HEALTHY PEOPLE 2010

Maternal, Infant, and Child Health

CHAPTER 16

Co-Lead Agencies

Centers for Disease Control and Prevention
Health Resources and Services Administration

Contents

GOAL:
Improve the health and well-being of women, infants, children, and families.

⌄

The objectives in this chapter address a wide range of conditions related to the health and quality of life for mothers, infants, and children. These include infant and child deaths, congenital anomalies, pregnancy-related illness, low birth weight and preterm deliveries, prenatal care, breastfeeding, newborn screenings, and availability of medical homes for children with special health care needs.

All Healthy People tracking data quoted in this chapter, along with technical information and Operational Definitions for each objective, can be found in the Healthy People 2010 database, DATA2010, available from http://wonder.cdc.gov/data2010/.

More information about this focus area can be found in the following publications:

❯ *Healthy People 2010: Understanding and Improving Health*, available from http://www.healthypeople.gov/2010/Document/tableofcontents.htm#under.

❯ *Healthy People 2010 Midcourse Review*, available from http://www.healthypeople.gov/2010/data/midcourse/html/default.htm#FocusAreas.

Highlights

❯ Substantial progress was achieved in objectives for this Focus Area during the past decade [1]. Two-thirds (66.7%) of the Maternal, Infant, and Child Health objectives with data to measure progress moved toward or achieved their Healthy People 2010 targets (Figure 16-1). However, health disparities of 100% or more among racial and ethnic population groups, as well as by sex and education level also were observed (Figure 16-2) [2].

❯ The fetal, perinatal, infant, neonatal, and postneonatal mortality rates (objectives 16-1a through e) declined over the decade, moving toward their 2010 targets.

Between 1997 and 2005, the fetal mortality rate (deaths to fetuses of 20 weeks or more gestation per 1,000 live births and fetal deaths, objective 16-1a) decreased 8.8%, from 6.8 to 6.2, moving toward the 2010 target of 4.1. The infant mortality rate (deaths to infants under age 1 year per 1,000 live births, objective 16-1c) declined 6.9% between 1998 and 2006, from 7.2 to 6.7, moving toward the 2010 target of 4.5.

▪ Among racial and ethnic groups, the Asian or Pacific Islander population had the lowest (best) death rates for all of these objectives (16-1a through e). Disparities of 100% or more in all these objectives were observed for the non-Hispanic black population compared with the Asian or Pacific Islander population. For example:

  ▪ In 2005, the fetal mortality rate for the Asian or Pacific Islander population (objective 16-1a) was 4.8 fetal deaths per 1,000 live births plus fetal deaths, whereas the rate for the non-Hispanic black population was 11.1, almost two and a half times that for the Asian or Pacific Islander population [2].

  ▪ Similarly, the infant mortality rate for the Asian or Pacific Islander population (objective 16-1c) was 4.5 per 1,000 live births in 2006, whereas the rate for the non-Hispanic black population was 13.4, about three times that for the Asian or Pacific Islander population [2].

  ▪ The American Indian or Alaska Native population also experienced large disparities in infant (objective 16-1c) and postneonatal mortality rates (objective 16-1e; deaths to infants aged 28 days to under age 1 year per 1,000 live births). In 2006, the American Indian or Alaska Native population had an infant mortality rate of 8.3, almost twice the Asian or Pacific Islander population rate of 4.5. The American Indian or Alaska Native population also had a postneonatal mortality rate of 4.0 per 1,000 live births, almost three times the Asian or Pacific Islander population rate of 1.4. The postneonatal mortality rate for the

non-Hispanic black population (4.4 per 1,000 live births) was more than three times that for the Asian or Pacific Islander population [2].

- Among education groups, infants of mothers aged 20 and over with at least some college education had the lowest (best) postneonatal mortality rate (objective 16-1e), 1.4 postneonatal deaths per 1,000 live births in 2002. Infants whose mothers had less than a high school education had a rate of 3.3 postneonatal deaths per 1,000 live births, almost two and a half times the best group rate [2].

❭ Deaths from sudden infant death syndrome (SIDS; objective 16-1h) among infants under age 1 year declined 17.9% between 1999 and 2006, from 0.67 to 0.55 deaths per 1,000 live births, moving toward the 2010 target of 0.23. The proportion of infants under age 8 months who were placed to sleep on their backs (objective 16-13) increased 105.6% between 1996 and 2009, from 36% to 74%, exceeding the target of 70%. Placing infants to sleep on their backs is considered one of the best ways to reduce risk of SIDS [3].

- Among racial and ethnic groups, the Hispanic or Latino population had the lowest (best) SIDS death rate, 0.27 deaths per 1,000 live births in 2006. The non-Hispanic white population had a SIDS death rate of 0.56 per 1,000 live births, more than twice the best group rate (that for the Hispanic or Latino population); the non-Hispanic black population had a rate of 1.05 per 1,000 live births, almost four times the best rate; and the rate for the American Indian or Alaska Native population was 1.19 per 1,000 live births, almost four and a half times the best group rate [2].

- Among education groups, infants of mothers with at least some college education had the lowest (best) rate of SIDS death in 2002, 0.27 per 1,000 live births. The rate for infants whose mothers were high school graduates was 0.69, about two and a half times the best group rate. The rate for infants whose mothers had less than a high school education was 0.86, more than three times the best rate [2].

❭ Death rates among children and adolescents (objectives 16-2a and b, and 16-3a and b) declined 11% to 21% between 1998 and 2007, moving toward the 2010 targets. Yet the death rate for young adults aged 20–24 (objective 16-3c) increased 6.0%, from 92.7 to 98.3 deaths per 100,000 population, moving away from the 2010 target of 41.5.

- In 2007, among racial and ethnic groups, the Asian or Pacific Islander population had the lowest (best) mortality rates for all age groups, although the rate for children aged 5–9 years (objective 16-2b) did not meet the reliability criterion for the best group rate. Therefore, the non-Hispanic white population was considered to have the best rate for the purpose of racial and ethnic disparity comparisons for this objective; see Figure 16-2 footnotes.

Mortality—Children aged 1–4 years (objective 16-2a)

- The Asian or Pacific Islander population had the lowest (best) mortality rate among children aged 1–4 years, 21.7 deaths per 1,000 population in 2007, whereas the American Indian or Alaska Native and non-Hispanic black populations had rates of 54.9 and 43.7 per 1,000, respectively. The rate for the American Indian or Alaska Native population was about two and a half times the best rate, whereas that for the non-Hispanic black population was about twice the best rate [2].

Mortality—Adolescents aged 10–14 years (objective 16-3a)

- The Asian or Pacific Islander population had the lowest (best) mortality rate among adolescents aged 10–14 years, 12.3 deaths per 100,000 population in 2007. The non-Hispanic black population had a rate of 24.6 per 100,000, twice the best rate [2].

Mortality—Adolescents aged 15–19 years (objective 16-3b)

- In 2007, the Asian or Pacific Islander population had the lowest (best) mortality rate among adolescents aged 15–19 years, 32.7 deaths per 100,000 population, whereas the American Indian or Alaska Native and non-Hispanic black populations had rates of 86.5 and 85.7 deaths per 100,000, respectively, more than two and a half times the best rate [2].

Mortality—Young adults aged 20–24 years (objective 16-3c)

- The Asian or Pacific Islander population had the lowest (best) mortality rates among young adults aged 20–24 years, 41.6 deaths per 100,00 population in 1998 and 53.2 in 2007. The American Indian or Alaska Native population had rates of 127.6 in 1998 and 120.7 in 2007, whereas the non-Hispanic black population had rates of 163.4 in 1998 and 142.2 in 2007.

- In 2007, the rate for the American Indian or Alaska Native population was almost two and a half times the best rate (that for the Asian or Pacific Islander population); and the rate for the non-Hispanic black population was more than two and a half times the best rate [2].

- Between 1998 and 2007, the disparity between

the American Indian or Alaska Native population and the Asian or Pacific Islander population (group with the best rate) decreased 80 percentage points, whereas the disparity between the non-Hispanic black population and the Asian or Pacific Islander population decreased 125 percentage points [4].

Mortality—Females aged 15–19 and 20–24 years (objectives 16-3b and c)

- Females aged 15–19 and 20–24 years had lower (better) death rates than males, 35.7 and 48.4 deaths per 100,000 population, respectively in 2007. The rate for males aged 15–19 years was 86.8 per 100,000, almost two and a half times the rate for females. The rate for males aged 20–24 years was 145.2 per 100,000, three times the rate for females [2].

❯ Cesarean births to low-risk women increased between 1998 and 2007. During this period the proportion of cesarean births to low-risk women who had not had a previous cesarean (objective 16-9a) rose 44.4%, from 18% to 26%, moving away from the 2010 target of 15%. The proportion of repeat cesarean births (objective 16-9b) increased 26.4%, from 72% to 91%, moving away from the 2010 target of 63%.

❯ Between 1998 and 2007, the proportion of live births that were low birth weight (under 2,500 grams, objective 16-10a) and very low birth weight (under 1,500 grams, objective 16-10b) increased 7.9% (from 7.6% to 8.2%) and 7.1% (from 1.4% to 1.5%), respectively, moving away from the 2010 targets of 5.0% and 0.9%.

  - Among racial and ethnic groups, the Hispanic or Latino population had the lowest (best) rate of low birth weight births, 6.9% in 2007. The non-Hispanic black population had a rate of 13.9%, about twice the best rate. The Asian or Pacific Islander population had the lowest (best) rate of very low birth weight births, 1.1%. The rate of very low birth weight births for the non-Hispanic black population was 3.2%, almost three times the best rate [2].

❯ Low birth weight birth rates varied by geographic region. In 2006–08, the proportions of low birth weight infants born in the Southeast and Mountain West were higher than the proportions of low birth weight infants born in the Northwest, Midwest, and Northeast regions of the U.S. A few geographic areas met the 2010 target of 5.0 low birth weight births per 1,000 live births (Figure 16-3).

❯ Between 1998 and 2007, the proportion of preterm live births (less than 37 completed weeks of gestation, objective 16-11a) increased 9.5%, from 11.6% to 12.7%, moving away from the 2010 target of 7.6%.

❯ Preterm live births varied by geographic region. In 2006–08, the proportion of preterm infants born in the Southeast was higher than the proportion of preterm infants born in the Northwest, Midwest, or Northeast regions of the U.S. (Figure 16-4).

❯ The proportion of nonpregnant women aged 15–44 years who consumed at least 400 μg of folic acid (objective 16-16a) increased 14.3% between 1991–94 and 2005–06, from 21% to 24%, moving toward the 2010 target of 80%. The median red blood cell (RBC) folate level (objective 16-16b) among nonpregnant women aged 15–44 years increased 58.2% from 1988–94 to 2005–06, from 158 to 250 ng/ml, exceeding the 2010 target of 220. Between 1996 and 2007, the rate of spina bifida and other neural tube defects (objective 16-15) decreased 20.0%, from 60 to 48 new cases per 100,000 live births, moving toward the 2010 target of 30 per 100,000.

❯ The proportion of mothers who breastfed their infants (objectives 16-19a through e) increased for every category, moving toward the 2010 targets. The largest increase was observed for the proportion of mothers who breastfed their infants at 1 year after birth (objective 16-19c). Between 2000 and 2006, the proportion increased 43.8%, from 16% to 23%, moving toward the 2010 target of 25%.

Summary of Progress

❯ Figure 16-1 presents a quantitative assessment of progress in achieving the Healthy People 2010 objectives for Maternal, Infant, and Child Health [1]. Data to measure progress toward target attainment were available for 42 objectives. Of these:

  - Three objectives (16-13, 16-14c, and 16-16b) exceeded their 2010 targets.

  - Twenty-five objectives moved toward their targets. A statistically significant difference between the baseline and the final data points was observed for 19 of these objectives (16-1a through e; 16-1g and h; 16-2a and b; 16-3a and b; 16-6a and b; 16-17c; and 16-19a through e). No significant differences were observed for 3 objectives (16-4, 16-5a, and 16-21); and data to test the significance of the difference were unavailable for 3 objectives (16-8, 16-15, and 16-16a).

  - Five objectives (16-1f; 16-11c; and 16-17a, b, and d) showed no change.

  - Nine objectives moved away from their targets. A statistically significant difference between the baseline and final data points was observed for seven of these objectives (16-3c; 16-9a and b;

16-10a and b; and 16-11a and b). No significant differences were observed for two objectives (16-14a and b).

❯ Three objectives (16-12, and 16-20a and b) remained developmental [5]. Follow-up data were unavailable to measure progress for four objectives (16-7, 16-18, 16-22, and 16-23). Four objectives (16-5b and c, 16-14d, and 16-20c) were deleted at the Midcourse Review.

❯ Figure 16-2 displays health disparities in Maternal, Infant, and Child Health from the best group rate for each characteristic at the most recent data point [2]. It also displays changes in disparities from baseline to the most recent data point [4].

▪ Thirty-three objectives had statistically significant racial and ethnic health disparities of 10% or more, and four additional objectives had racial and ethnic health disparities of 10% or more, but lacked data to assess statistical significance. Of these 37 objectives, the Asian or Pacific Islander population had the unique best rate for 13 objectives (16-1b through f; 16-2a; 16-3a through c; 16-10b; and 16-11a through c). The non-Hispanic white population had the unique best rate for 11 objectives (16-2b, 16-4, 16-5a, 16-6a and b, 16-7, 16-13, 16-14a, 16-14c, and 16-16a and b). The Asian population had the unique best rate for four objectives (16-19b through e). The Hispanic or Latino population had the unique best rate for three objectives (16-1h, 16-10a, and 16-19a). And the non-Hispanic black and American Indian or Alaska Native population had the unique best rate for one objective each (16-15 and 16-9a, respectively). The non-Hispanic white and Hispanic or Latino populations both had the best rate for two objectives (16-1g and 16-18). The Asian or Pacific Islander and non-Hispanic white populations both had the best rate for one objective (16-1a). And the Asian or Pacific Islander and Hispanic or Latino populations both had the best rate for one objective (16-17c).

▪ Twelve objectives had statistically significant health disparities of 10% or more by sex. Females had better rates for 11 of these 12 objectives (16-1b through 1e; 16-1h; 16-2a and b; 16-3a through c; and 16-14a). Males had the better rate for the remaining objective (16-10a).

▪ Twenty-three objectives had statistically significant health disparities of 10% or more by education level (16-1a through h; 16-4; 16-6a and b; 16-10a and b; 16-11a through c; 16-16a and b; 16-17c; and 16-19a through d), and one additional objective (16-7) had a health disparity of 10% or more by education level but lacked data to assess statistical significance. Persons with at least some college education had the best rate for each of these 24 objectives.

▪ Persons without disabilities had a better rate for the one objective (16-16a) with statistically significant health disparities of 10% or more by disability status.

▪ Twenty objectives had racial and ethnic health disparities of 100% or more. Three objectives had health disparities of 100% or more by sex, and six objectives had health disparities of 100% or more by education level. Changes in disparity between the baseline and most recent points were observed for several objectives. Many of these disparities were discussed in the Highlights, above.

Transition to Healthy People 2020

For Healthy People 2020, the Maternal, Infant, and Child Health Topic Area continues to address a wide range of conditions, health behaviors, and health systems indicators that affect the health, wellness, and quality of life of women, infants, children, and families. See HealthyPeople.gov for a complete list of Healthy People 2020 topics and objectives.

The Healthy People 2020 Maternal, Infant, and Child Health objectives can be grouped into seven sections:

❯ Morbidity and mortality

❯ Pregnancy health and behaviors

❯ Preconception health behaviors

❯ Postpartum health and behaviors

❯ Infant care

❯ Disability and other impairments

❯ Health services.

The transition from Healthy People 2010 to Healthy People 2020 objectives is summarized below:

❯ The Healthy People 2020 Maternal, Infant, and Child Health Topic Area has 71 objectives, 10 of which are developmental, whereas the Healthy People 2010 Focus Area had 53 objectives, 3 of which were developmental [5].

❯ Thirty Healthy People 2010 objectives, including 13 mortality objectives (16-1a through h; 16-2a and b; and 16-3a through c), 5 morbidity objectives (16-5a, 16-10a and b, and 16-11a and c), 5 breastfeeding objectives (16-19a through e), 3 obstetrical/infant care objectives (16-9a and b, and 16-22), 1 folic acid

intake objective (16-16a), 2 objectives on abstinence from illicit drugs and alcohol during pregnancy (objectives 16-17a and d), and 1 objective on very low birth weight infants born at level III facilities (objective 16-8) were retained "as is" [6].

❯ One Healthy People 2010 objective (16-14a), children diagnosed with mental retardation, was archived [7].

❯ Four Healthy People 2010 objectives were deleted at the Midcourse Review due to lack of a national data source. These objectives include: hospitalization for ectopic pregnancies (objective 16-5b), hospitalizations for postpartum complications including depression (objective 16-5c), children diagnosed with epilepsy (objective 16-14d), and enrollment of infants with disorders diagnosed through newborn bloodspot screening in appropriate service interventions (objective 16-20c).

❯ Eighteen Healthy People 2010 objectives were modified to create 24 Healthy People 2020 objectives [8]:

- Maternal mortality statistics are based upon the information recorded on death certificates and collected by State and local vital records offices. Due to concerns about data quality in the ascertainment of maternal mortality, the 2003 revision of the standard death certificate introduced improved data quality but produced rates that are not comparable with rates produced using the 1989 version of the death certificate [9]. For Healthy People 2010, data obtained from the 1989 version of the standard death certificate were used from the baseline through 2002 to track this objective (16-4). The Healthy People 2020 objective will be tracked with data from the 2003 standard death certificate.

- Objectives on prenatal care (objective 16-6a and b) and maternal smoking during pregnancy (objective 16-17c) were derived from information recorded on birth certificates and also collected by State and local vital records offices. Due to the desire to produce more robust information, the 2003 revision of the standard birth certificate introduced improved data quality but produced rates that are not comparable with rates produced using the 1989 version of the birth certificate [10,11]. For Healthy People 2010, data obtained from the 1989 version of the standard birth certificate were used from the baseline through 2002 to track these objectives. The Healthy People 2020 objectives will be tracked with data from the 2003 standard birth certificate.

- The objective on maternal weight gain during pregnancy (objective 16-12) remained developmental throughout the tracking period for Healthy People 2010. New data from the 2003

revision of the standard birth certificate will be used to track this objective in Healthy People 2020.

- In Healthy People 2010, only one national data point could be obtained to monitor the proportion of pregnant women who attended childbirth classes (objective 16-7). The data system used to track this objective is being changed for Healthy People 2020 in the effort to provide trend data.

- Preterm birth at 32–36 weeks gestation (objective 16-11b) was revised to include an additional objective to monitor the rate of late preterm birth (live births at 34–36 weeks gestation) in addition to live births at 32–33 weeks gestation, live births at less than 32 weeks gestation, and total preterm births. This change was made in recognition of evidence showing that late preterm infants, those born between 34 and 36 completed weeks of gestation, comprise over 70% of all preterm births and account for almost all of the increase in the U.S. preterm birth rate over the past two decades [12]. These new reporting categories are consistent with reports on birth outcomes [13].

- Fetal alcohol syndrome (objective 16-18) is tracked with data from the Fetal Alcohol Syndrome Surveillance Network (FASSNet). For Healthy People 2010, the overall prevalence was determined using data from four of the five funded states for the birth years 1995 through 1997 [14]. When the FASSNet cooperative agreement ended, seven programs from eight states were funded under a different agreement to conduct prevention and surveillance of fetal alcohol syndrome. Colorado was the only state to be funded under both FASSNet and the new agreement. Because the remaining funded states did not include the FASSNet states, the data used to monitor the Healthy People 2020 objective are not comparable with the Healthy People 2010 data.

- In 2002, the National Institute on Alcohol Abuse and Alcoholism revised the definition of binge drinking for women from drinking five or more alcoholic beverages at the same time or within a couple of hours of each other to four or more alcoholic beverages [15]. For Healthy People 2010, binge drinking during pregnancy (objective 16-17b) is tracked with the original definition. Healthy People 2020 will track binge drinking with the revised definition.

- Data for newborn bloodspot screening and follow-up was never obtained to track the two Healthy People 2010 objectives (16-20a and b). In Healthy People 2020, the data source was changed, and the objectives were modified so that they could be tracked. An additional objective that tracks annual assessments of services was also added.

- The Healthy People 2010 infant sleep position objective (16-13) was tracked using data from the National Infant Sleep Position Study. The Pregnancy Risk Assessment Monitoring System is used to measure infant sleep position for the Healthy People 2020 objective. The new data source will monitor the percentage of infants who are placed to sleep on their backs.

- The Healthy People 2010 objective monitoring the rate of cerebral palsy in children (objective 16-14b) was revised to track the proportion of children with cerebral palsy born at low birth weight (less than 2,500 grams). The scope was shifted because cerebral palsy is the most common motor disability in childhood affecting approximately 1.5 to 3.3 per 1,000 live births [16]. The inverse relationship between increased risk of cerebral palsy and being born at lower birth weights has been consistently well supported over time [17].

- The Healthy People 2010 objective that tracked the average age at which autism spectrum disorders were identified in children (objective 16-14c) was revised into three Healthy People 2020 objectives: the proportion of young children screened for autism spectrum disorders (ASD) by age 24 months, the proportion of children with an ASD with a first evaluation by age 36 months, and the proportion of children with an ASD enrolled in special services by age 48 months.

- The Healthy People 2010 objective that tracked the occurrence of spina bifida and other neural tube defects (objective 16-15) was revised into two Healthy People 2020 objectives: the rate of anencephaly diagnosed in infants and the rate of spina bifida diagnosed in infants.

- The Healthy People 2010 objective that tracked the median red blood cell (RBC) folate concentration in nonpregnant women (objective 16-16b) was revised for Healthy People 2020 to track the proportion of non-pregnant women with low RBC folate levels. The Healthy People 2010 target for this objective was exceeded; the revision reflects a continued interest in monitoring women at greatest risk sub-optimal RBC folate concentrations.

- The Healthy People 2010 objective that tracked the rate of hospitalization for sickle cell disease in black or African-American children (objective 16-21) was moved to the Blood Disorders and Blood Safety Topic Area for Healthy People 2020.

- The Healthy People 2010 objective addressing the proportion of children with special health care needs under age 18 years who receive their care in family-centered, comprehensive, coordinated systems (objective 16-23) was divided into two objectives: children under age 11 years and children aged 12–17 years.

❯ Seventeen new objectives, seven of which are developmental, were added to the Healthy People 2020 Topic Area:

- Two new objectives that track infant deaths; one from sudden unexpected infant deaths (SUID) and the other is for infants diagnosed with Down syndrome.

- Six new objectives relate to preconception care services and health behaviors prior to pregnancy:
  - Discussed preconception health with a health professional
  - Took multivitamins/folic acid
  - Did not smoke
  - Did not drink
  - Had a healthy weight
  - Used contraception to plan pregnancy.

- Two new objectives (targeting men and women, individually) will track impaired fecundity.

- Two new objectives will track postpartum health and behaviors: the relapse of smoking among women who quit smoking during pregnancy and the proportion of women giving birth who attend a postpartum care visit with a health care professional.

- Three new objectives will target infant care:
  - Employers that have worksite lactation support programs
  - Breastfed newborns not given formula within the first 2 days of life
  - Births in facilities that provide recommended care for lactating mothers and their babies.

- Two new objectives will track children with developmental delays. The first will track the child's age at first evaluation and the second will track the child's age when enrolled in special services.

Appendix D, "A Crosswalk Between Objectives From Healthy People 2010 to Healthy People 2020," summarizes the changes between the two decades of objectives, reflecting new knowledge and direction for this area.

Data Considerations

Education and income are the primary measures of socioeconomic status in Healthy People 2010. Most data systems used in Healthy People 2010 define income as a family's income before taxes. To facilitate comparisons among groups and over time, while adjusting for family size and for inflation, Healthy People 2010 categorizes income using the poverty thresholds developed by the

Census Bureau. Thus, the three categories of family income that are primarily used are:

❯ Poor—below the Federal poverty level

❯ Near poor—100% to 199% of the Federal poverty level

❯ Middle/high income—200% or more of the Federal poverty level.

These categories may be overridden by considerations specific to the data system, in which case they are modified as appropriate. See *Healthy People 2010: General Data Issues*, referenced below.

In general, data on educational attainment are presented for persons aged 25 and over, consistent with guidance given by the Census Bureau. However, because of the requirements of the different data systems, the age groups used to calculate educational attainment for any specific objective may differ from the age groups used to report the data for other Healthy People 2010 objectives, as well as from select populations within the same objective. Therefore, the reader is urged to exercise caution in interpreting the data by educational attainment shown in the Health Disparities Table. See *Healthy People 2010: General Data Issues*, referenced below.

Beginning in 2003, education data from the National Vital Statistics System have been suppressed. The educational attainment item was changed in the new U.S. Standard Certificates for Births, Deaths, and Fetal Death in 2003 to be consistent with the Census Bureau data and to improve the ability to identify specific types of educational degrees. Many states, however, are still using the 1989 version of the U.S. Standard Certificates, which focuses on highest school grade completed. As a result, educational attainment data collected using the 2003 version are not comparable with data collected using the 1989 version [18].

Additional information on data issues is available from the following sources:

❯ All Healthy People 2010 tracking data can be found in the Healthy People 2010 database, DATA2010, available from http://wonder.cdc.gov/data2010/.

❯ Detailed information about the data and data sources used to support these objectives can be found in the Operational Definitions on the DATA 2010 website, available from http://wonder.cdc.gov/data2010/focusod.htm.

❯ More information on statistical issues related to Healthy People tracking and measurement can be found in the Technical Appendix and in *Healthy People 2010: General Data Issues*, which is available in the General Data Issues section of the NCHS Healthy People website under Healthy People 2010; see http://www.cdc.gov/nchs/healthy_people/hp2010/hp2010_data_issues.htm.

References and Notes

1. Displayed in the Progress Chart (Figure 16-1), the percent of targeted change achieved expresses the difference between the baseline and the final value relative to the initial difference between the baseline and the Healthy People 2010 target. As such, it is a relative measure of progress toward attaining the Healthy People 2010 target. See the Reader's Guide for more information. When standard errors were available, the difference between the baseline and the final value was tested at the 0.05 level of significance. See the Figure 16-1 footnotes, as well as the Technical Appendix, for more detail.

2. Information about disparities among select populations is shown in the Health Disparities Table (Figure 16-2). Disparity from the best group rate is defined as the percent difference between the best group rate and each of the other group rates for a characteristic. For example, racial and ethnic health disparities are measured as the percent difference between the best racial and ethnic group rate and each of the other racial and ethnic group rates. Similarly, disparities by sex are measured as the percent difference between the better group rate (e.g., female) and the rate for the other group (e.g., male). Some objectives are expressed in terms of favorable events or conditions that are to be increased, while others are expressed in terms of adverse events or conditions that are to be reduced. To facilitate comparison of health disparities across different objectives, disparity is measured only in terms of adverse events or conditions. For comparability across objectives, objectives that are expressed in terms of favorable events or conditions are re-expressed using the adverse event or condition for the purpose of computing disparity, but they are not otherwise restated or changed. For example, objective 1-1, to increase the proportion of persons with health insurance (e.g., 72% of the American Indian or Alaska Native population under age 65 had some form of health insurance in 2008), is expressed in terms of the percentage of persons without health insurance (e.g., 100% – 72% = 28% of the American Indian or Alaska Native population under age 65 did not have any form of health insurance in 2008) when the disparity from the best group rate is calculated. See the Reader's Guide for more information. When standard errors were available, the difference between the best group rate and each of the other group rates was tested at the 0.05 level of significance.

See the Figure 16-2 footnotes, as well as the Technical Appendix, for more detail.

3. More information about infant sleep positions and SIDS can be found from the Back to Sleep Campaign website: http://www.nichd.nih.gov/publications/pubs/safe_sleep_gen.cfm.

4. The change in disparity is estimated by subtracting the disparity at baseline from the disparity at the most recent data point and, therefore, is expressed in percentage points. See the Reader's Guide for more information. When standard errors were available, the change in disparity was tested at the 0.05 level of significance. See the Figure 16-2 footnotes, as well as the Technical Appendix, for more detail.

5. To be included in Healthy People 2010, an objective must have a national data source that provides a baseline and at least one additional data point for tracking progress. Some objectives lacked baseline data at the time of their development but had a potential data source and were considered of sufficient national importance to be included in Healthy People. These are called "developmental" objectives. When data become available, a developmental objective is moved to measurable status and a Healthy People target can be set.

6. As of the Healthy People 2020 launch, Healthy People 2020 objectives that were retained "as is" from Healthy People 2010 had no change in the numerator or denominator definitions, the data source(s), or the data collection methodology. These include objectives that were developmental in Healthy People 2010 and are developmental in Healthy People 2020, and for which no numerator information is available.

7. Archived objectives had at least one data point in Healthy People 2010 but were not carried forward into Healthy People 2020.

8. As of the Healthy People 2020 launch, objectives that were modified from Healthy People 2010 had some change in the numerator or denominator definitions, the data source(s), or the data collection methodology. These include objectives that went from developmental in Healthy People 2010 to measurable in Healthy People 2020, or vice versa.

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Comprehensive Summary of Objectives: Maternal, Infant, and Child Health

Objective	Description	Data Source or Objective Status
16-1a	Fetal deaths (20+ weeks gestation, per 1,000 live births plus fetal deaths)	National Vital Statistics System—Fetal Death and Natality (NVSS-FD, NVSS-N), CDC, NCHS.
16-1b	Perinatal deaths (28 weeks gestation to <7 days after birth, per 1,000 live births plus fetal deaths)	National Vital Statistics System—Fetal Death, Mortality and Natality (NVSS-FD, NVSS-M, NVSS-N), CDC, NCHS.
16-1c	All Infant deaths (<1 year, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-1d	Neonatal deaths (<28 days, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-1e	Postneonatal deaths (28 days to <1 year, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-1f	Infant deaths due to birth defects (<1 year, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-1g	Infant deaths due to congenital heart defects (<1 year, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-1h	Infant deaths due to sudden infant death syndrome (SIDS) (<1 year, per 1,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-2a	Child deaths—1–4 years (per 100,000 population)	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-2b	Child deaths—5–9 years (per 100,000 population)	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-3a	Adolescent and young adult deaths—10–14 years (per 100,000 population)	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-3b	Adolescent and young adult deaths—15–19 years (per 100,000 population)	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-3c	Adolescent and young adult deaths—20–24 years (per 100,000 population)	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-4	Maternal deaths (per 100,000 live births)	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-5a	Maternal complications during hospitalized labor and delivery (per 100 deliveries)	National Hospital Discharge Survey (NHDS), CDC, NCHS.
16-5b	Maternal illness and complications due to pregnancy—Hospitalizations for ectopic pregnancies	Deleted at the Midcourse Review.
16-5c	Maternal illness and complications due to pregnancy—Hospitalizations for postpartum complications, including depression	Deleted at the Midcourse Review.
16-6a	Prenatal care—Beginning in first trimester	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-6b	Prenatal care—Early and adequate	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-7	Childbirth class attendance—Pregnant women who attend	National Survey of Early Childhood Health (NSECH): HRSA, MCHB; CDC, NCHS.
16-8	Very low birth weight infants born at level III hospitals	Title V Reporting System, HRSA.
16-9a	Cesarean births—No prior cesarean birth	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-9b	Cesarean births—Prior cesarean birth	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.

Objective	Description	Data Source or Objective Status
16-10a	Low birth weight (LBW), infants (<2,500 grams)	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-10b	Very low birth weight (VLBW), infants (<1,500 grams)	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-11a	Preterm live births—Total (<37 weeks gestation)	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-11b	Preterm live births—32–36 weeks gestation	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-11c	Preterm live births—<32 weeks gestation	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-12	Recommended weight gain during pregnancy	Developmental.
16-13	Infants put to sleep on their backs (<8 months)	National Infant Sleep Position Study (NISP), NIH, NICHD.
16-14a	Developmental disabilities—Mental retardation—IQ ≤70 (per 10,000 population, Metropolitan Atlanta, 8 years)	Metropolitan Atlanta Development Disabilities Surveillance Program (MADDSP), CDC, NCBDDD.
16-14b	Developmental disabilities—Cerebral palsy (per 10,000 population, Metropolitan Atlanta, 8 years)	Metropolitan Atlanta Development Disabilities Surveillance Program (MADDSP), CDC, NCBDDD.
16-14c	Developmental disabilities—Age at first identification of autism spectrum disorder (in months, Metropolitan Atlanta, 8 years)	Metropolitan Atlanta Development Disabilities Surveillance Program (MADDSP), CDC, NCBDDD.
16-14d	Epilepsy—Metropolitan Atlanta	Deleted at the Midcourse Review.
16-15	Spina bifida and other neural tube defects (new cases per 100,000 live births)	National Birth Defects Prevention Network (NBDPN), CDC, NCBDDD.
16-16a	Folic acid consumption ≥400μg daily by nonpregnant women (15–44 years)	National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.
16-16b	Median red blood cell (RBC) folate level among nonpregnant women (ng/ml, 15–44 years)	National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.
16-17a	Pregnant women abstaining from alcohol in past month (15–44 years)	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-17b	Pregnant women abstaining from binge drinking in past month (15–44 years)	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-17c	Pregnant women abstaining from cigarette smoking during pregnancy	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-17d	Pregnant women abstaining from illicit drugs in past month (15–44 years)	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-18	Fetal alcohol syndrome (cases per 1,000 live births)	Fetal Alcohol Syndrome Surveillance System (FASSNet), CDC, NCBDDD.
16-19a	Breastfeeding—Ever	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-19b	Breastfeeding—At 6 months	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-19c	Breastfeeding—At 1 year	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-19d	Exclusive breastfeeding—Through 3 months	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-19e	Exclusive breastfeeding—Through 6 months	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-20a	Newborn bloodspot screening—State-mandated conditions	Developmental.
16-20b	Newborn bloodspot screening—Timely follow-up diagnostic testing for screening positives	Developmental.

Comprehensive Summary of Objectives: Maternal, Infant, and Child Health (continued)

Objective	Description	Data Source or Objective Status
16-20c	Newborn bloodspot screening—Timely enrollment of infant with diagnosed disorders in appropriate service interventions	Deleted at the Midcourse Review.
16-21	Hospital discharges for sickle cell disease (per 100,000 black or African-American children, ≤9 years)	National Hospital Discharge Survey (NHDS), CDC, NCHS.
16-22	Medical homes for children with special health care needs	National Survey of Children with Special Health Care Needs (NS-CSHCN), CDC, NCHS.
16-23	Service systems for children with special health care needs	National Survey of Children with Special Health Care Needs (NS-CSHCN), CDC, NCHS.

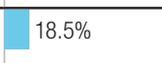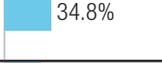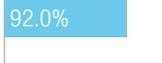# Figure 16-1. Progress Toward Target Attainment for Focus Area 16: Maternal, Infant, and Child Health
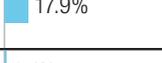
LEGEND   ◀ Moved away from target[1]   ■ Moved toward target   ▶ Met or exceeded target

Objective	Percent of targeted change achieved[2] (0 25 50 75 100)	2010 Target	Baseline (Year)	Final (Year)	Difference[3]	Statistically Significant[4]	Percent Change[5]
16-1a. Fetal deaths (20+ weeks gestation, per 1,000 live births plus fetal deaths)	22.2%	4.1	6.8 (1997)	6.2 (2005)	-0.6	Yes	-8.8%
16-1b. Perinatal deaths (28 weeks gestation to <7 days after birth, per 1,000 live births plus fetal deaths)	24.1%	4.4	7.3 (1997)	6.6 (2005)	-0.7	Yes	-9.6%
16-1c. All Infant deaths (<1 year, per 1,000 live births)	18.5%	4.5	7.2 (1998)	6.7 (2006)	-0.5	Yes	-6.9%
16-1d. Neonatal deaths (<28 days, per 1,000 live births)	15.8%	2.9	4.8 (1998)	4.5 (2006)	-0.3	Yes	-6.2%
16-1e. Postneonatal deaths (28 days to <1 year, per 1,000 live births)	16.7%	1.2	2.4 (1998)	2.2 (2006)	-0.2	Yes	-8.3%
16-1f. Infant deaths due to birth defects (<1 year, per 1,000 live births)	0.0%	0.7	1.4 (1999)	1.4 (2006)	0.0	No	0.0%
16-1g. Infant deaths due to congenital heart defects (<1 year, per 1,000 live births)	34.8%	0.23	0.46 (1999)	0.38 (2006)	-0.08	Yes	-17.4%
16-1h. Infant deaths due to sudden infant death syndrome (SIDS) (<1 year, per 1,000 live births)	27.3%	0.23	0.67 (1999)	0.55 (2006)	0.12	Yes	-17.9%
16-2. Child deaths (per 100,000 population)							
a. 1–4 years	39.0%	20.0	34.1 (1998)	28.6 (2007)	-5.5	Yes	-16.1%
b. 5–9 years	83.3%	13.0	17.2 (1998)	13.7 (2007)	-3.5	Yes	-20.3%
16-3. Adolescent and young adult deaths (per 100,000 population)							
a. 10–14 years	92.0%	16.5	21.5 (1998)	16.9 (2007)	-4.6	Yes	-21.4%
b. 15–19 years	24.1%	38.0	69.5 (1998)	61.9 (2007)	-7.6	Yes	-10.9%
c. 20–24 years	◀	41.5	92.7 (1998)	98.3 (2007)	5.6	Yes	6.0%
16-4. Maternal deaths (per 100,000 live births)	17.9%	4.3	9.9 (1999)	8.9 (2002)	-1.0	No	-10.1%
16-5a. Maternal complications during hospitalized labor and delivery (per 100 deliveries)	1.4%	24.0	31.2 (1998)	31.1 (2007)	-0.1	No	-0.3%
16-6. Prenatal care							
a. Beginning in first trimester	14.3%	90%	83% (1998)	84% (2002)	1	Yes	1.2%
b. Early and adequate	6.3%	90%	74% (1998)	75% (2002)	1	Yes	1.4%
16-8. Very low birth weight infants born at level III hospitals	17.6%	90%	73% (1996–97)	76% (2008)	3	Not tested	4.1%
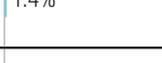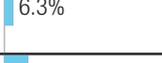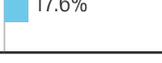
Objective	Percent of targeted change achieved[2] 0 25 50 75 100	2010 Target	Baseline (Year)	Final (Year)	Baseline vs. Final		
					Differ-ence[3]	Statistically Significant[4]	Percent Change[5]
16-9. Cesarean births							
a. No prior cesarean birth		15%	18% (1998)	26% (2007)	8	Yes	44.4%
b. Prior cesarean birth		63%	72% (1998)	91% (2007)	19	Yes	26.4%
16-10a. Low birth weight (LBW), infants (<2,500 grams)		5.0%	7.6% (1998)	8.2% (2007)	0.6	Yes	7.9%
16-10b. Very low birth weight (VLBW), infants (<1,500 grams)		0.9%	1.4% (1998)	1.5% (2007)	0.1	Yes	7.1%
16-11. Preterm live births							
a. Total (<37 weeks gestation)		7.6%	11.6% (1998)	12.7% (2007)	1.1	Yes	9.5%
b. 32–36 weeks gestation		6.4%	9.6% (1998)	10.6% (2007)	1.0	Yes	10.4%
c. <32 weeks gestation	0.0%	1.1%	2.0% (1998)	2.0% (2007)	0.0	No	0.0%
16-13. Infants put to sleep on their backs (<8 months)	111.8%	70%	36% (1996)	74% (2009)	38	Not tested	105.6%
16-14. Developmental disabilities (Metropolitan Atlanta, 8 years)							
a. Mental retardation—IQ ≤70 (per 10,000 population)		118.7	124.9 (1991–94)	136.0 (2008)	11.1	No	8.9%
b. Cerebral palsy (per 10,000 population)		30.2	31.8 (1991–94)	36.4 (2008)	4.6	No	14.5%
c. Age at first identification of autism spectrum disorder (in months)	300.0%	66	69 (1996)	60 (2008)	-9	Not tested	-13.0%
16-15. Spina bifida and other neural tube defects (new cases per 100,000 live births)	40.0%	30	60 (1996)	48 (2007)	-12	Not tested	-20.0%
16-16a. Folic acid consumption ≥400μg daily by nonpregnant women (15–44 years)	5.1%	80%	21% (1991–94)	24% (2005–06)	3	Not tested	14.3%
16-16b. Median red blood cell (RBC) folate level among nonpregnant women (ng/ml, 15–44 years)	148.4%	220	158 (1988–94)	250 (2005–06)	92	Yes	58.2%
16-17. Pregnant women abstaining from							
a. Alcohol in past month (15–44 years)	0.0%	95%	90% (2002–03)	90% (2008–09)	0	No	0.0%
b. Binge drinking in past month (15–44 years)	0.0%	100%	96% (2002–03)	96% (2008–09)	0	No	0.0%
c. Cigarette smoking during pregnancy	16.7%	99%	87% (1998)	89% (2002)	2	Yes	2.3%
d. Illicit drugs in past month (15–44 years)	0.0%	100%	96% (2002–03)	96% (2008–09)	0	No	0.0%

Figure 16-1. Progress toward Target Attainment for Focus Area 16: Maternal, Infant, and Child Health (continued)

Objective	Percent of targeted change achieved[2] 0 25 50 75 100	2010 Target	Baseline (Year)	Final (Year)	Baseline vs. Final		
					Difference[3]	Statistically Significant[4]	Percent Change[5]
16-19. Breastfeeding							
a. Ever	75.0%	75%	71% (2000)	74% (2006)	3	Yes	4.2%
b. At 6 months	56.3%	50%	34% (2000)	43% (2006)	9	Yes	26.5%
c. At 1 year	77.8%	25%	16% (2000)	23% (2006)	7	Yes	43.8%
16-19. Exclusive breastfeeding							
d. Through 3 months	40.0%	40%	30% (2003)	34% (2006)	4	Yes	13.3%
e. Through 6 months	57.1%	17%	10% (2003)	14% (2006)	4	Yes	40.0%
16-21. Hospital discharges for sickle cell disease (per 100,000 black or African-American children, ≤9 years)	93.4%	182.2	227.8 (1995–99)	185.2 (2003–07)	-42.6	No	-18.7%

NOTES

See the Reader's Guide for more information on how to read this figure. See DATA2010 at http://wonder.cdc.gov/data2010 for all HealthyPeople 2010 tracking data. Tracking data are not available for objectives 16-7, 16-12, 16-18, 16-20a, 16-20b, 16-22, and 16-23. Objectives 16-5b, 16-5c, 16-14d, and 16-20c were deleted at the Midcourse Review.

FOOTNOTES

[1] Movement away from target is not quantified using the percent of targeted change achieved. See Technical Appendix for more information.

[2] Percent of targeted change achieved = $\dfrac{\text{Final value} - \text{Baseline value}}{\text{Healthy People 2010 target} - \text{Baseline value}} \times 100$.

[3] Difference = Final value – Baseline value. Differences between percents (%) are measured in percentage points.

[4] When estimates of variability are available, the statistical significance of the difference between the final value and the baseline value is assessed at the 0.05 level. See Technical Appendix for more information.

[5] Percent change = $\dfrac{\text{Final value} - \text{Baseline value}}{\text{Baseline value}} \times 100$.

DATA SOURCES

16-1a.	National Vital Statistics System—Fetal Death and Natality (NVSS-FD, NVSS-N), CDC, NCHS.
16-1b.	National Vital Statistics System—Fetal Death, Mortality and Natality (NVSS-FD, NVSS-M, NVSS-N), CDC, NCHS.
16-1c–h.	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-2a–b.	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-3a–c.	National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-4.	National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-5a.	National Hospital Discharge Survey (NHDS), CDC, NCHS.
16-6a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-8.	Title V Reporting System, HRSA.
16-9a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-10a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-11a–c.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-13.	National Infant Sleep Position Study (NISP), NIH, NICHD.
16-14a–c.	Metropolitan Atlanta Development Disabilities Surveillance Program (MADDSP), CDC, NCBDDD.
16-15.	National Birth Defects Prevention Network (NBDPN), CDC, NCBDDD.
16-16a–b.	National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.
16-17a–b.	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-17c.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-17d.	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-19a–e.	National Immunization Survey (NIS): CDC, NCIRD; CDC, NCHS.
16-21.	National Hospital Discharge Survey (NHDS), CDC, NCHS

Figure 16-2. Health Disparities Table for Focus Area 16: Maternal, Infant, and Child Health

Disparities from the best group rate for each characteristic at the most recent data point and changes in disparity from the baseline to the most recent data point.

Population-based objective	Race and Ethnicity								Sex		Education				Disability	
	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Two or more races	Hispanic or Latino	Black, not Hispanic	White, not Hispanic	Summary index	Female	Male	Less than high school	High school graduate	At least some college	Summary index	Persons with disabilities	Persons without disabilities
16-1a. Fetal deaths (20+ weeks gestation, per 1,000 live births plus fetal deaths) (1997, 2005)[1,2,3]*		B[i]			↓		B[ii]		B				B			
16-1b. Perinatal deaths (28 weeks gestation to <7 days after birth, per 1,000 live births plus fetal deaths) (1997, 2005)[1,2,3]*	↓	B[i]							B				B			
16-1c. All Infant deaths (<1 year, per 1,000 live births) (1998, 2006)[1,2,3]*		B[i]			↑	↑	↑	↑	B				B			
16-1d. Neonatal deaths (<28 days, per 1,000 live births) (1998, 2006)[1,2,3]*		B[i]				↑	↓↓↓	↓	B				B			
16-1e. Postneonatal deaths (28 days to <1 year, per 1,000 live births) (1998, 2006)[1,2,3]*		B[i]			↑	↑			B			↑	B	↑		
16-1f. Infant deaths due to birth defects (<1 year, per 1,000 live births) (1999, 2006)[1,2,3]*		B[i]							B				B			
16-1g. Infant deaths due to congenital heart defects (<1 year, per 1,000 live births) (1999, 2006)[1,2,3]*		b[i]		B[ii]	↓		B		B	B[ii]	↓		B			
16-1h. Infant deaths due to sudden infant death syndrome (SIDS) (<1 year, per 1,000 live births) (1999, 2006)[1,2,3]*		b[i]		B			↑		B	↓			B			
16-2a. Child deaths—1–4 years (per 100,000 population) (1998, 2007)*		B[i]				↓↓	↓		B							
b. Child deaths—5–9 years (per 100,000 population) (1998, 2007)*		b[i]				↓↓	B[ii]		B							
16-3a. Adolescent and young adults deaths—10–14 years (per 100,000 population) (1998, 2007)*		B[i,ii]							B	↓						
b. Adolescent and young adult deaths—15–19 years (per 100,000 population) (1998, 2007)*	↑↑	B[i]							B							
c. Adolescent and young adult deaths—20–24 years (per 100,000 population) (1998, 2007)*	↓↓	B[i]			↓	↓↓↓	↓	↓↓	B							
16-4. Maternal deaths (per 100,000 live births) (1999, 2002)*		i					B						B			
16-5a. Maternal complications during hospitalized labor and delivery (per 100 deliveries) (1998, 2007)*					iii	B[iii]										
16-6a. Prenatal care—Beginning in first trimester (1998, 2002)*	↑	i					B				↑	↑	B	↑		

Population-based objective	Race and Ethnicity								Sex		Education				Disability	
	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Two or more races	Hispanic or Latino	Black, not Hispanic	White, not Hispanic	Summary index	Female	Male	Less than high school	High school graduate	At least some college	Summary index	Persons with disabilities	Persons without disabilities
b. Prenatal care—Early and adequate (1998, 2002)*		i					B				↓		B	↓		
16-7. Childbirth class attendance among pregnant women (2000)†							B						B			
16-9a. Cesarean births—No prior cesarean birth (1998, 2007)[1,2,3]*	B	i			↓						B					
b. Cesarean births—Prior cesarean birth (1998, 2007)[1,2,3]*	B	i									B[ii]					
16-10a. Low birth weight (LBW), infants (<2,500 grams) (1998, 2007)[1,2,3]*		i				B				B	↓		B			
16-10b. Very low birth weight (VLBW), infants (<1,500 grams) (1998, 2007)[1,2,3]*		B[i]							B[ii]	B			B			
16-11a. Preterm live births—Total (<37 weeks gestation) (1998, 2007)[1,2,3]*		B[i,ii]							B				B			
b. Preterm live births—32–36 weeks gestation (1998, 2007)[1,2,3]*		B[i,ii]							B				B			
c. Preterm live births—<32 weeks gestation (1998, 2007)[1,2,3]*		B[i]				↓			B				B			
16-13. Infants put to sleep on their backs (<8 months) (1996, 2009)†					↑[iii] ↑	B[iii]										
16-14a. Developmental disabilities—Mental retardation—IQ ≤70 (per 10,000 population, Metropolitan Atlanta, 8 years) (1991–94, 2008)*							B	iv	B	↑↑						
16-14b. Developmental disabilities—Cerebral palsy (per 10,000 population, Metropolitan Atlanta, 8 years) (1991–94, 2008)*																
16-14c. Developmental disabilities—Age at first identification of autism spectrum disorder (in months, Metropolitan Atlanta, 8 years) (1996, 2008)†						B			B[ii]							
16-15. Spina bifida and other neural tube defects (new cases per 100,000 live births) (1996, 2007)[4]*						B[ii]		iv								
16-16a. Folic acid consumption ≥400µg daily by nonpregnant women (15–44 years) (1991–94, 2005–06)[5]‡					v	B					↑	↑	B	↑		B
16-16b. Median red blood cell (RBC) folate level among nonpregnant women (ng/ml, 15–44 years) (1988–94, 2005–06)[6]*					v	B							B		B	

Figure 16-2. Health Disparities Table for Focus Area 16: Maternal, Infant, and Child Health (continued)

Population-based objective	Race and Ethnicity								Sex		Education				Disability	
	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Two or more races	Hispanic or Latino	Black, not Hispanic	White, not Hispanic	*Summary index*	Female	Male	Less than high school	High school graduate	At least some college	*Summary index*	Persons with disabilities	Persons without disabilities
16-17a. Pregnant women abstaining from alcohol in past month (15–44 years) (2002–03, 2008–09)*																
b. Pregnant women abstaining from binge drinking in past month (15–44 years) (2002–03, 2008–09)*																
c. Pregnant women abstaining from cigarette smoking during pregnancy (1998, 2002)*		B[i]			B[ii]	↓	↓	↓↓				↑	B	↑		
d. Pregnant women abstaining from illicit drugs in past month (15–44 years) (2002–03, 2008–09)*																
16-18. Fetal alcohol syndrome (cases per 1,000 live births) (1995–97)†						B[vi]	iii	B								
16-19a. Breastfeeding—Ever (2000, 2006)[2,3]*		b		↑	B[ii]	↑↑							B			
b. Breastfeeding—At 6 months (2000, 2006)[2,3]*	↑↑	B		↑		↑	↑	iv					B			
c. Breastfeeding—At 1 year (2000, 2006)[2,3]*	↑	B[ii]				↑	↑	iv					B			
d. Exclusive breastfeeding—Through 3 months (2003, 2006)[2,3]*		B[ii]				↑		iv					B			
e. Exclusive breastfeeding—Through 6 months (2003, 2006)[2,3]*	↑	B[ii]		↑		↑		iv					B			
16-21. Hospital discharges for sickle cell disease (per 100,000 black or African-American children, ≤9 years) (1995–99, 2003–07)*																

NOTES

See DATA2010 at http://wonder.cdc.gov/data2010 for all Healthy People 2010 tracking data. Disparity data are either unavailable or not applicable for objectives 16-8, 16-12, 16-20a and b, 16-22, and 16-23. Objectives 16-5b and c, 16-14d, and 16-20c, were deleted at Midcourse Review.

Years in parentheses represent the baseline and most recent data years (if available).

Disparity from the best group rate is defined as the percent difference between the best group rate and each of the other group rates for a characteristic (e.g., race and ethnicity). The summary index is the average of these percent differences for a characteristic. Change in disparity is estimated by subtracting the disparity at baseline from the disparity at the most recent data point. Change in the summary index is estimated by subtracting the summary index at baseline from the summary index at the most recent data point. See Technical Appendix for more information.

Figure 16-2. Health Disparities Table for Focus Area 16: Maternal, Infant, and Child Health (continued)

LEGEND

| The **"best" group rate** at the most recent data point. | B | The group with the best rate for specified characteristic. | b | Most favorable group rate for specified characteristic, but reliability criterion not met. | | Reliability criterion for best group rate not met, or data available for only one group. |

	Percent difference from the best group rate		
Disparity from the best group rate at the most recent data point.	Less than 10%, or difference not statistically significant (when estimates of variability are available).	10%–49%	50%–99%	100% or more

Changes in disparity over time are shown when: (a) disparities data are available at both baseline and most recent time points; (b) data are not for the group(s) indicated by "B" or "b" at either time point; and (c) the change is greater than or equal to 10 percentage points and statistically significant, or when the change is greater than or equal to 10 percentage points and estimates of variability were not available. See Technical Appendix.

Increase in disparity (percentage points)		
↑ 10–49 points	↑ 50–99 points	↑ 100 points or more

Decrease in disparity (percentage points)		
↓ 10–49 points	↓ 50–99 points	↓ 100 points or more

| Availability of Data | | Data not available. | | Characteristic not selected for this objective. |

FOOTNOTES

* Measures of variability were available. Thus, the variability of best group rates was assessed, and statistical significance was tested. Disparities of 10% or more are displayed when the differences from the best group rate are statistically significant at the 0.05 level. Changes in disparities over time are indicated by arrows when the changes are greater than or equal to 10 percentage points and are statistically significant at the 0.05 level. See Technical Appendix.

† Measures of variability were not available. Thus, the variability of best group rates was not assessed, and statistical significance could not be tested. Nonetheless, disparities and changes in disparities over time are displayed according to their magnitude. See Technical Appendix.

‡ Measures of variability for data by education level and disability status were available only for the most recent data. Thus, the variability of best group rates was assessed only for the most recent data, and statistical significance was tested only for the most recent data. Disparities of 10% or more are displayed when the differences from the best group rate are statistically significant at the 0.05 level. Changes in disparities over time are displayed according to their magnitude, since measures of variability were not available at baseline and therefore statistical significance of changes in disparity could not be tested. See Technical Appendix.

[1] Most recent data by education level are for 2002.

[2] Data by education level are for the mother.

[3] Data by race and ethnicity are for the mother.

[4] Baseline data by race and ethnicity are for 1998.

[5] Baseline data by race and ethnicity are for 2001–02. Measures of variability were available by race and ethnicity for 2001–02, see footnote * above.

[6] Baseline data by disability status are for 1991–94.

[i] Data are for Asian or Pacific Islander.

[ii] The group with the best rate at the most recent data point is different from the group with the best rate at baseline. Both rates met the reliability criterion. See Technical Appendix.

[iii] Data include persons of Hispanic origin.

[iv] Change in the summary index cannot be assessed. See Technical Appendix.

[v] Data are for Mexican American.
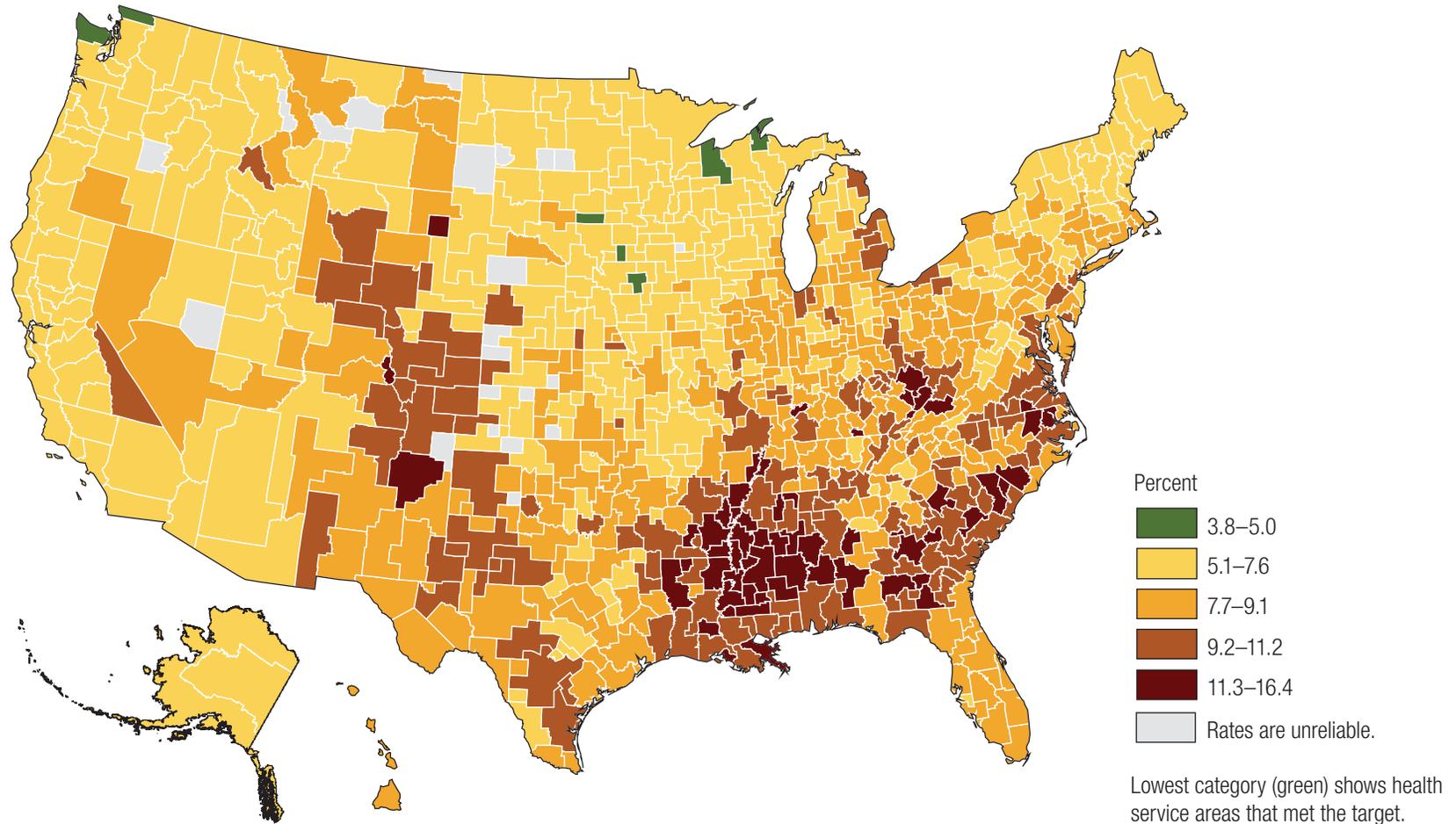
[vi] Data exclude black of Hispanic origin.

DATA SOURCES
16-1a.   National Vital Statistics System—Fetal Death and Natality (NVSS-FD, NVSS-N), CDC, NCHS.
16-1b.   National Vital Statistics System—Fetal Death, Mortality, and Natality (NVSS-FD, NVSS-M, NVSS-N), CDC, NCHS.
16-1c–h.   National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-2a–b.   National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-3a–c.   National Vital Statistics System—Mortality (NVSS-M), CDC, NCHS.
16-4.   National Vital Statistics System—Mortality and Natality (NVSS-M, NVSS-N), CDC, NCHS.
16-5a.   National Hospital Discharge Survey (NHDS), CDC, NCHS.

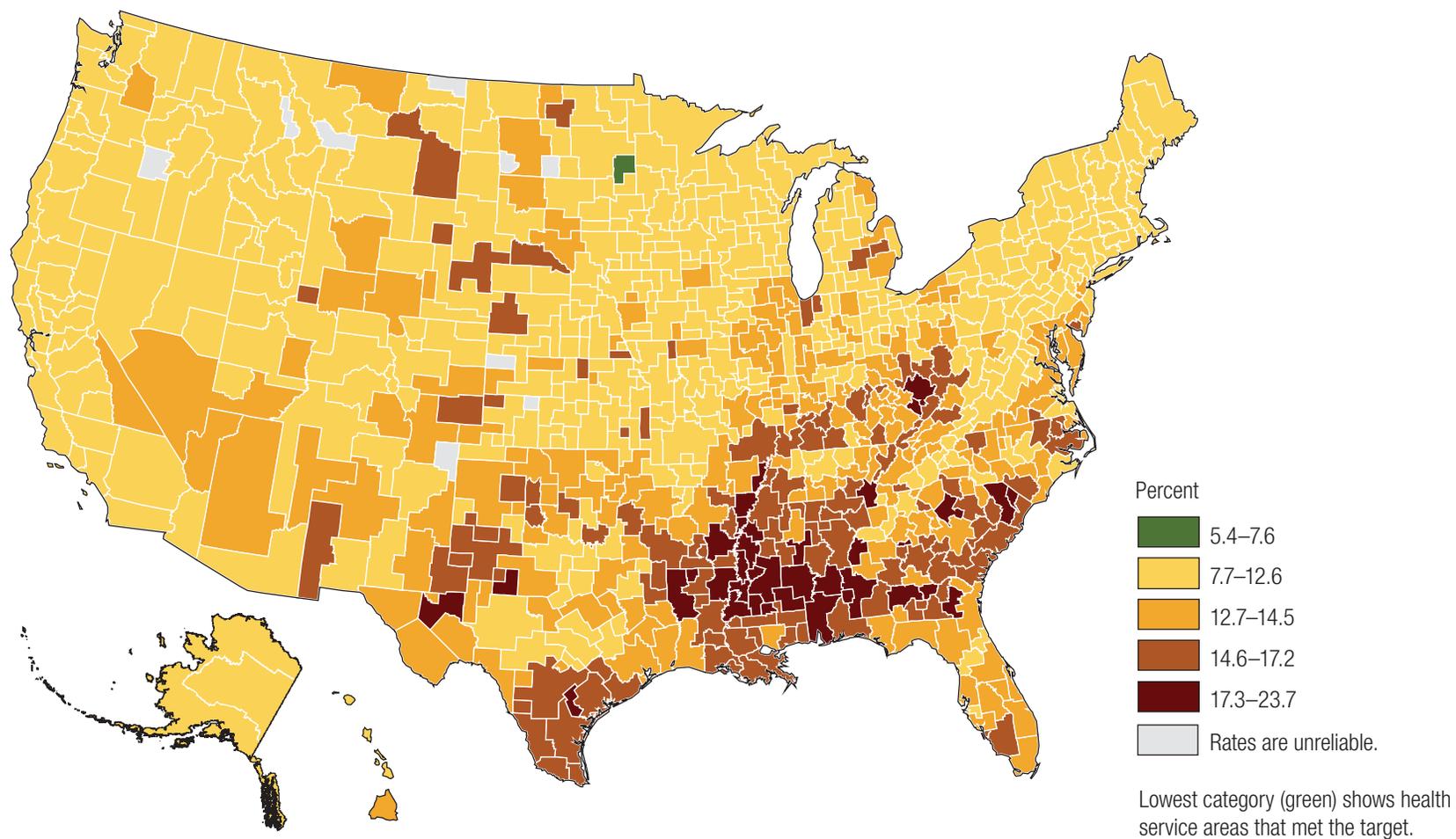|	
16-6a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-7.	National Survey of Early Childhood Health (NSECH): HRSA, MCHB; CDC, NCHS.
16-9a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-10a–b.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-11a–c.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-13.	National Infant Sleep Position Study (NISP), NIH, NICHD.
16-14a–c.	Metropolitan Atlanta Development Disabilities Surveillance Program (MADDSP), CDC, NCBDDD.
16-15.	National Birth Defects Prevention Network (NBDPN), CDC, NCBDDD.
16-16a–b.	National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.
16-17a–b.	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-17c.	National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.
16-17d.	National Survey on Drug Use and Health (NSDUH), SAMHSA.
16-18.	Fetal Alcohol Syndrome Surveillance System (FASSNet), CDC, NCBDDD.
16-19a.	National Immunization Survey (NIS), CDC, NCIRD and NCHS.
16-21.	National Hospital Discharge Survey (NHDS), CDC, NCHS.

Figure 16-3. Low Birth Weight (LBW) Births, 2006–08

Healthy People 2010 objective 16-10a • Target = 5.0 percent

Percent

- 3.8–5.0
- 5.1–7.6
- 7.7–9.1
- 9.2–11.2
- 11.3–16.4
- Rates are unreliable.

Lowest category (green) shows health service areas that met the target.

NOTES: Data are for low birth weight births (< 2,500 grams) as a percent of all live births. Rates are displayed by modified Jenks classification for U. S. health service areas.

SOURCE: National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.

Figure 16-4. Preterm Live Births, 2006–08
Healthy People 2010 objective 16-11a • Target = 7.6 percent

Percent

🟩	5.4–7.6
🟨	7.7–12.6
🟧	12.7–14.5
🟫	14.6–17.2
🟥	17.3–23.7
⬜	Rates are unreliable.

Lowest category (green) shows health service areas that met the target.

NOTES: Data are for preterm births (< 37 weeks gestations) as a percent of all live births. Rates are displayed by modified Jenks classification for U.S. health service areas.

SOURCE: National Vital Statistics System—Natality (NVSS-N), CDC, NCHS.