicity not reported	13	39	138	172	111	127	1,864	2,464
				Percent of Participants				
Total Participants	1.7	11.6	24.3	26.7	18.4	16.6	0.6	100.0
Participant Category								
Pregnant women	4.4	18.0	25.8	23.1	14.9	13.4	0.3	100.0
Breastfeeding women	0.0	12.4	27.5	26.1	17.6	15.9	0.6	100.0
Postpartum women	0.5	15.2	28.7	25.3	16.0	13.6	0.6	100.0
Total women	1.8	15.3	27.2	24.8	16.2	14.3	0.5	100.0
Infants	1.5	13.4	27.5	25.6	16.7	14.6	0.8	100.0
Children	1.8	9.2	21.7	28.0	20.2	18.5	0.6	100.0
Race								
American Indian	1.2	10.1	23.9	27.8	20.1	16.7	0.3	100.0
Asian	0.4	5.8	24.0	33.0	20.0	16.4	0.3	100.0
Black	1.7	15.8	26.5	24.5	15.8	14.9	0.7	100.0
Pacific Islander	0.9	7.1	18.3	23.1	19.5	30.6	0.5	100.0
White	1.8	10.5	23.5	27.0	19.2	17.3	0.6	100.0
Two or more races	2.4	13.6	26.1	25.9	16.9	14.4	0.7	100.0
Race not reported	2.6	8.5	15.8	16.9	11.4	10.0	34.8	100.0
Ethnicity								
Hispanic/Latino	1.2	10.0	22.9	27.2	20.3	17.9	0.5	100.0
Non-Hispanic/Latino	2.0	12.7	25.4	26.3	17.1	15.7	0.7	100.0
Ethnicity not reported	0.5	1.6	5.6	7.0	4.5	5.2	75.6	100.0

Notes
Percents may not add to 100.0 because of rounding.
Women who miscarried, mothers of infants placed in foster care, and infants and children placed in foster care may be reported as one-person economic units.

Table 4.5. Distribution of Participants by Annualized Income of Family or Economic Unit

Characteristic	Mean Income	Median Income	Income Present	Income Not Reported	Total Participants
Income Values and Number of Participants					
Total Participants	$19,355	$17,916	7,347,385	490,287	7,837,672
Participant Category					
Pregnant women	$18,611	$16,848	636,682	38,545	675,227
Breastfeeding women	$20,343	$18,972	596,545	31,607	628,152
Postpartum women	$16,631	$14,400	474,085	39,924	514,009
Total women	$18,667	$16,896	1,707,312	110,076	1,817,388
Infants	$18,165	$16,020	1,731,795	136,549	1,868,344
Children	$20,183	$18,200	3,908,278	243,662	4,151,940
Race					
American Indian	$19,782	$18,204	686,894	9,280	696,174
Asian	$23,999	$22,908	286,655	9,648	296,303
Black	$15,033	$12,000	1,555,413	132,534	1,687,947
Pacific Islander	$21,023	$18,924	61,594	2,045	63,639
White	$20,538	$18,720	4,299,504	310,133	4,609,636
Two or more races	$19,190	$16,800	452,375	24,421	476,797
Race not reported	$15,906	$10,920	4,950	2,226	7,175
Ethnicity					
Hispanic/Latino	$20,000	$18,330	3,139,662	99,474	3,239,136
Non-Hispanic/Latino	$18,875	$16,484	4,206,847	389,225	4,596,072
Ethnicity not reported	$12,783	$7,506	876	1,588	2,464
Percent of Participants					
Total Participants	–	–	93.7	6.3	100.0
Participant Category					
Pregnant women	–	–	94.3	5.7	100.0
Breastfeeding women	–	–	95.0	5.0	100.0
Postpartum women	–	–	92.2	7.8	100.0
Total women	–	–	93.9	6.1	100.0
Infants	–	–	92.7	7.3	100.0
Children	–	–	94.1	5.9	100.0
Race					
American Indian	–	–	98.7	1.3	100.0
Asian	–	–	96.7	3.3	100.0
Black	–	–	92.1	7.9	100.0
Pacific Islander	–	–	96.8	3.2	100.0
White	–	–	93.3	6.7	100.0
Two or more races	–	–	94.9	5.1	100.0
Race not reported	–	–	69.0	31.0	100.0
Ethnicity					
Hispanic/Latino	–	–	96.9	3.1	100.0
Non-Hispanic/Latino	–	–	91.5	8.5	100.0
Ethnicity not reported	–	–	35.6	64.4	100.0

Notes
Percents may not add to 100.0 because of rounding.
Income calculations used data for only those participants for whom State agencies reported data on income. State agencies could report actual income and a reporting period or an income range for participants. Calculations of mean and median incomes used a computed annualized income for both types of data.

C. Poverty Status

Most WIC participants come from households with income at or below the Federal Poverty Guidelines issued each year by HHS. These guidelines are income thresholds for poverty and vary by household size and residency. In most areas served by WIC, the poverty guideline for a household of four in 2018 was $24,600 per year (HHS, 2017).[48] Income eligibility guidelines for the WIC program are set by all State agencies at 185 percent of the Federal Poverty Guidelines ($45,510 per year in 2018 for a family of four). The study team used participant household income, household size, and residency to calculate participant income as a percentage of the Federal Poverty Guidelines. Table 4.6 presents poverty status data by participant category, race, and ethnicity.

Slightly fewer than two-thirds (65.3 percent) of all WIC participants reported income at or below the Federal Poverty Guidelines, and one-third (33.3 percent) reported income less than or equal to 50 percent of the guidelines. Income less than or equal to 50 percent of the guidelines was most frequently reported for postpartum women (40.0 percent) and infants (35.8 percent). Conversely, 29.7 percent of breastfeeding women reported income at the same level. Black participants were most likely to report income less than or equal to 50 percent of the guidelines (45.2 percent), whereas American Indian, Asian, and White participants were most likely to report income between 51 and 100 percent of the guidelines. Nearly one-third (30.3 percent) of Hispanic/Latino participants reported income less than or equal to 50 percent of the guidelines versus more than a third (35.4 percent) of non-Hispanic/Latino participants.

Among the 50 States and the District of Columbia, 22 State agencies had a greater proportion of participants with income between 51 and 100 percent of the guidelines versus participants with income equal to or less than 50 percent of the guidelines (see appendix table B.14). Approximately two-thirds of participants have reported income equal to or less than 100 percent of the Federal Poverty Guidelines since 2006 (see appendix table A.15). Comparisons of data from years prior to 2006 should be made with caution because between 13 and 22 percent of participants did not report income data for any given year. Because of the revised rules implemented for PC2018 on missing income (see chapter 2 for more detail), comparisons of 2018 data with previous income data should be made with caution.

Table 4.6. Distribution of Participants by Income as a Percentage of Federal Poverty Guidelines

Characteristic	Percent of Federal Poverty Guidelines						
	0–50	51–100	101–130	131–150	151–185	More Than 185	Not Reported
	Number of Participants						
Total Participants	2,607,404	2,511,885	1,033,943	445,193	522,451	212,919	503,876
Participant Category							
Pregnant women	220,208	210,998	91,723	41,174	50,865	21,529	38,731
Breastfeeding women	186,307	209,667	92,310	40,855	48,270	17,809	32,932
Postpartum women	205,350	147,989	58,000	23,837	27,493	10,312	41,029
Total women	611,865	568,654	242,032	105,866	126,628	49,650	112,692
Infants	669,306	565,112	233,065	99,574	117,042	44,876	139,369
Children	1,326,233	1,378,118	558,847	239,753	278,781	118,392	251,815

[48] The Federal Poverty Guidelines are the same for the 48 contiguous States, the District of Columbia, and the 5 U.S. territories; they are different for Alaska and Hawaii. In April 2018, the poverty guideline for a household of four was $30,750 for Alaska and $28,290 for Hawaii (HHS, 2017).

Characteristic	Income as a Percentage of Federal Poverty Guidelines						
	0–50	51–100	101–130	131–150	151–185	More Than 185	Not Reported
Race							
American Indian	225,839	254,013	102,073	40,761	46,472	17,587	9,429
Asian	57,317	113,480	53,179	23,197	28,154	11,178	9,798
Black	762,698	459,820	163,010	65,873	74,446	25,746	136,354
Pacific Islander	22,178	22,132	8,428	3,438	3,888	1,480	2,095
White	1,372,422	1,514,865	643,371	282,950	335,740	142,265	318,024
Two or more races	165,069	146,204	63,393	28,761	33,475	14,560	25,335
Race not reported	1,882	1,372	489	213	276	104	2,841
Ethnicity							
Hispanic/Latino	981,735	1,211,537	465,567	186,151	208,041	82,948	103,157
Non-Hispanic/Latino	1,625,463	1,300,193	568,289	259,012	314,386	129,969	398,760
Ethnicity not reported	206	156	87	30	24	2	1,959
	Percent of Participants						
Total Participants	33.3	32.0	13.2	5.7	6.7	2.7	6.4
Participant Category							
Pregnant women	32.6	31.2	13.6	6.1	7.5	3.2	5.7
Breastfeeding women	29.7	33.4	14.7	6.5	7.7	2.8	5.2
Postpartum women	40.0	28.8	11.3	4.6	5.3	2.0	8.0
Total women	33.7	31.3	13.3	5.8	7.0	2.7	6.2
Infants	35.8	30.2	12.5	5.3	6.3	2.4	7.5
Children	31.9	33.2	13.5	5.8	6.7	2.9	6.1
Race							
American Indian	32.4	36.5	14.7	5.9	6.7	2.5	1.4
Asian	19.3	38.3	17.9	7.8	9.5	3.8	3.3
Black	45.2	27.2	9.7	3.9	4.4	1.5	8.1
Pacific Islander	34.8	34.8	13.2	5.4	6.1	2.3	3.3
White	29.8	32.9	14.0	6.1	7.3	3.1	6.9
Two or more races	34.6	30.7	13.3	6.0	7.0	3.1	5.3
Race not reported	26.2	19.1	6.8	3.0	3.8	1.4	39.6
Ethnicity							
Hispanic/Latino	30.3	37.4	14.4	5.7	6.4	2.6	3.2
Non-Hispanic/Latino	35.4	28.3	12.4	5.6	6.8	2.8	8.7
Ethnicity not reported	8.4	6.3	3.5	1.2	1.0	< 0.1	79.5

Notes

Percents may not add to 100.0 because of rounding.

Poverty guideline calculations were based on the computed annualized income and the number of people in the household or economic unit compared with the Federal Poverty Guidelines issued by HHS for FY 2018.

Households missing the number of people in the household or economic unit were included in the "Race not reported" or "Ethnicity not reported" categories because income as a percentage of the Federal Poverty Guidelines could not be calculated without that information.

Chapter 5. Assigned Nutritional Risks

During the eligibility determination and certification processes, WIC staff collect anthropometric, biochemical, medical history, and dietary information from applicants and participants to determine whether they have at least one qualifying nutritional risk criterion for WIC eligibility.

This chapter presents data on the nutritional risks assigned to participants.[49] Nutritional risk criteria (i.e., the criteria assigned to participants in their respective State agencies' MIS) cannot be collated across State agencies; therefore, throughout this chapter, the nutritional risk criteria are collapsed into groups of nutritional risks (hereafter referred to as nutritional risks), and these risks are further collapsed into broad nutritional risk categories as defined by FNS: anthropometric, biochemical, clinical/health/medical, dietary, and other risks. Table 5.1 provides an overview of the nutritional risks and broad nutritional risk categories as well as the number of risks assigned to participants.

Section A of this chapter describes the nutritional risks and how they have changed over time. Section B examines the number of nutritional risks per participant. Section C discusses the distribution of participants within each broad category of nutritional risk. Section D describes the differences in nutritional risks across participant category, age at certification, race, ethnicity, and migrant farmworker status.[50]

Table 5.1. Distribution of Participants by Nutritional Risks and Number of Nutritional Risks

Characteristic	Number	Percent
Total Participants	7,837,672	100.0
Anthropometric Risks	4,081,817	52.1
Low weight-for-height/length	419,410	5.4
High weight-for-height/length	2,578,122	32.9
Short stature	569,283	7.3
Inappropriate growth/weight gain pattern	900,496	11.5
Low birthweight/premature birth	619,763	7.9
Other anthropometric risks	113,728	1.5
Biochemical Risks	1,042,398	13.3
Hematocrit/hemoglobin below FNS criteria	1,036,481	13.2
Other biochemical risks	7,357	< 0.1
Clinical/Health/Medical Risks	1,508,260	19.2
Pregnancy-induced conditions	162,536	2.1
Delivery of low-birthweight/premature infant	204,778	2.6
Prior stillbirth/fetal/neonatal death	58,183	0.7
General obstetrical risks	438,339	5.6
Nutrition-related risk conditions	829,272	10.6
Substance abuse	160,717	2.1
Other health risks	132,780	1.7
Dietary Risks	4,423,350	56.4
Failure to meet DGA	659,385	8.4
Inappropriate nutrition practices	3,807,723	48.6

[49] For information on actual anthropometric data, see chapter 6; for hematological data, see chapter 7.
[50] This chapter includes analyses by migrant farmworker status because some nutritional risks apply only to migrant farmworkers.

Characteristic	Number	Percent
Other Risks	2,184,488	27.9
Regression/Transfer/Presumptive eligibility	101,178	1.3
Breastfeeding mother and infant dyad	596,322	7.6
Infant of a WIC-eligible mother/mother at risk during pregnancy	1,413,547	18.0
Homelessness/Migrancy	35,008	0.4
Other nutritional risks	316,444	4.0
No Risk Reported	10,946	0.1
Number of Nutritional Risks		
1	3,467,715	44.2
2	2,425,721	30.9
3	1,213,492	15.5
4	483,714	6.2
5	169,008	2.2
6	51,391	0.7
7	12,846	0.2
8	2,505	< 0.1
9	317	< 0.1
10	16	< 0.1
Nutritional risks not reported	10,946	0.1

Note
Because of State agency variation in reporting, national-level statistics could not be produced at the nutritional risk criteria level. Criteria were grouped into nutritional risks, and these risks were categorized into broad nutritional risk categories that align with the risk categories specified by FNS.

A. Nutritional Risk Criteria and Definitions

Prior to 1999, Federal policy permitted each State agency to develop nutritional risk criteria within the broad Federal parameters spelled out in the Child Nutrition Act of 1966 (Pub. L. 89–642, as amended). Each State agency accordingly developed its own set of nutritional risk criteria to determine eligibility. WIC PC reports from 1988 through 1998 reflected these differences in criteria. In 1992, FNS asked IOM (now known as the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine), to review the scientific basis for these criteria and recommend definitions and thresholds. IOM then issued a report (1996) with a series of recommendations that were the basis for a policy change that took effect April 1, 1999. State agencies are required to use those criteria and definitions that have been reviewed by the Risk Identification and Selection Collaborative (RISC; a joint National WIC Association/FNS working group) and approved by FNS, although State agencies have the option to implement more stringent thresholds than those specified by FNS. Caution should be exercised when comparing 2018 nutritional risk data with findings from years prior to 2000, before such data were reported using uniform criteria and definitions.

Since 1999, FNS has continued to revise the nutritional risk criteria by issuing WIC policy memoranda that reflect RISC's decisions. Figure 5.1 provides a timeline that highlights revisions to nutritional risk criteria that affected PC nutritional risk data from 2006 through 2017. Two new policy memoranda were issued between PC2016 and PC2018. The changes in nutritional risk criteria specified in these memoranda may affect comparisons between these two sets of data.

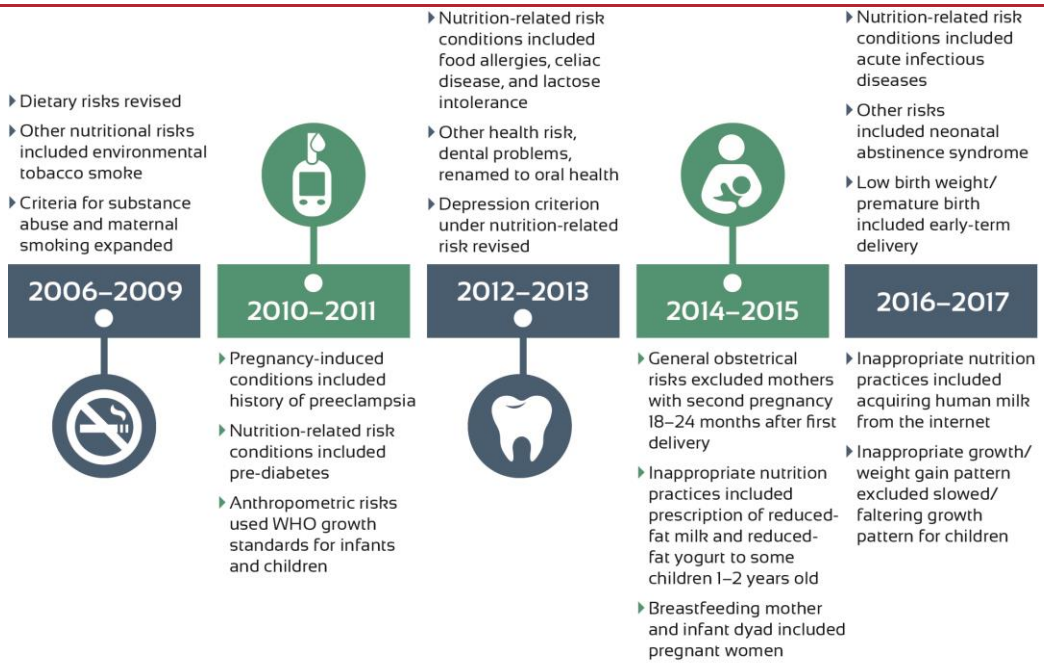
A memorandum published in June 2016 (USDA FNS, 2016a) gave State agencies until October 1, 2017, to implement the changes outlined in the document. This memorandum—

- Revised one of the anthropometric risk criteria for the nutritional risk of *inappropriate growth/weight gain pattern* to clarify that "slow or faltering growth pattern" should be assigned only to participants certified as infants
- Expanded the clinical/health/medical risk and nutrition-related risk conditions to include two different types of infectious disease: acute and chronic
- Revised the dietary risk of *inappropriate nutrition practices* to be consistent with the infant feeding tips for food safety issued by WIC (USDA FNS, 2016b)

Another memorandum was published in May 2017 (USDA FNS, 2017b); State agencies were not required to fully implement the changes outlined in the document until October 1, 2018, which was 6 months after the data were collected for this report. Thus, it is likely that some but not all State agencies had implemented the changes in the memorandum at the time of PC data collection. This memorandum—

- Added neonatal abstinence syndrome as a clinical/health/medical risk criterion under the nutritional risk of *other health risks*
- Added "early-term delivery" to the definition of two nutritional risk criteria: (1) the anthropometric risk of *low birth weight/premature birth*, and (2) the clinical/health/medical risk of *delivery of low-birthweight/premature infant*
- Added "acquiring human milk from the internet" to the definitions of two dietary risk criteria under the nutritional risk of *inappropriate nutrition practices*

Figure 5.1. Historical Changes to Nutritional Risk Data Based on WIC Policy Memoranda: 2006–2017



Sources
2006–2009: USDA FNS, 2005 and 2007, 2010–2011: USDA FNS, 2009 and 2011, 2012–2013: USDA FNS, 2013, 2014–2015: USDA FNS, 2015, 2016–2017: USDA FNS, 2016a and 2017b

WIC participants are deemed to be at nutritional risk if they meet at least one of the nutritional risk criteria. As explained earlier in this chapter, State agency variation in reporting means national-level statistics cannot be produced at the criteria level. Instead, criteria are grouped into nutritional risks, and these risks are categorized into broad nutritional risk categories that align with the five risk categories specified by FNS (see table 5.2). For example, an infant whose weight-for-length percentile is below the 2.3rd percentile on the CDC growth charts[51] is assigned the *underweight* or *at risk of being underweight (infants and children)* criterion (not provided in this report), which is included in the *low weight-for-height* nutritional risk and is further grouped in the anthropometric risk category.

Table 5.2. Nutritional Risks by Broad Nutritional Risk Category

Broad Nutritional Risk Category	Nutritional Risks
Anthropometric	▪ Low weight-for-height/length ▪ High weight-for-height/length (e.g., overweight women, obese children 2–5 years old) ▪ Short stature ▪ Inappropriate growth/weight gain pattern ▪ Low birth weight/Premature birth ▪ Other anthropometric risk (e.g., small or large for gestational age, low head circumference)
Biochemical	▪ Hematocrit or hemoglobin below FNS criteria ▪ Other biochemical test results that indicate nutritional abnormality (e.g., elevated blood lead levels)
Clinical/Health/ Medical	▪ Pregnancy-induced conditions (e.g., hyperemesis gravidarum, gestational diabetes, history of gestational diabetes, history of preeclampsia) ▪ Delivery of low-birthweight or premature infant (e.g., history of preterm or early-term delivery, history of low birth weight) ▪ Prior stillbirth, fetal, or neonatal death ▪ General obstetrical risks (e.g., multiple-fetus births, high parity and young age, short interpregnancy interval, lack of adequate prenatal care, pregnant woman currently breastfeeding) ▪ Nutrition-related risk conditions (e.g., any nutrition-related chronic disease, genetic disorder, infectious disease, gastrointestinal disorders, drug nutrient interactions) ▪ Substance abuse (e.g., drugs, alcohol, tobacco) ▪ Other health risks (e.g., fetal alcohol syndrome, oral health, neonatal abstinence syndrome)
Dietary	▪ Failure to meet DGA ▪ Inappropriate nutrition practices (e.g., routinely diluting formula, diet very low in calories and/or essential nutrients, lack of sanitary practices in handling breastmilk and/or bottles)
Other risks	▪ Regression/Transfer (nutritional risk unknown)/Presumptive eligibility ▪ Breastfeeding mother and infant dyad ▪ Infant of a WIC-eligible mother or mother at risk during pregnancy ▪ Homelessness/Migrancy ▪ Other nutritional risks (e.g., recipient of abuse, foster care, exposure to environmental tobacco smoke, woman or infant/child of caregiver with limited ability to make feeding decisions or prepare food)

Notes
Nutritional risks are sorted by the corresponding FNS nutritional risk number. In tables 5.3–5.9e, the nutritional risks are sorted the same way. Examples of nutritional risk criteria grouped within the nutritional risk are provided in parentheses.

[51] These CDC growth charts are based on the WHO growth standards for infancy through 2 years of age.

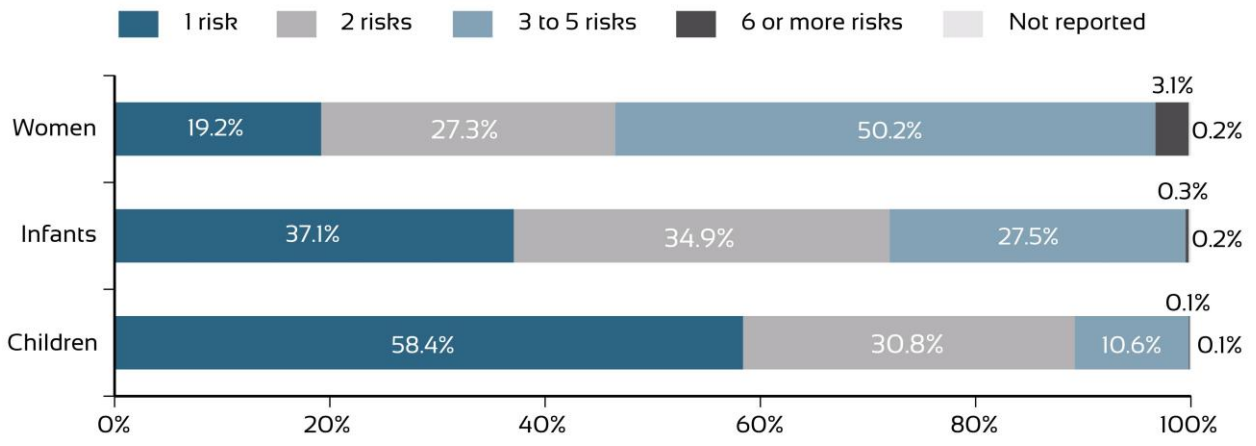
B. Number of Nutritional Risks Reported

To determine nutritional risk, a competent professional authority conducts a nutrition assessment during the WIC certification process. Federal regulations require that at least one nutritional risk criterion is documented at the time of certification; however, certified professional authorities may document multiple nutritional risk criteria per participant. Prior to 2006, State agencies could report only the three highest priority nutritional risks assigned. Beginning in 2006, State agencies could report the 10 highest priority nutritional risks assigned during eligibility determination/recertification.

In tabulating nutritional risks, the study team removed multiple risk criteria within the same nutritional risk. For example, participants were counted as having only one *inappropriate nutrition practices* nutritional risk even if multiple criteria under that specific risk had been assigned to the participant. For this reason, these results may underestimate the number of nutritional risks participants were assigned.

Most participants were assigned one (44.2 percent) or two (30.9 percent) nutritional risks in 2018 (see table 5.3). These findings were similar to those from previous years and were consistent across the 50 States and the District of Columbia (see appendix table B.15), races, and ethnicities but not across participant categories. Most children and infants (89.2 and 72.0 percent, respectively), versus 46.5 percent of all women, were assigned one or two nutritional risks (see figure 5.2). The percentage of participants for whom one nutritional risk was reported has consistently decreased each year since 2010 (see appendix table A.16).

Figure 5.2. Percentage of Participants With Nutritional Risks



Approximately half of pregnant women (49.1 percent) had three or more nutritional risks. A greater percentage of breastfeeding and postpartum women (57.5 and 53.9 percent, respectively) than pregnant women (49.1 percent) had three or more nutritional risks. Nearly three times as many infants as children were assigned three or more nutritional risks (28.0 and 10.8 percent, respectively).

Table 5.3. Distribution of Participants by Number of Nutritional Risks

Characteristic	1	2	3	4	5	6	7	8–10	No Risk Reported	Total Participants
Number of Participants										
Total Participants	3,467,715	2,425,721	1,213,494	483,712	169,008	51,391	12,846	2,838	10,946	7,837,672
Participant Category										
Pregnant women	146,473	195,887	179,080	97,209	38,493	12,994	3,678	1,001	412	675,227
Breastfeeding women	103,029	163,444	170,593	114,955	52,865	17,525	4,308	901	531	628,152
Postpartum women	98,621	137,412	136,465	84,461	38,613	13,522	3,558	774	583	514,009
Total women	348,122	496,743	486,138	296,625	129,971	44,041	11,545	2,676	1,526	1,817,388
Infants	693,477	651,211	363,383	120,581	29,234	6,145	1,156	145	3,012	1,868,344
Children	2,426,116	1,277,768	363,973	66,506	9,803	1,205	145	17	6,408	4,151,940
Race										
American Indian	276,742	240,469	116,092	45,206	13,219	3,032	631	113	670	696,174
Asian	140,894	94,994	41,593	13,696	3,753	867	155	22	329	296,303
Black	724,855	514,298	273,191	113,856	41,362	13,265	3,385	746	2,989	1,687,947
Pacific Islander	27,651	21,313	9,384	3,620	1,169	325	68	15	94	63,639
White	2,078,969	1,398,011	702,520	281,526	101,142	31,482	8,057	1,827	6,102	4,609,636
Two or more races	214,613	154,852	69,867	25,468	8,254	2,380	538	112	713	476,797
Race not reported	3,991	1,784	847	341	109	39	12	3	49	7,175
Ethnicity										
Hispanic/Latino	1,459,057	1,030,272	488,400	185,603	56,647	13,773	2,825	409	2,150	3,239,136
Non-Hispanic/ Latino	2,007,178	1,394,862	724,876	298,013	112,332	37,607	10,014	2,428	8,762	4,596,072
Ethnicity not reported	1,480	588	218	96	29	11	7	1	34	2,464
Percent of Participants										
Total Participants	44.2	30.9	15.5	6.2	2.2	0.7	0.2	< 0.1	0.1	100.0
Participant Category										
Pregnant women	21.7	29.0	26.5	14.4	5.7	1.9	0.5	0.1	< 0.1	100.0
Breastfeeding women	16.4	26.0	27.2	18.3	8.4	2.8	0.7	0.1	< 0.1	100.0
Postpartum women	19.2	26.7	26.5	16.4	7.5	2.6	0.7	0.2	0.1	100.0
Total women	19.2	27.3	26.7	16.3	7.2	2.4	0.6	0.1	< 0.1	100.0
Infants	37.1	34.9	19.4	6.5	1.6	0.3	< 0.1	< 0.1	0.2	100.0
Children	58.4	30.8	8.8	1.6	0.2	< 0.1	< 0.1	< 0.1	0.2	100.0
Race										
American Indian	39.8	34.5	16.7	6.5	1.9	0.4	< 0.1	< 0.1	< 0.1	100.0
Asian	47.6	32.1	14.0	4.6	1.3	0.3	< 0.1	< 0.1	0.1	100.0
Black	42.9	30.5	16.2	6.7	2.5	0.8	0.2	< 0.1	0.2	100.0
Pacific Islander	43.4	33.5	14.7	5.7	1.8	0.5	0.1	< 0.1	0.1	100.0
White	45.1	30.3	15.2	6.1	2.2	0.7	0.2	< 0.1	0.1	100.0
Two or more races	45.0	32.5	14.7	5.3	1.7	0.5	0.1	< 0.1	0.1	100.0
Race not reported	55.6	24.9	11.8	4.7	1.5	0.5	0.2	< 0.1	0.7	100.0

Characteristic	1	2	3	4	5	6	7	8 or More	No Risk Reported	Total Participants
Ethnicity										
Hispanic/Latino	45.0	31.8	15.1	5.7	1.7	0.4	< 0.1	< 0.1	< 0.1	100.0
Non-Hispanic/ Latino	43.7	30.3	15.8	6.5	2.4	0.8	0.2	< 0.1	0.2	100.0
Ethnicity not reported	60.1	23.9	8.8	3.9	1.2	0.4	0.3	< 0.1	1.4	100.0

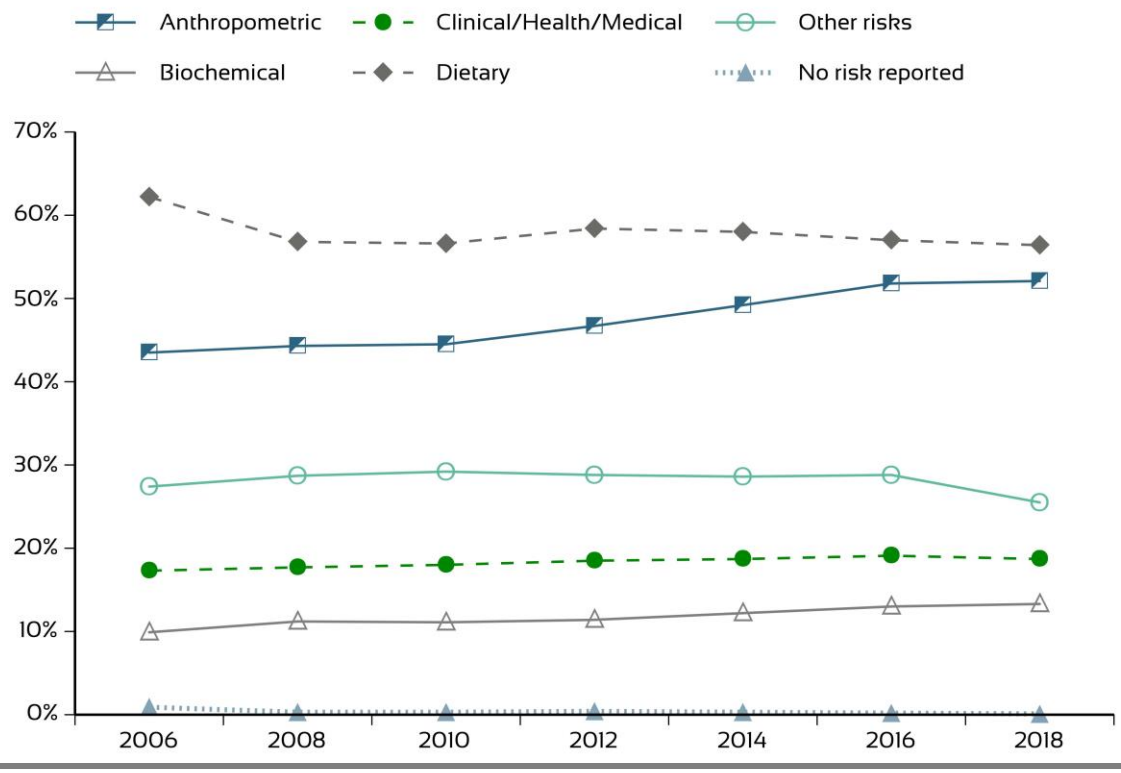
Note
Percents may not add to 100.0 because of rounding.

C. Broad Nutritional Risk Categories

Similar to previous years, in 2018, the most commonly assigned broad nutritional risk categories reported were dietary risks and anthropometric risks, which were assigned to 56.4 and 52.1 percent of participants, respectively (see table 5.4).

Since 2006, when State agencies began reporting up to 10 nutritional risk criteria per participant, risks have been assigned at similar rates (see figure 5.3 and appendix table A.17). The greatest change has been for anthropometric risks, which were assigned to 43.5 percent of participants in 2006 compared with 52.1 percent of participants in 2018. Assignation of dietary risks declined from 62.2 percent to 56.4 percent during the same time period.

Figure 5.3. Percentage of Participants by Broad Nutritional Risk Categories Reported: 2006–2018



Note
For consistency, this figure includes data only from 2006 to 2018. Prior to 2006, State agencies could report only the three highest priority nutritional risks assigned.

Among women, anthropometric risks and clinical/health/medical risks were most commonly assigned (74.2 and 55.8 percent, respectively; see table 5.3). Dietary risks were most commonly reported for children (73.7 percent), and other risks were most commonly reported for infants (81.1 percent).[52]

Across racial and ethnic groups, nutritional risk assignments varied for all categories except other risks. Anthropometric risks were assigned to 43.1 percent of Asian participants and ranged from 48.0 to 54.4 percent among other races. Biochemical risks were reported for 20.1 percent of Black participants but ranged from 9.1 to 12.0 percent among other races. Dietary risks were reported for 73.2 percent of American Indian participants but ranged from 50.5 to 65.2 percent among other races. Dietary risks were reported for 62.1 percent of Hispanic/Latino participants compared with 52.4 percent of non-Hispanic/Latino participants.

Table 5.4. Distribution of Participants With Broad Nutritional Risk Category Reported

Characteristic	Anthropometric	Biochemical	Clinical/ Health/ Medical	Dietary	Other Risks	No Risk Reported	Total Participants
Number of Participants							
Total Participants	4,081,817	1,042,398	1,508,260	4,423,350	2,184,488	10,946	7,837,672
Participant Category							
Pregnant women	549,264	75,585	367,309	276,999	64,441	412	675,227
Breastfeeding women	433,431	194,023	334,611	229,640	306,949	531	628,152
Postpartum women	364,939	185,655	312,769	207,262	57,965	583	514,009
Total women	1,347,634	455,262	1,014,689	713,902	429,355	1,526	1,817,388
Infants	890,004	19,589	100,751	649,013	1,515,137	3,012	1,868,344
Children	1,844,179	567,546	392,820	3,060,435	239,995	6,408	4,151,940
Race							
American Indian	346,710	63,469	120,149	509,375	181,039	670	696,174
Asian	127,656	35,464	53,205	193,108	74,884	329	296,303
Black	917,471	339,133	319,886	852,221	480,283	2,989	1,687,947
Pacific Islander	33,643	7,290	10,801	38,167	17,482	94	63,639
White	2,425,435	545,496	931,944	2,528,828	1,281,259	6,102	4,609,636
Two or more races	228,681	51,042	71,270	299,823	144,406	713	476,797
Race not reported	2,221	504	1,005	1,828	5,134	49	7,175
Ethnicity							
Hispanic/Latino	1,653,904	374,893	540,922	2,012,929	828,232	2,150	3,239,136
Non-Hispanic/Latino	2,427,407	667,358	967,145	2,410,157	1,353,966	8,762	4,596,072
Ethnicity not reported	506	146	193	264	2,290	34	2,464
Percent of Participants							
Total Participants	52.1	13.3	19.2	56.4	27.9	0.1	100.0
Participant Category							
Pregnant women	81.3	11.2	54.4	41.0	9.5	< 0.1	100.0
Breastfeeding women	69.0	30.9	53.3	36.6	48.9	< 0.1	100.0
Postpartum women	71.0	36.1	60.8	40.3	11.3	0.1	100.0
Total women	74.2	25.1	55.8	39.3	23.6	< 0.1	100.0
Infants	47.6	1.0	5.4	34.7	81.1	0.2	100.0
Children	44.4	13.7	9.5	73.7	5.8	0.2	100.0

[52] Other risks include infant of a WIC-eligible mother/mother at risk during pregnancy.

Characteristic	Anthropometric	Biochemical	Clinical/ Health/ Medical	Dietary	Other Risks	No Risk Reported	Total Participants
Race							
American Indian	49.8	9.1	17.3	73.2	26.0	< 0.1	100.0
Asian	43.1	12.0	18.0	65.2	25.3	0.1	100.0
Black	54.4	20.1	19.0	50.5	28.5	0.2	100.0
Pacific Islander	52.9	11.5	17.0	60.0	27.5	0.1	100.0
White	52.6	11.8	20.2	54.9	27.8	0.1	100.0
Two or more races	48.0	10.7	14.9	62.9	30.3	0.1	100.0
Race not reported	31.0	7.0	14.0	25.5	71.6	0.7	100.0
Ethnicity							
Hispanic/Latino	51.1	11.6	16.7	62.1	25.6	< 0.1	100.0
Non-Hispanic/Latino	52.8	14.5	21.0	52.4	29.5	0.2	100.0
Ethnicity not reported	20.5	5.9	7.8	10.7	92.9	1.4	100.0

Notes
State agencies could report up to 10 nutritional risk criteria for each participant. This table examines all the risk criteria reported for every participant. When multiple risk criteria within the same nutritional risk were reported for one person, these criteria were combined and counted one time to accurately calculate the number and percentage of participants assigned a nutritional risk or broad risk category. Because multiple risks are reported, rows total more than 100.0 percent.

D. Nutritional Risks by Demographic Characteristics

Some nutritional risks were more commonly assigned to specific participant categories. For example, the biochemical nutritional risk *hematocrit/hemoglobin below FNS criteria* was assigned predominantly to women (25.0 percent) versus infants and children (1.0 and 13.5 percent, respectively; see table 5.5). One can expect a small percentage of infants to have this nutritional risk because hematological tests are not required for infants younger than 9 months of age (see chapter 7 for more information on hematological data).

High weight-for-height/length was more commonly reported for children than infants (28.4 and 18.8 percent, respectively). Chapter 6 of this report discusses weight-for-height as calculated by height and weight data provided in the PC data. The number of participants calculated as having *high weight-for-height/length* may be smaller than the number assigned that nutritional risk because this risk may be assigned to infants with obese biological parents (i.e., those with a body mass index [BMI] of more than 30.0) and others who are deemed to be at risk for that condition.

Inappropriate nutrition practices were more commonly reported for children (62.0 percent) than infants (34.7 percent) and women (32.2 percent). Many of the criteria included in this risk (see table 5.2) relate to the handling of breastmilk and infant formula, which could possibly explain the large number of infants assigned this risk.

Key findings for women by age (see table 5.6a), race (see tables 5.7a–c), and ethnicity (see tables 5.8a–c) follow:

- The percentage of women assigned *high weight-for-height* was greater for older women; 29.4 percent of women younger than 15 were assigned this risk compared with 68.2 percent of women 35 and older. The opposite trend occurred for assignment of *low weight-for-height/length* (8.0 percent of women younger than 15 and 1.2 percent of women 35 and older). Similarly, *general obstetrical risks* was assigned to 88.4 percent of women 17 and younger compared with about one-quarter of women 18 and older.[53]
- Three nutritional risk categories had the most notable differences by race. *High weight-for-height* was assigned less often for Asian breastfeeding women (34.3 percent) compared with breastfeeding women of other races. *Inappropriate growth/weight gain pattern* was reported less often for American Indian and Asian breastfeeding women (25.1 and 23.4 percent, respectively) and postpartum women (26.4 and 23.7 percent, respectively) than postpartum women of other races.
- Non-Hispanic/Latino women were assigned the risk of *substance abuse* more often than Hispanic/Latino women; the greatest difference in assignment of this risk was among postpartum women (16.0 versus 2.5 percent, respectively). In contrast, Hispanic/Latino women were more likely to be assigned the risk of *inappropriate nutrition practices* than non-Hispanic/Latino women; the greatest difference in assignment of this risk was among pregnant women (40.2 versus 28.9 percent, respectively).

Key findings for infants by age (see table 5.6b), race (see table 5.7d), and ethnicity (see table 5.8d) follow:

- Older infants were less likely than younger infants to be assigned *low weight-for-height/length* (8.7 percent of infants aged 0 to 3 months versus 1.8 percent of infants aged 9 to 11 months). The risk of being an *infant of a WIC-eligible mother/mother at risk during pregnancy* was also less likely among older infants; 78.8 percent of infants aged 0 to 3 months were assigned this risk, and the proportion decreased approximately 15–20 percentage points for each successive infant age category.
- *High weight-for-length* was assigned to 18.8 percent of all infants overall but 22.7 percent of infant Pacific Islanders and 10.5 percent of Asian infants. *Low birth weight/premature birth* was assigned to 19.4 percent of all infants and ranged from 12.6 percent of American Indian infants to 24.3 percent of Black infants. The risk of *inappropriate nutrition practices* was assigned to 34.7 percent of infants overall but 41.4 percent of American Indian infants—a difference of about 7 percentage points.
- Nutritional risk assignments did not vary widely between Hispanic/Latino infants and non-Hispanic/Latino infants.

[53] The risk of *general obstetrical risks* includes the criterion "pregnancy at a young age," which applies only to women 17 and younger.

Key findings for children by age (see table 5.6c), race (see table 5.7e), and ethnicity (see table 5.8e) follow:

- *High weight-for height* was assigned to 19.8 percent of 1-year-old children but more than 31 percent of 2-, 3-, and 4-year-old children. Conversely, *hematocrit/hemoglobin below FNS criteria* was assigned less frequently among older child participants (17.8 percent of children 1 year old versus 7.6 percent of children 4 years old). The risk of *inappropriate nutrition practices* was also assigned less frequently with age among children (71.7 percent of 1-year-old children versus 52.4 percent of 4-year-old children).
- *Low weight-for-height/length* was assigned to 5.0 percent of all children; this risk was assigned at the highest rate to Asian children (8.7 percent). More American Indian children were assigned *high weight-for-height/length* (32.6 percent) compared with children overall (28.4 percent).
- *Hematocrit/hemoglobin below FNS criteria* was assigned to 21.5 percent of Black children compared with 8.1 percent of American Indian children.
- Nutritional risk assignments did not vary widely between Hispanic/Latino children and non-Hispanic/Latino children.

Across participant categories, migrant farmworkers were almost 50 percent more likely to be assigned the risk of *homelessness/migrancy* (see tables 5.9a–e). However, because migrant farmworkers constitute such a small percentage of the overall WIC population, a greater percentage of participants who were not migrant farmworkers were assigned this risk in each category.

Table 5.5. Distribution of Participants With Nutritional Risks by Participant Category

Characteristic	Pregnant Women	Breastfeeding Women	Postpartum Women	Total Women Participants	Infants	Children	Total Participants
			Number of Participants				
Anthropometric	549,264	433,431	364,939	1,347,634	890,004	1,844,179	4,081,817
Low weight-for-height/length	23,975	17,865	16,795	58,635	151,800	208,976	419,410
High weight-for-height/length	400,541	354,268	293,132	1,047,940	350,697	1,179,486	2,578,122
Short stature	3	1	2	6	209,406	359,871	569,283
Inappropriate growth/weight gain pattern	386,088	221,100	188,578	795,766	29,403	75,326	900,496
Low birthweight/premature birth	0	0	0	0	362,888	256,875	619,763
Other anthropometric risks	1	7	0	8	107,424	6,296	113,728
Biochemical	75,585	194,023	185,655	455,262	19,589	567,546	1,042,398
Hematocrit/hemoglobin below FNS criteria	75,538	193,966	185,618	455,121	19,526	561,833	1,036,481
Other biochemical risks	50	123	59	232	78	7,047	7,357
Clinical/Health/Medical	367,309	334,611	312,769	1,014,689	100,751	392,820	1,508,260
Pregnancy-induced conditions	55,648	58,718	48,170	162,536	0	0	162,536
Delivery of low-birthweight/premature infant	51,884	77,983	74,911	204,778	0	0	204,778
Prior stillbirth/fetal/neonatal death	39,118	5,237	13,828	58,183	0	0	58,183
General obstetrical risks	190,325	131,171	116,843	438,339	0	0	438,339
Nutrition-related risk conditions	100,170	163,519	145,966	409,655	97,499	322,118	829,272
Substance abuse	77,687	22,061	60,510	160,258	457	2	160,717
Other health risks	21,737	14,818	13,272	49,826	3,393	79,560	132,780

Characteristic	Pregnant Women	Breastfeeding Women	Postpartum Women	Total Women Participants	Infants	Children	Total Participants
Dietary	276,999	229,640	207,262	713,902	649,013	3,060,435	4,423,350
Failure to meet DGA	55,330	44,089	36,066	135,485	125	523,774	659,385
Inappropriate nutrition practices	224,980	187,723	173,163	585,866	648,940	2,572,916	3,807,723
Other Risks	64,441	306,949	57,965	429,355	1,515,137	239,995	2,184,488
Regression/Transfer/Presumptive eligibility	5,990	5,153	5,232	16,376	25,639	59,163	101,178
Breastfeeding mother and infant dyad	7,727	296,145	26,485	330,357	265,509	456	596,322
Infant of a WIC-eligible mother/ mother at risk during pregnancy	0	0	0	0	1,404,724	8,823	1,413,547
Homelessness/Migrancy	4,231	2,741	2,368	9,340	7,418	18,250	35,008
Other nutritional risks	47,643	11,778	25,060	84,481	75,746	156,217	316,444
No Risk Reported	412	531	583	1,526	3,012	6,408	10,946
			Percent of Participants				
Anthropometric	81.3	69.0	71.0	74.2	47.6	44.4	52.1
Low weight-for-height/length	3.6	2.8	3.3	3.2	8.1	5.0	5.4
High weight-for-height/length	59.3	56.4	57.0	57.7	18.8	28.4	32.9
Short stature	< 0.1	< 0.1	< 0.1	< 0.1	11.2	8.7	7.3
Inappropriate growth/weight gain pattern	57.2	35.2	36.7	43.8	1.6	1.8	11.5
Low birthweight/premature birth	0.0	0.0	0.0	0.0	19.4	6.2	7.9
Other anthropometric risks	< 0.1	< 0.1	0.0	< 0.1	5.7	0.2	1.5
Biochemical	11.2	30.9	36.1	25.1	1.0	13.7	13.3
Hematocrit/hemoglobin below FNS criteria	11.2	30.9	36.1	25.0	1.0	13.5	13.2
Other biochemical risks	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Clinical/Health/Medical	54.4	53.3	60.8	55.8	5.4	9.5	19.2
Pregnancy-induced conditions	8.2	9.3	9.4	8.9	0.0	0.0	2.1
Delivery of low-birthweight/premature infant	7.7	12.4	14.6	11.3	0.0	0.0	2.6
Prior stillbirth/fetal/neonatal death	5.8	0.8	2.7	3.2	0.0	0.0	0.7
General obstetrical risks	28.2	20.9	22.7	24.1	0.0	0.0	5.6
Nutrition-related risk conditions	14.8	26.0	28.4	22.5	5.2	7.8	10.6
Substance abuse	11.5	3.5	11.8	8.8	< 0.1	< 0.1	2.1
Other health risks	3.2	2.4	2.6	2.7	0.2	1.9	1.7
Dietary	41.0	36.6	40.3	39.3	34.7	73.7	56.4
Failure to meet DGA	8.2	7.0	7.0	7.5	< 0.1	12.6	8.4
Inappropriate nutrition practices	33.3	29.9	33.7	32.2	34.7	62.0	48.6
Other Risks	9.5	48.9	11.3	23.6	81.1	5.8	27.9
Regression/Transfer/Presumptive eligibility	0.9	0.8	1.0	0.9	1.4	1.4	1.3
Breastfeeding mother and infant dyad	1.1	47.1	5.2	18.2	14.2	< 0.1	7.6
Infant of a WIC-eligible mother/ mother at risk during pregnancy	0.0	0.0	0.0	0.0	75.2	0.2	18.0
Homelessness/Migrancy	0.6	0.4	0.5	0.5	0.4	0.4	0.4
Other nutritional risks	7.1	1.9	4.9	4.6	4.1	3.8	4.0
No Risk Reported	< 0.1	< 0.1	0.1	< 0.1	0.2	0.2	0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.6a. Distribution of Women With Nutritional Risks by Age at Certification

Characteristic	Younger than 15	15–17 Years	18–34 Years	35 Years or Older	Age Not Reported	Total Women Participants
Number of Women Participants						
Anthropometric	1,115	29,165	1,135,171	181,434	749	1,347,634
Low weight-for-height/length	145	3,298	52,448	2,690	53	58,635
High weight-for-height/length	531	15,760	872,294	158,782	573	1,047,940
Short stature	0	1	3	1	1	6
Inappropriate growth/weight gain pattern	784	20,500	678,591	95,453	439	795,766
Other anthropometric risks	0	0	8	0	0	8
Biochemical	518	12,110	384,767	57,505	363	455,262
Hematocrit/hemoglobin below FNS criteria	518	12,110	384,646	57,485	363	455,121
Other biochemical risks	0	1	193	38	0	232
Clinical/Health/Medical	1,734	40,931	830,761	140,691	571	1,014,689
Pregnancy-induced conditions	42	1,492	125,530	35,384	88	162,536
Delivery of low-birthweight/premature infant	139	3,271	169,229	31,931	209	204,778
Prior stillbirth/fetal/neonatal death	6	373	46,304	11,470	30	58,183
General obstetrical risks	1,707	39,260	347,400	49,770	202	438,339
Nutrition-related risk conditions	249	6,392	336,135	66,655	224	409,655
Substance abuse	44	2,278	140,859	16,987	90	160,258
Other health risks	30	822	42,383	6,571	20	49,826
Dietary	663	16,700	606,159	90,254	126	713,902
Failure to meet DGA	67	1,691	117,071	16,621	36	135,485
Inappropriate nutrition practices	603	15,194	495,431	74,548	90	585,866
Other Risks	618	13,689	354,697	59,951	399	429,355
Regression/Transfer/Presumptive eligibility	11	382	14,438	1,525	19	16,376
Breastfeeding mother and infant dyad	144	4,589	273,057	52,211	357	330,357
Homelessness/Migrancy	6	232	7,898	1,201	4	9,340
Other nutritional risks	485	9,004	68,697	6,261	35	84,481
No Risk Reported	0	36	1,344	141	5	1,526
Percent of Women Participants						
Anthropometric	61.8	65.5	73.8	78.0	77.7	74.2
Low weight-for-height/length	8.0	7.4	3.4	1.2	5.5	3.2
High weight-for-height/length	29.4	35.4	56.7	68.2	59.4	57.7
Short stature	0.0	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Inappropriate growth/weight gain pattern	43.4	46.0	44.1	41.0	45.5	43.8
Other anthropometric risks	0.0	0.0	< 0.1	0.0	0.0	< 0.1
Biochemical	28.7	27.2	25.0	24.7	37.7	25.1
Hematocrit/hemoglobin below FNS criteria	28.7	27.2	25.0	24.7	37.7	25.0
Other biochemical risks	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1

Characteristic	Younger than 15	15–17 Years	18–34 Years	35 Years or Older	Age Not Reported	Total Women Participants
Clinical/Health/Medical	96.1	91.9	54.0	60.5	59.2	55.8
Pregnancy-induced conditions	2.3	3.3	8.2	15.2	9.1	8.9
Delivery of low-birthweight/premature infant	7.7	7.3	11.0	13.7	21.7	11.3
Prior stillbirth/fetal/neonatal death	0.3	0.8	3.0	4.9	3.1	3.2
General obstetrical risks	94.6	88.1	22.6	21.4	21.0	24.1
Nutrition-related risk conditions	13.8	14.3	21.9	28.6	23.2	22.5
Substance abuse	2.4	5.1	9.2	7.3	9.3	8.8
Other health risks	1.7	1.8	2.8	2.8	2.1	2.7
Dietary	36.7	37.5	39.4	38.8	13.1	39.3
Failure to meet DGA	3.7	3.8	7.6	7.1	3.7	7.5
Inappropriate nutrition practices	33.4	34.1	32.2	32.0	9.3	32.2
Other Risks	34.2	30.7	23.1	25.8	41.4	23.6
Regression/Transfer/Presumptive eligibility	0.6	0.9	0.9	0.7	2.0	0.9
Breastfeeding mother and infant dyad	8.0	10.3	17.8	22.4	37.0	18.2
Homelessness/Migrancy	0.3	0.5	0.5	0.5	0.4	0.5
Other nutritional risks	26.9	20.2	4.5	2.7	3.6	4.6
No Risk Reported	0.0	< 0.1	< 0.1	< 0.1	0.5	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.6b. Distribution of Infants With Nutritional Risks by Age at Certification

Characteristic	0–3 Months	4–5 Months	6–8 Months	9–11 Months	Age Not Reported	Total Infant Participants
	Number of Infant Participants					
Anthropometric	805,077	26,102	36,674	21,802	348	890,004
Low weight-for-height/length	146,526	2,343	2,095	816	19	151,800
High weight-for-height/length	311,075	11,242	17,453	10,831	95	350,697
Short stature	190,015	6,979	7,802	4,525	85	209,406
Inappropriate growth/weight gain pattern	26,622	772	1,595	408	6	29,403
Low birthweight/premature birth	328,260	11,341	14,545	8,535	207	362,888
Other anthropometric risks	97,884	3,067	4,238	2,226	9	107,424
Biochemical	6,317	488	3,390	9,238	156	19,589
Hematocrit/hemoglobin below FNS criteria	6,290	486	3,385	9,209	156	19,526
Other biochemical risks	31	2	5	40	0	78
Clinical/Health/Medical	84,939	5,565	6,470	3,687	90	100,751
Nutrition-related risk conditions	81,990	5,490	6,278	3,651	90	97,499
Substance abuse	440	6	7	4	0	457
Other health risks	3,041	96	214	42	0	3,393

Characteristic	0–3 Months	4–5 Months	6–8 Months	9–11 Months	Age Not Reported	Total Infant Participants
Dietary	553,596	24,460	42,497	28,085	375	649,013
Failure to meet DGA	8	4	14	96	3	125
Inappropriate nutrition practices	553,591	24,456	42,484	28,037	372	648,940
Other Risks	1,421,029	39,590	38,997	15,381	140	1,515,137
Regression/Transfer/Presumptive eligibility	16,451	3,535	3,872	1,757	24	25,639
Breastfeeding mother and infant dyad	259,321	3,051	2,322	807	7	265,509
Infant of a WIC-eligible mother/mother at risk during pregnancy	1,330,036	32,730	30,505	11,361	92	1,404,724
Homelessness/Migrancy	6,685	234	261	236	2	7,418
Other nutritional risks	63,035	3,727	6,247	2,703	33	75,746
No Risk Reported	2,411	140	242	209	10	3,012
	Percent of Infant Participants					
Anthropometric	47.7	45.8	47.9	47.1	40.5	47.6
Low weight-for-height/length	8.7	4.1	2.7	1.8	2.2	8.1
High weight-for-height/length	18.4	19.7	22.8	23.4	11.1	18.8
Short stature	11.3	12.2	10.2	9.8	9.9	11.2
Inappropriate growth/weight gain pattern	1.6	1.4	2.1	0.9	0.7	1.6
Low birthweight/premature birth	19.5	19.9	19.0	18.4	24.1	19.4
Other anthropometric risks	5.8	5.4	5.5	4.8	1.0	5.7
Biochemical	0.4	0.9	4.4	20.0	18.2	1.0
Hematocrit/hemoglobin below FNS criteria	0.4	0.9	4.4	19.9	18.2	1.0
Other biochemical risks	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	5.0	9.8	8.5	8.0	10.5	5.4
Nutrition-related risk conditions	4.9	9.6	8.2	7.9	10.5	5.2
Substance abuse	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Other health risks	0.2	0.2	0.3	< 0.1	0.0	0.2
Dietary	32.8	42.9	55.6	60.7	43.7	34.7
Failure to meet DGA	< 0.1	< 0.1	< 0.1	0.2	0.3	< 0.1
Inappropriate nutrition practices	32.8	42.9	55.5	60.6	43.3	34.7
Other Risks	84.2	69.4	51.0	33.2	16.3	81.1
Regression/Transfer/Presumptive eligibility	1.0	6.2	5.1	3.8	2.8	1.4
Breastfeeding mother and infant dyad	15.4	5.3	3.0	1.7	0.8	14.2
Infant of a WIC-eligible mother/mother at risk during pregnancy	78.8	57.4	39.9	24.6	10.7	75.2
Homelessness/Migrancy	0.4	0.4	0.3	0.5	0.2	0.4
Other nutritional risks	3.7	6.5	8.2	5.8	3.8	4.1
No Risk Reported	0.1	0.2	0.3	0.5	1.2	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.6c. Distribution of Children With Nutritional Risks by Age at Certification

Characteristic	1 Year	2 Years	3 Years	4 Years	Age Not Reported	Total Child Participants
Number of Child Participants						
Anthropometric	636,238	481,269	449,082	276,863	726	1,844,179
Low weight-for-height/length	24,246	74,482	70,166	39,988	94	208,976
High weight-for-height/length	302,907	337,394	329,119	209,666	399	1,179,486
Short stature	152,267	97,126	71,724	38,619	134	359,871
Inappropriate growth/weight gain pattern	33,307	14,953	17,933	9,112	20	75,326
Low birthweight/premature birth	246,730	8,896	797	315	138	256,875
Other anthropometric risks	6,092	162	17	14	11	6,296
Biochemical	273,542	147,510	101,474	44,773	246	567,546
Hematocrit/hemoglobin below FNS criteria	271,866	145,440	100,046	44,234	246	561,833
Other biochemical risks	2,153	2,576	1,689	629	0	7,047
Clinical/Health/Medical	116,967	100,066	104,789	70,782	217	392,820
Nutrition-related risk conditions	111,402	84,602	77,892	48,011	211	322,118
Substance abuse	0	1	1	0	0	2
Other health risks	6,349	17,404	30,263	25,538	6	79,560
Dietary	1,123,526	810,147	700,423	425,422	916	3,060,435
Failure to meet DGA	28,085	180,927	188,539	125,788	436	523,774
Inappropriate nutrition practices	1,097,113	642,909	525,318	307,091	485	2,572,916
Other Risks	92,859	60,728	54,889	31,291	229	239,995
Regression/Transfer/Presumptive eligibility	20,488	15,548	14,698	8,390	39	59,163
Breastfeeding mother and infant dyad	423	13	11	6	3	456
Infant of a WIC-eligible mother/mother at risk during pregnancy	8,395	116	120	55	137	8,823
Homelessness/Migrancy	6,379	4,876	4,466	2,525	4	18,250
Other nutritional risks	58,713	40,731	36,145	20,574	54	156,217
No Risk Reported	3,510	1,004	1,099	773	22	6,408
Percent of Child Participants						
Anthropometric	41.6	44.7	46.9	47.3	39.5	44.4
Low weight-for-height/length	1.6	6.9	7.3	6.8	5.1	5.0
High weight-for-height/length	19.8	31.4	34.3	35.8	21.7	28.4
Short stature	10.0	9.0	7.5	6.6	7.3	8.7
Inappropriate growth/weight gain pattern	2.2	1.4	1.9	1.6	1.1	1.8
Low birthweight/premature birth	16.1	0.8	< 0.1	< 0.1	7.5	6.2
Other anthropometric risks	0.4	< 0.1	< 0.1	< 0.1	0.6	0.2
Biochemical	17.9	13.7	10.6	7.6	13.4	13.7
Hematocrit/hemoglobin below FNS criteria	17.8	13.5	10.4	7.6	13.4	13.5
Other biochemical risks	0.1	0.2	0.2	0.1	0.0	0.2

Characteristic	1 Year	2 Years	3 Years	4 Years	Age Not Reported	Total Child Participants
Clinical/Health/Medical	7.6	9.3	10.9	12.1	11.8	9.5
Nutrition-related risk conditions	7.3	7.9	8.1	8.2	11.5	7.8
Substance abuse	0.0	< 0.1	< 0.1	0.0	0.0	< 0.1
Other health risks	0.4	1.6	3.2	4.4	0.3	1.9
Dietary	73.4	75.3	73.1	72.7	49.8	73.7
Failure to meet DGA	1.8	16.8	19.7	21.5	23.7	12.6
Inappropriate nutrition practices	71.7	59.8	54.8	52.4	26.4	62.0
Other Risks	6.1	5.6	5.7	5.3	12.5	5.8
Regression/Transfer/Presumptive eligibility	1.3	1.4	1.5	1.4	2.1	1.4
Breastfeeding mother and infant dyad	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Infant of a WIC-eligible mother/mother at risk during pregnancy	0.5	< 0.1	< 0.1	< 0.1	7.4	0.2
Homelessness/Migrancy	0.4	0.5	0.5	0.4	0.2	0.4
Other nutritional risks	3.8	3.8	3.8	3.5	2.9	3.8
No Risk Reported	0.2	< 0.1	0.1	0.1	1.2	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.7a. Distribution of Pregnant Women With Nutritional Risks by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Pregnant Women Participants
Number of Pregnant Women Participants								
Anthropometric	47,320	16,933	117,961	4,468	343,196	18,976	409	549,264
Low weight-for-height/length	1,467	1,711	5,010	140	14,796	835	16	23,975
High weight-for-height/length	35,529	8,755	88,723	3,539	250,159	13,531	304	400,541
Short stature	0	0	0	0	3	0	0	3
Inappropriate growth/weight gain pattern	35,024	12,318	79,916	3,004	241,305	14,269	252	386,088
Other anthropometric risks	1	0	0	0	0	0	0	1
Biochemical	3,806	2,118	31,436	523	35,509	2,133	59	75,585
Hematocrit/hemoglobin below FNS criteria	3,800	2,114	31,424	523	35,484	2,133	59	75,538
Other biochemical risks	6	5	13	0	26	0	0	50
Clinical/Health/Medical	29,442	10,923	73,424	2,774	236,712	13,669	364	367,309
Pregnancy-induced conditions	5,353	2,118	10,341	484	35,277	2,034	41	55,648
Delivery of low-birthweight/premature infant	1,601	1,021	14,168	305	33,281	1,479	29	51,884
Prior stillbirth/fetal/neonatal death	2,139	699	8,881	283	25,794	1,296	26	39,118
General obstetrical risks	17,316	6,179	36,709	1,715	120,680	7,595	130	190,325
Nutrition-related risk conditions	6,415	2,719	21,297	596	65,394	3,670	78	100,170
Substance abuse	5,908	725	10,008	288	56,923	3,678	158	77,687
Other health risks	926	529	3,744	136	15,638	748	16	21,737

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Pregnant Women Participants
Dietary	39,562	13,608	50,766	2,450	158,577	11,784	252	276,999
Failure to meet DGA	7,026	3,180	9,059	618	33,353	2,028	66	55,330
Inappropriate nutrition practices	33,293	10,580	42,076	1,899	127,028	9,915	189	224,980
Other Risks	3,158	1,125	13,844	452	43,158	2,491	213	64,441
Regression/Transfer/Presumptive eligibility	550	244	981	141	3,588	307	179	5,990
Breastfeeding mother and infant dyad	154	224	1,956	22	5,178	187	6	7,727
Homelessness/Migrancy	277	73	818	48	2,767	245	3	4,231
Other nutritional risks	2,224	602	10,325	251	32,389	1,820	32	47,643
No Risk Reported	14	22	112	0	244	15	5	412
Percent of Pregnant Women Participants								
Anthropometric	82.1	71.5	82.6	83.2	81.4	82.0	53.5	81.3
Low weight-for-height/length	2.5	7.2	3.5	2.6	3.5	3.6	2.1	3.6
High weight-for-height/length	61.6	37.0	62.1	65.9	59.3	58.5	39.8	59.3
Short stature	0.0	0.0	0.0	0.0	< 0.1	0.0	0.0	< 0.1
Inappropriate growth/weight gain pattern	60.8	52.0	56.0	55.9	57.2	61.7	33.0	57.2
Other anthropometric risks	< 0.1	0.0	0.0	0.0	0.0	0.0	0.0	< 0.1
Biochemical	6.6	8.9	22.0	9.7	8.4	9.2	7.7	11.2
Hematocrit/hemoglobin below FNS criteria	6.6	8.9	22.0	9.7	8.4	9.2	7.7	11.2
Other biochemical risks	< 0.1	< 0.1	< 0.1	0.0	< 0.1	0.0	0.0	< 0.1
Clinical/Health/Medical	51.1	46.1	51.4	51.7	56.1	59.1	47.5	54.4
Pregnancy-induced conditions	9.3	8.9	7.2	9.0	8.4	8.8	5.4	8.2
Delivery of low-birthweight/premature infant	2.8	4.3	9.9	5.7	7.9	6.4	3.8	7.7
Prior stillbirth/fetal/neonatal death	3.7	3.0	6.2	5.3	6.1	5.6	3.4	5.8
General obstetrical risks	30.0	26.1	25.7	31.9	28.6	32.8	17.0	28.2
Nutrition-related risk conditions	11.1	11.5	14.9	11.1	15.5	15.9	10.2	14.8
Substance abuse	10.3	3.1	7.0	5.4	13.5	15.9	20.6	11.5
Other health risks	1.6	2.2	2.6	2.5	3.7	3.2	2.1	3.2
Dietary	68.6	57.4	35.5	45.6	37.6	50.9	33.0	41.0
Failure to meet DGA	12.2	13.4	6.3	11.5	7.9	8.8	8.6	8.2
Inappropriate nutrition practices	57.8	44.7	29.5	35.4	30.1	42.8	24.7	33.3
Other Risks	5.5	4.7	9.7	8.4	10.2	10.8	27.8	9.5
Regression/Transfer/Presumptive eligibility	1.0	1.0	0.7	2.6	0.9	1.3	23.4	0.9
Breastfeeding mother and infant dyad	0.3	0.9	1.4	0.4	1.2	0.8	0.8	1.1
Homelessness/Migrancy	0.5	0.3	0.6	0.9	0.7	1.1	0.4	0.6
Other nutritional risks	3.9	2.5	7.2	4.7	7.7	7.9	4.2	7.1
No Risk Reported	< 0.1	< 0.1	< 0.1	0.0	< 0.1	< 0.1	0.7	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.7b. Distribution of Breastfeeding Women With Nutritional Risks by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Breastfeeding Women Participants
Number of Breastfeeding Women Participants								
Anthropometric	37,444	15,413	92,115	4,138	269,598	14,484	239	433,431
Low weight-for-height/length	902	1,781	3,787	122	10,725	542	5	17,865
High weight-for-height/length	33,489	10,534	75,524	3,538	219,175	11,796	211	354,268
Short stature	0	0	1	0	0	0	0	1
Inappropriate growth/weight gain pattern	14,391	7,189	48,565	2,191	141,214	7,452	97	221,100
Other anthropometric risks	1	0	0	0	2	4	0	7
Biochemical	14,908	8,949	53,575	1,582	109,087	5,830	91	194,023
Hematocrit/hemoglobin below FNS criteria	14,905	8,945	53,569	1,581	109,046	5,828	91	193,966
Other biochemical risks	11	21	20	1	68	2	0	123
Clinical/Health/Medical	24,802	14,664	69,455	2,538	211,830	11,151	171	334,611
Pregnancy-induced conditions	4,988	3,458	11,078	504	36,743	1,908	37	58,718
Delivery of low-birthweight/premature infant	3,019	3,208	21,789	557	47,350	2,019	41	77,983
Prior stillbirth/fetal/neonatal death	615	124	985	80	3,271	155	7	5,237
General obstetrical risks	11,736	5,457	24,300	1,050	83,524	5,052	51	131,171
Nutrition-related risk conditions	9,073	6,588	36,899	1,098	104,837	4,926	97	163,519
Substance abuse	765	161	2,688	101	17,289	1,047	9	22,061
Other health risks	616	627	2,586	117	10,380	484	8	14,818
Dietary	37,717	15,313	37,965	2,136	126,215	10,188	106	229,640
Failure to meet DGA	6,231	2,800	7,101	541	25,379	2,001	36	44,089
Inappropriate nutrition practices	31,994	12,619	31,138	1,639	101,951	8,312	71	187,723
Other Risks	41,733	15,898	55,624	2,979	176,625	13,649	441	306,949
Regression/Transfer/Presumptive eligibility	440	206	923	63	3,070	167	284	5,153
Breastfeeding mother and infant dyad	40,981	15,534	53,512	2,890	169,713	13,303	213	296,145
Homelessness/Migrancy	198	71	580	20	1,766	102	4	2,741
Other nutritional risks	778	406	2,282	119	7,672	513	8	11,778
No Risk Reported	53	36	125	16	289	12	0	531
Percent of Breastfeeding Women Participants								
Anthropometric	65.2	50.1	73.0	73.0	69.8	67.8	41.6	69.0
Low weight-for-height/length	1.6	5.8	3.0	2.2	2.8	2.5	0.9	2.8
High weight-for-height/length	58.3	34.3	59.8	62.4	56.8	55.2	36.7	56.4
Short stature	0.0	0.0	< 0.1	0.0	0.0	0.0	0.0	< 0.1
Inappropriate growth/weight gain pattern	25.1	23.4	38.5	38.6	36.6	34.9	16.9	35.2
Other anthropometric risks	< 0.1	0.0	0.0	0.0	< 0.1	< 0.1	0.0	< 0.1
Biochemical	26.0	29.1	42.4	27.9	28.2	27.3	15.9	30.9
Hematocrit/hemoglobin below FNS criteria	26.0	29.1	42.4	27.9	28.2	27.3	15.9	30.9
Other biochemical risks	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Breastfeeding Women Participants
Clinical/Health/Medical	43.2	47.7	55.0	44.8	54.9	52.2	29.6	53.3
Pregnancy-induced conditions	8.7	11.2	8.8	8.9	9.5	8.9	6.5	9.3
Delivery of low-birthweight/premature infant	5.3	10.4	17.3	9.8	12.3	9.5	7.2	12.4
Prior stillbirth/fetal/neonatal death	1.1	0.4	0.8	1.4	0.8	0.7	1.2	0.8
General obstetrical risks	20.4	17.7	19.2	18.5	21.6	23.7	8.9	20.9
Nutrition-related risk conditions	15.8	21.4	29.2	19.4	27.1	23.1	16.9	26.0
Substance abuse	1.3	0.5	2.1	1.8	4.5	4.9	1.6	3.5
Other health risks	1.1	2.0	2.0	2.1	2.7	2.3	1.4	2.4
Dietary	65.7	49.8	30.1	37.7	32.7	47.7	18.5	36.6
Failure to meet DGA	10.9	9.1	5.6	9.5	6.6	9.4	6.3	7.0
Inappropriate nutrition practices	55.7	41.0	24.7	28.9	26.4	38.9	12.4	29.9
Other Risks	72.7	51.7	44.1	52.5	45.7	63.9	76.6	48.9
Regression/Transfer/Presumptive eligibility	0.8	0.7	0.7	1.1	0.8	0.8	49.4	0.8
Breastfeeding mother and infant dyad	71.4	50.5	42.4	51.0	43.9	62.3	36.9	47.1
Homelessness/Migrancy	0.3	0.2	0.5	0.4	0.5	0.5	0.7	0.4
Other nutritional risks	1.4	1.3	1.8	2.1	2.0	2.4	1.4	1.9
No Risk Reported	< 0.1	0.1	< 0.1	0.3	< 0.1	< 0.1	0.0	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.7c. Distribution of Postpartum Women With Nutritional Risks by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Postpartum Women Participants
Number of Postpartum Women Participants								
Anthropometric	23,959	7,773	99,453	2,898	219,138	11,550	167	364,939
Low weight-for-height/length	622	821	4,662	76	10,170	432	12	16,795
High weight-for-height/length	20,983	5,272	80,050	2,485	174,848	9,354	139	293,132
Short stature	0	0	1	0	1	0	0	2
Inappropriate growth/weight gain pattern	9,528	3,675	51,953	1,610	115,675	6,062	76	188,578
Other anthropometric risks	0	0	0	0	0	0	0	0
Biochemical	9,727	4,780	67,969	1,212	96,388	5,499	80	185,655
Hematocrit/hemoglobin below FNS criteria	9,725	4,779	67,959	1,212	96,366	5,497	80	185,618
Other biochemical risks	2	1	21	0	33	2	0	59
Clinical/Health/Medical	18,149	7,772	82,156	2,102	192,359	10,070	162	312,769
Pregnancy-induced conditions	3,018	1,648	11,555	411	30,007	1,513	17	48,170
Delivery of low-birthweight/ premature infant	2,305	1,593	26,537	456	42,106	1,883	31	74,911
Prior stillbirth/fetal/neonatal death	893	333	2,911	89	9,182	406	13	13,828
General obstetrical risks	8,951	3,151	29,024	945	70,144	4,574	54	116,843
Nutrition-related risk conditions	6,892	3,102	40,331	865	90,433	4,261	82	145,966
Substance abuse	1,488	251	9,915	210	46,454	2,168	24	60,510
Other health risks	415	213	2,428	76	9,754	381	4	13,272

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Postpartum Women Participants
Dietary	24,168	9,014	48,185	1,652	115,939	8,201	103	207,262
Failure to meet DGA	4,295	2,215	7,010	453	20,555	1,517	21	36,066
Inappropriate nutrition practices	20,213	6,878	41,533	1,238	96,448	6,771	82	173,163
Other Risks	2,354	1,216	13,181	386	38,708	1,792	329	57,965
Regression/Transfer/Presumptive eligibility	283	125	1,257	65	3,015	169	318	5,232
Breastfeeding mother and infant dyad	987	743	5,398	202	18,369	783	3	26,485
Homelessness/Migrancy	143	42	561	19	1,503	97	2	2,368
Other nutritional risks	975	321	6,212	116	16,633	791	12	25,060
No Risk Reported	110	9	171	9	265	17	2	583
Percent of Postpartum Women Participants								
Anthropometric	66.4	50.0	73.3	72.3	71.7	69.4	30.4	71.0
Low weight-for-height/length	1.7	5.3	3.4	1.9	3.3	2.6	2.2	3.3
High weight-for-height/length	58.2	33.9	59.0	62.0	57.2	56.2	25.3	57.0
Short stature	0.0	0.0	< 0.1	0.0	< 0.1	0.0	0.0	< 0.1
Inappropriate growth/weight gain pattern	26.4	23.7	38.3	40.2	37.9	36.4	13.7	36.7
Other anthropometric risks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Biochemical	27.0	30.8	50.1	30.2	31.6	33.0	14.4	36.1
Hematocrit/hemoglobin below FNS criteria	27.0	30.8	50.1	30.2	31.6	33.0	14.4	36.1
Other biochemical risks	< 0.1	< 0.1	< 0.1	0.0	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	50.3	50.0	60.5	52.4	63.0	60.5	29.4	60.8
Pregnancy-induced conditions	8.4	10.6	8.5	10.3	9.8	9.1	3.1	9.4
Delivery of low-birthweight/premature infant	6.4	10.3	19.5	11.4	13.8	11.3	5.6	14.6
Prior stillbirth/fetal/neonatal death	2.5	2.1	2.1	2.2	3.0	2.4	2.4	2.7
General obstetrical risks	24.8	20.3	21.4	23.6	23.0	27.5	9.8	22.7
Nutrition-related risk conditions	19.1	20.0	29.7	21.6	29.6	25.6	14.8	28.4
Substance abuse	4.1	1.6	7.3	5.2	15.2	13.0	4.4	11.8
Other health risks	1.2	1.4	1.8	1.9	3.2	2.3	0.7	2.6
Dietary	67.0	58.0	35.5	41.2	38.0	49.3	18.8	40.3
Failure to meet DGA	11.9	14.3	5.2	11.3	6.7	9.1	3.8	7.0
Inappropriate nutrition practices	56.0	44.3	30.6	30.9	31.6	40.7	14.9	33.7
Other Risks	6.5	7.8	9.7	9.6	12.7	10.8	59.7	11.3
Regression/Transfer/Presumptive eligibility	0.8	0.8	0.9	1.6	1.0	1.0	57.7	1.0
Breastfeeding mother and infant dyad	2.7	4.8	4.0	5.0	6.0	4.7	0.5	5.2
Homelessness/Migrancy	0.4	0.3	0.4	0.5	0.5	0.6	0.4	0.5
Other nutritional risks	2.7	2.1	4.6	2.9	5.4	4.8	2.2	4.9
No Risk Reported	0.3	< 0.1	0.1	0.2	< 0.1	0.1	0.4	0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.7d. Distribution of Infants With Nutritional Risks by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Infant Participants
Number of Infant Participants								
Anthropometric	49,613	23,901	235,836	6,752	512,636	60,463	803	890,004
Low weight-for-height/length	7,869	6,234	46,301	1,116	80,554	9,592	133	151,800
High weight-for-height/length	21,657	6,592	87,800	3,182	207,604	23,655	207	350,697
Short stature	10,106	5,509	61,846	1,107	115,729	14,798	311	209,406
Inappropriate growth/weight gain pattern	1,503	507	5,891	146	19,473	1,865	18	29,403
Low birthweight/premature birth	16,344	9,470	109,729	2,240	200,224	24,521	360	362,888
Other anthropometric risks	7,544	2,434	22,839	916	65,987	7,598	106	107,424
Biochemical	1,168	704	5,914	129	10,229	1,400	45	19,589
Hematocrit/hemoglobin below FNS criteria	1,166	699	5,906	128	10,189	1,393	45	19,526
Other biochemical risks	3	7	11	1	49	7	0	78
Clinical/Health/Medical	6,239	1,612	19,516	527	64,795	7,930	131	100,751
Nutrition-related risk conditions	6,010	1,563	19,026	515	62,718	7,536	130	97,499
Substance abuse	0	2	156	2	273	24	0	457
Other health risks	260	57	403	13	2,231	428	1	3,393
Dietary	53,667	21,297	146,061	4,141	377,384	46,013	451	649,013
Failure to meet DGA	3	1	20	0	95	6	0	125
Inappropriate nutrition practices	53,664	21,296	146,048	4,141	377,330	46,011	451	648,940
Other Risks	115,805	52,077	347,856	11,948	877,459	107,436	2,557	1,515,137
Regression/Transfer/Presumptive eligibility	1,431	601	5,806	256	14,132	1,783	1,629	25,639
Breastfeeding mother and infant dyad	49,295	12,816	36,579	1,276	141,772	23,552	218	265,509
Infant of a WIC-eligible mother/ mother at risk during pregnancy	106,641	48,419	324,461	11,347	815,039	97,728	1,090	1,404,724
Homelessness/Migrancy	367	118	1,680	52	4,484	692	25	7,418
Other nutritional risks	3,003	881	17,091	369	47,722	6,555	123	75,746
No Risk Reported	112	86	781	5	1,815	207	6	3,012
Percent of Infant Participants								
Anthropometric	38.3	38.0	52.3	48.2	47.5	46.5	28.8	47.6
Low weight-for-height/length	6.1	9.9	10.3	8.0	7.5	7.4	4.8	8.1
High weight-for-height/length	16.7	10.5	19.5	22.7	19.3	18.2	7.4	18.8
Short stature	7.8	8.8	13.7	7.9	10.7	11.4	11.1	11.2
Inappropriate growth/weight gain pattern	1.2	0.8	1.3	1.0	1.8	1.4	0.6	1.6
Low birthweight/premature birth	12.6	15.1	24.3	16.0	18.6	18.8	12.9	19.4
Other anthropometric risks	5.8	3.9	5.1	6.5	6.1	5.8	3.8	5.7
Biochemical	0.9	1.1	1.3	0.9	0.9	1.1	1.6	1.0
Hematocrit/hemoglobin below FNS criteria	0.9	1.1	1.3	0.9	0.9	1.1	1.6	1.0
Other biochemical risks	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	4.8	2.6	4.3	3.8	6.0	6.1	4.7	5.4
Nutrition-related risk conditions	4.6	2.5	4.2	3.7	5.8	5.8	4.7	5.2
Substance abuse	0.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Other health risks	0.2	< 0.1	< 0.1	< 0.1	0.2	0.3	< 0.1	0.2
Dietary	41.4	33.9	32.4	29.6	35.0	35.4	16.2	34.7
Failure to meet DGA	< 0.1	< 0.1	< 0.1	0.0	< 0.1	< 0.1	0.0	< 0.1
Inappropriate nutrition practices	41.4	33.9	32.4	29.6	35.0	35.4	16.2	34.7

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Infant Participants
Other Risks	89.4	82.9	77.2	85.3	81.4	82.6	91.7	81.1
Regression/Transfer/Presumptive eligibility	1.1	1.0	1.3	1.8	1.3	1.4	58.4	1.4
Breastfeeding mother and infant dyad	38.1	20.4	8.1	9.1	13.1	18.1	7.8	14.2
Infant of a WIC-eligible mother/ mother at risk during pregnancy	82.3	77.1	72.0	81.0	75.6	75.1	39.1	75.2
Homelessness/Migrancy	0.3	0.2	0.4	0.4	0.4	0.5	0.9	0.4
Other nutritional risks	2.3	1.4	3.8	2.6	4.4	5.0	4.4	4.1
No Risk Reported	< 0.1	0.1	0.2	< 0.1	0.2	0.2	0.2	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.7e. Distribution of Children With Nutritional Risks by Race

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Child Participants
Number of Child Participants								
Anthropometric	188,375	63,636	372,105	15,386	1,080,867	123,208	602	1,844,179
Low weight-for-height/length	20,266	14,150	54,534	1,705	103,747	14,493	81	208,976
High weight-for-height/length	135,335	30,732	225,080	10,528	698,932	78,547	331	1,179,486
Short stature	38,177	16,872	57,667	2,465	220,197	24,362	131	359,871
Inappropriate growth/weight gain pattern	3,217	3,051	18,951	545	45,041	4,500	21	75,326
Low birthweight/premature birth	8,343	7,002	72,257	1,655	150,761	16,744	112	256,875
Other anthropometric risks	229	198	1,886	45	3,568	368	2	6,296
Biochemical	33,859	18,912	180,239	3,844	294,283	36,180	229	567,546
Hematocrit/hemoglobin below FNS criteria	33,688	18,577	178,647	3,807	291,063	35,822	229	561,833
Other biochemical risks	200	430	2,097	50	3,813	457	0	7,047
Clinical/Health/Medical	41,517	18,234	75,334	2,860	226,248	28,449	178	392,820
Nutrition-related risk conditions	28,124	14,515	68,403	2,277	185,202	23,457	140	322,118
Substance abuse	0	0	1	0	0	0	1	2
Other health risks	14,530	4,289	8,067	664	46,264	5,703	43	79,560
Dietary	354,262	133,876	569,244	27,787	1,750,714	223,637	915	3,060,435
Failure to meet DGA	39,668	21,180	103,542	4,819	320,855	33,611	100	523,774
Inappropriate nutrition practices	323,697	114,175	469,444	23,462	1,448,489	192,827	823	2,572,916
Other Risks	17,989	4,568	49,778	1,717	145,310	19,038	1,594	239,995
Regression/Transfer/Presumptive eligibility	5,103	1,743	11,576	498	34,869	3,833	1,541	59,163
Breastfeeding mother and infant dyad	6	18	76	1	331	24	0	456
Infant of a WIC-eligible mother/mother at risk during pregnancy	312	325	1,846	39	5,701	596	4	8,823
Homelessness/Migrancy	1,015	338	3,193	143	12,089	1,445	27	18,250
Other nutritional risks	11,763	2,180	33,629	1,058	94,051	13,441	95	156,217
No Risk Reported	381	176	1,800	64	3,489	462	36	6,408

Characteristic	American Indian	Asian	Black	Pacific Islander	White	Two or More Races	Race Not Reported	Total Child Participants
				Percent of Child Participants				
Anthropometric	45.3	38.9	44.7	44.5	44.7	43.1	24.1	44.4
Low weight-for-height/length	4.9	8.7	6.6	4.9	4.3	5.1	3.3	5.0
High weight-for-height/length	32.6	18.8	27.0	30.4	28.9	27.5	13.2	28.4
Short stature	9.2	10.3	6.9	7.1	9.1	8.5	5.2	8.7
Inappropriate growth/weight gain pattern	0.8	1.9	2.3	1.6	1.9	1.6	0.8	1.8
Low birthweight/premature birth	2.0	4.3	8.7	4.8	6.2	5.9	4.5	6.2
Other anthropometric risks	< 0.1	0.1	0.2	0.1	0.1	0.1	< 0.1	0.2
Biochemical	8.1	11.6	21.7	11.1	12.2	12.7	9.2	13.7
Hematocrit/hemoglobin below FNS criteria	8.1	11.4	21.5	11.0	12.0	12.5	9.2	13.5
Other biochemical risks	< 0.1	0.3	0.3	0.1	0.2	0.2	0.0	0.2
Clinical/Health/Medical	10.0	11.2	9.1	8.3	9.4	10.0	7.1	9.5
Nutrition-related risk conditions	6.8	8.9	8.2	6.6	7.7	8.2	5.6	7.8
Substance abuse	0.0	0.0	< 0.1	0.0	0.0	0.0	< 0.1	< 0.1
Other health risks	3.5	2.6	1.0	1.9	1.9	2.0	1.7	1.9
Dietary	85.2	81.9	68.4	80.3	72.4	78.3	36.7	73.7
Failure to meet DGA	9.5	13.0	12.4	13.9	13.3	11.8	4.0	12.6
Inappropriate nutrition practices	77.9	69.8	56.4	67.8	59.9	67.5	33.0	62.0
Other Risks	4.3	2.8	6.0	5.0	6.0	6.7	63.9	5.8
Regression/Transfer/Presumptive eligibility	1.2	1.1	1.4	1.4	1.4	1.3	61.7	1.4
Breastfeeding mother and infant dyad	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Infant of a WIC-eligible mother/mother at risk during pregnancy	< 0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2
Homelessness/Migrancy	0.2	0.2	0.4	0.4	0.5	0.5	1.1	0.4
Other nutritional risks	2.8	1.3	4.0	3.1	3.9	4.7	3.8	3.8
No Risk Reported	< 0.1	0.1	0.2	0.2	0.1	0.2	1.4	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.8a. Distribution of Pregnant Women With Nutritional Risks by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Pregnant Women Participants
		Number of Pregnant Women Participants		
Anthropometric	217,711	331,492	61	549,264
Low weight-for-height/length	6,341	17,631	2	23,975
High weight-for-height/length	163,322	237,173	46	400,541
Short stature	2	1	0	3
Inappropriate growth/weight gain pattern	159,130	226,917	42	386,088
Other anthropometric risks	0	1	0	1
Biochemical	22,278	53,297	9	75,585
Hematocrit/hemoglobin below FNS criteria	22,257	53,271	9	75,538
Other biochemical risks	22	28	0	50

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Pregnant Women Participants
Clinical/Health/Medical	126,250	241,003	55	367,309
Pregnancy-induced conditions	20,449	35,193	7	55,648
Delivery of low-birthweight/premature infant	14,186	37,690	8	51,884
Prior stillbirth/fetal/neonatal death	10,703	28,408	8	39,118
General obstetrical risks	73,898	116,405	22	190,325
Nutrition-related risk conditions	28,311	71,846	13	100,170
Substance abuse	14,837	62,838	13	77,687
Other health risks	5,332	16,404	1	21,737
Dietary	128,090	148,886	23	276,999
Failure to meet DGA	24,687	30,631	12	55,330
Inappropriate nutrition practices	105,389	119,578	13	224,980
Other Risks	12,754	51,564	123	64,441
Regression/Transfer/Presumptive eligibility	2,193	3,677	120	5,990
Breastfeeding mother and infant dyad	2,574	5,153	0	7,727
Homelessness/Migrancy	1,573	2,657	1	4,231
Other nutritional risks	6,567	41,069	7	47,643
No Risk Reported	98	311	3	412
Percent of Pregnant Women Participants				
Anthropometric	83.1	80.2	35.5	81.3
Low weight-for-height/length	2.4	4.3	1.2	3.6
High weight-for-height/length	62.4	57.4	26.7	59.3
Short stature	< 0.1	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	60.8	54.9	24.4	57.2
Other anthropometric risks	0.0	< 0.1	0.0	< 0.1
Biochemical	8.5	12.9	5.2	11.2
Hematocrit/hemoglobin below FNS criteria	8.5	12.9	5.2	11.2
Other biochemical risks	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	48.2	58.3	32.0	54.4
Pregnancy-induced conditions	7.8	8.5	4.1	8.2
Delivery of low-birthweight/premature infant	5.4	9.1	4.7	7.7
Prior stillbirth/fetal/neonatal death	4.1	6.9	4.7	5.8
General obstetrical risks	28.2	28.2	12.8	28.2
Nutrition-related risk conditions	10.8	17.4	7.6	14.8
Substance abuse	5.7	15.2	7.6	11.5
Other health risks	2.0	4.0	0.6	3.2
Dietary	48.9	36.0	13.4	41.0
Failure to meet DGA	9.4	7.4	7.0	8.2
Inappropriate nutrition practices	40.2	28.9	7.6	33.3
Other Risks	4.9	12.5	71.5	9.5
Regression/Transfer/Presumptive eligibility	0.8	0.9	69.8	0.9
Breastfeeding mother and infant dyad	1.0	1.2	0.0	1.1
Homelessness/Migrancy	0.6	0.6	0.6	0.6
Other nutritional risks	2.5	9.9	4.1	7.1
No Risk Reported	< 0.1	< 0.1	1.7	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.8b. Distribution of Breastfeeding Women With Nutritional Risks by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Breastfeeding Women Participants
Number of Breastfeeding Women Participants				
Anthropometric	193,359	240,019	53	433,431
Low weight-for-height/length	5,384	12,480	1	17,865
High weight-for-height/length	167,425	186,798	45	354,268
Short stature	0	1	0	1
Inappropriate growth/weight gain pattern	89,280	131,798	22	221,100
Other anthropometric risks	1	6	0	7
Biochemical	86,825	107,173	25	194,023
Hematocrit/hemoglobin below FNS criteria	86,800	107,141	25	193,966
Other biochemical risks	49	74	0	123
Clinical/Health/Medical	139,753	194,819	39	334,611
Pregnancy-induced conditions	25,467	33,245	6	58,718
Delivery of low-birthweight/premature infant	30,960	47,016	7	77,983
Prior stillbirth/fetal/neonatal death	1,925	3,310	2	5,237
General obstetrical risks	57,752	73,409	11	131,171
Nutrition-related risk conditions	66,825	96,668	25	163,519
Substance abuse	2,176	19,884	1	22,061
Other health risks	5,244	9,574	0	14,818
Dietary	120,015	109,602	22	229,640
Failure to meet DGA	21,250	22,822	17	44,089
Inappropriate nutrition practices	99,978	87,740	6	187,723
Other Risks	132,204	174,591	154	306,949
Regression/Transfer/Presumptive eligibility	2,120	2,901	133	5,153
Breastfeeding mother and infant dyad	128,160	167,920	65	296,145
Homelessness/Migrancy	1,438	1,302	1	2,741
Other nutritional risks	2,676	9,100	2	11,778
No Risk Reported	161	369	1	531
Percent of Breastfeeding Women Participants				
Anthropometric	69.4	68.7	29.9	69.0
Low weight-for-height/length	1.9	3.6	0.6	2.8
High weight-for-height/length	60.1	53.4	25.4	56.4
Short stature	0.0	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	32.1	37.7	12.4	35.2
Other anthropometric risks	< 0.1	< 0.1	0.0	< 0.1
Biochemical	31.2	30.7	14.1	30.9
Hematocrit/hemoglobin below FNS criteria	31.2	30.7	14.1	30.9
Other biochemical risks	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	50.2	55.7	22.0	53.3
Pregnancy-induced conditions	9.1	9.5	3.4	9.3
Delivery of low-birthweight/premature infant	11.1	13.5	4.0	12.4
Prior stillbirth/fetal/neonatal death	0.7	0.9	1.1	0.8
General obstetrical risks	20.7	21.0	6.2	20.9
Nutrition-related risk conditions	24.0	27.7	14.1	26.0
Substance abuse	0.8	5.7	0.6	3.5
Other health risks	1.9	2.7	0.0	2.4

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Breastfeeding Women Participants
Dietary	43.1	31.4	12.4	36.6
Failure to meet DGA	7.6	6.5	9.6	7.0
Inappropriate nutrition practices	35.9	25.1	3.4	29.9
Other Risks	47.5	50.0	87.0	48.9
Regression/Transfer/Presumptive eligibility	0.8	0.8	75.1	0.8
Breastfeeding mother and infant dyad	46.0	48.0	36.7	47.1
Homelessness/Migrancy	0.5	0.4	0.6	0.4
Other nutritional risks	1.0	2.6	1.1	1.9
No Risk Reported	< 0.1	0.1	0.6	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.8c. Distribution of Postpartum Women With Nutritional Risks by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Postpartum Women Participants
Number of Postpartum Women Participants				
Anthropometric	113,406	251,499	34	364,939
Low weight-for-height/length	3,354	13,438	3	16,795
High weight-for-height/length	96,891	196,213	28	293,132
Short stature	0	2	0	2
Inappropriate growth/weight gain pattern	52,854	135,708	16	188,578
Other anthropometric risks	0	0	0	0
Biochemical	50,873	134,761	21	185,655
Hematocrit/hemoglobin below FNS criteria	50,862	134,735	21	185,618
Other biochemical risks	15	44	0	59
Clinical/Health/Medical	85,091	227,637	41	312,769
Pregnancy-induced conditions	13,583	34,581	6	48,170
Delivery of low-birthweight/premature infant	15,964	58,937	10	74,911
Prior stillbirth/fetal/neonatal death	4,997	8,829	1	13,828
General obstetrical risks	38,801	78,022	20	116,843
Nutrition-related risk conditions	36,932	109,022	13	145,966
Substance abuse	4,070	56,434	6	60,510
Other health risks	2,329	10,942	1	13,272
Dietary	82,063	125,184	15	207,262
Failure to meet DGA	15,039	21,021	6	36,066
Inappropriate nutrition practices	67,881	105,273	9	173,163
Other Risks	14,503	43,289	174	57,965
Regression/Transfer/Presumptive eligibility	1,634	3,427	171	5,232
Breastfeeding mother and infant dyad	9,584	16,898	3	26,485
Homelessness/Migrancy	816	1,551	1	2,368
Other nutritional risks	2,663	22,392	5	25,060
No Risk Reported	211	367	5	583

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Postpartum Women Participants
		Percent of Postpartum Women Participants		
Anthropometric	70.0	71.5	16.0	71.0
Low weight-for-height/length	2.1	3.8	1.4	3.3
High weight-for-height/length	59.8	55.8	13.2	57.0
Short stature	0.0	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	32.6	38.6	7.5	36.7
Other anthropometric risks	0.0	0.0	0.0	0.0
Biochemical	31.4	38.3	9.9	36.1
Hematocrit/hemoglobin below FNS criteria	31.4	38.3	9.9	36.1
Other biochemical risks	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	52.5	64.7	19.3	60.8
Pregnancy-induced conditions	8.4	9.8	2.8	9.4
Delivery of low-birthweight/premature infant	9.8	16.8	4.7	14.6
Prior stillbirth/fetal/neonatal death	3.1	2.5	0.5	2.7
General obstetrical risks	23.9	22.2	9.4	22.7
Nutrition-related risk conditions	22.8	31.0	6.1	28.4
Substance abuse	2.5	16.0	2.8	11.8
Other health risks	1.4	3.1	0.5	2.6
Dietary	50.6	35.6	7.1	40.3
Failure to meet DGA	9.3	6.0	2.8	7.0
Inappropriate nutrition practices	41.9	29.9	4.2	33.7
Other Risks	8.9	12.3	82.1	11.3
Regression/Transfer/Presumptive eligibility	1.0	1.0	80.7	1.0
Breastfeeding mother and infant dyad	5.9	4.8	1.4	5.2
Homelessness/Migrancy	0.5	0.4	0.5	0.5
Other nutritional risks	1.6	6.4	2.4	4.9
No Risk Reported	0.1	0.1	2.4	0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.8d. Distribution of Infants With Nutritional Risks by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Infant Participants
		Number of Infant Participants		
Anthropometric	311,569	578,238	197	890,004
Low weight-for-height/length	43,134	108,650	15	151,800
High weight-for-height/length	136,092	214,537	67	350,697
Short stature	63,667	145,661	78	209,406
Inappropriate growth/weight gain pattern	8,840	20,560	3	29,403
Low birthweight/premature birth	119,124	243,704	60	362,888
Other anthropometric risks	38,579	68,812	33	107,424
Biochemical	5,027	14,525	37	19,589
Hematocrit/hemoglobin below FNS criteria	5,011	14,478	37	19,526
Other biochemical risks	21	57	0	78

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Infant Participants
Clinical/Health/Medical	32,803	67,917	31	100,751
Nutrition-related risk conditions	31,732	65,736	31	97,499
Substance abuse	71	386	0	457
Other health risks	1,141	2,252	0	3,393
Dietary	286,398	362,541	74	649,013
Failure to meet DGA	80	45	0	125
Inappropriate nutrition practices	286,359	362,507	74	648,940
Other Risks	602,587	911,565	985	1,515,137
Regression/Transfer/Presumptive eligibility	9,095	15,570	974	25,639
Breastfeeding mother and infant dyad	159,993	105,507	8	265,509
Infant of a WIC-eligible mother/mother at risk during pregnancy	559,141	845,399	184	1,404,724
Homelessness/Migrancy	3,405	4,004	9	7,418
Other nutritional risks	11,778	63,902	66	75,746
No Risk Reported	536	2,471	5	3,012
Percent of Infant Participants				
Anthropometric	43.6	50.1	19.6	47.6
Low weight-for-height/length	6.0	9.4	1.5	8.1
High weight-for-height/length	19.1	18.6	6.7	18.8
Short stature	8.9	12.6	7.8	11.2
Inappropriate growth/weight gain pattern	1.2	1.8	0.3	1.6
Low birthweight/premature birth	16.7	21.1	6.0	19.4
Other anthropometric risks	5.4	6.0	3.3	5.7
Biochemical	0.7	1.3	3.7	1.0
Hematocrit/hemoglobin below FNS criteria	0.7	1.3	3.7	1.0
Other biochemical risks	< 0.1	< 0.1	0.0	< 0.1
Clinical/Health/Medical	4.6	5.9	3.1	5.4
Nutrition-related risk conditions	4.4	5.7	3.1	5.2
Substance abuse	< 0.1	< 0.1	0.0	< 0.1
Other health risks	0.2	0.2	0.0	0.2
Dietary	40.1	31.4	7.4	34.7
Failure to meet DGA	< 0.1	< 0.1	0.0	< 0.1
Inappropriate nutrition practices	40.1	31.4	7.4	34.7
Other Risks	84.4	79.0	98.2	81.1
Regression/Transfer/Presumptive eligibility	1.3	1.3	97.1	1.4
Breastfeeding mother and infant dyad	22.4	9.1	0.8	14.2
Infant of a WIC-eligible mother/mother at risk during pregnancy	78.3	73.3	18.3	75.2
Homelessness/Migrancy	0.5	0.3	0.9	0.4
Other nutritional risks	1.6	5.5	6.6	4.1
No Risk Reported	< 0.1	0.2	0.5	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.8e. Distribution of Children With Nutritional Risks by Ethnicity

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Child Participants
Number of Child Participants				
Anthropometric	817,859	1,026,159	161	1,844,179
Low weight-for-height/length	77,722	131,228	26	208,976
High weight-for-height/length	554,795	624,587	103	1,179,486
Short stature	161,840	197,999	32	359,871
Inappropriate growth/weight gain pattern	26,615	48,709	2	75,326
Low birthweight/premature birth	85,368	171,492	15	256,875
Other anthropometric risks	1,739	4,557	0	6,296
Biochemical	209,890	357,603	54	567,546
Hematocrit/hemoglobin below FNS criteria	208,251	353,529	54	561,833
Other biochemical risks	1,987	5,060	0	7,047
Clinical/Health/Medical	157,024	235,769	27	392,820
Nutrition-related risk conditions	119,885	202,209	25	322,118
Substance abuse	1	1	0	2
Other health risks	40,694	38,863	3	79,560
Dietary	1,396,362	1,663,944	130	3,060,435
Failure to meet DGA	223,685	300,060	29	523,774
Inappropriate nutrition practices	1,194,366	1,378,445	106	2,572,916
Other Risks	66,184	172,957	854	239,995
Regression/Transfer/Presumptive eligibility	26,311	32,003	849	59,163
Breastfeeding mother and infant dyad	131	325	0	456
Infant of a WIC-eligible mother/mother at risk during pregnancy	2,605	6,216	2	8,823
Homelessness/Migrancy	10,524	7,717	9	18,250
Other nutritional risks	27,439	128,723	55	156,217
No Risk Reported	1,144	5,244	20	6,408
Percent of Child Participants				
Anthropometric	44.9	44.1	17.9	44.4
Low weight-for-height/length	4.3	5.6	2.9	5.0
High weight-for-height/length	30.4	26.8	11.4	28.4
Short stature	8.9	8.5	3.6	8.7
Inappropriate growth/weight gain pattern	1.5	2.1	0.2	1.8
Low birthweight/premature birth	4.7	7.4	1.7	6.2
Other anthropometric risks	< 0.1	0.2	0.0	0.2
Biochemical	11.5	15.4	6.0	13.7
Hematocrit/hemoglobin below FNS criteria	11.4	15.2	6.0	13.5
Other biochemical risks	0.1	0.2	0.0	0.2
Clinical/Health/Medical	8.6	10.1	3.0	9.5
Nutrition-related risk conditions	6.6	8.7	2.8	7.8
Substance abuse	< 0.1	< 0.1	0.0	< 0.1
Other health risks	2.2	1.7	0.3	1.9
Dietary	76.6	71.5	14.4	73.7
Failure to meet DGA	12.3	12.9	3.2	12.6
Inappropriate nutrition practices	65.5	59.2	11.8	62.0

Characteristic	Hispanic/ Latino	Non-Hispanic/ Latino	Ethnicity Not Reported	Total Child Participants
Other Risks	3.6	7.4	94.9	5.8
Regression/Transfer/Presumptive eligibility	1.4	1.4	94.3	1.4
Breastfeeding mother and infant dyad	< 0.1	< 0.1	0.0	< 0.1
Infant of a WIC-eligible mother/mother at risk during pregnancy	0.1	0.3	0.2	0.2
Homelessness/Migrancy	0.6	0.3	1.0	0.4
Other nutritional risks	1.5	5.5	6.1	3.8
No Risk Reported	< 0.1	0.2	2.2	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.9a. Distribution of Pregnant Women With Nutritional Risks by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Pregnant Women Participants
Number of Pregnant Women Participants				
Anthropometric	1,911	546,405	948	549,264
Low weight-for-height/length	42	23,884	49	23,975
High weight-for-height/length	1,468	398,251	822	400,541
Short stature	0	3	0	3
Inappropriate growth/weight gain pattern	1,303	384,537	248	386,088
Other anthropometric risks	0	1	0	1
Biochemical	243	75,271	71	75,585
Hematocrit/hemoglobin below FNS criteria	243	75,224	71	75,538
Other biochemical risks	0	50	0	50
Clinical/Health/Medical	1,205	365,428	676	367,309
Pregnancy-induced conditions	193	55,294	161	55,648
Delivery of low-birthweight/premature infant	132	51,705	47	51,884
Prior stillbirth/fetal/neonatal death	89	38,998	31	39,118
General obstetrical risks	773	189,274	278	190,325
Nutrition-related risk conditions	240	99,659	271	100,170
Substance abuse	131	77,528	28	77,687
Other health risks	57	21,622	58	21,737
Dietary	1,173	275,002	824	276,999
Failure to meet DGA	96	55,103	131	55,330
Inappropriate nutrition practices	1,087	223,200	693	224,980
Other Risks	1,237	63,161	43	64,441
Regression/Transfer/Presumptive eligibility	26	5,944	20	5,990
Breastfeeding mother and infant dyad	11	7,716	0	7,727
Homelessness/Migrancy	1,188	3,038	5	4,231
Other nutritional risks	58	47,567	18	47,643
No Risk Reported	2	410	0	412

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Pregnant Women Participants
		Percent of Pregnant Women Participants		
Anthropometric	77.5	81.4	64.5	81.3
Low weight-for-height/length	1.7	3.6	3.3	3.6
High weight-for-height/length	59.6	59.3	56.0	59.3
Short stature	0.0	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	52.9	57.3	16.9	57.2
Other anthropometric risks	0.0	< 0.1	0.0	< 0.1
Biochemical	9.9	11.2	4.8	11.2
Hematocrit/hemoglobin below FNS criteria	9.9	11.2	4.8	11.2
Other biochemical risks	0.0	< 0.1	0.0	< 0.1
Clinical/Health/Medical	48.9	54.4	46.0	54.4
Pregnancy-induced conditions	7.8	8.2	11.0	8.2
Delivery of low-birthweight/premature infant	5.4	7.7	3.2	7.7
Prior stillbirth/fetal/neonatal death	3.6	5.8	2.1	5.8
General obstetrical risks	31.4	28.2	18.9	28.2
Nutrition-related risk conditions	9.7	14.8	18.4	14.8
Substance abuse	5.3	11.5	1.9	11.5
Other health risks	2.3	3.2	3.9	3.2
Dietary	47.6	41.0	56.1	41.0
Failure to meet DGA	3.9	8.2	8.9	8.2
Inappropriate nutrition practices	44.1	33.2	47.2	33.3
Other Risks	50.2	9.4	2.9	9.5
Regression/Transfer/Presumptive eligibility	1.1	0.9	1.4	0.9
Breastfeeding mother and infant dyad	0.4	1.1	0.0	1.1
Homelessness/Migrancy	48.2	0.5	0.3	0.6
Other nutritional risks	2.4	7.1	1.2	7.1
No Risk Reported	< 0.1	< 0.1	0.0	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.9b. Distribution of Breastfeeding Women With Nutritional Risks by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Breastfeeding Women Participants
		Number of Breastfeeding Women Participants		
Anthropometric	1,835	430,283	1,313	433,431
Low weight-for-height/length	52	17,723	90	17,865
High weight-for-height/length	1,651	351,530	1,086	354,268
Short stature	0	1	0	1
Inappropriate growth/weight gain pattern	737	219,735	628	221,100
Other anthropometric risks	0	7	0	7
Biochemical	1,148	192,060	815	194,023
Hematocrit/hemoglobin below FNS criteria	1,148	192,003	815	193,966
Other biochemical risks	0	122	1	123

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Breastfeeding Women Participants
Clinical/Health/Medical	1,341	332,056	1,214	334,611
Pregnancy-induced conditions	226	58,357	135	58,718
Delivery of low-birthweight/premature infant	274	77,452	257	77,983
Prior stillbirth/fetal/neonatal death	16	5,221	0	5,237
General obstetrical risks	610	129,805	756	131,171
Nutrition-related risk conditions	549	162,628	342	163,519
Substance abuse	33	22,013	15	22,061
Other health risks	53	14,696	69	14,818
Dietary	1,197	227,690	753	229,640
Failure to meet DGA	171	43,906	12	44,089
Inappropriate nutrition practices	1,031	185,950	742	187,723
Other Risks	2,360	304,326	263	306,949
Regression/Transfer/Presumptive eligibility	43	5,090	20	5,153
Breastfeeding mother and infant dyad	1,331	294,589	225	296,145
Homelessness/Migrancy	1,330	1,407	4	2,741
Other nutritional risks	18	11,745	15	11,778
No Risk Reported	2	529	0	531
Percent of Breastfeeding Women Participants				
Anthropometric	64.7	69.0	61.8	69.0
Low weight-for-height/length	1.8	2.8	4.2	2.8
High weight-for-height/length	58.2	56.4	51.1	56.4
Short stature	0.0	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	26.0	35.3	29.6	35.2
Other anthropometric risks	0.0	< 0.1	0.0	< 0.1
Biochemical	40.5	30.8	38.4	30.9
Hematocrit/hemoglobin below FNS criteria	40.5	30.8	38.4	30.9
Other biochemical risks	0.0	< 0.1	< 0.1	< 0.1
Clinical/Health/Medical	47.3	53.3	57.1	53.3
Pregnancy-induced conditions	8.0	9.4	6.4	9.3
Delivery of low-birthweight/premature infant	9.7	12.4	12.1	12.4
Prior stillbirth/fetal/neonatal death	0.6	0.8	0.0	0.8
General obstetrical risks	21.5	20.8	35.6	20.9
Nutrition-related risk conditions	19.3	26.1	16.1	26.0
Substance abuse	1.2	3.5	0.7	3.5
Other health risks	1.9	2.4	3.2	2.4
Dietary	42.2	36.5	35.4	36.6
Failure to meet DGA	6.0	7.0	0.6	7.0
Inappropriate nutrition practices	36.3	29.8	34.9	29.9
Other Risks	83.2	48.8	12.4	48.9
Regression/Transfer/Presumptive eligibility	1.5	0.8	0.9	0.8
Breastfeeding mother and infant dyad	46.9	47.3	10.6	47.1
Homelessness/Migrancy	46.9	0.2	0.2	0.4
Other nutritional risks	0.6	1.9	0.7	1.9
No Risk Reported	< 0.1	< 0.1	0.0	< 0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.9c. Distribution of Postpartum Women With Nutritional Risks by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Postpartum Women Participants
Number of Postpartum Women Participants				
Anthropometric	981	363,671	287	364,939
Low weight-for-height/length	21	16,760	14	16,795
High weight-for-height/length	851	292,095	186	293,132
Short stature	0	2	0	2
Inappropriate growth/weight gain pattern	405	187,998	175	188,578
Other anthropometric risks	0	0	0	0
Biochemical	573	184,853	229	185,655
Hematocrit/hemoglobin below FNS criteria	573	184,816	229	185,618
Other biochemical risks	0	59	0	59
Clinical/Health/Medical	790	311,685	294	312,769
Pregnancy-induced conditions	127	48,007	36	48,170
Delivery of low-birthweight/premature infant	159	74,651	101	74,911
Prior stillbirth/fetal/neonatal death	46	13,782	0	13,828
General obstetrical risks	377	116,347	119	116,843
Nutrition-related risk conditions	314	145,540	112	145,966
Substance abuse	57	60,410	43	60,510
Other health risks	14	13,233	25	13,272
Dietary	677	206,343	242	207,262
Failure to meet DGA	75	35,976	15	36,066
Inappropriate nutrition practices	604	172,331	227	173,163
Other Risks	698	57,244	23	57,965
Regression/Transfer/Presumptive eligibility	31	5,187	14	5,232
Breastfeeding mother and infant dyad	17	26,468	0	26,485
Homelessness/Migrancy	648	1,719	1	2,368
Other nutritional risks	25	25,027	8	25,060
No Risk Reported	0	583	0	583
Percent of Postpartum Women Participants				
Anthropometric	65.8	71.0	62.1	71.0
Low weight-for-height/length	1.4	3.3	3.0	3.3
High weight-for-height/length	57.1	57.0	40.3	57.0
Short stature	0.0	< 0.1	0.0	< 0.1
Inappropriate growth/weight gain pattern	27.2	36.7	37.9	36.7
Other anthropometric risks	0.0	0.0	0.0	0.0
Biochemical	38.5	36.1	49.6	36.1
Hematocrit/hemoglobin below FNS criteria	38.5	36.1	49.6	36.1
Other biochemical risks	0.0	< 0.1	0.0	< 0.1
Clinical/Health/Medical	53.0	60.9	63.6	60.8
Pregnancy-induced conditions	8.5	9.4	7.8	9.4
Delivery of low-birthweight/premature infant	10.7	14.6	21.9	14.6
Prior stillbirth/fetal/neonatal death	3.1	2.7	0.0	2.7
General obstetrical risks	25.3	22.7	25.8	22.7
Nutrition-related risk conditions	21.1	28.4	24.2	28.4
Substance abuse	3.8	11.8	9.3	11.8
Other health risks	0.9	2.6	5.4	2.6

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Postpartum Women Participants
Dietary	45.4	40.3	52.4	40.3
Failure to meet DGA	5.0	7.0	3.2	7.0
Inappropriate nutrition practices	40.5	33.7	49.1	33.7
Other Risks	46.8	11.2	5.0	11.3
Regression/Transfer/Presumptive eligibility	2.1	1.0	3.0	1.0
Breastfeeding mother and infant dyad	1.1	5.2	0.0	5.2
Homelessness/Migrancy	43.5	0.3	0.2	0.5
Other nutritional risks	1.7	4.9	1.7	4.9
No Risk Reported	0.0	0.1	0.0	0.1

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.9d. Distribution of Infants With Nutritional Risks by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Infant Participants
Number of Infant Participants				
Anthropometric	2,594	885,895	1,515	890,004
Low weight-for-height/length	435	150,647	718	151,800
High weight-for-height/length	955	349,487	254	350,697
Short stature	523	208,646	237	209,406
Inappropriate growth/weight gain pattern	73	29,329	1	29,403
Low birthweight/premature birth	1,057	361,321	510	362,888
Other anthropometric risks	374	106,823	227	107,424
Biochemical	42	19,449	98	19,589
Hematocrit/hemoglobin below FNS criteria	42	19,386	98	19,526
Other biochemical risks	0	76	2	78
Clinical/Health/Medical	277	100,418	56	100,751
Nutrition-related risk conditions	277	97,166	56	97,499
Substance abuse	0	457	0	457
Other health risks	1	3,392	0	3,393
Dietary	2,104	646,062	847	649,013
Failure to meet DGA	0	125	0	125
Inappropriate nutrition practices	2,104	645,989	847	648,940
Other Risks	5,821	1,506,471	2,845	1,515,137
Regression/Transfer/Presumptive eligibility	153	25,416	70	25,639
Breastfeeding mother and infant dyad	1,849	263,577	82	265,509
Infant of a WIC-eligible mother/mother at risk during pregnancy	4,177	1,397,803	2,744	1,404,724
Homelessness/Migrancy	2,883	4,529	6	7,418
Other nutritional risks	68	75,642	36	75,746
No Risk Reported	4	3,008	0	3,012

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Infant Participants
	Percent of Infant Participants			
Anthropometric	42.4	47.7	44.0	47.6
Low weight-for-height/length	7.1	8.1	20.8	8.1
High weight-for-height/length	15.6	18.8	7.4	18.8
Short stature	8.6	11.2	6.9	11.2
Inappropriate growth/weight gain pattern	1.2	1.6	< 0.1	1.6
Low birthweight/premature birth	17.3	19.4	14.8	19.4
Other anthropometric risks	6.1	5.7	6.6	5.7
Biochemical	0.7	1.0	2.8	1.0
Hematocrit/hemoglobin below FNS criteria	0.7	1.0	2.8	1.0
Other biochemical risks	0.0	< 0.1	< 0.1	< 0.1
Clinical/Health/Medical	4.5	5.4	1.6	5.4
Nutrition-related risk conditions	4.5	5.2	1.6	5.2
Substance abuse	0.0	< 0.1	0.0	< 0.1
Other health risks	< 0.1	0.2	0.0	0.2
Dietary	34.4	34.8	24.6	34.7
Failure to meet DGA	0.0	< 0.1	0.0	< 0.1
Inappropriate nutrition practices	34.4	34.8	24.6	34.7
Other Risks	95.2	81.0	82.6	81.1
Regression/Transfer/Presumptive eligibility	2.5	1.4	2.0	1.4
Breastfeeding mother and infant dyad	30.2	14.2	2.4	14.2
Infant of a WIC-eligible mother/mother at risk during pregnancy	68.3	75.2	79.7	75.2
Homelessness/Migrancy	47.2	0.2	0.2	0.4
Other nutritional risks	1.1	4.1	1.0	4.1
No Risk Reported	< 0.1	0.2	0.0	0.2

Note
State agencies could report up to 10 nutritional risk criteria for each participant.

Table 5.9e. Distribution of Children With Nutritional Risks by Migrant Farmworker Status

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Child Participants
	Number of Child Participants			
Anthropometric	8,363	1,825,194	10,621	1,844,179
Low weight-for-height/length	693	206,369	1,914	208,976
High weight-for-height/length	5,655	1,167,364	6,466	1,179,486
Short stature	1,909	355,785	2,177	359,871
Inappropriate growth/weight gain pattern	430	74,746	150	75,326
Low birthweight/premature birth	779	255,151	945	256,875
Other anthropometric risks	9	6,287	0	6,296
Biochemical	2,063	562,710	2,773	567,546
Hematocrit/hemoglobin below FNS criteria	2,053	557,085	2,695	561,833
Other biochemical risks	14	6,943	90	7,047

Characteristic	Migrant Farmworker	Not Migrant Farmworker	Not Reported	Total Child Participants
Clinical/Health/Medical	1,328	387,046	4,446	392,820
Nutrition-related risk conditions	863	317,282	3,973	322,118
Substance abuse	0	2	0	2
Other health risks	514	78,431	615	79,560
Dietary	12,242	3,025,936	22,258	3,060,435
Failure to meet DGA	647	520,745	2,382	523,774
Inappropriate nutrition practices	11,718	2,541,271	19,927	2,572,916
Other Risks	9,078	230,470	447	239,995
Regression/Transfer/Presumptive eligibility	307	58,761	95	59,163
Breastfeeding mother and infant dyad	1	455	0	456
Infant of a WIC-eligible mother/mother at risk during pregnancy	17	8,806	0	8,823
Homelessness/Migrancy	8,782	9,431	37	18,250
Other nutritional risks	156	155,745	316	156,217
No Risk Reported	6	6,402	0	6,408
Percent of Child Participants				
Anthropometric	49.0	44.4	40.5	44.4
Low weight-for-height/length	4.1	5.0	7.3	5.0
High weight-for-height/length	33.2	28.4	24.7	28.4
Short stature	11.2	8.7	8.3	8.7
Inappropriate growth/weight gain pattern	2.5	1.8	0.6	1.8
Low birthweight/premature birth	4.6	6.2	3.6	6.2
Other anthropometric risks	< 0.1	0.2	0.0	0.2
Biochemical	12.1	13.7	10.6	13.7
Hematocrit/hemoglobin below FNS criteria	12.0	13.6	10.3	13.5
Other biochemical risks	< 0.1	0.2	0.3	0.2
Clinical/Health/Medical	7.8	9.4	17.0	9.5
Nutrition-related risk conditions	5.1	7.7	15.2	7.8
Substance abuse	0.0	< 0.1	0.0	< 0.1
Other health risks	3.0	1.9	2.3	1.9
Dietary	71.8	73.6	84.9	73.7
Failure to meet DGA	3.8	12.7	9.1	12.6
Inappropriate nutrition practices	68.7	61.9	76.0	62.0
Other Risks	53.2	5.6	1.7	5.8
Regression/Transfer/Presumptive eligibility	1.8	1.4	0.4	1.4
Breastfeeding mother and infant dyad	< 0.1	< 0.1	0.0	< 0.1
Infant of a WIC-eligible mother/mother at risk during pregnancy	< 0.1	0.2	0.0	0.2
Homelessness/Migrancy	51.5	0.2	0.1	0.4
Other nutritional risks	0.9	3.8	1.2	3.8
No Risk Reported	< 0.1	0.2	0.0	0.2

Note
State agencies could report up to 10 nutritional criteria for each participant.

Chapter 6. Anthropometric Status

Participants' weights and heights (or lengths) are measured and recorded during the eligibility determination process and may be used to determine anthropometric nutritional risks. FNS first implemented national standards to categorize anthropometric status in 1999. WHO growth standards are currently used to assess weight and length for infants and 1-year-old children (WHO, 2006); CDC growth charts are used to assess weight and height for 2- to 4-year-old children (Kuczmarski et al., 2002); and BMI calculations are used for women. This chapter describes measurement data, typically reported in categories that correspond to certain nutritional risks. For information on assigned anthropometric nutritional risks, see chapter 5.

Weight and height/length data were reported for more than 97 percent of infants, children, and breastfeeding and postpartum women (see table 6.1). Table 6.2 provides an overview of the distribution of participants who met the criteria associated with certain nutritional risks among those with reported data. Height and weight data for pregnant women are not included. Anthropometric nutritional risks for pregnant women are based on prepregnancy weight or weight changes during pregnancy; neither of these variables is included in the MDS.[54]

Section A through D of this chapter describe the anthropometric statuses of infants, 1-year-old children, 2- to 4-year-old children, and women, respectively. The tables in this chapter provide data as of the age at measurement rather than the age at certification. For this reason, the total numbers of infants and children by year of age vary from the totals presented in chapter 3.[55]

Table 6.1. Distribution of Presence of Anthropometric Data by Participant Category

Characteristic	Measurement Data Present	Measurement Data Missing	Total Participants
Number of Participants			
Total breastfeeding women participants	616,885	11,267	628,152
Total postpartum women participants	501,942	12,067	514,009
Total infant participants	2,020,233	46,591	2,066,824
Total 1-year-old child participants	1,343,747	23,238	1,366,985
Total 2- to 4-year-old child participants	2,538,767	41,686	2,580,453
Percent of Participants			
Total breastfeeding women participants	98.2	1.8	100.0
Total postpartum women participants	97.7	2.3	100.0
Total infant participants	97.7	2.3	100.0
Total 1-year-old child participants	98.3	1.7	100.0
Total 2- to 4-year-old child participants	98.4	1.6	100.0

Notes
Percents may not add to 100.0 because of rounding.
The WHO growth charts for infants assume a full-term pregnancy (37–42 weeks). Because many infants are certified soon after birth and measured at the time of certification (28.1 percent were measured for WIC within 1 week of birth, and 65.0 percent were measured within 1 month of birth), the lengths and weights of premature infants may be considered biologically implausible values. Such values are included in the "Measurement Data Missing" category.

[54] See appendix table C.15 for prepregnancy BMI for pregnant women in State agencies that submitted SDS data. See appendix tables C.16 and C.17 for weight gain during pregnancy for breastfeeding and postpartum women in State agencies that submitted SDS data.
[55] Appendix tables A.18–A.28, containing historical anthropometric data, were developed with the same methodology as the analyses presented in this report (see chapter 2 for more details).

Table 6.2. Distribution of Participants Meeting FNS-Issued Risk Criteria for Selected Anthropometric Measures Among Participants Reporting Data

Characteristic	Number	Percent
Total Participants	7,021,574	100.0
Infants		
Underweight	89,452	4.4
At risk of being underweight	43,629	2.2
High weight-for-length	156,734	7.8
Short stature	243,539	12.1
At risk of short stature	110,790	5.5
1-Year-Old Children		
Underweight	8,461	0.6
At risk of being underweight	8,734	0.6
High weight-for-length	180,309	13.4
Short stature	95,592	7.1
At risk of short stature	62,151	4.6
2- to 4-Year-Old Children		
Underweight	94,176	3.7
At risk of being underweight	75,901	3.0
Overweight	387,907	15.3
Obese	365,740	14.4
Short stature	103,284	4.1
At risk of short stature	99,192	3.9
Breastfeeding Women		
Underweight	4,692	0.8
Overweight or obese	463,864	75.2
Postpartum Women		
Underweight	4,220	0.8
Overweight or obese	389,118	77.5

Notes

Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).

Anthropometric criteria for children aged 2 or older were calculated using programming code for pediatric anthropometry developed by CDC based on current growth charts (CDC, 2016b).

Infants and 1-year-old children who fall at or below the 2.3rd percentile for weight-for-length meet the FNS-issued criteria for *underweight* for age or length. Infants and 1-year-old children who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of being underweight.* Infants and 1-year-old children who fall at or above the 97.7th percentile for weight-for-length meet the FNS-issued criteria for *high weight-for-length.*

Infants and 1-year-old children who fall at or below the 2.3rd percentile for length-for-age meet the FNS-issued criteria for *short stature.* Infants and 1-year-old children who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of short stature.*

Children aged 2 or older who fall at or below the 5th percentile for BMI are considered *underweight.* Children aged 2 or older who fall above the 5th percentile and at or below the 10th percentile for BMI are considered *at risk of being underweight.* Children aged 2 or older who fall at or above the 85th percentile and below the 95th percentile for BMI are considered *overweight*. Children aged 2 or older who fall at or above the 95th percentile for BMI are considered *obese.*

Children aged 2 or older who fall at or below the 5th percentile for height-for-age are considered to have *short stature.* Children aged 2 or older who fall above the 5th percentile and at or below the 10th percentile for height-for-age are considered *at risk of short stature.*

For women, FNS uses National Heart, Lung, and Blood Institute (1996) definitions of *underweight* as having a BMI less than 18.5 and *overweight* as having a BMI greater than or equal to 25.0.

A. Infants

Since 2014, measurements for infants have been compared with WHO growth standards (WHO, 2006) as required by the anthropometric guidance provided in the May 2011 memorandum issued by FNS (USDA FNS, 2011).[56] These comparisons are used to track growth and identify participants who qualify for certain nutritional risks. Infants are typically measured close to the time of certification; about two-thirds of infants were measured during the 3 months following birth.

1. Weight-for-Length and Weight-for-Age

Weight-for-length percentiles are used to determine whether infants are *underweight* or *at risk of being underweight* or have *high weight-for-length* (see text box for thresholds). Overall, 4.4 percent of infants were *underweight*, with an additional 2.2 percent *at risk of being underweight* (see table 6.3).[57] Among all infants, 7.8 percent had *high weight-for-length*.[58]

WHO Growth Standards Weight-for-Length Thresholds for Infants

Underweight: Below or at 2.3rd percentile

At risk of being underweight: Between 2.3rd and 5th percentile

High weight-for-length: At or above 97.7th percentile

Key findings by race and ethnicity (see table 6.3), State agency (see appendix table B.17), and over time (see appendix table A.18) follow:

- Among infants with race reported, Black infants were the most likely to be *underweight* or *at risk of being underweight*. Black infants were 2.3 percentage points more likely to be *underweight* or *at risk of being underweight* than American Indian infants, who were the least likely to meet these criteria. Hispanic/Latino infants were less likely to be *underweight* or *at risk of being underweight* than non-Hispanic infants.
- Rates of *high weight-for-length* were highest among Pacific Islander infants (10.0 percent). The rate of *high weight-for-length* was 4.0 percentage points lower among Asian infants, who were the least likely to meet these criteria. Hispanic/Latino infants were more likely to have *high weight-for-length* than non-Hispanic/Latino infants.
- The percentage of infants who were *underweight* ranged substantially across the 50 States and the District of Columbia, from less than 1.0 percent in North Dakota to 12.9 percent in Kentucky.
- The rate of *high weight-for-length* among infants ranged across the 50 States and the District of Columbia, from 3.6 percent in Connecticut to 11.2 percent in Hawaii (see figure 6.1).
- The percentage of infants who were either *underweight* or *at risk of being underweight* decreased from 10.6 percent in 1992 to 6.6 percent in 2018, but the percentage who were *high weight-for-length* remained at around 7.5 percent.

No weight-for-age measures are used to determine nutritional risks because weight-for-age percentiles are not part of the FNS nutritional risk criteria. The patterns among racial and ethnic groups were,

[56] Prior to 2014, growth percentiles for infants were calculated using CDC growth charts. Historical data in appendix tables A.18–A.28 provide recalculated measures using WHO growth standards to facilitate analysis of trends over time. The numbers presented in the historical tables differ from the numbers in previous PC reports because of this change from CDC growth charts to WHO growth standards as well as slight changes in the technique for calculating age (see chapter 2 for more information on age calculations).
[57] In comparison, 8.1 percent of infants were assigned the *low weight-for-height/length* nutritional risk.
[58] In comparison, 18.8 percent of infants were assigned the *high weight-for-height/length* nutritional risk.

however, similar to those for *high weight-for-length,* with Pacific Islander infants most frequently above the 97.7th percentile, and Asian infants least frequently above that threshold (see table 6.4).

Figure 6.1. Rates of High Weight-for-Length Among Infants by State

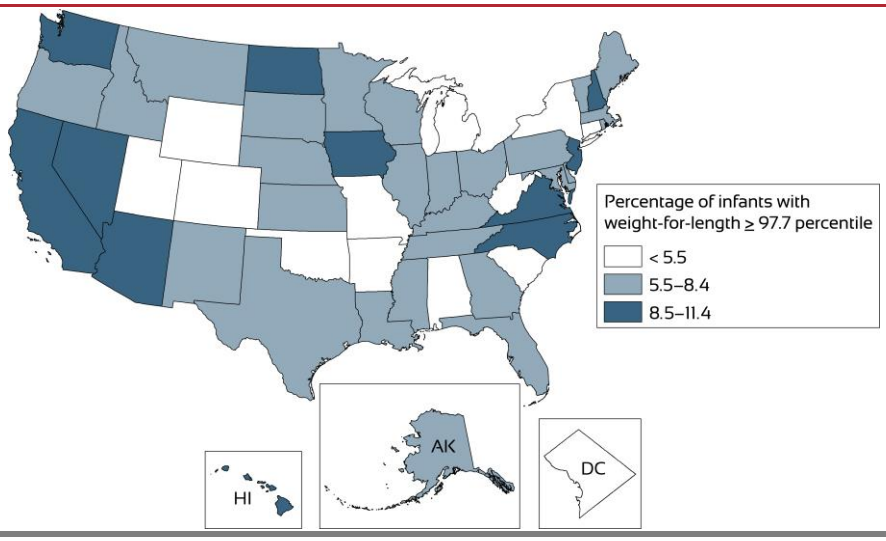


Table 6.3. Distribution of Infants by Weight-for-Length Percentiles

Characteristic	WHO Growth Standards Weight-for-Length Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of Infant Participants							
Total Infant Participants	89,452	133,080	209,304	422,941	260,389	156,734	2,020,233
Race							
American Indian	5,977	8,852	13,868	36,472	23,079	14,476	150,421
Asian	3,889	5,750	9,108	12,133	7,205	4,311	71,291
Black	26,701	38,700	58,888	91,628	56,676	34,669	472,342
Pacific Islander	657	933	1,423	3,688	2,357	1,470	14,632
White	46,541	70,237	112,313	248,215	152,043	90,386	1,168,546
Two or more races	5,611	8,486	13,530	30,409	18,786	11,274	141,136
Race not reported	75	121	175	396	243	148	1,865
Ethnicity							
Hispanic/Latino	29,564	44,107	70,338	188,957	117,999	71,891	797,351
Non-Hispanic/Latino	59,881	88,958	138,939	233,879	142,326	84,803	1,222,422
Ethnicity not reported	7	16	27	105	65	41	460
Percent of Infant Participants							
Total Infant Participants	4.4	6.6	10.4	20.9	12.9	7.8	100.0
Race							
American Indian	4.0	5.9	9.2	24.2	15.3	9.6	100.0
Asian	5.5	8.1	12.8	17.0	10.1	6.0	100.0
Black	5.7	8.2	12.5	19.4	12.0	7.3	100.0
Pacific Islander	4.5	6.4	9.7	25.2	16.1	10.0	100.0
White	4.0	6.0	9.6	21.2	13.0	7.7	100.0
Two or more races	4.0	6.0	9.6	21.5	13.3	8.0	100.0
Race not reported	4.0	6.5	9.4	21.2	13.0	7.9	100.0

Characteristic	WHO Growth Standards Weight-for-Length Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Ethnicity							
Hispanic/Latino	3.7	5.5	8.8	23.7	14.8	9.0	100.0
Non-Hispanic/Latino	4.9	7.3	11.4	19.1	11.6	6.9	100.0
Ethnicity not reported	1.5	3.5	5.9	22.8	14.1	8.9	100.0

Notes
Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).
Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile category includes infants in the ≤ 2.3rd percentile, and the ≥ 95th category includes infants in the ≥ 97.7th percentile.
It is assumed that length for an infant is recumbent length.
Infants who fall at or below the 2.3rd percentile for weight-for-length meet the FNS-issued criteria for *underweight* for age or length. Infants who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of being underweight.* Infants who fall at or above the 97.7th percentile for weight-for-length meet the FNS-issued criteria for *high weight-for-length.*

Table 6.4. Distribution of Infants by Weight-for-Age Percentiles

Characteristic	WHO Growth Standards Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Number of Infant Participants							
Total Infant Participants	154,431	197,327	297,723	196,089	101,946	66,509	2,020,233
Race							
American Indian	7,689	10,071	15,759	19,525	10,627	7,181	150,421
Asian	4,348	5,745	9,356	5,913	2,947	1,880	71,291
Black	49,421	61,739	89,896	39,136	20,723	13,852	472,342
Pacific Islander	877	1,093	1,688	2,208	1,295	880	14,632
White	81,419	105,051	160,418	114,638	58,556	37,652	1,168,546
Two or more races	10,516	13,421	20,295	14,494	7,697	5,000	141,136
Race not reported	161	207	312	176	100	64	1,865
Ethnicity							
Hispanic/Latino	44,986	57,995	90,369	89,735	46,828	30,575	797,351
Non-Hispanic/Latino	109,426	139,299	207,295	106,289	55,081	35,914	1,222,422
Ethnicity not reported	19	33	58	65	37	21	460
Percent of Infant Participants							
Total Infant Participants	7.6	9.8	14.7	9.7	5.0	3.3	100.0
Race							
American Indian	5.1	6.7	10.5	13.0	7.1	4.8	100.0
Asian	6.1	8.1	13.1	8.3	4.1	2.6	100.0
Black	10.5	13.1	19.0	8.3	4.4	2.9	100.0
Pacific Islander	6.0	7.5	11.5	15.1	8.9	6.0	100.0
White	7.0	9.0	13.7	9.8	5.0	3.2	100.0
Two or more races	7.5	9.5	14.4	10.3	5.5	3.5	100.0
Race not reported	8.6	11.1	16.7	9.4	5.4	3.4	100.0

Characteristic	WHO Growth Standards Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Ethnicity							
Hispanic/Latino	5.6	7.3	11.3	11.3	5.9	3.8	100.0
Non-Hispanic/Latino	9.0	11.4	17.0	8.7	4.5	2.9	100.0
Ethnicity not reported	4.1	7.2	12.6	14.1	8.0	4.6	100.0

Notes
Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).
Percentiles reported in this table are cumulative. For example, the < 5th percentile includes infants in the < 3rd percentile, and the ≥ 95th percentile includes infants in the ≥ 97th percentile.

2. Length-for-Age

WHO Growth Standards Length-for-Age Thresholds for Infants

Short stature: Below or at 2.3rd percentile

At risk of short stature: Between 2.3rd and 5th percentile

Infants with very low length-for-age are considered to have *short stature* or to be *at risk of short stature* (see text box for thresholds). Among infants, 12.1 percent had *short stature,* and an additional 5.4 percent were *at risk of short stature* (see table 6.5).[59]

Key findings by race and ethnicity (see table 6.5), State agency (see appendix table B.19), and changes over time (see appendix table A.20) follow:

- American Indian infants were the least likely to have *short stature* (8.7 percent) or to be *at risk of short stature* (4.7 percent). Black infants were most likely to have *short stature* (15.3 percent) or to be *at risk of short stature* (6.0 percent).
- Non-Hispanic/Latino infants were more likely to have *short stature* (13.4 percent) than their Hispanic/Latino counterparts (10.0 percent).
- Across the 50 States and the District of Columbia, rates of *short stature* among infants ranged from 8.1 percent in Alaska to 19.6 percent in Louisiana.
- The percentage of infants who were of *short stature* or *at risk of short stature* was highest at 17.5 percent in 2018 versus a low of 13.4 percent in 1996.

[59] For premature infants, the associated *short stature* and *at risk of short stature* nutritional risks use an adjusted gestational age. However, PC data do not contain an indicator of premature birth or an adjusted gestational age, so the estimates reported here may overstate the true prevalence of *short stature* or being *at risk of short stature.* Many infants were measured for WIC certification shortly after birth (28.1 percent were measured during their first week of life).

Table 6.5. Distribution of Infants by Length-for-Age Percentiles

Characteristic	WHO Growth Standards Length-for-Age Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of Infant Participants							
Total Infant Participants	243,539	354,329	502,038	169,837	104,803	68,068	2,020,233
Race							
American Indian	13,086	20,209	29,764	14,644	9,053	5,880	150,421
Asian	6,617	10,158	15,038	6,931	4,222	2,771	71,291
Black	72,345	100,510	135,905	39,155	24,677	16,256	472,342
Pacific Islander	1,436	2,134	3,046	1,822	1,177	788	14,632
White	132,956	196,398	282,876	95,010	58,115	37,391	1,168,546
Two or more races	16,855	24,568	34,931	12,121	7,459	4,906	141,136
Race not reported	243	353	478	154	99	75	1,865
Ethnicity							
Hispanic/Latino	80,002	121,276	177,210	68,130	41,625	26,630	797,351
Non-Hispanic/Latino	163,480	232,978	324,728	101,656	63,143	41,413	1,222,422
Ethnicity not reported	56	75	99	51	34	25	460
Percent of Infant Participants							
Total Infant Participants	12.1	17.5	24.9	8.4	5.2	3.4	100.0
Race							
American Indian	8.7	13.4	19.8	9.7	6.0	3.9	100.0
Asian	9.3	14.2	21.1	9.7	5.9	3.9	100.0
Black	15.3	21.3	28.8	8.3	5.2	3.4	100.0
Pacific Islander	9.8	14.6	20.8	12.5	8.0	5.4	100.0
White	11.4	16.8	24.2	8.1	5.0	3.2	100.0
Two or more races	11.9	17.4	24.7	8.6	5.3	3.5	100.0
Race not reported	13.0	18.9	25.6	8.3	5.3	4.0	100.0
Ethnicity							
Hispanic/Latino	10.0	15.2	22.2	8.5	5.2	3.3	100.0
Non-Hispanic/Latino	13.4	19.1	26.6	8.3	5.2	3.4	100.0
Ethnicity not reported	12.2	16.3	21.5	11.1	7.4	5.4	100.0

Notes

Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).

Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile category includes infants in the ≤ 2.3rd percentile, and the ≥ 95th category includes infants in the ≥ 97.7th percentile.

Infants who fall at or below the 2.3rd percentile for length-for-age meet the FNS-issued criteria for *short stature*. Infants who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of short stature.*

B. 1-Year-Old Children

Since 2014, measurements for children younger than 2 years have been compared with WHO growth standards (WHO, 2006) as required by the anthropometric guidance provided in the May 2011 memorandum issued by FNS (USDA FNS, 2011).[60] These comparisons are used to track growth and identify participants who qualify for certain nutritional risks.

1. Weight-for-Length and Weight-for-Age

Weight-for-length percentiles are used to determine whether 1-year-old children are *underweight* or *at risk of being underweight* or have *high weight-for-length* (see text box for thresholds). Fewer than 1.0 percent of 1-year-old children were *underweight* (0.6 percent) or *at risk of being underweight* (0.7 percent; see table 6.6).[61] Among all 1-year-old children, 13.4 percent had *high weight-for-length*.[62]

WHO Growth Standards Weight-for-Length Thresholds for 1-Year-Old Children

Underweight: Below or at 2.3rd percentile

At risk of being underweight: Between 2.3rd and 5th percentile

High weight-for-length: At or above 97.7th percentile

Key findings by race and ethnicity (see table 6.6), State agency (see appendix table B.20), and over time (see appendix table A.21) follow:

- Asian 1-year-old children were the most likely to be *underweight* (1.1 percent) or *at risk of being underweight* (1.2 percent). Hispanic/Latino infants and 1-year-old children were less likely to be *underweight* or *at risk of being underweight* than non-Hispanic/Latino infants and 1-year-old children.
- The rate of *high weight-for-length* assignment was highest among American Indian 1-year-old children (15.1 percent), which was 7.4 percentage points more than among Asian 1-year-old children. Hispanic/Latino 1-year-old children were more likely to have *high weight-for-length* than non-Hispanic/Latino infants and 1-year-old children.
- The percentage of 1-year-old children who were *underweight* was less than 1.0 percent in 45 States; it was highest in Oklahoma at 5.3 percent.
- Among 1-year-old children, the rate of *high weight-for-length* ranged from 7.3 percent in Utah to 17.5 percent in North Dakota (see figure 6.2).
- The percentage of 1-year-old children who were *underweight* or *at risk of being underweight* was less than 1.7 percent from 1992 to 2018. The rate of *high weight-for-length* among 1-year-old children increased from 12.4 percent in 1992 to 16.1 percent in 2004 but then decreased to 13.4 percent by 2018.

No weight-for-age measures are used to determine nutritional risks because weight-for-age percentiles are not part of the FNS nutritional risk criteria. The patterns among racial and ethnic groups were,

[60] Prior to 2014, growth percentiles for 1-year-old children were calculated using CDC growth charts. The historical tables in appendix A provide recalculated measures using WHO growth standards to facilitate analysis of trends over time. The numbers presented in the historical tables differ from the numbers in previous PC reports because of this change from CDC growth charts to WHO growth standards as well as slight changes in the technique for calculating age (see chapter 2 for more information on age calculations).
[61] In comparison, 1.6 percent of 1-year-old children were assigned the *low weight-for-height/length* nutritional risk.
[62] In comparison, 19.8 percent of 1-year-old children were assigned the *high weight-for-height/length* nutritional risk.

however, similar to those for *high weight-for-length,* with Pacific Islander 1-year-old children most frequently above the 97.7th percentile, and Asian 1-year-old children least frequently above that threshold (see table 6.7).

Figure 6.2. Rates of High Weight-for-Length Among 1-Year-Old Children by State

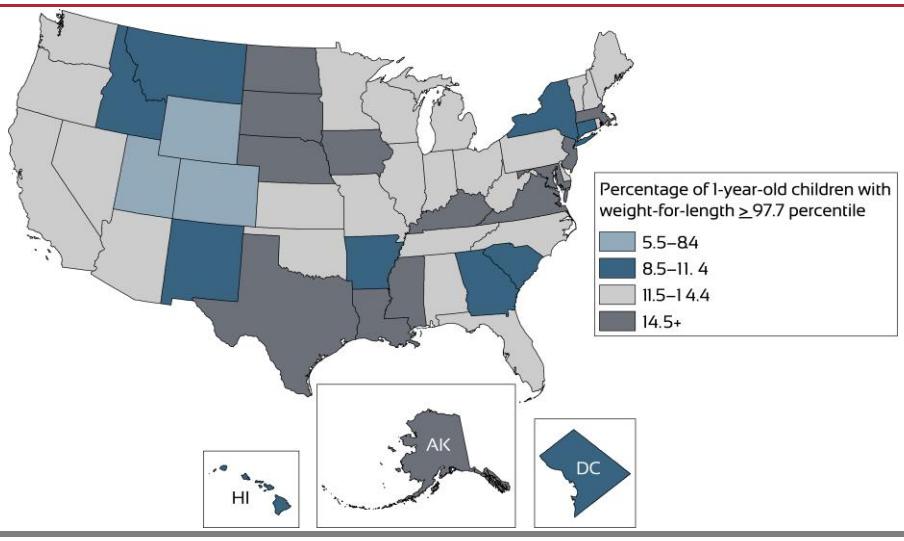


Table 6.6. Distribution of 1-Year-Old Children by Weight-for-Length Percentiles

Characteristic	WHO Growth Standards Weight-for-Length Percentiles							
	≤ 2.3	≤ 5	≤ 10	≥ 85	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of 1-Year-Old Child Participants								
Total 1-Year-Old Child Participants	8,461	17,196	35,879	549,588	433,211	286,891	180,309	1,343,747
Race								
American Indian	729	1,516	2,999	48,485	38,814	26,497	17,097	112,918
Asian	576	1,187	2,545	14,619	10,900	6,700	3,930	50,803
Black	2,356	4,865	9,920	106,830	83,691	55,394	34,996	282,492
Pacific Islander	82	145	289	4,828	3,836	2,562	1,588	10,952
White	4,146	8,287	17,651	335,867	265,151	175,238	109,796	792,767
Two or more races	563	1,182	2,449	38,775	30,682	20,402	12,846	93,324
Race not reported	9	13	25	184	135	96	55	490
Ethnicity								
Hispanic/Latino	2,880	5,859	12,295	245,659	195,599	131,114	83,581	563,419
Non-Hispanic/Latino	5,581	11,336	23,580	303,893	237,584	155,758	96,716	780,239
Ethnicity not reported	1	1	4	35	27	18	12	89
Percent of 1-Year-Old Child Participants								
Total 1-Year-Old Child Participants	0.6	1.3	2.7	40.9	32.2	21.4	13.4	100.0
Race								
American Indian	0.6	1.3	2.7	42.9	34.4	23.5	15.1	100.0
Asian	1.1	2.3	5.0	28.8	21.5	13.2	7.7	100.0
Black	0.8	1.7	3.5	37.8	29.6	19.6	12.4	100.0
Pacific Islander	0.7	1.3	2.6	44.1	35.0	23.4	14.5	100.0
White	0.5	1.0	2.2	42.4	33.4	22.1	13.8	100.0
Two or more races	0.6	1.3	2.6	41.5	32.9	21.9	13.8	100.0
Race not reported	1.9	2.7	5.1	37.5	27.6	19.7	11.3	100.0

Characteristic	WHO Growth Standards Weight-for-Length Percentiles							
	≤ 2.3	≤ 5	≤ 10	≥ 85	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Ethnicity								
Hispanic/Latino	0.5	1.0	2.2	43.6	34.7	23.3	14.8	100.0
Non-Hispanic/Latino	0.7	1.5	3.0	38.9	30.5	20.0	12.4	100.0
Ethnicity not reported	1.1	1.1	4.5	39.3	30.3	20.2	13.5	100.0

Notes
Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).
Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile includes children in the ≤ 2.3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97.7th percentile.
One-year-old children who fall at or below the 2.3rd percentile for weight-for-length meet the FNS-issued criteria for *underweight* for age or length. One-year-old children who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of being underweight.* One-year-old children who fall at or above the 97.7th percentile for weight-for-length meet the FNS-issued criteria for *high weight-for-length.*

Table 6.7. Distribution of 1-Year-Old Children by Weight-for-Age Percentiles

Characteristic	WHO Growth Standards Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Number of 1-Year-Old Child Participants							
Total 1-Year-Old Child Participants	20,406	32,183	63,870	292,908	178,011	124,969	1,343,747
Race							
American Indian	1,400	2,230	4,596	27,110	16,849	12,034	112,918
Asian	1,128	1,825	3,650	7,771	4,503	3,083	50,803
Black	5,106	7,825	14,949	62,204	38,280	26,999	282,492
Pacific Islander	172	275	530	2,846	1,844	1,306	10,952
White	11,184	17,836	35,793	171,449	103,289	72,239	792,767
Two or more races	1,394	2,167	4,314	21,424	13,185	9,260	93,324
Race not reported	21	24	37	103	61	48	490
Ethnicity							
Hispanic/Latino	6,779	11,011	22,688	129,473	79,404	56,450	563,419
Non-Hispanic/Latino	13,625	21,169	41,178	163,411	98,594	68,510	780,239
Ethnicity not reported	2	2	4	24	13	10	89
Percent of 1-Year-Old Child Participants							
Total 1-Year-Old Child Participants	1.5	2.4	4.8	21.8	13.2	9.3	100.0
Race							
American Indian	1.2	2.0	4.1	24.0	14.9	10.7	100.0
Asian	2.2	3.6	7.2	15.3	8.9	6.1	100.0
Black	1.8	2.8	5.3	22.0	13.6	9.6	100.0
Pacific Islander	1.6	2.5	4.8	26.0	16.8	11.9	100.0
White	1.4	2.2	4.5	21.6	13.0	9.1	100.0
Two or more races	1.5	2.3	4.6	23.0	14.1	9.9	100.0
Race not reported	4.3	4.9	7.6	21.1	12.5	9.8	100.0

Characteristic	WHO Growth Standards Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Ethnicity							
Hispanic/Latino	1.2	2.0	4.0	23.0	14.1	10.0	100.0
Non-Hispanic/Latino	1.7	2.7	5.3	20.9	12.6	8.8	100.0
Ethnicity not reported	2.2	2.2	4.5	27.0	14.6	11.2	100.0

Notes
Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).
Percentiles reported in this table are cumulative. For example, the < 5th percentile includes children in the < 3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97th percentile

2. Length-for-Age

WHO Growth Standards Length-for-Age Thresholds for 1-Year-Old Children

Short stature: Below or at 2.3rd percentile

At risk of short stature: Between 2.3rd and 5th percentile

1-year-old children with very low length-for-age are considered to have *short stature* or to be *at risk of short stature* (see text box for thresholds). Among 1-year-old children, 7.1 percent had *short stature,* and an additional 4.6 were *at risk of short stature* (see table 6.8).

Key findings by race and ethnicity (see table 6.8), State agency (see appendix table B.22), and changes over time (see appendix table A.23) follow:

- American Indian 1-year-old children were the least likely to have *short stature* (6.1 percent) or to be *at risk of short stature* (4.2 percent). Pacific Islander and White 1-year-old children (both 7.4 percent) were most likely to have *short stature*. White 1-year-old children were most likely to be *at risk of short stature* (4.9 percent).
- Non-Hispanic/Latino 1-year-old children were more likely to have *short stature* (7.4 percent) than their Hispanic/Latino counterparts (6.7 percent).
- Across the 50 States and the District of Columbia, rates of *short stature* among 1-year-old children ranged from 4.3 percent in Connecticut to 14.3 percent in New Mexico.
- The percentage of 1-year-old children who were of *short stature* or *at risk of short stature* was, historically, lowest in 1996 (8.8 percent) and highest in 2018 (11.7 percent).

Table 6.8. Distribution of 1-Year-Old Children by Length-for-Age Percentiles

Characteristic	WHO Growth Standards Length-for-Age Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of 1-Year-Old Child Participants							
Total 1-Year-Old Child Participants	95,592	157,743	252,283	119,989	71,254	47,057	1,343,747
Race							
American Indian	6,867	11,632	19,076	10,795	6,485	4,187	112,918
Asian	3,480	5,863	9,500	4,793	2,968	1,966	50,803
Black	19,412	30,856	48,373	32,878	20,449	13,794	282,492
Pacific Islander	815	1,283	1,976	1,340	832	551	10,952
White	58,764	97,683	156,628	61,270	35,186	22,941	792,767
Two or more races	6,199	10,355	16,630	8,859	5,291	3,584	93,324
Race not reported	56	70	100	54	43	33	490
Ethnicity							
Hispanic/Latino	37,776	63,929	104,448	46,126	26,869	17,508	563,419
Non-Hispanic/Latino	57,810	93,805	147,820	73,847	44,372	29,542	780,239
Ethnicity not reported	6	10	15	16	13	7	89
Percent of 1-Year-Old Child Participants							
Total 1-Year-Old Child Participants	7.1	11.7	18.8	8.9	5.3	3.5	100.0
Race							
American Indian	6.1	10.3	16.9	9.6	5.7	3.7	100.0
Asian	6.9	11.5	18.7	9.4	5.8	3.9	100.0
Black	6.9	10.9	17.1	11.6	7.2	4.9	100.0
Pacific Islander	7.4	11.7	18.0	12.2	7.6	5.0	100.0
White	7.4	12.3	19.8	7.7	4.4	2.9	100.0
Two or more races	6.6	11.1	17.8	9.5	5.7	3.8	100.0
Race not reported	11.5	14.4	20.3	11.0	8.8	6.8	100.0
Ethnicity							
Hispanic/Latino	6.7	11.3	18.5	8.2	4.8	3.1	100.0
Non-Hispanic/Latino	7.4	12.0	18.9	9.5	5.7	3.8	100.0
Ethnicity not reported	6.7	11.2	16.9	18.0	14.6	7.9	100.0

Notes
Anthropometric criteria for infants and 1-year-old children were calculated using programming code for pediatric anthropometry developed by WHO based on WHO Child Growth Standards (CDC, 2016a).
Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile includes children in the ≤ 2.3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97.7th percentile.
One-year-old children who fall at or below the 2.3rd percentile for length-for-age meet the FNS-issued criteria for *short stature.* One-year-old children who fall above the 2.3rd percentile and at or below the 5th percentile are considered *at risk of short stature*.

C. 2- to 4-Year-Old Children

Measurements for children aged 2 and older have historically been compared with the statistical norms in the general population using the CDC growth charts, which are based on standardized distributions developed by CDC's National Center for Health Statistics (NCHS) (Kuczmarski et al., 2002). These comparisons are used to track growth and identify participants who qualify for certain nutritional risks.

1. BMI-for-Age and Weight-for-Age

BMI-for-age percentiles are used to determine whether 2- to 4-year-old children are *underweight*, *at risk of being underweight*, *overweight*, or *obese* (see textbox for thresholds). Overall, 3.7 percent of 2- to 4-year-old children were *underweight*, with an additional 3.0 percent *at risk of being underweight* (see table 6.9).[63] In contrast, being *overweight* and *obese* were much more common conditions among 2- to 4-year-old children. About 30 percent of these children fell into one of these categories; 14.4 percent were *obese*, and an additional 15.3 percent were *overweight*.[64]

CDC Growth Charts BMI-for-Age Thresholds for 2- to 4-Year-Old Children

Underweight: Below or at 5th percentile

At risk of being underweight: Between 5th and 10th percentile

Overweight: Between 85th and 95th percentile

Obese: At or above 95th percentile

Key findings by race and ethnicity (see table 6.9), State agency (see appendix table B.23), and over time (see appendix table A.24) follow:

- Among 2- to 4-year-old children with race reported, Asian children were the most likely to be *underweight* (6.3 percent) or to be *at risk of being underweight* (4.6 percent). Non-Hispanic/Latino 2- to 4-year-old children were more likely to be *underweight* than Hispanic/Latino children (4.3 and 3.0 percent, respectively) and more likely to be *at risk of being underweight* (3.3 and 2.6 percent, respectively).
- Among those with race reported, American Indian children were the most likely to be *overweight* or *obese* (16.3 and 17.7 percent, respectively). Hispanic/Latino children were more likely to be *overweight* or *obese* (16.2 and 17.1 percent, respectively) than non-Hispanic/Latino children (14.6 and 12.2 percent, respectively).
- Rates of being *underweight* and *at risk of being underweight* did not vary substantially by age.
- Rates of being *overweight* or *obese* were highest among older children; 27.6 percent of 2-year-old children were either *overweight* or *obese* in contrast to 30.5 percent of 3-year-old children and 32.1 percent of 4-year-old children.
- The percentage of *underweight* 2- to 4-year-old children was more than three times as great in the District of Columbia (6.9 percent) as it was in Oregon (2.1 percent). The percentage of *overweight* or *obese* 2- to 4-year-old children was nearly 20 percentage points higher in Alaska (38.1 percent) as it was in Utah (20.5 percent; see figure 6.3).
- The percentage of 2- to 4-year-old children who were *overweight* or *obese* increased between 1992 and 2008, peaking at 16.8 percent *overweight* and an additional 15.9 percent *obese* (see figure 6.3). Rates of *overweight* and *obese* then decreased through 2016 but increased in 2018.

Weight-for-age was not used to determine nutritional risk but showed similar patterns to BMI-for-age (see table 6.10).

[63] In comparison, 6.9 percent of 2-year-old children, 7.3 percent of 3-year-old children, and 6.8 percent of 4-year-old children were assigned the *low weight-for-height/length* nutritional risk.

[64] In comparison, 31.4 percent of 2-year-old children, 34.3 percent of 3-year-old children, and 35.8 percent of 4-year-old children were assigned the *high weight-for-height/length* nutritional risk.

Figure 6.3. Rates of Overweight and Obesity Among 2- to 4-Year-Old Children by State

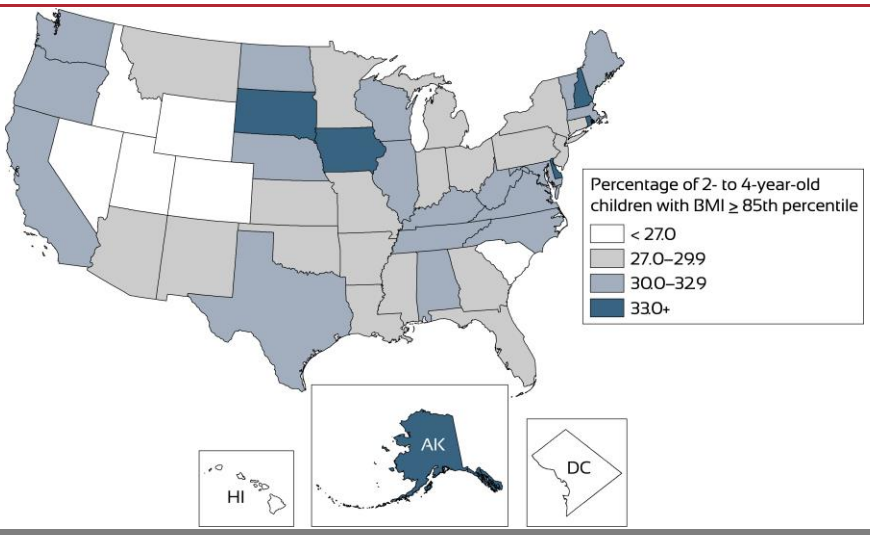


Figure 6.4. Rates of Overweight and Obesity Among 2- to 4-Year-Old Children: 1992–2018

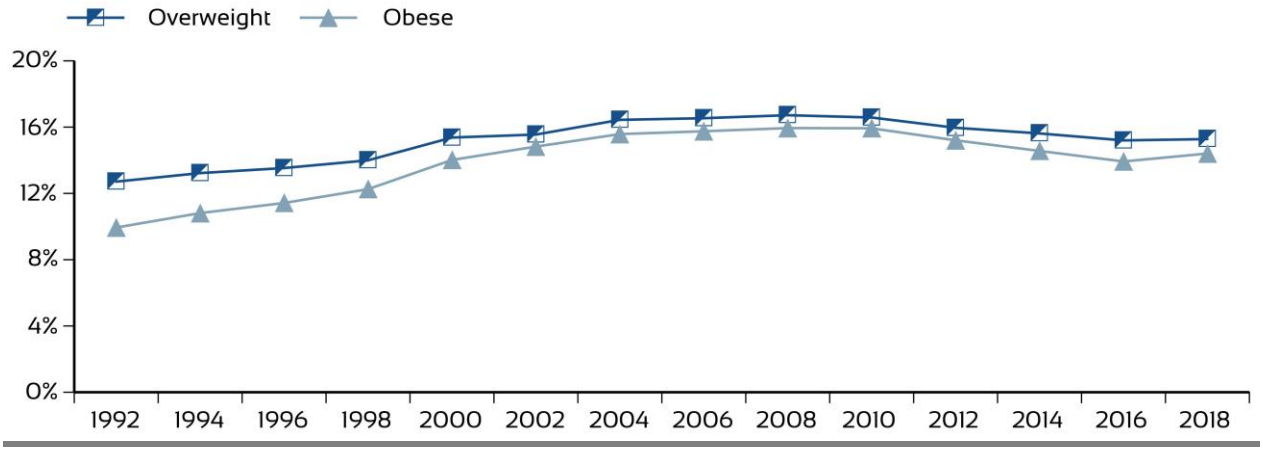


Table 6.9. Distribution of 2- to 4-Year-Old Children by BMI-for-Age Percentiles

Characteristic	CDC Growth Charts BMI Percentiles							
	≤ 2.3	≤ 5	≤ 10	≥ 85	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of 2- to 4-Year-Old Child Participants								
Total 2- to 4-Year-Old Child Participants	54,687	94,176	170,077	753,647	574,520	365,740	233,540	2,538,767
Race								
American Indian	5,728	9,361	16,608	89,741	70,098	46,856	31,175	264,259
Asian	3,792	6,359	11,015	21,798	16,162	10,074	6,384	100,757
Black	15,748	26,314	45,492	126,732	95,022	58,975	36,534	500,964
Pacific Islander	408	705	1,249	7,212	5,579	3,507	2,243	22,310
White	25,465	45,160	84,344	457,458	349,199	222,242	142,008	1,475,866
Two or more races	3,517	6,234	11,295	50,466	38,279	23,969	15,123	173,757
Race not reported	29	43	74	240	181	117	73	853

Characteristic	CDC Growth Charts BMI Percentiles							
	≤ 2.3	≤ 5	≤ 10	≥ 85	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Ethnicity								
Hispanic/Latino	19,356	33,677	62,566	375,488	291,905	193,071	127,826	1,126,709
Non-Hispanic/Latino	35,322	60,484	107,489	378,108	282,577	172,640	105,693	1,411,872
Ethnicity not reported	10	15	22	51	38	29	21	186
Age at Certification								
2 years	21,568	37,712	69,801	284,719	213,021	130,804	79,430	1,031,360
3 years	20,377	35,156	62,936	282,738	217,405	140,691	91,737	927,252
4 years	12,742	21,309	37,340	186,191	144,094	94,245	62,373	580,155
Percent of 2- to 4-Year-Old Child Participants								
Total 2- to 4-Year-Old Child Participants	2.2	3.7	6.7	29.7	22.6	14.4	9.2	100.0
Race								
American Indian	2.2	3.5	6.3	34.0	26.5	17.7	11.8	100.0
Asian	3.8	6.3	10.9	21.6	16.0	10.0	6.3	100.0
Black	3.1	5.3	9.1	25.3	19.0	11.8	7.3	100.0
Pacific Islander	1.8	3.2	5.6	32.3	25.0	15.7	10.1	100.0
White	1.7	3.1	5.7	31.0	23.7	15.1	9.6	100.0
Two or more races	2.0	3.6	6.5	29.0	22.0	13.8	8.7	100.0
Race not reported	3.4	5.1	8.7	28.1	21.3	13.7	8.6	100.0
Ethnicity								
Hispanic/Latino	1.7	3.0	5.6	33.3	25.9	17.1	11.3	100.0
Non-Hispanic/Latino	2.5	4.3	7.6	26.8	20.0	12.2	7.5	100.0
Ethnicity not reported	5.4	8.1	11.8	27.4	20.4	15.6	11.3	100.0
Age at Certification								
2 years	2.1	3.7	6.8	27.6	20.7	12.7	7.7	100.0
3 years	2.2	3.8	6.8	30.5	23.4	15.2	9.9	100.0
4 years	2.2	3.7	6.4	32.1	24.8	16.2	10.8	100.0

Notes

Anthropometric criteria for children aged 2 or older were calculated using programming code for pediatric anthropometry developed by CDC based on current growth charts (CDC, 2016b).

Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile includes children in the ≤ 2.3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97.7th percentile.

Children aged 2 or older who fall at or below the 5th percentile for BMI are considered *underweight.* Children aged 2 or older who fall above the 5th percentile and at or below the 10th percentile for BMI are considered *at risk of being underweight.* Children aged 2 or older who fall at or above the 85th percentile and below the 95th percentile for BMI are considered *overweight*. Children aged 2 or older who fall at or above the 95th percentile for BMI are considered *obese.*

Table 6.10. Distribution of 2- to 4-Year-Old Children by Weight-for-Age Percentiles

Characteristic	CDC Growth Charts Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Number of 2- to 4-Year-Old Child Participants							
Total 2- to 4-Year-Old Child Participants	65,758	98,548	179,873	513,660	326,967	239,812	2,538,767
Race							
American Indian	5,849	8,697	16,247	61,838	41,037	30,985	264,259
Asian	4,468	6,473	11,251	14,820	9,313	6,712	100,757
Black	13,023	19,382	34,746	106,062	66,157	47,616	500,964

Characteristic	CDC Growth Charts Weight-for-Age Percentiles						
	< 3	< 5	< 10	≥ 90	≥ 95	≥ 97	Measurement Data Present
Pacific Islander	757	1,094	1,882	5,287	3,514	2,649	22,310
White	37,257	56,334	103,844	289,802	184,208	135,297	1,475,866
Two or more races	4,380	6,527	11,826	35,680	22,625	16,473	173,757
Race not reported	24	40	77	171	113	80	853
Ethnicity							
Hispanic/Latino	25,548	38,988	73,269	246,210	162,299	121,870	1,126,709
Non-Hispanic/Latino	40,205	59,549	106,589	267,412	164,639	117,921	1,411,872
Ethnicity not reported	5	11	15	38	29	21	186
Age at Certification							
2 years	34,962	51,599	91,512	195,597	124,663	90,597	1,031,360
3 years	19,493	29,627	55,469	197,000	124,508	91,675	927,252
4 years	11,302	17,322	32,892	121,064	77,796	57,539	580,155
	Percent of 2- to 4-Year-Old Child Participants						
Total 2- to 4-Year-Old Child Participants	2.6	3.9	7.1	20.2	12.9	9.4	100.0
Race							
American Indian	2.2	3.3	6.1	23.4	15.5	11.7	100.0
Asian	4.4	6.4	11.2	14.7	9.2	6.7	100.0
Black	2.6	3.9	6.9	21.2	13.2	9.5	100.0
Pacific Islander	3.4	4.9	8.4	23.7	15.8	11.9	100.0
White	2.5	3.8	7.0	19.6	12.5	9.2	100.0
Two or more races	2.5	3.8	6.8	20.5	13.0	9.5	100.0
Race not reported	2.8	4.7	9.1	20.1	13.3	9.4	100.0
Ethnicity							
Hispanic/Latino	2.3	3.5	6.5	21.9	14.4	10.8	100.0
Non-Hispanic/Latino	2.8	4.2	7.5	18.9	11.7	8.4	100.0
Ethnicity not reported	2.7	5.9	8.1	20.4	15.6	11.3	100.0
Age at Certification							
2 years	3.4	5.0	8.9	19.0	12.1	8.8	100.0
3 years	2.1	3.2	6.0	21.2	13.4	9.9	100.0
4 years	1.9	3.0	5.7	20.9	13.4	9.9	100.0

Notes
Anthropometric criteria for children aged 2 or older were calculated using programming code for pediatric anthropometry developed by CDC based on current growth charts (CDC, 2016b).
Percentiles reported in this table are cumulative. For example, the < 5th percentile includes children in the < 3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97th percentile.

2. Height-for-Age

Height-for-age percentiles are used to determine whether 2- to 4-year-old children have *short stature* or are *at risk of short stature* (see text box for thresholds). Among all 2- to 4-year-old children, 4.1 percent were of *short stature*, and an additional 3.9 percent were *at risk of short stature* (see table 6.11).

Key findings by race, ethnicity, and age (see table 6.11); State agency (see appendix table B.25); and over time (see appendix table A.26) follow:

CDC Growth Charts Height-for-Age Thresholds for 2-to-4-Year-Old Children

Short stature: Below or at 5th percentile

At risk of short stature: Between 5th and 10th percentile

- Among children with race reported, Pacific Islander children had the highest rates of *short stature* (6.0 percent), and Asian children had the highest rates of being *at risk of short stature* (4.6 percent). Hispanic/Latino children were about as likely as non-Hispanic/Latino children to have *short stature* or to be *at risk of short stature*.
- Rates of *short stature* were lower among older children than younger children (3.5 percent of 4-year-old children compared with 4.5 percent of 2-year-old children).
- New Mexico had the highest rate of *short stature* (7.7 percent) among 2- to 4-year-old children, which was 2.5 times the rate in South Dakota (3.1 percent).
- The rate of 2- to 4-year-old children with *short stature* or *at risk of short stature* has risen in recent years, from a historical low of 7.2 percent in 2012 to 8.0 percent in 2018.

Table 6.11. Distribution of 2- to 4-Year-Old Children by Height-for-Age Percentiles

Characteristic	CDC Growth Charts Height-for-Age Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Number of 2- to 4-Year-Old Child Participants							
Total 2- to 4-Year-Old Child Participants	52,445	103,284	202,476	341,883	187,316	120,796	2,538,767
Race							
American Indian	4,722	9,322	19,031	37,298	20,541	13,190	264,259
Asian	2,464	4,897	9,571	11,695	6,264	4,010	100,757
Black	8,144	15,522	30,049	97,297	57,095	38,424	500,964
Pacific Islander	724	1,344	2,324	3,657	2,184	1,487	22,310
White	33,035	65,693	128,580	166,907	87,348	54,742	1,475,866
Two or more races	3,338	6,465	12,846	24,910	13,809	8,894	173,757
Race not reported	18	41	76	118	75	49	853
Ethnicity							
Hispanic/Latino	22,592	45,419	91,202	136,512	72,752	45,895	1,126,709
Non-Hispanic/Latino	29,849	57,859	111,260	205,342	114,547	74,889	1,411,872
Ethnicity not reported	3	6	14	29	17	12	186
Age at Certification							
2 years	23,337	46,108	90,491	117,006	61,531	37,992	1,031,360
3 years	18,991	37,070	72,141	130,413	72,074	46,893	927,252
4 years	10,117	20,106	39,844	94,464	53,711	35,912	580,155
Percent of 2- to 4-Year-Old Child Participants							
Total 2- to 4-Year-Old Child Participants	2.1	4.1	8.0	13.5	7.4	4.8	100.0
Race							
American Indian	1.8	3.5	7.2	14.1	7.8	5.0	100.0
Asian	2.4	4.9	9.5	11.6	6.2	4.0	100.0
Black	1.6	3.1	6.0	19.4	11.4	7.7	100.0
Pacific Islander	3.2	6.0	10.4	16.4	9.8	6.7	100.0
White	2.2	4.5	8.7	11.3	5.9	3.7	100.0

Characteristic	CDC Growth Charts Height-for-Age Percentiles						
	≤ 2.3	≤ 5	≤ 10	≥ 90	≥ 95	≥ 97.7	Measurement Data Present
Two or more races	1.9	3.7	7.4	14.3	7.9	5.1	100.0
Race not reported	2.1	4.8	9.0	13.9	8.8	5.8	100.0
Ethnicity							
Hispanic/Latino	2.0	4.0	8.1	12.1	6.5	4.1	100.0
Non-Hispanic/Latino	2.1	4.1	7.9	14.5	8.1	5.3	100.0
Ethnicity not reported	1.6	3.2	7.5	15.6	9.1	6.5	100.0
Age at Certification							
2 years	2.3	4.5	8.8	11.3	6.0	3.7	100.0
3 years	2.0	4.0	7.8	14.1	7.8	5.1	100.0
4 years	1.7	3.5	6.9	16.3	9.3	6.2	100.0

Notes
Anthropometric criteria for children aged 2 or older were calculated using programming code for pediatric anthropometry developed by CDC based on current growth charts (CDC, 2016b).
Percentiles reported in this table are cumulative. For example, the ≤ 5th percentile includes children in the ≤ 2.3rd percentile, and the ≥ 95th percentile includes children in the ≥ 97.7th percentile.
Children aged 2 or older who fall at or below the 5th percentile for height-for-age are considered to have *short stature.* Children aged 2 or older who fall above the 5th percentile and at or below the 10th percentile for height-for-age are considered *at risk of short stature.*

D. Women

Anthropometric risks for women are measured by BMI, which is based on the relationship of weight to height. Nutritional risk criteria for women's BMI are based on the weight status standards set by the National Institutes of Health's National Heart, Lung, and Blood Institute (NIH NHLBI, 1998).

The rates of high BMI reported in this chapter may be higher than the rates of women assigned the nutritional risk of *high weight-for-height*, as reported in chapter 5. When assigning nutritional risk criteria to postpartum and breastfeeding women, WIC clinic staff do not always use the weight obtained during the current certification period. For postpartum women and breastfeeding women 6 or fewer months postpartum, clinic staff use prepregnancy BMI to assign nutritional risk criteria. For breastfeeding women who are 6 or more months postpartum, WIC clinic staff use measurements from the current certification period.

PC data do not contain a date of delivery for breastfeeding and postpartum women, so the exact timing of height and weight measurement is unknown. However, 4.1 percent of breastfeeding women and 9.1 percent of postpartum women had measurement dates preceding their certification; 86.7 percent of breastfeeding women and 89.6 percent of postpartum women were measured within 1 month of certification. This suggests most breastfeeding and postpartum women's measurements were recorded near the time of delivery.

Women with a BMI less than 18.5 are considered *underweight*. This is uncommon among women who have recently given birth; fewer than 1 percent of breastfeeding and postpartum women were *underweight* (see tables 6.12 and 6.13, respectively). Women with a BMI equal to or greater than 25.0 are considered *overweight* or *obese*. More than three-quarters of both breastfeeding and postpartum

women were *overweight* or *obese* (75.2 percent of breastfeeding women and 77.5 percent of postpartum women[65]).

Key findings by race and ethnicity (see tables 6.12 and 6.13), State agency (see appendix tables B.26 and B.27), and over time (see appendix tables A.27 and A.28) follow:

- Pacific Islander women were the most likely to be *overweight* or *obese* (more than 80 percent of both participant categories).
- Hispanic/Latino women were more likely than non-Hispanic/Latino women to be *overweight* or *obese*.
- Across the 50 States and the District of Columbia, in Wyoming, breastfeeding women (67.4 percent) and postpartum women (73.0 percent) were least likely to be *overweight* or *obese*. Breastfeeding women in Texas (79.3 percent) and postpartum women in Alaska (80.1 percent) were most likely to be *overweight* or *obese*.
- The percentage of *overweight* or *obese* breastfeeding and postpartum women has increased since 1992. In both participant categories, about 56 percent of women were *overweight* or *obese* in 1992 compared with about 76 percent in 2018.

Table 6.12. Distribution of Breastfeeding Women by BMI

Characteristic	Underweight	Normal Weight	Overweight	Measurement Data Present
Number of Breastfeeding Women Participants				
Total Breastfeeding Women Participants	4,692	148,328	463,864	616,885
Race				
American Indian	370	12,389	42,610	55,369
Asian	410	12,931	16,964	30,305
Black	877	25,513	97,443	123,833
Pacific Islander	25	1,046	4,533	5,604
White	2,832	91,346	286,306	380,484
Two or more races	177	5,027	15,740	20,944
Race not reported	1	76	269	347
Ethnicity				
Hispanic/Latino	1,534	58,354	213,586	273,474
Non-Hispanic/Latino	3,158	89,961	250,231	343,350
Ethnicity not reported	0	13	47	60
Percent of Breastfeeding Women Participants				
Total Breastfeeding Women Participants	0.8	24.0	75.2	100.0
Race				
American Indian	0.7	22.4	77.0	100.0
Asian	1.4	42.7	56.0	100.0
Black	0.7	20.6	78.7	100.0
Pacific Islander	0.4	18.7	80.9	100.0
White	0.7	24.0	75.2	100.0
Two or more races	0.8	24.0	75.2	100.0
Race not reported	0.3	22.0	77.7	100.0

[65] In comparison, 56.4 percent of breastfeeding women and 57.0 percent of postpartum women were assigned the nutritional risk of *high weight-for-height.*

Characteristic	Underweight	Normal Weight	Overweight	Measurement Data Present
Characteristic	Underweight	Normal Weight	Overweight	Measurement Data Present
Ethnicity				
Hispanic/Latino	0.6	21.3	78.1	100.0
Non-Hispanic/Latino	0.9	26.2	72.9	100.0
Ethnicity not reported	0.0	21.7	78.3	100.0

Notes
Percents may not add to 100.0 because of rounding.
For women, FNS uses NIH NHLBI (1996) definitions of *underweight* as having a BMI less than 18.5 and *overweight* as having a BMI greater than or equal to 25.0.

Table 6.13. Distribution of Postpartum Women by BMI

Characteristic	Underweight	Normal Weight	Overweight or Obese	Measurement Data Present
Number of Postpartum Women Participants				
Total Postpartum Women Participants	4,220	108,604	389,118	501,942
Race				
American Indian	261	6,783	27,397	34,441
Asian	204	6,368	8,689	15,260
Black	1,044	26,621	104,398	132,063
Pacific Islander	27	599	3,311	3,937
White	2,555	64,750	232,379	299,684
Two or more races	123	3,420	12,746	16,289
Race not reported	6	65	198	269
Ethnicity				
Hispanic/Latino	1,035	31,097	125,786	157,918
Non-Hispanic/Latino	3,183	77,500	263,291	343,974
Ethnicity not reported	2	7	42	51
Percent of Postpartum Women Participants				
Total Postpartum Women Participants	0.8	21.6	77.5	100.0
Race				
American Indian	0.8	19.7	79.5	100.0
Asian	1.3	41.7	56.9	100.0
Black	0.8	20.2	79.1	100.0
Pacific Islander	0.7	15.2	84.1	100.0
White	0.9	21.6	77.5	100.0
Two or more races	0.8	21.0	78.3	100.0
Race not reported	2.3	24.1	73.6	100.0
Ethnicity				
Hispanic/Latino	0.7	19.7	79.7	100.0
Non-Hispanic/Latino	0.9	22.5	76.5	100.0
Ethnicity not reported	3.9	13.7	82.4	100.0

Notes
Percents may not add to 100.0 because of rounding.
For women, FNS uses NIH NHLBI (1996) definitions of *underweight* as having a BMI less than 18.5 and *overweight* as having a BMI greater than or equal to 25.0.

Chapter 7. Anemia Status

As part of the nutritional risk assessment, State agencies test (or collect through referral data) the hemoglobin and/or hematocrit levels of participants 9 months of age and older to determine whether they have anemia.[66] Anemia is a condition in which the body has too few red blood cells and is associated with adverse maternal and child outcomes. Red blood cells contain hemoglobin, which carries oxygen throughout the body. Anemia, especially anemia caused by iron deficiency, is relatively common among pregnant women because the volume of blood in the body increases during pregnancy. Infants and very young children are also at risk of anemia caused by iron deficiency, especially infants who are exclusively breastfed or receive formula not fortified with iron, unless they also receive another source of iron such as iron-rich complementary foods at recommended ages. To promote adequate iron intakes, Federal regulations require minimum iron levels for breakfast cereal, infant cereal, and infant formula.

FNS established standard criteria for determining anemia status using hemoglobin and hematocrit test results based on CDC recommendations in 1999 (CDC, 1998). The criteria vary by participant category, trimester of pregnancy, and age of the participant (see table 7.1); participants with test results below the relevant threshold may be deemed at nutritional risk. This chapter describes anemia status as determined by hemoglobin or hematocrit tests rather than assigned nutritional risks for anemia (see chapter 5 for more information on assigned nutritional risks).

Hematological data were reported for 93.5 percent of women and 86.5 percent of children (see table 7.2). The unreported hematologic measures for women reflect, in part, that WIC policy allows participants to complete blood tests within 90 days of certification. The missing hematological data for 2- to 4-year-old children similarly reflect that FNS policy does not require a blood test at recertification among children in this age range who had normal blood test values within the 6 months prior to certification. Because blood tests are not required of infants younger than 9 months of age, anemia levels for infants are not described in this chapter. Hemoglobin tests are much more common than hematocrit tests, with fewer than 3 percent of women and children with blood test data receiving only hematocrit tests (see table 7.3).

Table 7.4 provides an overview of anemia criteria by participant category, trimester of pregnancy, and age. Section A provides addition detail on anemia levels among children. Section B provides anemia level information among women.

Table 7.1. Criteria for Iron-Deficiency Anemia Diagnosis by Participant Category

Participant Category	Hemoglobin Concentration (grams per deciliter)	Hematocrit Level (percentage)
Pregnant Women		
First trimester	≤ 11.0	≤ 33.0
Second trimester	≤ 10.5	≤ 32.0
Third trimester	≤ 11.0	≤ 33.0

[66] State agencies are not required to test for anemia at the time of certification among children who had a blood test that showed normal iron levels in the past year.

Participant Category	Hemoglobin Concentration (grams per deciliter)	Hematocrit Level (percentage)
Breastfeeding Women and Postpartum Women		
Younger than age 15	≤ 11.8	≤ 35.7
15–17 years old	≤ 12.0	≤ 35.9
18 years or older	≤ 12.0	≤ 35.7
Children		
1 year old	≤ 11.0	≤ 32.9
2–4 years old	≤ 11.1	≤ 33.0

Notes
FNS-issued nutritional risk criteria for hemoglobin and hematocrit values are based on CDC recommendations (CDC, 1998). Participants with blood measures below the cutoff values are considered to be at risk.
Hemoglobin values are reported in grams per deciliter. Hematocrit values are reported as percentages. Values are reported for nonsmoking women with no adjustments for altitude. States can choose to use values with adjustments for smoking and altitude.

Table 7.2. Distribution of Participants With Hematological Data Reported by Participant Category

Characteristic	Measurement Data Present	Measurement Data Missing	Total
Number of Participants			
Participant Category			
Pregnant women	631,572	43,655	675,227
Breastfeeding women	584,818	43,334	628,152
Postpartum women	483,626	30,383	514,009
Total women	1,700,016	117,372	1,817,388
Children	3,416,708	531,313	3,948,021
Trimester at Hematological Test Among Pregnant Women			
First trimester	346,302	22,139	368,441
Second trimester	220,031	15,510	235,541
Third trimester	65,238	4,398	69,636
Percent of Participants			
Participant Category			
Pregnant women	93.5	6.5	100.0
Breastfeeding women	93.1	6.9	100.0
Postpartum women	94.1	5.9	100.0
Total women	93.5	6.5	100.0
Children	86.5	13.5	100.0
Trimester at Hematological Test Among Pregnant Women			
First trimester	94.0	6.0	100.0
Second trimester	93.4	6.6	100.0
Third trimester	93.7	6.3	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.3. Distribution of Participants by Hematological Measure

Characteristic	Hemoglobin Measured	Hematocrit Measured	Hemoglobin and Hematocrit Measured	Total With Measurement Data
		Number of Participants		
Participant Category				
Pregnant women	565,566	13,304	52,702	631,572
Breastfeeding women	520,272	19,074	45,472	584,818
Postpartum women	446,929	10,391	26,306	483,626
Total women	1,532,767	42,769	124,480	1,700,016
Children	3,169,308	84,508	162,892	3,416,708
		Percent of Participants		
Participant Category				
Pregnant women	89.5	2.1	8.3	100.0
Breastfeeding women	89.0	3.3	7.8	100.0
Postpartum women	92.4	2.1	5.4	100.0
Total women	90.2	2.5	7.3	100.0
Children	92.8	2.5	4.8	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.4. Distribution of Participants With Hematological Levels Below Standards

Characteristic	Number	Percent
Total Participants	5,116,724	100.0
Participants With Reported Hematologic Measures		
Total women	1,700,016	93.5
Pregnant women	631,572	93.5
Pregnant women in first trimester	346,302	94.0
Pregnant women in second trimester	220,031	93.4
Pregnant women in third trimester	65,238	93.7
Breastfeeding women	584,818	93.1
Postpartum women	483,626	94.1
Total children	3,416,708	86.5
1-year-old children	1,242,019	86.2
2-year-old children	899,076	86.0
3-year-old children	817,123	87.5
4-year-old children	458,491	87.0
Participants Below Standards Among Those With Reported Hematologic Measures		
Total women	471,966	27.8
Pregnant women	70,462	11.2
Pregnant women in first trimester	27,911	8.1
Pregnant women in second trimester	22,871	10.4
Pregnant women in third trimester	19,680	30.2
Breastfeeding women	203,219	34.7
Postpartum women	198,286	41.0

Characteristic	Number	Percent
Total children	499,672	14.6
1-year-old children	225,432	18.2
2-year-old children	137,615	15.3
3-year-old children	93,175	11.4
4-year-old children	43,450	9.5

A. Children

Among children, 14.6 percent were anemic (see table 7.5a).[67] Rates of anemia were highest among younger participants and decreased steadily among older age groups (see tables 7.5b–7.5e). Whereas 18.2 percent of 1-year-old children's hematological tests indicated anemia, 9.5 percent of 4-year-old children were determined to be anemic. Anemia rates for children may be overstated; State agencies are not required to test for anemia at the time of certification among children who had a blood test that showed normal iron levels in the past year.

Key findings by race and ethnicity (see tables 7.5a–7.5d) and over time (see appendix table A.29) follow:

- Black children had the highest levels of anemia across all age groups, whereas American Indian children had the lowest levels of anemia. Among 4-year-old children, Black children were more than three times as likely to have anemia as American Indian children (18.1 and 5.2 percent, respectively).
- Among children with reported ethnicity, non-Hispanic/Latino children had higher levels of anemia than Hispanic/Latino children across all age groups. Overall, rates of anemia were 4.9 percentage points higher among non-Hispanic/Latino children.
- Anemia rates among children have generally increased since 2000, when 12.9 percent of children were anemic, in comparison with 14.6 percent of children in 2018.

Table 7.5a. Distribution of Children by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of Children Participants			
Total Child Participants	2,917,036	499,672	3,416,708
Race			
American Indian	314,796	29,742	344,538
Asian	116,721	16,940	133,662
Black	519,221	164,854	684,075
Pacific Islander	25,473	3,477	28,950
White	1,743,491	252,713	1,996,204
Two or more races	196,442	31,795	228,237
Race not reported	891	152	1,042

[67] In comparison, 13.5 percent of children were assigned the *hematocrit/hemoglobin below FNS criteria* nutritional risk.

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Ethnicity			
Hispanic/Latino	1,356,558	183,553	1,540,111
Non-Hispanic/Latino	1,560,320	316,090	1,876,410
Ethnicity not reported	158	29	187
Percent of Children Participants			
Total Child Participants	85.4	14.6	100.0
Race			
American Indian	91.4	8.6	100.0
Asian	87.3	12.7	100.0
Black	75.9	24.1	100.0
Pacific Islander	88.0	12.0	100.0
White	87.3	12.7	100.0
Two or more races	86.1	13.9	100.0
Race not reported	85.5	14.5	100.0
Ethnicity			
Hispanic/Latino	88.1	11.9	100.0
Non-Hispanic/Latino	83.2	16.8	100.0
Ethnicity not reported	84.5	15.5	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.5b. Distribution of 1-Year-Old Children by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of 1-Year-Old Child Participants			
Total 1-Year-Old Child Participants	1,016,587	225,432	1,242,019
Race			
American Indian	88,205	11,915	100,120
Asian	38,986	6,743	45,729
Black	191,362	70,578	261,939
Pacific Islander	7,792	1,423	9,215
White	622,216	120,355	742,571
Two or more races	67,712	14,356	82,068
Race not reported	314	61	375
Ethnicity			
Hispanic/Latino	448,110	83,008	531,118
Non-Hispanic/Latino	568,425	142,408	710,833
Ethnicity not reported	52	16	68

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Percent of 1-Year-Old Child Participants			
Total 1-Year-Old Child Participants	81.8	18.2	100.0
Race			
American Indian	88.1	11.9	100.0
Asian	85.3	14.7	100.0
Black	73.1	26.9	100.0
Pacific Islander	84.6	15.4	100.0
White	83.8	16.2	100.0
Two or more races	82.5	17.5	100.0
Race not reported	83.7	16.3	100.0
Ethnicity			
Hispanic/Latino	84.4	15.6	100.0
Non-Hispanic/Latino	80.0	20.0	100.0
Ethnicity not reported	76.5	23.5	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.5c. Distribution of 2-Year-Old Children by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of 2-Year-Old Child Participants			
Total 2-Year-Old Child Participants	761,461	137,615	899,076
Race			
American Indian	86,157	8,989	95,146
Asian	31,089	4,902	35,991
Black	131,666	45,715	177,381
Pacific Islander	6,764	988	7,752
White	453,649	68,129	521,778
Two or more races	51,881	8,846	60,727
Race not reported	256	46	302
Ethnicity			
Hispanic/Latino	359,242	50,687	409,929
Non-Hispanic/Latino	402,171	86,923	489,094
Ethnicity not reported	49	4	53
Percent of 2-Year-Old Child Participants			
Total 2-Year-Old Child Participants	84.7	15.3	100.0
Race			
American Indian	90.6	9.4	100.0
Asian	86.4	13.6	100.0
Black	74.2	25.8	100.0
Pacific Islander	87.3	12.7	100.0
White	86.9	13.1	100.0
Two or more races	85.4	14.6	100.0
Race not reported	84.7	15.3	100.0

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Ethnicity			
Hispanic/Latino	87.6	12.4	100.0
Non-Hispanic/Latino	82.2	17.8	100.0
Ethnicity not reported	92.5	7.5	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.5d. Distribution of 3-Year-Old Children by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of 3-Year-Old Child Participants			
Total 3-Year-Old Child Participants	723,947	93,175	817,123
Race			
American Indian	89,054	6,043	95,097
Asian	29,786	3,579	33,365
Black	123,425	32,507	155,932
Pacific Islander	6,746	710	7,456
White	425,697	44,416	470,113
Two or more races	49,047	5,889	54,936
Race not reported	193	31	224
Ethnicity			
Hispanic/Latino	350,654	34,573	385,228
Non-Hispanic/Latino	373,260	58,596	431,856
Ethnicity not reported	33	6	39
Percent of 3-Year-Old Child Participants			
Total 3-Year-Old Child Participants	88.6	11.4	100.0
Race			
American Indian	93.6	6.4	100.0
Asian	89.3	10.7	100.0
Black	79.2	20.8	100.0
Pacific Islander	90.5	9.5	100.0
White	90.6	9.4	100.0
Two or more races	89.3	10.7	100.0
Race not reported	86.1	13.9	100.0
Ethnicity			
Hispanic/Latino	91.0	9.0	100.0
Non-Hispanic/Latino	86.4	13.6	100.0
Ethnicity not reported	84.6	15.4	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.5e. Distribution of 4-Year-Old Children by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of 4-Year-Old Child Participants			
Total 4-Year-Old Child Participants	415,041	43,450	458,491
Race			
American Indian	51,381	2,794	54,175
Asian	16,860	1,716	18,577
Black	72,768	16,054	88,822
Pacific Islander	4,171	356	4,527
White	241,929	19,813	261,742
Two or more races	27,803	2,703	30,506
Race not reported	128	13	141
Ethnicity			
Hispanic/Latino	198,552	15,285	213,837
Non-Hispanic/Latino	216,465	28,162	244,627
Ethnicity not reported	24	3	27
Percent of 4-Year-Old Child Participants			
Total 4-Year-Old Child Participants	90.5	9.5	100.0
Race			
American Indian	94.8	5.2	100.0
Asian	90.8	9.2	100.0
Black	81.9	18.1	100.0
Pacific Islander	92.1	7.9	100.0
White	92.4	7.6	100.0
Two or more races	91.1	8.9	100.0
Race not reported	90.8	9.2	100.0
Ethnicity			
Hispanic/Latino	92.9	7.1	100.0
Non-Hispanic/Latino	88.5	11.5	100.0
Ethnicity not reported	88.9	11.1	100.0

Note
Percents may not add to 100.0 because of rounding.

B. Women

More than one-quarter (27.8 percent) of all women had a test result that classified them as anemic (see table 7.6a). Among pregnant women, rates of anemia were highest among those in the third trimester (30.2 percent) and lowest among those in the first trimester (8.1 percent; see table 7.6b). Levels of anemia were higher after pregnancy, with 34.7 percent of breastfeeding women (see table 7.6c) and 41.0 percent of postpartum women (see table 7.6d) categorized as anemic.[68]

[68] In comparison, 11.2 percent of pregnant women, 30.9 percent of breastfeeding women, and 36.1 percent of postpartum women were assigned the *hematocrit/hemoglobin below FNS criteria* nutritional risk.

Key findings by race and ethnicity (see tables 7.6a–7.6d) and over time (see appendix table A.30) follow:

- Across all participant categories for women, Black women had the highest levels of anemia, including more than half (57.9 percent) of postpartum Black women; this percentage is twice the rate among women overall. American Indian women reported the lowest levels of anemia, with fewer than a third reporting anemia in each participant category.
- Among women with reported ethnicity, non-Hispanic/Latino women had higher levels of anemia than Hispanic/Latino women across all participant categories. This difference was greatest among postpartum women; fewer than half (43.7 percent) of postpartum non-Hispanic/Latino women were anemic, in contrast to about one-third (35.1 percent) of postpartum Hispanic/Latino women.
- Rates of anemia among women have varied over time. In 2000, when national standards were established for anemia as a nutritional risk, 23.5 percent of women were anemic. The rate peaked at 28.4 percent in 2012 before decreasing to the current rate of 27.8 percent.

Table 7.6a. Distribution of Women by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of Women Participants			
Total Women Participants	1,228,049	471,966	1,700,016
Race			
American Indian	110,348	28,905	139,254
Asian	47,474	17,839	65,312
Black	217,981	161,683	379,664
Pacific Islander	10,195	3,855	14,050
White	798,900	245,496	1,044,396
Two or more races	42,355	13,968	56,323
Race not reported	796	221	1,017
Ethnicity			
Hispanic/Latino	490,841	161,800	652,641
Non-Hispanic/Latino	737,104	310,121	1,047,225
Ethnicity not reported	104	46	150
Percent of Women Participants			
Total Women Participants	72.2	27.8	100.0
Race			
American Indian	79.2	20.8	100.0
Asian	72.7	27.3	100.0
Black	57.4	42.6	100.0
Pacific Islander	72.6	27.4	100.0
White	76.5	23.5	100.0
Two or more races	75.2	24.8	100.0
Race not reported	78.3	21.7	100.0
Ethnicity			
Hispanic/Latino	75.2	24.8	100.0
Non-Hispanic/Latino	70.4	29.6	100.0
Ethnicity not reported	69.3	30.7	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.6b. Distribution of Pregnant Women by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of Pregnant Women Participants			
Total Pregnant Women Participants	561,110	70,462	631,572
Trimester at Hematological Test Among Pregnant Women			
First trimester	318,392	27,911	346,302
Second trimester	197,161	22,871	220,031
Third trimester	45,558	19,680	65,238
Race			
American Indian	48,094	3,373	51,467
Asian	19,784	2,123	21,907
Black	104,380	30,635	135,016
Pacific Islander	4,466	538	5,004
White	364,856	31,767	396,623
Two or more races	19,105	1,977	21,082
Race not reported	425	48	473
Ethnicity			
Hispanic/Latino	220,101	20,118	240,219
Non-Hispanic/Latino	340,955	50,337	391,293
Ethnicity not reported	54	6	60
Percent of Pregnant Women Participants			
Total Pregnant Women Participants	88.8	11.2	100.0
Trimester at Hematological Test Among Pregnant Women			
First trimester	91.9	8.1	100.0
Second trimester	89.6	10.4	100.0
Third trimester	69.8	30.2	100.0
Race			
American Indian	93.4	6.6	100.0
Asian	90.3	9.7	100.0
Black	77.3	22.7	100.0
Pacific Islander	89.2	10.8	100.0
White	92.0	8.0	100.0
Two or more races	90.6	9.4	100.0
Race not reported	89.9	10.1	100.0
Ethnicity			
Hispanic/Latino	91.6	8.4	100.0
Non-Hispanic/Latino	87.1	12.9	100.0
Ethnicity not reported	90.0	10.0	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.6c. Distribution of Breastfeeding Women by Anemia Status

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Number of Breastfeeding Women Participants			
Total Breastfeeding Women Participants	381,599	203,219	584,818
Race			
American Indian	38,462	15,371	53,833
Asian	18,530	10,307	28,838
Black	59,798	57,026	116,824
Pacific Islander	3,388	1,924	5,312
White	247,616	112,411	360,027
Two or more races	13,594	6,089	19,683
Race not reported	211	91	302
Ethnicity			
Hispanic/Latino	172,638	88,625	261,262
Non-Hispanic/Latino	208,933	114,573	323,506
Ethnicity not reported	29	21	50
Percent of Breastfeeding Women Participants			
Total Breastfeeding Women Participants	65.3	34.7	100.0
Race			
American Indian	71.4	28.6	100.0
Asian	64.3	35.7	100.0
Black	51.2	48.8	100.0
Pacific Islander	63.8	36.2	100.0
White	68.8	31.2	100.0
Two or more races	69.1	30.9	100.0
Race not reported	69.8	30.2	100.0
Ethnicity			
Hispanic/Latino	66.1	33.9	100.0
Non-Hispanic/Latino	64.6	35.4	100.0
Ethnicity not reported	58.0	42.0	100.0

Note
Percents may not add to 100.0 because of rounding.

Table 7.6d. Distribution of Postpartum Women by Anemia Status

Characteristic	Not Anemic (measure at or above	Anemic (measure below standard)	Total With Measurement Data
Number of Postpartum Women Participants			
Total Postpartum Women Participants	285,340	198,286	483,626
Race			
American Indian	23,792	10,162	33,954
Asian	9,159	5,408	14,567
Black	53,803	74,022	127,825
Pacific Islander	2,341	1,393	3,734
White	186,428	101,318	287,746
Two or more races	9,657	5,902	15,559
Race not reported	159	81	241

Characteristic	Not Anemic (measure at or above standard)	Anemic (measure below standard)	Total With Measurement Data
Ethnicity			
Hispanic/Latino	98,103	53,057	151,160
Non-Hispanic/Latino	187,216	145,210	332,426
Ethnicity not reported	21	19	40
Percent of Postpartum Women Participants			
Total Postpartum Women Participants	59.0	41.0	100.0
Race			
American Indian	70.1	29.9	100.0
Asian	62.9	37.1	100.0
Black	42.1	57.9	100.0
Pacific Islander	62.7	37.3	100.0
White	64.8	35.2	100.0
Two or more races	62.1	37.9	100.0
Race not reported	66.2	33.8	100.0
Ethnicity			
Hispanic/Latino	64.9	35.1	100.0
Non-Hispanic/Latino	56.3	43.7	100.0
Ethnicity not reported	52.5	47.5	100.0

Note
Percents may not add to 100.0 because of rounding.

Chapter 8. Breastfeeding Initiation and Duration

This chapter provides breastfeeding initiation and duration estimates for WIC infants and children. Section A presents breastfeeding initiation rates, and section B describes breastfeeding duration.

Since the passage of the Child Nutrition and WIC Reauthorization Act (Pub. L. 101–147) in 1989, WIC has strengthened its breastfeeding promotion and support efforts. The legislation established a minimum per year for breastfeeding promotion and support expenditures (In FY 2018 State agencies were required to spend an average of $38.76 for each pregnant and breastfeeding woman in addition to monthly administrative and food package costs). State and local agencies developed a range of strategies to increase breastfeeding initiation and duration among participants, which included providing current, accurate breastfeeding information through individual or group education for participants and their families; sponsoring peer-counselor programs and support groups; creating breastfeeding-friendly clinic environments and community partnerships; and providing ongoing staff education and training.

Prior to 1998, State agencies were asked to report breastfeeding information only if their MIS contained the data. National estimates could not be calculated because many State agencies were unable to report this information. By 1998, State agencies had improved their reporting of breastfeeding data significantly, which allowed the calculation of national estimates of breastfeeding initiation. State agencies were asked to collect these data on infants and children aged 6 to 13 months in April of the reference year beginning in 2004. Since then, national estimates of breastfeeding duration have been calculated only when sufficient data were collected (see chapter 2 for more information).

Beginning in 2018, the presentation of PC breastfeeding data has matched that of the national breastfeeding data reported for HHS's Healthy People initiative (HHS, 2019).[69] For this initiative, target breastfeeding rates are established for each decade using trend analysis. For Healthy People 2020, the target breastfeeding rates are based on the data collected through the CDC's NIS, and the baseline breastfeeding rates are from infants born in 2006. Table 8.1 shows the Healthy People 2020 objectives and the baseline and target rates for the breastfeeding measures that correspond to those presented in this chapter.

Table 8.1. Healthy People 2020 Objectives for Breastfeeding Initiation and Duration

Healthy People 2020 Objective	Baseline Rate	Healthy People 2020 Target
Increase the proportion of infants who are ever breastfed[a]	74.0 percent	81.9 percent
Increase the proportion of infants who are breastfed at 6 months[b]	43.5 percent	60.6 percent
Increase the proportion of infants who are breastfed at 12 months[c]	22.7 percent	34.1 percent

Notes
[a] Comparable with breastfeeding initiation (71.8 percent; see tables 8.1 and 8.3)
[b] Comparable with breastfeeding duration at 6 months of age (23.3 percent; see tables 8.1 and 8.4)
[c] Comparable with breastfeeding duration at 12 months of age (13.8 percent; see tables 8.1 and 8.5)
Source: HHS, 2019

[69] See also https://www.healthypeople.gov/

Breastfeeding initiation reporting has generally improved over time. The 2018 estimate of the rate of breastfeeding initiation was based on data from 88 State agencies with sufficient data (see table 8.2). In 2004—the first year data were collected for this population—the breastfeeding initiation estimate was based on data from 67 State agencies with sufficient data (Barlett, Bobronnikov, Pacheco, et al., 2006).

State agencies are asked to provide information on the length of time infants and children were breastfed.[70] Breastfeeding duration rates at 3 and 6 months of age were calculated using data from 85 State agencies with sufficient data. Duration rates at 12 months of age were calculated from 78 State agencies with sufficient data.

Table 8.2. Breastfeeding Data Reporting by State Agency and Number and Percentage of 6- to 13-Month-Old Infants and Children

Characteristic	Number	Percent
Total State Agencies	90	100.0
State agencies that reported initiation data for at least 75.0 percent of 6- to 13-month-old participants	88	97.8
State agencies that reported duration data for at least 75.0 percent of 9- to 13-month-old participants	85	94.4
State agencies that reported duration data for at least 75.0 percent of 12- to 13-month-old participants	78	86.7
Total 6- to 13-Month-Old Infant and Child Participants	1,172,070	100.0
Reported initiation data	1,153,120	98.4
Initiated breastfeeding (among those reporting)	827,679	71.8
Total 9- to 13-Month-Old Infant and Child Participants	670,811	100.0
Reported duration data	642,449	95.8
Breastfeeding at 3 months of age (among those reporting)	212,343	33.1
Breastfeeding at 6 months of age (among those reporting)	149,436	23.3
Total 12- to 13-Month-Old Child Participants	194,404	100.0
Reported duration data	188,648	97.0
Breastfeeding at 12 months of age (among those reporting)	26,091	13.8

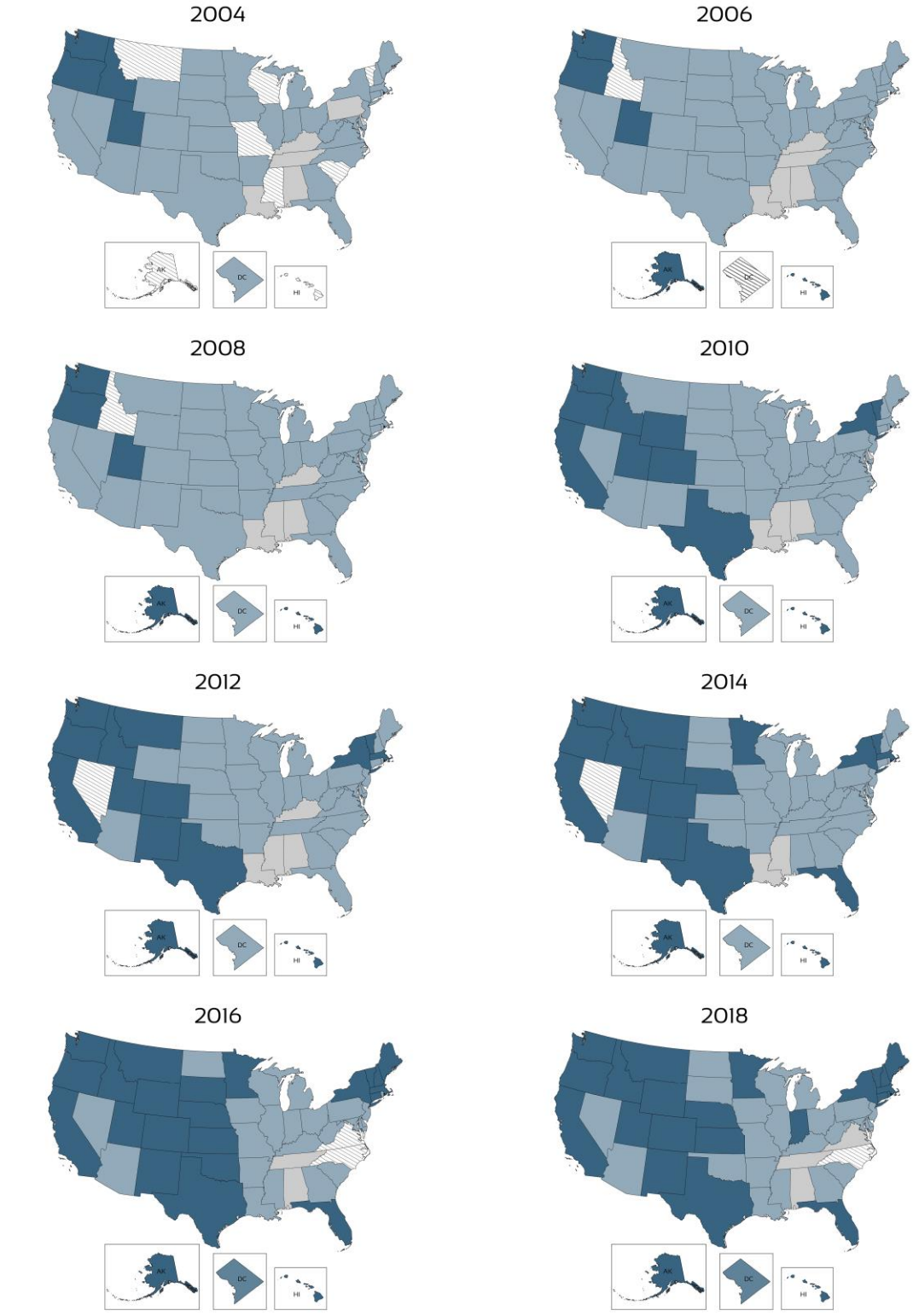
Notes
Eastern Band of Cherokee Indians (NC) and North Carolina were unable to provide initiation data for at least 75.0 percent of 6- to 13-month-old infants and children.
Eastern Band of Cherokee Indians (NC), New Mexico, North Carolina, Oklahoma, and Puerto Rico were unable to provide duration data for at least 75.0 percent of 9- to 13-month-old infants and children.
Eastern Band of Cherokee Indians (NC), Hawaii, Indiana, Inter Tribal Council of Arizona, Kansas, New Hampshire, New Mexico, North Carolina, Oklahoma, Pueblo of Isleta (NM), Puerto Rico, and Texas were unable to provide duration data for at least 75.0 percent of 12- to 13-month-old infants and children.

A. Breastfeeding Initiation Rates

Nearly 72 percent of all 6- to 13-month-old infants and children initiated breastfeeding (i.e., were reported as currently or ever breastfed). This 0.5-percentage-point increase from 2016 continued a trend since 2004 (see figure 8.1 and appendix table A.31).[71]

[70] Breastfeeding duration was counted as missing for the following participants: (1) currently breastfed infants and children for whom the date breastfeeding data were collected was not reported; (2) currently breastfed infants and children who were younger than 22 weeks old on the date the data were collected and whose duration estimates could be substantially underreported; and (3) ever-breastfed infants and children for whom duration was not reported.
[71] Appendix figures A.1 and A.2 provide breastfeeding initiation rates from 1998 to 2018 for 7- to 11-month-old infants by State agency.

Figure 8.1. Breastfeeding Initiation Rates for 6- to 13-Month-Old Infants and Children: 2004–2018



Asian infants and children were the most likely to initiate breastfeeding (79.1 percent), whereas Black infants and children were the least likely (63.1 percent; see table 8.3). This is a 16.0-percentage-point difference in initiation rates. There was a 12.2-percentage-point difference between Hispanic/Latino and non-Hispanic/Latino 6- to-13-month-old infants and children who initiated breastfeeding (79.4 and 67.1 percent, respectively).

Breastfeeding initiation rates varied among the States and the District of Columbia, ranging from 35.3 percent in Tennessee to 89.7 percent in Washington (see appendix table B.28). The median initiation rate across the 50 States and the District of Columbia was 74.5 percent. Whereas 11 State agencies met or exceeded the Healthy People 2020 breastfeeding initiation target (81.9 percent), 26 State agencies exceeded the baseline (74.0 percent; HHS, 2019).

Table 8.3. Breastfeeding Initiation for 6- to 13-Month-Old Infants and Children

Characteristic	Total Participants With Initiation Data	Ever or Currently Breastfed		
		Yes	No	Not Reported
Number of 6- to 13-Month-Old Infant and Child Participants				
Total for State Agencies That Reported Data	1,153,120	827,679	325,442	19,093
Race				
American Indian	84,654	66,112	18,542	1,808
Asian	40,225	31,819	8,406	480
Black	266,643	168,366	98,278	3,219
Pacific Islander	9,042	7,091	1,951	153
White	668,311	493,715	174,596	12,017
Two or more races	82,591	59,754	22,836	1,170
Race not reported	1,654	821	833	246
Ethnicity				
Hispanic/Latino	444,088	352,461	91,626	9,842
Non-Hispanic/Latino	708,239	474,974	233,265	9,208
Ethnicity not reported	793	243	550	43
Percent of 6- to 13-Month-Old Infant and Child Participants				
Total for State Agencies That Reported Data	100.0	71.8	28.2	1.7
Race				
American Indian	100.0	78.1	21.9	2.1
Asian	100.0	79.1	20.9	1.2
Black	100.0	63.1	36.9	1.2
Pacific Islander	100.0	78.4	21.6	1.7
White	100.0	73.9	26.1	1.8
Two or more races	100.0	72.4	27.6	1.4
Race not reported	100.0	49.7	50.3	14.9
Ethnicity				
Hispanic/Latino	100.0	79.4	20.6	2.2
Non-Hispanic/Latino	100.0	67.1	32.9	1.3
Ethnicity not reported	100.0	30.6	69.4	5.4

Notes
Percents may not add to 100.0 because of rounding.
This table includes data for State agencies that reported data on breastfeeding initiation for at least 75.0 percent of all 6- to 13-month-old infants and children. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC) and North Carolina.

B. Breastfeeding Duration

This section describes the proportion of infants and children with reported data (and within certain age groups) who were breastfed at several benchmark ages (3, 6, and 12 months). Because the measures used to report duration are new to this report, and breastfeeding duration data have rarely met the necessary reporting thresholds to estimate national rates, historical comparisons are not provided.

1. Breastfeeding Duration Among 9- to 13-Month-Old Infants and Children

About one-third of 9- to 13-month-old infants and children were breastfed at 3 months of age (33.1 percent), and fewer than one-quarter were breastfed at 6 months of age (23.3 percent; see table 8.4).

The proportion of 9- to 13-month-old infants and children who were breastfed at 3 months and 6 months varied across race and ethnicity in 2018. American Indian, Asian, and Pacific Islander participants had higher rates of breastfeeding at both 3 months and 6 months than participants of other races. Hispanic/Latino participants had higher rates of breastfeeding at 3 months and 6 months than non-Hispanic/Latino participants.

Breastfeeding rates at 3 months of age varied among the States and the District of Columbia, ranging from 11.2 percent in Alabama to 56.3 percent in Washington (see appendix table B.29). Breastfeeding rates at 6 months ranged from 6.5 percent in Alabama to 43.1 percent in Washington.

Table 8.4. Distribution of Infants and Children Breastfeeding at 3 and 6 Months of Age Among 9- to 13-Month-Old Infant and Child Participants as of April 30, 2018

Characteristic	Total Participants With Duration Data	Breastfeeding at 3 Months of Age	Breastfeeding at 6 Months of Age
Number of 9- to 13-Month-Old Infant and Child Participants			
Total for State Agencies That Reported Data	642,449	212,343	149,436
Race			
American Indian	45,979	21,419	15,960
Asian	23,581	11,450	8,485
Black	149,136	39,157	25,672
Pacific Islander	5,193	2,230	1,540
White	371,658	122,809	87,302
Two or more races	46,050	15,066	10,338
Race not reported	852	212	139
Ethnicity			
Hispanic/Latino	241,214	92,120	66,780
Non-Hispanic/Latino	400,753	120,126	82,586
Ethnicity not reported	482	97	70

Characteristic	Total Participants with Duration Data	Breastfeeding at 3 Months of Age	Breastfeeding at 6 Months of Age
Percent of 9- to 13-Month-Old Infant and Child Participants			
Total for State Agencies That Reported Data	100.0	33.1	23.3
Race			
American Indian	100.0	46.6	34.7
Asian	100.0	48.6	36.0
Black	100.0	26.3	17.2
Pacific Islander	100.0	42.9	29.7
White	100.0	33.0	23.5
Two or more races	100.0	32.7	22.4
Race not reported	100.0	24.9	16.3
Ethnicity			
Hispanic/Latino	100.0	38.2	27.7
Non-Hispanic/Latino	100.0	30.0	20.6
Ethnicity not reported	100.0	20.1	14.5

Note
This table includes data for State agencies that reported data on breastfeeding duration for at least 75.0 percent of all 9- to 13-month-old infants and children. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC), New Mexico, North Carolina, Oklahoma, and Puerto Rico.

2. Breastfeeding Duration Among 12- to 13-Month-Old Children

Among 12- to 13-month-old children, 13.8 percent were breastfed at 12 months of age (see table 8.5). American Indian, Asian, and Pacific Islander participants, as well as Hispanic/Latino participants, had higher rates of breastfeeding at 12 months of age than other participants, as was the case for breastfeeding rates at 3 and 6 months of age.

Breastfeeding rates at 12 months of age among the States and the District of Columbia ranged from 3.8 percent in Louisiana to 32.4 percent in Alaska (see appendix table B.30).

Whereas breastfeeding duration rates at 12 months were lower than the Healthy People 2020 breastfeeding duration target (34.1 percent; HHS, 2019) for the States and the District of Columbia, four States—Alaska, California, New Jersey, and Vermont—reported breastfeeding at 12 months at rates that exceeded the Healthy People 2020 national baseline measure (22.7 percent; HHS, 2019).

Table 8.5. Distribution of Children Breastfeeding at 12 Months of Age Among 12- to 13-Month-Old Child Participants as of April 30, 2018

Characteristic	Total Participants With Duration Data	Breastfeeding at 12 Months of Age
Number of 12- to 13-Month-Old Child Participants		
Total for State Agencies That Reported Data	188,648	26,091
Race		
American Indian	15,781	3,653
Asian	7,578	1,484
Black	44,097	3,907
Pacific Islander	1,535	251
White	105,727	14,966
Two or more races	13,789	1,814
Race not reported	141	16
Ethnicity		
Hispanic/Latino	66,776	12,164
Non-Hispanic/Latino	121,789	13,918
Ethnicity not reported	83	9
Percent of 12- to 13-Month-Old Child Participants		
Total for State Agencies That Reported Data	100.0	13.8
Race		
American Indian	100.0	23.1
Asian	100.0	19.6
Black	100.0	8.9
Pacific Islander	100.0	16.4
White	100.0	14.2
Two or more races	100.0	13.2
Race not reported	100.0	11.3
Ethnicity		
Hispanic/Latino	100.0	18.2
Non-Hispanic/Latino	100.0	11.4
Ethnicity not reported	100.0	10.8

Notes

This table includes data for State agencies that reported data on breastfeeding duration for at least 75.0 percent of all 12- to 13-month-old infants and children. Data were excluded for the following State agencies: Eastern Band of Cherokee Indians (NC), Hawaii, Indiana, Inter Tribal Council of Arizona, Kansas, New Hampshire, New Mexico, North Carolina, Oklahoma, Pueblo of Isleta (NM), Puerto Rico, and Texas.

The 12- to 13-month-old children included in this table consist primarily of children who have had a 1-year certification visit.

Chapter 9. Comparison of WIC Population With Overall U.S. Population

This chapter provides several benchmark comparisons between the WIC population and the general U.S. population. U.S. population estimates and 95 percent confidence intervals are drawn from nationally representative samples from multiple surveys; all parameters for the WIC population are from PC2018 data. In each case, the selected surveys provide the most recent available estimates for these measures. The sections that follow describe how the WIC population compares with the U.S. population for the following characteristics: race and ethnicity, poverty status, overweight and obesity among children, anemia among children, and breastfeeding among infants. Differences in collection and reporting between the survey data and PC data are noted in each section.

A. Race and Ethnicity

Table 9.1 shows the race and ethnicity of the overall U.S. population as reported in the 2013–2017 American Community Survey (ACS) in comparison with the WIC population in 2018. The ACS data represented individuals in more than 11 million households. The response categories for reporting race and ethnicity varied between the ACS and PC2018 data in two ways: (1) The ACS allowed respondents to write in "some other race," whereas WIC participants were restricted to specific race categories; and (2) race (0.1 percent) and ethnicity (less than 0.1 percent) were not reported for a very small number of WIC participants.

The distribution of race and ethnicity in the WIC population were statistically significantly different from the distribution in the overall U.S. population. Racial and ethnic minorities were more common in the WIC population than in the overall U.S. population. A smaller percentage of WIC participants were White or Asian, and greater percentages of WIC participants were Black, American Indian, and Hispanic/Latino. The difference in racial and ethnic distribution was particularly great for the American Indian category; 8.5 percent of WIC participants fell into this category compared with less than 1 percent of the U.S. population. This difference likely resulted in part from State agency variations in the reporting of race for Hispanic/Latino participants (see chapters 2 and 3 for more detail).

Table 9.1. Percentages of WIC Participants (2018) and the U.S. Population (2013–2017) by Race and Ethnicity

Characteristics	U.S. Population		WIC Participants
	Estimate	95 Percent Confidence Interval	Population Parameter
Race			
American Indian	0.8	0.7, 0.9	8.9
Asian	5.4	5.3, 5.5	3.8
Black	12.7	12.6, 12.8	21.5
Pacific Islander	0.2	0.1, 0.3	0.8
White	73.0	72.9, 73.1	58.8
Some other race	4.8	4.7, 4.9	N/A
Two or more races	3.1	3.0, 3.2	6.1
Race not reported	N/A	N/A	< 0.1

Characteristics	U.S. Population		WIC Participants
	Estimate	95 Percent Confidence Interval	Population Parameter
Ethnicity			
Hispanic/Latino	17.6	17.5, 17.7	41.3
Non-Hispanic/Latino	82.4	82.3, 82.5	58.6
Ethnicity not reported	N/A	N/A	< 0.1

Notes
N/A = not applicable
Percentages may not add to 100.0, and subtotals may not add to totals, because of rounding.
Source for U.S. population estimates: U.S. Census Bureau, n.d.

B. Poverty Status

Table 9.2 presents data on income as a percentage of the poverty level for the general U.S. population, people in families, and people in families with children younger than 6 (i.e., age-eligible for WIC), alongside WIC participants with reported income in 2018. The U.S. population data were drawn from the 2018 Current Population Survey's Annual Social and Economic Supplement (CPS-ASEC), which reported on income for a nationally representative sample of 179,715 individuals during calendar year 2017.

The measure reported for WIC participants is based on income as a percentage of the Federal Poverty Guidelines issued annually by HHS, which consider household income and size and are used to determine WIC eligibility. In contrast, the measure reported for the overall U.S. population is based on income as a percentage of the Federal poverty thresholds issued annually by the U.S. Census Bureau, which consider household income, size, and age composition. This measure is included in the CPS-ASEC.

Compared with the broader U.S. population, WIC participants were more likely to be in low-income households. Whereas 69.5 percent of WIC participants had income below the Federal Poverty Guidelines, 12.3 percent of the general U.S. population had income below the Federal poverty thresholds. A small percentage of WIC participants (2.1 percent) had income greater than 200 percent of the Federal Poverty Guidelines, which likely resulted in part from the adjunctive eligibility of Medicaid participants in States with higher income thresholds for Medicaid. Among the general population, 70.3 percent had income greater than 200 percent of the Federal poverty thresholds.

Table 9.2. Poverty Status of WIC Participants Who Reported Income (2018) Versus the General U.S. Population (2017)

Percent of Federal Poverty Measure	General U.S. Population		Individuals in U.S. Families		Individuals in U.S. Families With Related Children Younger Than 6		WIC Participants With Reported Income
	Estimate	95 Percent Confidence Interval	Estimate	95 Percent Confidence Interval	Estimate	95 Percent Confidence Interval	Population Parameter
Total *(N)*							
Less than 100	12.3	11.9, 12.7	10.3	9.9, 10.7	17.9	16.7, 19.1	69.5
100–less than 130	5.2	5.0, 5.4	4.8	4.6, 5.0	7.9	7.3, 8.5	14.3
130–less than 150	3.4	3.2, 3.6	3.1	2.9, 3.3	4.0	3.5, 4.5	6.1
150–less than 185	6.0	5.8, 6.2	5.8	5.5, 6.1	7.4	6.8, 8.0	7.2
185-less than 200	2.8	2.4, 3.2	2.5	2.5, 2.5	2.8	1.8, 3.8	0.8
200 or more	70.3	69.8, 70.8	73.5	73.0, 74.0	60.0	58.9, 61.1	2.1

Notes
Percentages may not add to 100.0, and subtotals may not add to totals, because of rounding.
The Federal poverty thresholds issued by the U.S. Census Bureau and used in the analysis of the general U.S. population are based on family income, size, and age composition. The Federal Poverty Guidelines issued by HHS and used in the analysis of the WIC population are based only on family income and size as reported by State agencies. Poverty guideline cutoffs are slightly different from those provided in table 4.6 to be comparable with CPS tabulations.
The CPS poverty thresholds reflect respondents' 2017 income.
Source for U.S. population estimates: DOL BLS, n.d.

C. Overweight and Obesity Among 2- to 4-Year-Old Children

Table 9.3 displays estimates of overweight and obesity among 2- to 4-year-old children in the United States based on data from the National Health and Nutrition Examination Survey (NHANES) 2015–2016 compared with rates of overweight and obesity among child WIC participants in 2018. NHANES estimates are based on a sample of 618 children with anthropometric data from the most recently released wave of microdata. Similar to the PC data collection, the NHANES data collection includes measuring respondents' height and weight rather than relying on self-reported data.

Rates of overweight and obesity were higher among WIC participant children than were estimated for the U.S. population. Whereas 12.2 percent of children in the U.S. population were overweight (but not obese), 15.3 percent of child WIC participants were overweight (but not obese). Similarly, 12.8 percent of children in the U.S. population were obese, and 14.4 percent of child WIC participants were obese. However, the rates for WIC participants fell within the 95 percent confidence interval of the survey estimates.

Table 9.3. Overweight and Obesity Among Child WIC Participants (2018) and Children in the General U.S. Population (2015–2016)

Children 2–4 Years Old	U.S. Population		WIC Participants
	Estimate	95 Percent Confidence Interval	Population Parameter
Overweight	12.2	8.3, 16.1	15.3
Obese	12.8	10.2, 15.4	14.4

Source for U.S. population estimates: CDC NCES, n.d.

D. Anemia Among 1- to 4-Year-Old Children

Table 9.4 presents the prevalence of anemia among 1- to 4-year-old children in the United States based on NHANES 2015–2016 data in comparison with rates of anemia among child WIC participants in 2018. NHANES estimates are based on a sample of 640 children with hematological data from the most recently released wave of microdata. The NHANES data collection includes a measurement of respondents' hemoglobin as part of a complete blood count rather than relying on hemoglobin assessed by other methods (e.g., procedures based on a finger stick sample) or self-reported data. Both sets of estimates exclude children for whom anemia data were missing.[72]

Child WIC participants had statistically significantly higher rates of anemia than children in the general U.S. population. Among 1- to 2-year-old children, 17.0 percent of WIC participants were anemic—a proportion more than 10 percentage points greater than among the general U.S. population (6.9 percent). Both groups of children were less likely to be anemic at 3–4 years of age, although child WIC participants were still more likely to be anemic than children in the general U.S. population (10.7 and 2.7 percent, respectively). Because WIC State agencies may choose not to conduct a blood test for a child if a blood test within the past year showed the child was not anemic, anemia rates may be overstated among the WIC population (see chapter 7 for more detail).

Table 9.4. Anemia Rates Among Child WIC Participants (2018) and Children in the General U.S. Population (2015–2016)

Age Category	U.S. Population		WIC Participants
	Estimate	95 Percent Confidence Interval	Population Parameter
Children			
1–2 years old	6.9	4.3, 9.4	17.0
3–4 years old	2.7	1.1, 4.2	10.7

Source for U.S. population estimates: CDC NCES, n.d.

E. Breastfeeding

Table 9.5 provides data on breastfeeding initiation and the percentage of infants breastfed at 6 months of age from CDC's NIS and PC2018 data. NIS data are collected from a nationally representative sample

[72] NHANES measures of hemoglobin as provided in the public use data set were corrected for white blood cell interference at the time of data collection; elevated white blood cell count may indicate inflammation.

of households with children 19 to 35 months old; data presented here were collected in 2017 for 17,673 infants born in 2015. For both data sources, infants with missing data were excluded from estimates.

Infant WIC participants were statistically significantly less likely to initiate breastfeeding than infants in the overall population; 71.8 percent of infant WIC participants were ever breastfed compared with 83.2 percent of infants in the U.S. population. Similarly, 23.3 percent of infant WIC participants were breastfed at 6 months of age compared with 57.6 percent of infants in the general U.S. population.

Table 9.5. Breastfeeding Initiation Rates and Percentage Breastfed at 6 Months of Age Among Infant WIC Participants (2018) and Infants in the General U.S. Population (2015 Births)

Breastfeeding Measure	U.S. Population		WIC Participants
	Estimate	95 Percent Confidence Interval	Population Parameter
Initiation rate	83.2	82.2, 84.2	71.8
Percent breastfed at 6 months of age	57.6	56.2, 58.9	23.3

Source for U.S. population estimates: CDC, n.d.

Abbreviations and Acronyms

ACS	American Community Survey
BMI	body mass index
CDC	Centers for Disease Control and Prevention
CPS-ASEC	Current Population Survey—Annual Social and Economic Supplement
DGA	Dietary Guidelines for Americans
EBT	electronic benefit transfer
FDPIR	Food Distribution Program on Indian Reservations
FNS	Food and Nutrition Service
HHS	U.S. Department of Health and Human Services
IOM	Institute of Medicine
ITO	Indian Tribal Organization
LAD	Local Agency Directory
MDS	Minimum Data Set
MIS	management information system
NCHS	National Center for Health Statistics
NHANES	National Health and Nutrition Examination Survey
NHLBI	National Heart, Lung, and Blood Institute
NIS	National Immunization Survey
OMB	Office of Management and Budget
PC	participant and program characteristics
RISC	Risk Identification and Selection Collaborative
SDS	Supplemental Data Set
SNAP	Supplemental Nutrition Assistance Program
TANF	Temporary Assistance for Needy Families

USDA	U.S. Department of Agriculture
WHO	World Health Organization
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

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