

PRECONCEPTION HEALTH

Efforts to improve pregnancy outcomes and the health of mothers and infants should begin prior to conception, whether before a first or subsequent pregnancy.⁵² It is important to establish health and healthy behaviors well before pregnancy as most women do not become aware of their pregnancy until several weeks or more after conception. Key indicators of preconception health include not smoking or drinking prior to pregnancy, taking a daily multi-vitamin, and achieving a healthy weight prior to pregnancy.⁵³

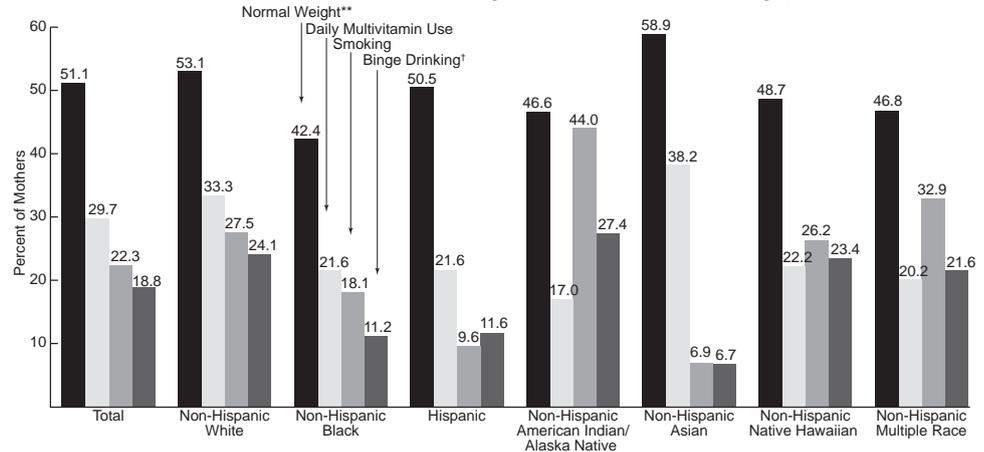
Frequent drinking, especially early in pregnancy, can cause fetal alcohol syndrome and alcohol-related birth defects.^{52,54} Smoking also increases the risk of pregnancy complications, preterm birth, and low birth weight.⁵² In 2006–2008, nearly one in five recent mothers in a 29-state area reported binge drinking (consumed 5 or more drinks in a sitting) at least once within 3 months prior to pregnancy (18.8 percent) and 22.3 percent reported smoking. Binge drinking and smoking in the three months prior to pregnancy were highest among non-Hispanic American Indian/Alaska Native women (27.4 and 44.0 percent, respectively). Non-Hispanic White, non-Hispanic Native Hawaiian, and non-Hispanic women of multiple races also had elevated rates of preconception substance use, while non-Hispanic Asian women had the lowest reported rates.

Daily use of multi-vitamins containing folic acid can reduce the risk of neural tube defects in infants by two-thirds.⁵² In 2006–2008, only 29.7 percent of recent mothers reported daily multi-vitamin use in the month prior to pregnancy. Daily preconception multi-vitamin use was highest among non-Hispanic Asian mothers (38.2 percent), followed by non-Hispanic White mothers (33.3 percent); only about one in five mothers of other racial and ethnic groups consumed daily multi-vitamins prior to pregnancy.

Women should also attain a healthy weight prior to pregnancy. Only about half of new mothers (51.1 percent) reported a healthy or normal pre-pregnancy weight for their height. Non-Hispanic Asian mothers were most likely to have attained a healthy pre-pregnancy weight (58.9 percent), while non-Hispanic Black mothers were least likely (42.4 percent). About one-third of non-Hispanic Black and non-Hispanic American Indian/Alaska Native mothers were obese prior to pregnancy (data not shown).

Selected Preconception Health Indicators Among Recent Mothers, by Race/Ethnicity, 2006–2008*

Source II.17: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 29 states and New York City; 20 states contributed all 3 years; mothers completed surveys between 2 and 9 months postpartum. **Defined as a pre-pregnancy body mass index (ratio of weight to height) between 18.5 and 24.9. †Defined as drinking 5 or more alcohol drinks in one sitting at least once in the 3 months prior to pregnancy.

UNINTENDED PREGNANCY AND CONTRACEPTION

Unintended pregnancies are associated with many negative health outcomes for both mother and child, including delayed prenatal care, poor maternal mental health, reduced mother-child relationship quality, and poor developmental outcomes for children.⁵⁵ Unintended pregnancies are defined as being mistimed or unwanted at the time of conception. It is difficult to estimate the total rate of unintended pregnancy due to known reporting issues, specifically related to the underreporting of pregnancies ending in abortion. However, in 2006–2008, 42.0 percent of women reported that their last pregnancy ending in a live birth was unintended at the time of conception. This includes 18.3

percent of women reporting an unwanted pregnancy and 23.7 percent reporting a mistimed pregnancy. Pregnancies that are unwanted rather than mistimed tend to have poorer outcomes.

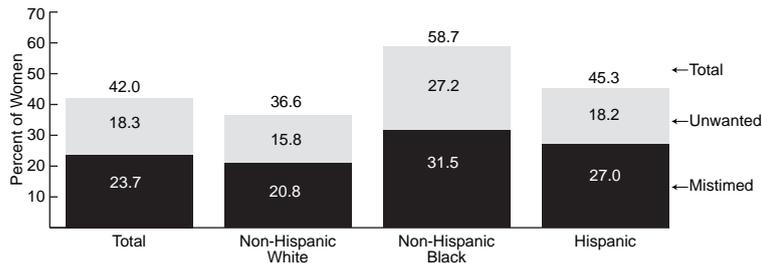
Unintended pregnancy varies by race and ethnicity. In 2006–2008, 58.7 percent of non-Hispanic Black women reported that their last pregnancy ending in a live birth was unintended, followed by 45.3 percent of Hispanic women and 36.6 percent of non-Hispanic White women. Both non-Hispanic Black and Hispanic women were more likely than non-Hispanic White women to report a mistimed pregnancy (31.5 and 27.0 versus 20.8 percent, respectively). Non-Hispanic Black women were more likely than non-Hispanic White and Hispanic women to report an unwanted pregnancy (27.2

versus 15.8 and 18.2 percent, respectively).

Unintended pregnancies can be averted with proper use of effective contraceptives. In 2006–2008, 4.5 million or 10.6 percent of women at risk of unintended pregnancy—who were having intercourse and not sterile, pregnant, or trying to get pregnant—reported that they were not using contraception. Non-Hispanic Black women were more likely than non-Hispanic White and Hispanic women to not be using contraception while at risk of unintended pregnancy (16.3 versus 9.4 and 9.0 percent, respectively). Differences in contraceptive use, as well as method choice and contraceptive effectiveness, may contribute to racial and ethnic disparities in unintended pregnancy.⁵⁶

Unintended Pregnancy* Among Last Live Births to Women Aged 15–44, by Race/Ethnicity,** 2006–2008

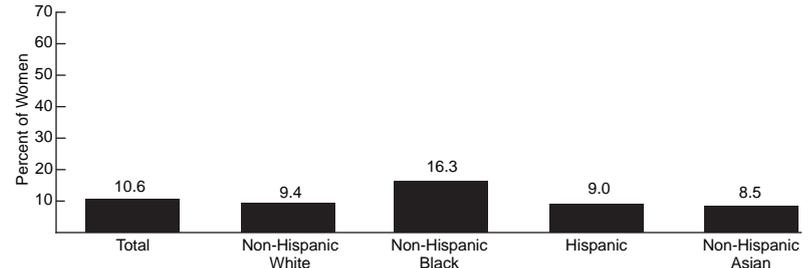
Source II.18: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Family Growth



*Reported to be unwanted or mistimed at the time of conception among the most recent pregnancy that ended in a live birth. Percentages may not add to totals due to rounding. **The samples of American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and persons of multiple race were too small to produce reliable results.

No Contraceptive Use Among Women Aged 15–44 Years at Risk of Unintended Pregnancy,* by Race/Ethnicity,** 2006–2008

Source II.19: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Family Growth



*At risk of unintended pregnancy is defined as having had intercourse in the last 3 months among those who were not currently pregnant, trying to get pregnant, or sterile for health reasons. **The samples of American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and persons of multiple race were too small to produce reliable results.

SMOKING DURING PREGNANCY

Smoking during pregnancy can have a negative impact on the health of women, infants, and children by increasing the risk of fertility problems and pregnancy complications, as well as preterm birth, low birth weight, and sudden infant death syndrome—some of the leading causes of infant mortality.⁶ Quitting smoking prior to and any time during pregnancy carries benefits, especially considering the many additional risks of postnatal tobacco smoke exposure for infants and children including respiratory infections, ear infections, and asthma.⁶

In 2006–2008, 12.2 percent of recent mothers in a 29-state area reported that they had smoked in the last 3 months of pregnancy. Smoking in the last 3 months of pregnancy

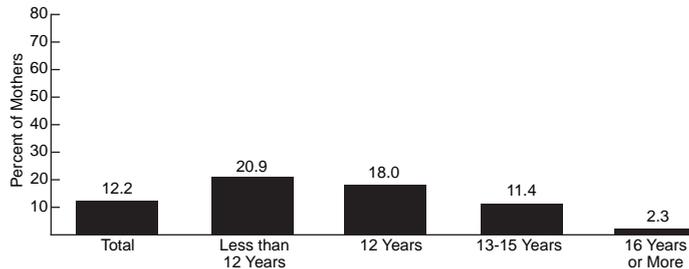
varied significantly by maternal education level, ranging from 2.3 percent among women with 16 or more years of education to 20.9 percent among women with less than 12 years of education. The proportion of women who smoked in the last 3 months of pregnancy also varied by maternal race and ethnicity. About one-quarter of non-Hispanic American Indian/Alaska Native mothers (25.8 percent) reported having smoked in the last 3 months of pregnancy, while less than 5 percent of non-Hispanic Asian and Hispanic mothers reported doing so (2.4 and 3.9 percent, respectively; data not shown).

Due to awareness of the neonatal health consequences of smoking, pregnancy may be a time period of heightened motivation to quit.

In 2006–2008, 45.3 percent of mothers in a 29-state area who reported smoking in the 3 months prior to pregnancy had not smoked in the last 3 months of pregnancy. Smoking cessation during pregnancy varied significantly by maternal education level. More than 70 percent of women with 16 or more years of education who smoked prior to pregnancy had quit smoking by the last 3 months of pregnancy. By contrast, fewer than one-third of mothers with less than 12 years of education had quit smoking during pregnancy (28.7 percent). Medicaid coverage of both medication and counseling for smoking cessation may help women with less education and resources to successfully quit smoking.⁵⁷

Cigarette Smoking in the Last 3 Months of Pregnancy, by Maternal Education Level, 2006–2008*

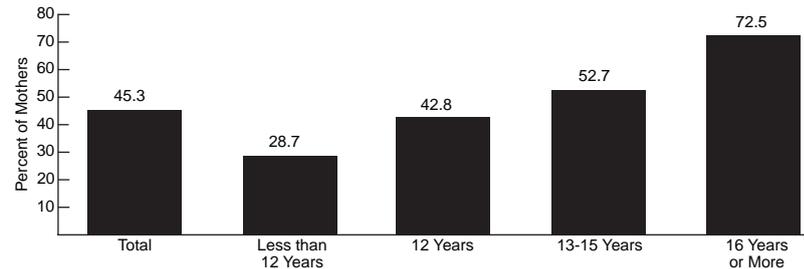
Source II.17: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 29 states and New York City; 20 states contributed all 3 years; mothers completed surveys between 2 and 9 months postpartum.

Smoking Cessation During Pregnancy,* by Maternal Education Level, 2006–2008**

Source II.17: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Defined as the proportion of mothers who reported not smoking in the last 3 months of pregnancy among those who reported smoking in the three months prior to pregnancy. **Includes data from a total of 29 states and New York City; 20 states contributed all 3 years; mothers completed surveys between 2 and 9 months postpartum.

LIVE BIRTHS AND DELIVERY TYPE

According to preliminary data, there were 4.1 million live births in the United States in 2009 and the crude birth rate was 13.5 births per 1,000 total population, a decrease of 4 percent from 2008 (data not shown). Hispanic women continued to have the highest fertility rate (93.3 births per 1,000 women aged 15–44 years) in 2009, followed by non-Hispanic Black and Asian/Pacific Islander women (68.9 and 68.7 per 1,000 women aged 15–44 years, respectively) despite decreases in the number of births within each of those groups. Non-Hispanic White women had the lowest birth rate (58.5 per 1,000 women aged 15–44 years).

With regard to age, overall birth rates were highest among mothers aged 25–29 years (110.5 live births per 1,000 women), followed by those aged 30–34 years (97.7 births per 1,000 women). Between 2008 and 2009, the birth rate declined in every age group presented except for mothers aged 40–44 years (data not shown). The birth rate for non-Hispanic White women was highest among 25- to 29-year-olds (102.6 per 1,000), while the birth rates for non-Hispanic Blacks, Hispanics, and American Indian/Alaska Natives were highest among 20- to 24-year-olds (123.8, 151.2, and 109.1 per 1,000 women, respectively). The birth rate among Asian/Pacific Islanders was highest among 30- to 34-year-olds (123.3 per 1,000 women).

The proportion of births delivered by cesarean section has steadily increased since 1996. Among all births in 2008, nearly one-third (32.3 percent) were delivered by cesarean section, compared to about one-fifth of births in 1996 (20.7 percent). Preliminary data for 2009 indicate that this trend is continuing, with 32.9 percent of births delivered by cesarean section, an increase of almost 60 percent since 1996.⁵⁸ This far exceeds the World Health Organization's recommended upper limit of 15 percent of births.⁵⁹ Induction of labor has also increased more than 140 percent since 1990, from 9.5 percent in 1990 to 23.1 percent in 2008.

Live Births per 1,000 Women, by Age and Race/Ethnicity, 2009*

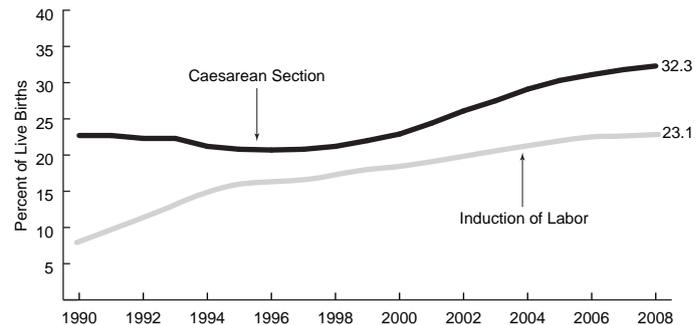
Source II.20: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System

	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic	American Indian/ Alaska Native**	Asian/Pacific Islander**
Total	66.7	58.5	68.9	93.3	62.8	68.7
15-19 Years	39.1	25.6	59.0	70.1	55.5	14.6
20-24 Years	96.3	76.7	123.8	151.2	109.1	57.5
25-29 Years	110.5	102.6	101.9	145.0	90.8	110.5
30-34 Years	97.7	97.4	73.2	108.2	63.8	123.3
35-39 Years	46.6	43.9	36.5	56.1	29.0	68.1
40-44 Years	10.1	9.0	9.0	14.0	6.5	15.8

*Data are preliminary. **Includes Hispanics.

Births Involving Cesarean Section and Induction of Labor, 1990–2008

Source II.21: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



MATERNAL MORBIDITY AND MORTALITY

Diabetes and hypertension are the most commonly reported health conditions among pregnant women. Diabetes, both chronic and gestational (developing only during pregnancy), may pose health risks to a woman and her baby. Women with gestational diabetes are at increased risk for developing diabetes later in life.⁶⁰ In 2008, among the 27 states that collected this information on the revised birth certificate, chronic or pre-existing diabetes occurred at a rate of 6.5 per 1,000 live births while gestational diabetes was a complication in 40.6 per 1,000 live births. Chronic diabetes was highest among non-Hispanic American Indian/Alaska Native mothers (17.7 per 1,000 live births) and lowest among non-Hispanic White and non-Hispanic Asian mothers (5.9 per 1,000). However, non-Hispanic Asian mothers had the highest rate of gestational diabetes at 70.7 per 1,000 live births, followed by non-Hispanic Native Hawaiian/Pacific Islander and non-Hispanic American Indian/Alaska Native mothers (53.0 and 50.3 per 1,000, respectively).

Hypertension during pregnancy can also be either chronic in nature or gestational. Severe hypertension during pregnancy can result in preeclampsia, fetal growth restriction, and early delivery.⁶¹ In 2008, in the 27 states that used the revised birth certificate, chronic and

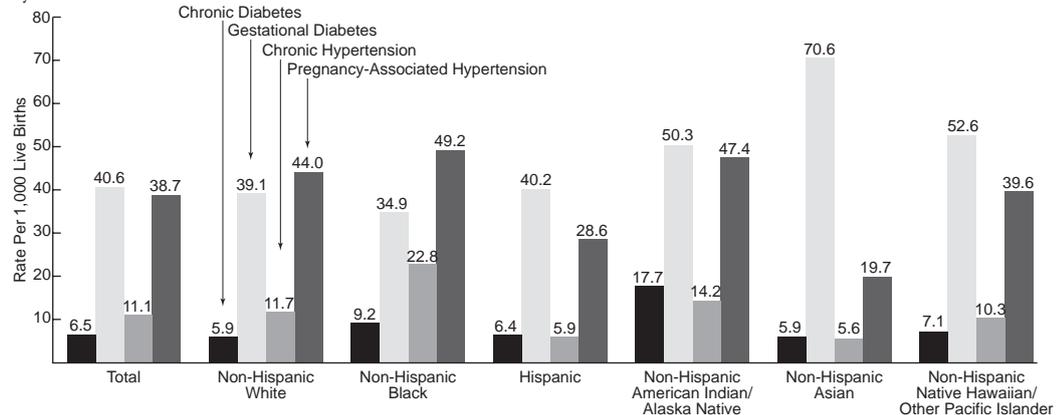
pregnancy-associated hypertension were present in 11.1 and 38.7 per 1,000 live births, respectively. Chronic hypertension was most common among non-Hispanic Black women (22.8 per 1,000 live births) and least common among Hispanic and non-Hispanic Asian women (5.9 and 5.5 per 1,000, respectively). Pregnancy-associated hypertension exceeded a rate of 40 per 1,000 live births among non-Hispanic White, non-Hispanic Black, and non-Hispanic American Indian/Alaska Native mothers and was lowest among non-Hispanic Asian mothers (19.7 per 1,000).

In 2007, there were 548 maternal deaths (12.7 per 100,000 live births) related to or

aggravated by pregnancy which occurred during or within 42 days after the end of the pregnancy.⁶² This does not include 221 deaths of women that were due to complications during pregnancy or childbirth and that occurred after 42 days postpartum, or the deaths of pregnant women due to external causes such as unintentional injury, homicide, or suicide. The maternal mortality rate among non-Hispanic Black women (28.4 per 100,000 live births) was roughly 3 times the rates among non-Hispanic White and Hispanic women (10.5 and 8.9 per 100,000, respectively; data not shown—see *Child Health USA, 2011* for more detail).

Selected Maternal Morbidities and Risk Factors in Pregnancy, by Race/Ethnicity, 2008*

Source II.22: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data are from 27 states that implemented the 2003 revision of the birth certificate as of January 1, 2008, representing 65% of all U.S. births.

POSTPARTUM DEPRESSIVE SYMPTOMS

The birth of a child is a major life event that can be joyous, but also stressful in its new demands and responsibilities. Hormonal changes and lack of sleep can contribute to “baby blues” or mild depressive symptoms, such as occasional sadness, crying, irritability, and trouble concentrating, which are common and transient.⁶³ Depression occurs when these symptoms, including depressed mood and loss of interest in activities, are severe and last for more than two weeks.⁶⁴ Other symptoms can include changes in appetite, feelings of worthlessness or guilt, and suicidal thoughts.

In 2006–2008, 14.1 percent of recent mothers in a 22-state area reported postpartum de-

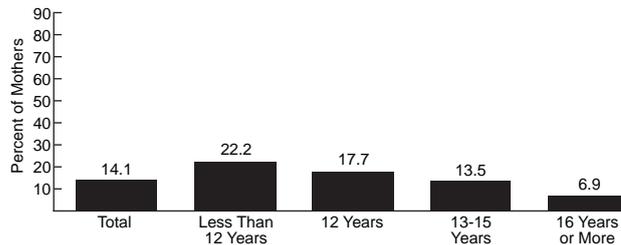
pressive symptoms since the birth of their child in the previous 2–9 months. Postpartum depressive symptoms varied significantly by education level, from 6.9 percent among mothers with at least 16 years of education to 22.2 percent among mothers with less than 12 years of education. The proportion of mothers reporting postpartum depressive symptoms exceeded 20 percent among non-Hispanic American Indian/Alaska Native, non-Hispanic Black, and non-Hispanic mothers of multiple race and was lowest among non-Hispanic White mothers (11.9 percent; data not shown). Factors that may increase the risk of postpartum depression include previous depressive episodes, stressful life events, and limited social support.^{64,65}

Early diagnosis and treatment are important

as postpartum depression can interfere with maternal-infant bonding and child development.⁶⁴ Screening for depression is encouraged by the American College of Obstetricians and Gynecologists both during and after pregnancy. In 2006–2008, 73.9 percent of recent mothers in an 8-state area reported that a health care provider talked with them about “baby blues” or postpartum depression during or after their most recent pregnancy. Non-Hispanic American Indian/Alaska Native and non-Hispanic White mothers were most likely to report that a health care worker discussed postpartum depression (83.7 and 78.8 percent, respectively), while non-Hispanic Asian and mothers of multiple races were least likely to do so (58.9 and 61.5 percent, respectively).

Postpartum Depressive Symptoms Among Women with a Recent Live Birth,* by Maternal Education Level, 2006–2008**

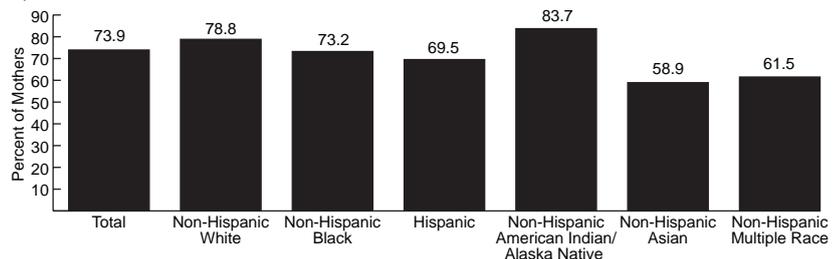
Source II.17: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Defined as reporting often or always feeling depressed or a loss of interest in activities since the birth of the infant; mothers completed surveys between 2 and 9 months postpartum. **Includes data from a total of 22 states; 14 states contributed all 3 years.

Women with a Recent Live Birth Who Reported that a Health Care Provider Discussed Postpartum Depression, by Race/Ethnicity,* 2006–2008**

Source II.17: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*The sample of Native Hawaiians was too small to produce reliable results. **Includes data from a total of 8 states and New York City; 7 states contributed all 3 years. Respondents completed surveys between 2 and 9 months postpartum.

BREASTFEEDING

Breast milk benefits the health, growth, immunity, and development of infants, and mothers who breastfeed may have a reduced risk of Type 2 diabetes and breast and ovarian cancer.⁶⁶ Among infants born in 2007, 75.0 percent were reported to have ever been breastfed, representing a significant increase over the 68.3 percent of infants ever breastfed in 1999. The American Academy of Pediatrics recommends that infants be exclusively breastfed—without supplemental solids or liquids—for the first 6 months of life;⁶⁷ however, only 43.0 percent of infants born in 2007 were breastfed at 6 months, and only 13.3 percent were exclusively breastfed through 6 months.

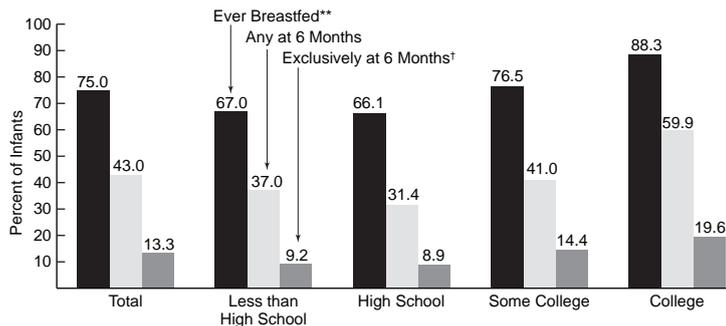
Breastfeeding practices vary considerably by a number of factors, including maternal race and ethnicity, education, age, and income. With respect to education, infants born to mothers with a college education were most likely to have ever been breastfed (88.3 percent) and to continue to be breastfed, while only about two-thirds of infants born to mothers with a high school degree or less were breastfed. With respect to race and ethnicity, Asian infants were most likely to ever be breastfed (86.4 percent) while non-Hispanic Black infants were the least likely to ever be breastfed (58.1 percent). Infants born to older mothers and those with higher household incomes were also more likely to be breastfed (data not shown). These sociodemographic

patterns persist with regard to the duration and exclusivity of breastfeeding.

Maternal employment can also affect whether and for how long an infant is breastfed; mothers working full-time are less likely to breastfeed at 6 months than those working part-time or not at all.⁶⁸ In 2009, half of all mothers with children under 1 year of age were employed, and two-thirds of those mothers were employed full-time (data not shown).⁶⁹ The Affordable Care Act, signed into law on March 23, 2010, helps to support breastfeeding among working women by requiring break time and a private, sanitary place for nursing mothers to express breast milk during the workday.⁷⁰

Infants* Who Are Breastfed, by Maternal Education and Duration, 2007

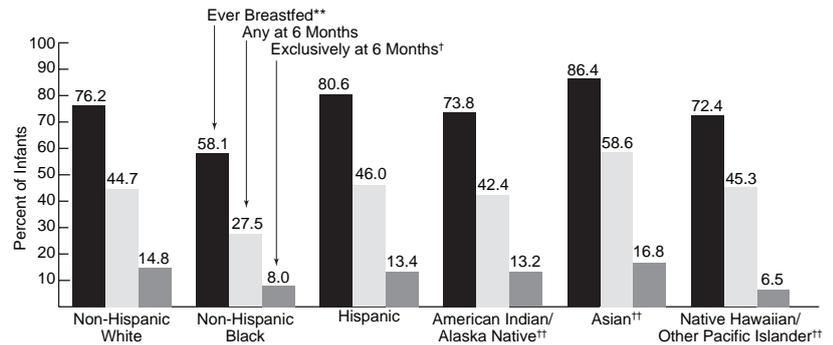
Source II.23: Centers for Disease Control and Prevention, National Immunization Survey



*Includes only infants born in 2007; data are provisional. **Reported that child was ever breastfed or fed human breast milk. †Exclusive breastfeeding is defined as only human breast milk—no solids, water, or other liquids.

Infants* Who Are Breastfed, by Race/Ethnicity and Duration, 2007

Source II.23: Centers for Disease Control and Prevention, National Immunization Survey



*Includes only infants born in 2007; data are provisional. **Reported that child was ever breastfed or fed human breast milk. †Exclusive breastfeeding is defined as only human breast milk—no solids, water, or other liquids. ††Includes Hispanics.

MATERNITY LEAVE

Maternity leave from employment after childbirth provides critical time for maternal-infant bonding and adjustment to life with a new baby. Longer length of maternity leave is associated with increased breastfeeding duration, as well as improved maternal mental health and child development.^{71,72} The Family and Medical Leave Act (FMLA) guarantees both women and men up to 12 weeks of unpaid leave around the birth or adoption of a child as long as they work for larger employers (50+ employees) and meet certain tenure and working hour requirements. However, many women

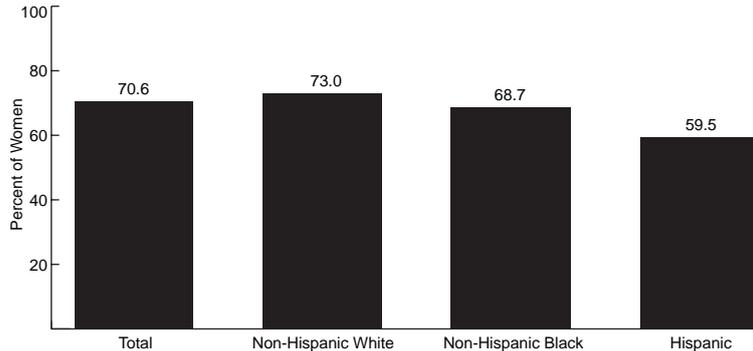
cannot afford to take unpaid leave and usually use a combination of short-term disability, sick leave, vacation, and personal days in order to have some portion of their maternity leave paid. The U.S. is one of only 5 countries in the world that does not mandate paid maternity leave.⁷³

In 2006–2008, 65.9 percent of women reported being employed during their last pregnancy (data not shown), of which 70.6 percent reported taking maternity leave. Thus, nearly one-third of employed women did not report taking any maternity leave (29.4 percent). When taken, the average length of maternity

leave was 10.3 weeks (data not shown). The proportion of women who took maternity leave for their last child varied by race and ethnicity. Hispanic women were less likely to report having taken any maternity leave than non-Hispanic White or non-Hispanic Black women (59.5 versus 73.0 and 68.7 percent, respectively). Among women who reported taking maternity leave for their last pregnancy, 33.1 percent did not have any portion of their maternity leave paid. Only 24.9 percent of women reported paid maternity leave for more than 2 months (9 or more weeks).

Women Aged 18–44 Who Took Maternity Leave for Their Last Pregnancy, by Race/Ethnicity,* 2006–2008

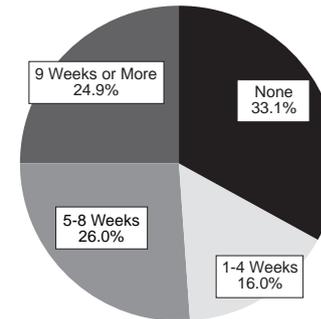
Source II.18: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Family Growth



*The samples of American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and persons of multiple race were too small to produce reliable results.

Weeks of Paid Maternity Leave Received Among Women Aged 18–44 Who Took Maternity Leave,* 2006–2008

Source II.18: Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Family Growth



*Respondents were asked to report based on their last pregnancy.