Child Health USA 2013

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PREFACE AND READERS GUIDE

The Health Resources and Services Administration's Maternal and Child Health Bureau (MCHB) is pleased to present *Child Health USA 2013*. Now in its 23rd year, *Child Health USA* provides a centralized resource for data on the health and well-being of America's mothers and children for policy makers, program managers, and maternal and child health professionals. While previous editions of *Child Health USA* focused broadly on health status and health care indicators for the maternal and child population, this year's edition provides an in-depth look at perinatal health and health care access. Similar to previous editions, however, the data book provides both graphical and textual summaries of relevant data, and addresses long-term trends where applicable and feasible.

All of the data discussed within the text of *Child Health USA* are from the same sources as the information in the corresponding graphs, unless otherwise noted. Data are presented for two important target populations of the Title V Maternal and Child Health Block Grant: pregnant women and infants, as well as women who may become pregnant. *Child Health USA 2013* addresses health status and health service utilization within these populations, and offers insight into the Nation's progress toward the goals set out in the MCHB's strategic plan—to assure quality of care, eliminate barriers and health disparities, promote an environment that supports maternal and child health, and improve the health infrastructure and system of care for women, infants, children, and families.

Child Health USA is designed to provide the most current data available for public health professionals and other individuals in the public and private sectors. The book's succinct format is intended to facilitate the use of the information as a snapshot of perinatal health in the United States.

Perinatal Health Status Indicators is the first section and presents statistics on maternal and infant health outcomes ranging from infant and fetal mortality to cesarean delivery and postpartum depressive symptoms. The second section, entitled **Perinatal Risk Factors and Behaviors**, contains vital statistics and health behavior data for women before, during and after pregnancy. **Health Services Utilization**, the third section, includes data regarding health care financing and utilization of selected perinatal health services. Programs and policies relevant to pregnant and parenting women are presented in the final section, **Programs and Policies**.

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INTRODUCTION

The health of children is reflective of the overall health of a nation, and has many implications for the nation's future as these children grow into adults. Children's long-term health and development can be highly influenced by early life events, beginning even before birth with the health of their mother. Effective policies and programs are important for ensuring the health of women before, during and after pregnancy to optimize both maternal and infant outcomes. Additionally, minimizing adverse birth and infant outcomes is critical to mitigating risk factors for disease later in life. However, the health and health care needs of mothers and infants change over time, and current data on these issues is critically important as policy makers and program planners seek to improve the health of children, now and into the future.

Research suggests that efforts to improve pregnancy outcomes and the health of mothers and infants may be most effective if they begin before a woman is pregnant. It is important to establish healthy behaviors and achieve optimal health before pregnancy, as many women are not aware of their pregnancy until several weeks or more after conception. In 2009–2010, about one in four recent mothers in a 30-state area reported binge drinking (consuming 4 or more drinks in a sitting) at least once within 3 months prior to pregnancy and 24.2 percent reported smoking during the same time period. Both smoking and alcohol use during pregnancy have been associated with adverse birth outcomes, including preterm birth and low birth weight.

In 2011, 11.73 percent of infants were born preterm and 8.10 were born at low birth weight. Preterm birth and low birth weight have been associated with a range of short- and long-term consequences for children's health and development. The prevalence of both preterm and low birth weight births varies by race and ethnicity, with infants born to non-Hispanic Black mothers most likely to experience either of these outcomes. Although both preterm and low birth weight increased through the middle of the last decade, the prevalence of both indicators has declined since.

Diabetes and hypertension are the most commonly reported health conditions among pregnant women and pose health risks to both a woman and her baby. In 2010, chronic or pre-existing diabetes was reported in 7.0 per 1,000 live births, while gestational diabetes was reported in 44.2 per 1,000 live births and chronic and pregnancy-associated hypertension were reported in 12.7 and 43.4 per 1,000 live births, respectively. Maternal morbidity—or illness—is significantly more common than maternal mortality. Nonetheless, in 2006-2008, the latest years for which data are available, a total of 1,953 maternal deaths were found to be pregnancy-related, for a rate of 15.2 deaths per 100,000 live births. These include deaths which occurred during or within one year after the end of a pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes such as injury. Pregnancy-related mortality is more common among non-Hispanic Black mothers and older mothers.

A number of perinatal risk factors and behaviors can affect both the health of the mother

and the infant. Gaining too much or too little weight during pregnancy can result in immediate and long-term health risks to a woman and her infant. Among recent mothers in 2009–2010, only about 1 in 3 or 31.5 percent gained the recommended amount of weight and nearly half (47.1 percent) gained an excessive amount of weight during pregnancy. About one in five women (21.4 percent) gained an inadequate amount of weight in pregnancy. Excessive weight gain may increase the risk of pregnancy complications, cesarean delivery, larger infant birth weight, and postpartum weight retention.

Experiencing stressful events or environmental hardships, such as financial instability, the death of a loved one, or divorce, while pregnant can place an additional strain on a woman and increase her likelihood of adverse birth outcomes, including preterm birth and low birth weight. In 2009-2010, nearly three-fourths of recent mothers in a 30-state reporting area reported that they had experienced at least one stressful event in the 12 months prior to delivery of their child. Intimate partner violence, including physical, sexual, and psychological abuse, before and during pregnancy has also been associated with adverse maternal and infant outcomes. In 2009-2010, approximately 4 percent of recent mothers reported that they had been pushed, hit, slapped, kicked, choked, or physically hurt in some other way by an intimate partner in the 12 months prior to becoming pregnant and 3.2 percent reported experiencing this type of abuse during their most recent pregnancy.

Health behaviors after a baby is born are also important to ensuring optimal health and development. Safe sleep behaviors are practices that reduce the risk of Sudden Infant Death Syndrome (SIDS) and sleep-related suffocation. In 2009, SIDS and other sleep-related infant deaths accounted for 15.1 percent of all infant deaths. To reduce the risk of SIDS, it is recommended that infants be placed on their backs for every sleep until 1 year of age. In 2009-2010, 70.5 percent of recent mothers in a 30-state area reported that their infant was laid down to sleep on his or her back most of the time.

The health care utilization rates, programs, and policies described in *Child Health USA* can help policymakers and public health officials better understand current trends in pediatric health and wellness and determine what programs might be needed to further improve the public's health. These indicators can also help identify positive health outcomes which may allow public health professionals to draw upon the experiences of programs that have achieved success. The health of our mothers and infants relies on effective public health efforts that include ensuring access to early and adequate prenatal care and related counseling as well as post-partum and well-baby care, providing vaccinations against preventable diseases, and supporting the dissemination and implementation of evidence-based programs to promote optimal maternal and infant health outcomes. Such preventive efforts and health promotion activities are vital to the continued improvement of the health and well-being of America's children and families.

PRETERM BIRTH

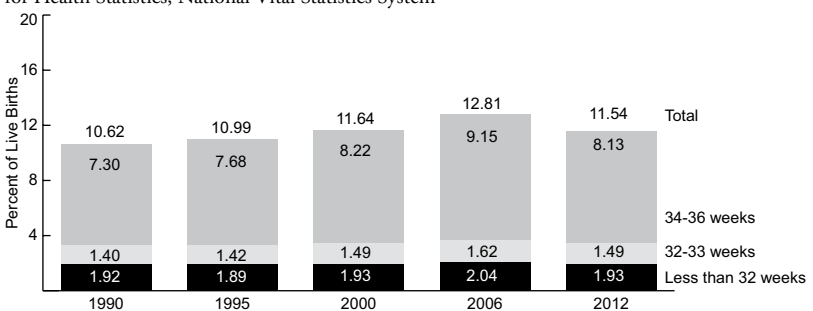
Babies born preterm, before 37 completed weeks of gestation, are at increased risk of immediate life-threatening health problems, as well as long-term complications and developmental delays. Among preterm infants, complications that can occur during the newborn period include respiratory distress, jaundice, anemia, and infection, while long-term complications can include learning and behavioral problems, cerebral palsy, lung problems, and vision and hearing loss. As a result of these risks, preterm birth is a leading cause of infant death and childhood disability. Although the risk of complications is greatest among those babies who are born the earliest, even those babies born "late preterm" (34 to 36 weeks' gestation) are more likely than full-term babies to experience morbidity and mortality.[1]

According to preliminary data for 2012, 11.54 percent of infants were born preterm. Overall, 8.13 percent of babies were born at 34 to 36 weeks' gestation, 1.49 percent were born at 32-33 weeks' gestation, and 1.93 percent were "very preterm" (less than 32 weeks' gestation). Between 1990 and 2006, the preterm birth rate increased more than 20 percent from 10.62 to 12.80 percent, but has declined by nearly 10 percent since 2006. Recent declines are greatest among the largest category of late preterm infants born at 34 to 36 weeks' gestation, which may be linked to practice-based efforts to reduce "elective" deliveries prior to 39 weeks that are not medically necessary.[2]

The preterm birth rate varies by race and ethnicity. In 2012, according to preliminary data, 16.53 percent of babies born to non-Hispanic Black women were born preterm, compared to 10.29 percent of babies born to non-Hispanic White women, and 10.15 percent of babies born to Asian/Pacific Islander women. Among babies born to Hispanic women, 11.58 percent were born preterm, while the same was true for 13.25 percent of babies born to American Indian/Alaska Native women. The causes of preterm birth are not well understood, but are linked to infection and vascular disease, as well as medical conditions, such as diabetes and hypertension, which may necessitate labor induction or cesarean delivery.[3]

Preterm Birth, by Completed Weeks of Gestation, 1990–2012*

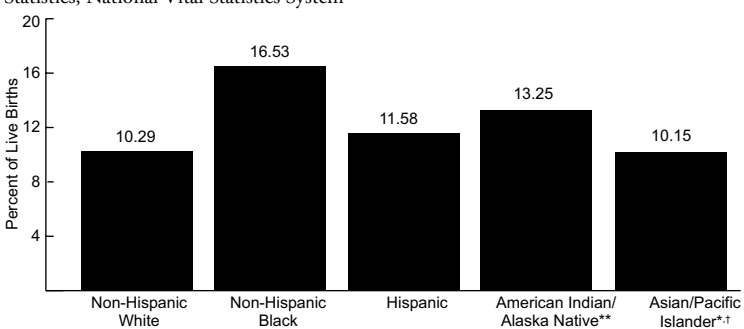
Source (I.1, I.2): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data for 2012 are preliminary.

Preterm Birth, by Maternal Race/Ethnicity, 2012*

Source (I.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data are preliminary. **Includes Hispanics. †Separate data for Asians and Native Hawaiians and Other Pacific Islanders not available.

LOW BIRTH WEIGHT

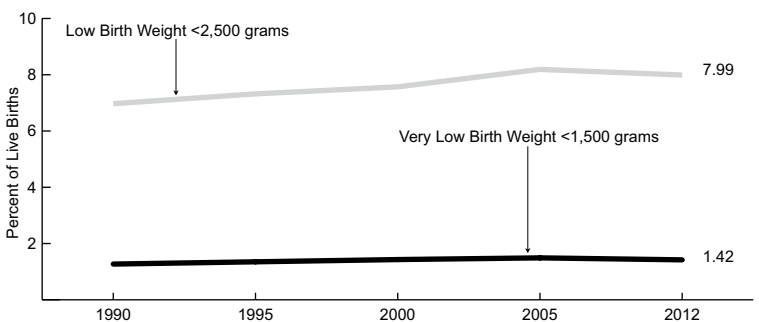
Infants born at low birth weight (less than 2,500 grams or 5.5 pounds) and especially very low birth weight (less than 1,500 grams or 3.25 pounds) are more likely than infants of normal birth weight to die in the first year of life and to experience long-range physical and developmental health problems. The majority of very low birth weight infants are born prematurely, whereas those born at moderately low birth weight include a mix of prematurity as well as fetal growth restriction, which may be related to factors such as maternal hypertension, tobacco smoke exposure, or inadequate weight gain during pregnancy.[4]

According to preliminary data for 2012, 7.99 percent of infants were born at low birth weight, including 1.42 percent who were born at very low birth weight. After steady increases, rates of low and very low birth weight peaked in 2006 at 8.26 and 1.49 percent, respectively, and have declined only slightly since then. Reasons for the increase in low birth weight may mirror those behind increases in prematurity, including increases in obstetric interventions, maternal age, and fertility treatments.[5] A rise in multiple births, which increase with maternal age and fertility treatments and are at high risk of low birth weight, has strongly influenced the rise in low birth weight; however, rates of low birth weight have also increased for singleton births.[5]

Infants born to non-Hispanic Black women have the highest rates of low and very low birth weight (13.18 and 2.94 percent, respectively), levels that are about two or more times greater than for infants born to women of other race and ethnic groups. For example, low and very low birth weight rates among non-Hispanic Whites were 6.97 and 1.13 percent, respectively. Given their heightened risk of death, the large disparity in very low birth weight is a major contributor to the mortality gap between non-Hispanic Black and White infants.[6] In 2009, 23.1 percent of very low birth weight infants died in the first year of life, compared to 5.3 percent of all low birth weight infants and 0.2 percent of normal birth weight infants.[7]

Low and Very Low Birth Weight, 1990–2012*

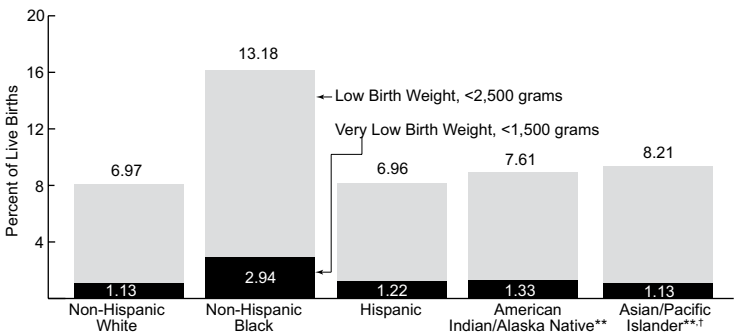
Source (I.1, I.2): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data for 2012 are preliminary.

Low and Very Low Birth Weight, by Maternal Race/Ethnicity, 2012*

Source (I.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data for 2012 are preliminary. **Includes Hispanics. †Separate data for Asians and Native Hawaiians and Other Pacific Islanders not available.

INFANT MORBIDITY

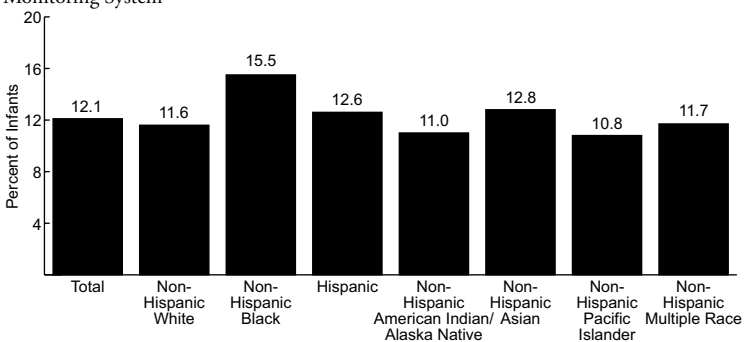
Morbidity is a measure of disease, illness or injury within a population. Like infant mortality, conditions resulting from prematurity and low birth weight are strongly associated with infant morbidity.[8,9] Infant morbidity can be measured by the presence of diagnosed conditions, such as respiratory distress and hyperbilirubinemia (or jaundice), as well as by service utilization indicators, including admission to a neonatal intensive care unit (NICU) and length of hospital stay.[10]

In 2009-2010, 12.1 percent of infants in a 30-state area were reported to have been admitted to a neonatal intensive care unit (NICU). A NICU is a department within the hospital that provides constant, specialized care for infants who are born sick, prematurely and/or at a very low birth weight. Not all hospitals have a NICU. NICU admission varied by maternal characteristics. NICU admission was lowest among infants born to mothers with 16 or more years of education (10.7 percent, compared to 12.9 percent of infants born to mothers with less than 12 years of education and approximately 12.5 percent of those born to mothers with 12 to 15 years of education; data not shown). Rates of NICU admission were highest among infants born to non-Hispanic Black mothers, with one-sixth (15.5 percent) having been admitted to the NICU, compared to 11.6 percent of infants born to non-Hispanic White mothers, 12.6 percent born to Hispanic mothers, and 12.8 percent born to non-Hispanic Asian mothers.

In 2009-2010, more than 7 percent of infants stayed in the hospital for 6 or more days. The proportion of infants with the longest hospital stays varied by maternal age, education, and race/ethnicity factors. Infants born to mothers aged 35 years and older were more likely to have a stay of this duration than those born to mothers aged 20-34 years, as were infants born to mothers with less education and infants born to non-Hispanic Black mothers. For example, 8.4 percent of infants born to mothers with 12 years of education had long hospital stays of six or more days, compared to 5.6 percent of those born to mothers with 16 or more years of education (data not shown).

NICU Admission, by Race/Ethnicity, 2009-2010*

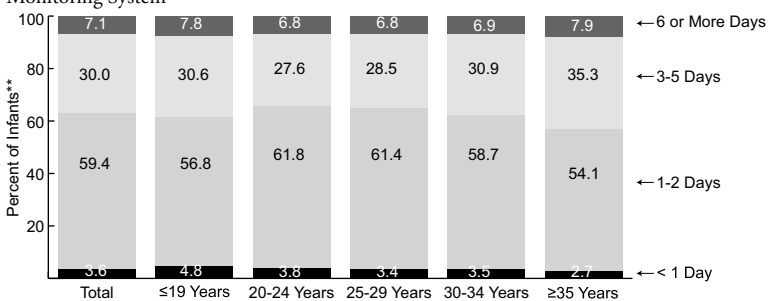
Source (I.3): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Hospital Length of Stay, by Maternal Age, 2009-2010*

Source (I.3): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum. **Totals may not equal 100 due to rounding.

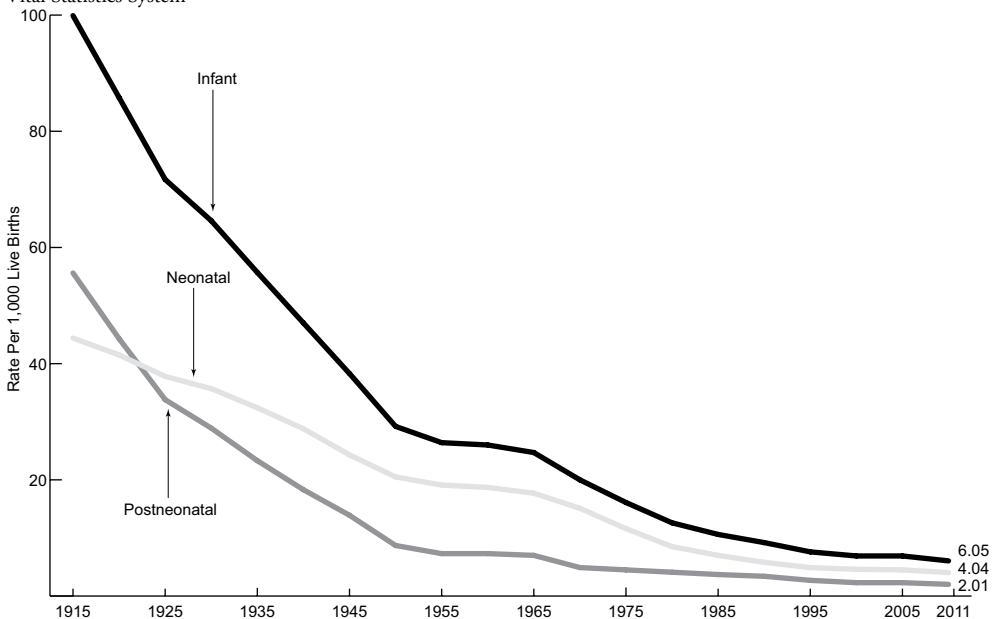
INFANT MORTALITY

Based on preliminary data for 2011, 23,910 infants died before their first birthday, reflecting an infant mortality rate of 6.05 deaths per 1,000 live births. This represents a decrease of 11.9 percent from the 2005 rate (6.87 per 1,000 live births). Currently, about two-thirds of infant deaths in the United States occur before 28 days (neonatal mortality: 4.04 per 1,000 live births), with the remaining third occurring in the postneonatal period between 28 days and under 1 year (2.01 per 1,000 live births). Neonatal mortality is generally related to short gestation and low birth weight and other perinatal conditions related to prematurity as well as congenital malformations, while postneonatal mortality is mostly related to Sudden Infant Death Syndrome (SIDS), congenital malformations, and unintentional injuries.[11] In 2011, the leading causes of infant mortality were congenital malformations, followed by disorders related to short gestation and low birth weight, and SIDS.[12] However, when multiple causes related to prematurity are grouped, preterm birth becomes the leading cause of infant death in the United States, accounting for over a third of all infant deaths.[13]

With the exception of plateaus in 1955-1959 and 2000-2005, infant mortality has generally declined since it was first assessed in 1915. The substantial infant mortality decline over the 20th century has been attributed to economic growth, improved nutrition, and new sanitary measures, as well as advances in clinical medicine and access to care.[14,15] Infant mortality declines in the 1990s were aided particularly by the approval of synthetic surfactants (or substance in the lungs needed for breathing) to reduce the severity of respiratory distress syndrome (RDS), a common affliction of preterm infants, and the recommendation that infants be placed on their backs to sleep to prevent SIDS. The lack of progress between 2000 and 2005 has been attributed to increases in preterm birth,[16] which have begun to decline in the last several years, perhaps due to practice-based efforts to reduce "elective" deliveries prior to 39 weeks that are not medically necessary.[17]

Infant, Neonatal, and Postneonatal Mortality Rates,* 1915-2011**

Source (I.4, I.5, I.6): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



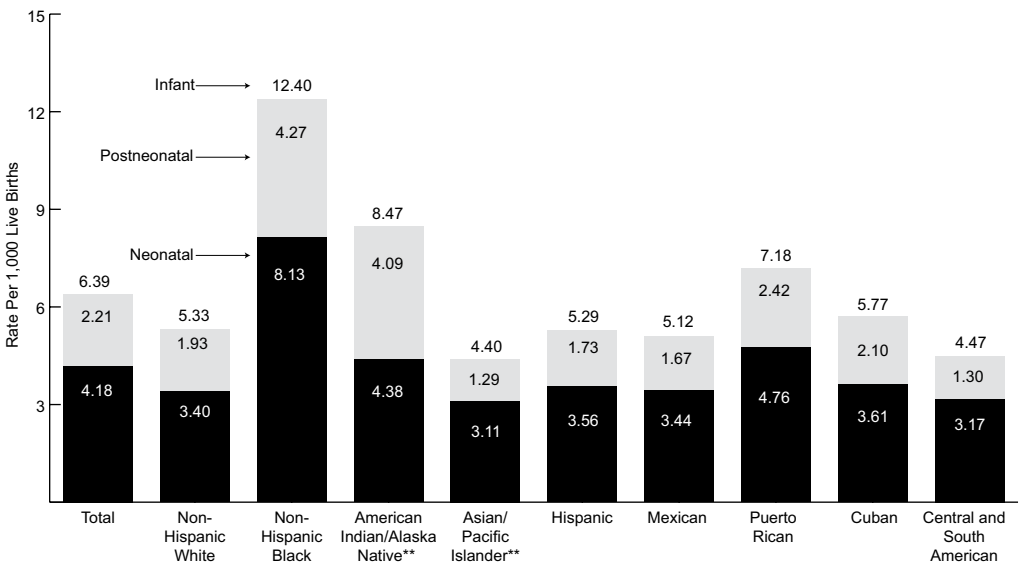
*Infant deaths are under 1 year; neonatal deaths are under 28 days; postneonatal deaths are between 28 days and under 1 year.
**2011 data are preliminary; data from 1915-1932 are a subset from states with birth registration, which became 100% by 1933.

Despite improvements in infant mortality over time, disparities by race and ethnicity persist. Due to inconsistencies in the reporting of race and ethnicity on the birth and death certificate, infant mortality rates by race and ethnicity are more accurately assessed from maternal race and ethnicity, which is achieved by linking infant death certificates to their corresponding birth certificates. In 2009, the latest year of available linked data, the infant mortality rate was highest for infants of non-Hispanic Black mothers (12.40 per 1,000 live births)—a rate 2.3 times that of non-Hispanic Whites (5.33 per 1,000). Infant mortality was also higher among infants born to American Indian/Alaska Native and Puerto Rican mothers (8.47 and 7.18 per 1,000, respectively). Although infant mortality was lowest among Asian/Pacific Islanders (4.40 per 1,000), there is considerable variability within this population and higher infant mortality has been shown among Native Hawaiians.[18]

Similar to overall infant mortality, neonatal mortality was highest among infants of non-Hispanic Black mothers (8.13 per 1,000), followed by Puerto Rican and American Indian/Alaska Native mothers (4.76 and 4.38 per 1,000, respectively). Postneonatal mortality was more than twice as high for infants of both non-Hispanic black and American Indian/Alaska Native mothers (4.27 and 4.09 per 1,000, respectively) than for non-Hispanic Whites (1.93 per 1,000). Consistent with these patterns in the timing of excess infant mortality, the majority of the infant mortality disparity between non-Hispanic Blacks and non-Hispanic Whites is due to causes related to prematurity and to a lesser extent, SIDS, congenital malformations, and injury.[13,19] The American Indian/Alaska Native infant mortality gap is mostly explained by SIDS, congenital malformations, prematurity, and injury while the excess among Puerto Rican mothers is mostly related to prematurity.[13,19]

Infant, Neonatal, and Postneonatal Mortality Rates,* by Race/Ethnicity, 2009

Source (I.7): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Infant deaths are under 1 year; neonatal deaths are under 28 days; postneonatal deaths are between 28 days and under 1 year. Infant deaths are weighted, so numbers may not exactly add to totals due to rounding. **Includes Hispanics.

INTERNATIONAL INFANT MORTALITY

In 2009, the U.S. infant mortality rate (6.4 infant deaths per 1,000 live births) ranked 27th in infant mortality among industrialized nations with populations of 2.5 million or greater, behind most European countries, Canada, Australia, Israel, and Republic of Korea. Japan was ranked first with the lowest infant mortality rate of 2.4 per 1,000 live births, followed by Sweden and Finland with infant mortality rates of with 2.5 and 2.6 deaths per 1,000 live births, respectively. The U.S. did not always rank this low; in 1960, it ranked 11th, with Norway, the Netherlands and Sweden reporting the three lowest rates among industrialized nations that year.

Differences in infant mortality rates among industrialized nations may reflect variation in the definition, measurement, and reporting of fetal and infant deaths. However, analyses by gestational age indicate that this disparity is most likely related to the high rate of preterm birth in the United States.[20] Infants born preterm (or less than 37 weeks gestation) have higher rates of death and disability than infants born at term (37 weeks gestation or more). Although the United States compares favorably with European countries with respect to the survival of preterm infants, the higher rate of preterm birth in the U.S. overall significantly impacts the infant mortality rate. Mortality among infants born at term (37+ weeks' gestation) is also higher in the United States.

International Infant Mortality Rates and Rankings,* Selected Countries,** 1960 and 2009

Source (I.8): The Organisation for Economic Co-operation and Development (OECD)

	Infant Mortality Rates per 1,000 live births		Infant Mortality Rankings*	
Country	1960	2009	1960	2009
Australia	20.2	4.3	5	19
Austria	37.5	3.8	19	14
Belgium	31.4	3.5	17	11
Canada	27.3	4.9	12	22
Chile	120.3	7.9	27	28
Czech Republic	20.0	2.9	4	4
Denmark	21.5	3.1	8	5
Finland	21.0	2.6	6	3
France	27.7	3.9	13	17
Germany	35.0	3.5	18	11
Greece	40.1	3.1	20	5
Hungary	47.6	5.1	23	23
Ireland	29.3	3.3	15	10
Israel	---	3.8	---	14
Italy	43.9	3.9	22	17
Japan	30.7	2.4	16	1
Mexico	92.3	14.6	26	30
Netherlands	16.5	3.8	2	14
New Zealand	22.6	5.2	10	24
Norway	16.0	3.1	1	5
Poland	56.1	5.6	24	25
Portugal	77.5	3.6	25	13
Republic of Korea	---	3.2	---	8
Slovak Republic	28.6	5.7	14	26
Spain	43.7	3.2	21	8
Sweden	16.6	2.5	3	2
Switzerland	21.1	4.3	7	19
Turkey	189.5	10.2	28	29
United Kingdom	22.5	4.6	9	21
United States	26.0	6.4	11	27

**Rankings are from lowest to highest infant mortality rates (IMR). Countries with the same IMR receive the same rank. Relative rankings may be affected if not all counties have reported data. **Countries with at least 2.5 million population and listed in the OECD database. ---Data not available*

FETAL MORTALITY

Fetal mortality is defined as the death of a fetus prior to birth, regardless of gestational age. Based on survey data, more than a million fetal losses are estimated to occur annually in the United States, most of which are early fetal losses, also called miscarriages.[21] Only fetal deaths at 20 or more weeks' gestation—often called stillbirths—are generally reported by states in the National Vital Statistics System. In 2006, the latest year for which national data have been reported, there were 25,972 fetal deaths at 20 or more weeks' gestation, for a rate of 6.05 fetal deaths per 1,000 live births plus fetal deaths. The number of fetal deaths is similar to the number of infant deaths (28,509 in 2006).[22]

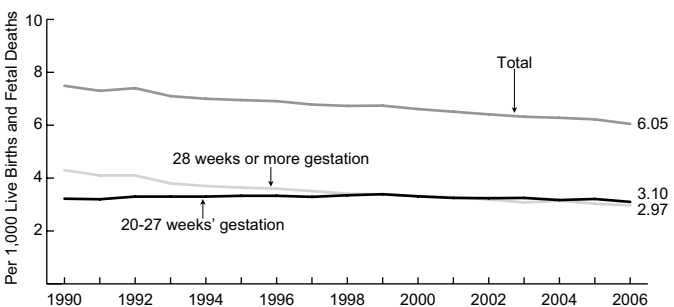
Similar to trends for infant mortality, fetal mortality rates have generally declined over time. Since 1990, fetal mortality rates at 20 weeks or more have fallen by nearly 20 percent from 7.49 to 6.05 per 1,000 in 2006. Most of this decline is attributed to reductions in fetal mortality at 28 weeks or more, which declined from 4.30 to 2.97 per 1,000 between 1990 and 2006.

As with infant mortality, there are large differences in fetal mortality by race and ethnicity. In 2006, fetal mortality rates at 20+ weeks were more than twice as high among non-Hispanic Black women as for non-Hispanic White women (10.73 versus 4.81 per 1,000). The majority of this disparity (64 percent) was due to higher non-Hispanic Black fetal mortality rates at 20-27 weeks' gestation. Relative to non-Hispanic Whites, fetal mortality rates were also higher for non-Hispanic American Indian/Alaska Native and Hispanic women (6.04 and 5.29 per 1,000, respectively).

Causes of fetal death include preterm labor, birth defects, infection, placental problems, such as abruption or inadequate blood flow, and chronic conditions, such as hypertension and diabetes.[23,24] Avoiding smoking and substance use, maintaining a healthy weight, and preventing and managing chronic conditions prior to and during pregnancy through preconception and prenatal care, may help to reduce risk of stillbirth.[24]

Fetal Mortality Rates,* 1990–2006

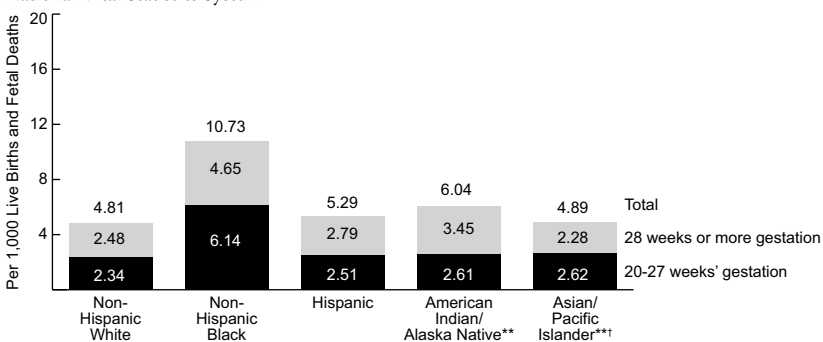
Source (I.9): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Fetal deaths with stated or presumed period of gestation of 20 weeks or more; cases of unknown gestational age are proportionally assigned according to the known gestational age distribution; rates do not sum to the total due to slight differences in the denominator.

Fetal Mortality Rates,* by Maternal Race/Ethnicity, 2006

Source (I.9): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Fetal deaths with stated or presumed period of gestation of 20 weeks or more; cases of unknown gestational age are proportionally assigned according to the known gestational age distribution; rates do not sum to the total due to slight differences in the denominator. **Includes Hispanics. †Separate data for Asians and Native Hawaiians and Other Pacific Islanders not available.

BIRTH DEFECTS

Birth defects occur in approximately 3 percent of all live births and are the leading cause of infant mortality, accounting for approximately 20 percent of all infant deaths in the United States in 2009.[25,26] Birth defects are conditions present at birth that cause structural changes in one or more parts of the body.[27] Birth defects develop before a baby is born and generally occur during the first trimester of pregnancy.

Although the causes of most birth defects are unknown, birth defects are thought to be caused by a combination of genetic, behavioral, and environmental factors. Some factors that have been linked to birth defects include: tobacco, alcohol and illicit drug use during pregnancy; uncontrolled medical conditions such as diabetes and obesity; use of some medications during pregnancy; maternal age younger than 20 and over 35 years; a family history of birth defects; and inadequate levels of folic acid (a B vitamin used by our bodies to make new cells) before and during pregnancy.[28] Taking folic acid before becoming pregnant has been shown to reduce the risk for neural tube defects by 50-70 percent.[28]

Congenital heart defects are the most common type of birth defect in the United States, affecting nearly 1% of—or about 40,000—births per year.[29] Trisomy 21, or Down syndrome, is a common birth defect with an estimated 6,000 cases identified annually.[26] Orofacial clefts, including cleft lip and cleft palate, are another common type of birth defect with approximately 7,000 cases identified annually.[26]

Screening tests that can identify some birth defects can be administered during both the first and second trimesters of pregnancy and may include blood tests, ultrasounds and/or testing of the placenta or amniotic fluid. Screening healthy newborns using pulse oximetry can be a useful and cost-effective way to identify babies born with critical congenital heart defects before they are discharged from the birth hospital.[30] Although the survival of babies and children with birth defects has been improving, racial and socioeconomic disparities in the survival of these individuals with very special health care needs still persist.[31,32]

Selected Birth Defects, 2004-2006*

Source (I.10): National Birth Defects Prevention Network

Birth Defects	Cases per Births	Estimated Annual Number of Cases	Prevalence per 10,000 Live Births
Chromosomal anomalies**			
Trisomy 21 (Down syndrome)	1 in 691	6037	14.47
Trisomy 18	1 in 3,762	1109	2.66
Trisomy 13	1 in 7,906	528	1.26
Neural tube defects***			
Spina bifida without anencephaly	1 in 2,858	1460	3.50
Anencephaly	1 in 4,859	859	2.06
Encephalocele	1 in 12,235	341	0.82
Orofacial defects			
Cleft lip with and without cleft palate	1 in 940	4437	10.63
Cleft palate without cleft lip	1 in 1,574	2651	6.35
Cardiovascular defects			
Atrioventricular septal defect	1 in 2,122	1966	4.71
Tetralogy of Fallot	1 in 2,518	1657	3.97
Transposition of great arteries	1 in 3,333	1252	3.00
Hypoplastic left heart syndrome	1 in 4,344	960	2.30
Common truncus	1 in 13,876	301	0.72

**14 programs contributed data: Arkansas, Arizona, California [8-county Central Valley], Colorado, Georgia [5-county metropolitan Atlanta], Illinois, Iowa, Kentucky, Massachusetts, North Carolina, Oklahoma, Puerto Rico, Texas, and Utah. The number of live births represented by these 14 programs from 2004-2006 was 4,038,506. **Estimates adjusted for maternal age. ***Estimates adjusted for maternal race/ethnicity.*

SIDS/SUID

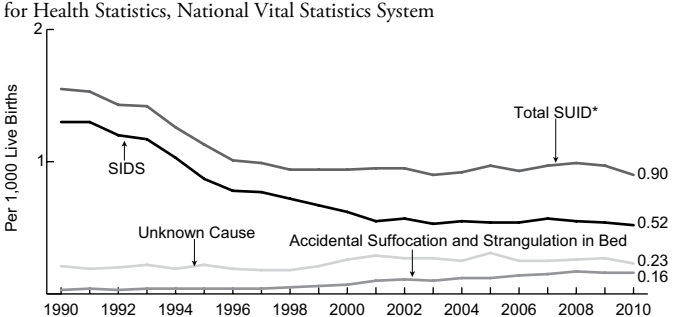
In 2010, there were a total of 3,610 or 0.9 sudden unexpected infant deaths (SUID) per 1,000 live births, accounting for 15 percent of all infant deaths. SUID includes sudden infant death syndrome (SIDS) and other sleep-related infant deaths due to unknown cause and accidental suffocation and strangulation in bed.[33] These causes of death have been grouped due to evidence that some deaths previously classified as SIDS are now being assigned to other sleep-related causes of death.[34] For example, SIDS rates declined from 1998 to 2001 while death rates due to other unknown causes and accidental suffocation and strangulation in bed were rising. Altogether, SUID generally declined from 1990 to 1998 and has remained relatively stable since then without significant multi-year changes.

SUID rates vary greatly by race and ethnicity. In 2009, SUID rates were highest for infants born to American Indian/Alaska Native and non-Hispanic Black mothers (2.14 and 1.92 per 1,000, respectively); these rates were more than twice the rate among infants born to non-Hispanic Whites (0.94 per 1,000). The SUID disparity explained 38 percent of the total infant mortality gap between American Indian/Alaska Natives and non-Hispanic Whites and 14 percent of the excess non-Hispanic Black infant mortality compared with non-Hispanic Whites (data not shown). SUID rates were generally lowest for infants born to Hispanic mothers (0.53 per 1,000), except for Puerto Ricans (1.15 per 1,000), and those born to Asian/Pacific Islander mothers (0.37 per 1,000). However, SUID rates have been shown to be higher among infants born to Native Hawaiian mothers.[35] Racial/ethnic differences in safe sleep practices may contribute to SUID disparities (see page 30).

In 2012, the American Academy of Pediatrics released expanded recommendations to promote safe sleep environments and other protective factors that can reduce the risk of sleep-related infant deaths.[36] These form the basis of the new Safe to Sleep campaign (formerly Back to Sleep),[37] and go beyond the back sleep position, including recommendations such as use of a firm sleep surface without soft bedding, room-sharing without bed-sharing, breastfeeding, and avoiding exposure to tobacco smoke and other drugs.

SUID* Mortality Rates, by Listed Cause of Death, 1990-2010

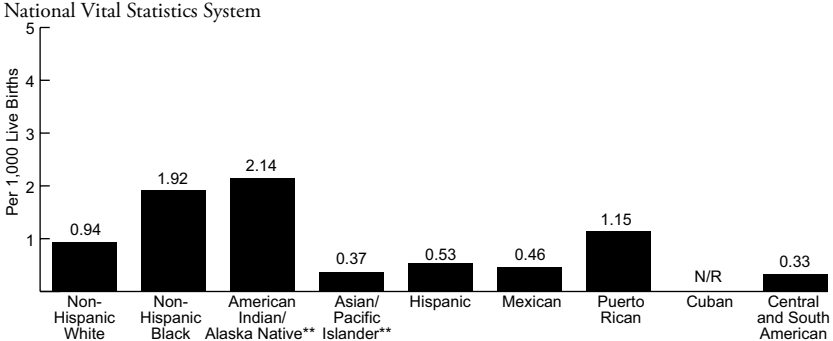
Source (I.11, I.12): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Sudden Unexpected Infant Deaths (SUID) includes SIDS (798.0/R95), Unknown Cause (799.9/R99), and Accidental Suffocation or Strangulation in Bed (E913.0/W75).

SUID* Mortality Rates, by Maternal Race/Ethnicity, 2009

Source (I.13): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Sudden Unexpected Infant Deaths (SUID) includes SIDS (R95), Unknown Cause (R99), and Accidental Suffocation or Strangulation in Bed (W75) **Includes Hispanics. N/R: Fewer than 20 deaths; data did not meet the standard of reliability or precision.

MATERNAL MORBIDITY

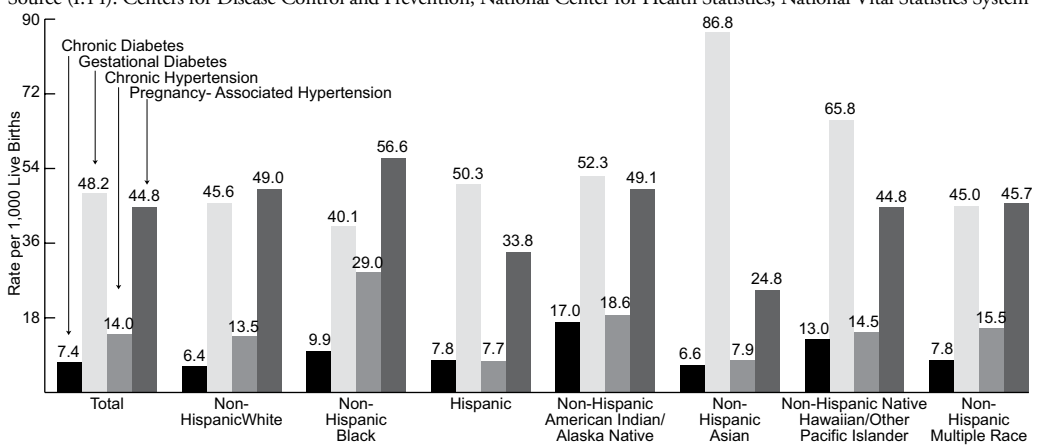
Diabetes and hypertension are the most commonly reported health conditions among pregnant women. Diabetes, both chronic and gestational (developing only during pregnancy), may pose health risks to a woman and her baby. Women with gestational diabetes are at increased risk for developing diabetes later in life.[38] In 2011, among the 36 states and District of Columbia that collected this information on the revised birth certificate, chronic or pre-existing diabetes was reported in 7.4 per 1,000 live births while gestational diabetes was reported in 48.2 per 1,000 live births. Chronic diabetes was highest among non-Hispanic American Indian/Alaska Native mothers (17.0 per 1,000 live births) and lowest among non-Hispanic White and non-Hispanic Asian mothers (6.4 and 6.6 per 1,000, respectively). However, non-Hispanic Asian mothers had the highest rate of gestational diabetes at 86.8 per 1,000 live births, followed by non-Hispanic Native Hawaiian/Pacific Islander (65.8 per 1,000).

Hypertension during pregnancy can also be either chronic in nature or gestational. Severe hypertension during pregnancy can result in pre-eclampsia, fetal growth restriction, and early delivery.[39] In 2011, in the 36 states and District of Columbia that used the revised birth certificate, chronic and pregnancy-associated hypertension was reported in 14.0 and 44.8 per 1,000 live births, respectively. Chronic hypertension was most common in non-Hispanic Black women (29.0 per 1,000 live births) and least common among Hispanic and non-Hispanic Asian women (7.7 and 7.9 per 1,000, respectively). Pregnancy-associated hypertension was reported in about 50 per 1,000 live births to non-Hispanic Black, non-Hispanic American Indian/Alaska Native, and non-Hispanic White mothers and was lowest among non-Hispanic Asian mothers (24.8 per 1,000). Although these conditions are known to be under-reported on the birth certificate, patterns by race and ethnicity are not likely to be affected.[40]

A recent national study of hospital discharge data found that severe maternal morbidity, which includes life-threatening complications such as kidney or heart failure, blood clots, infection, and hemorrhage, occurs at a rate of 12.9 per 1,000 delivery hospitalizations.[41] Severe maternal morbidity is more than 100 times as common as pregnancy-related mortality—translating to about 52,000 women affected annually—and it is estimated to have increased by 75 percent over the past decade. Rises in chronic conditions, including obesity, diabetes, hypertension, and cardiovascular disease, are likely to have contributed to this increase.

Selected Maternal Morbidities and Risk Factors in Pregnancy, by Race/Ethnicity, 2011*

Source (I.14): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



**Data are from 36 states and the District of Columbia that implemented the 2003 revision of the death certificate as of January 1, 2011, representing 83 percent of all U.S. births.*

PREGNANCY-RELATED MORTALITY

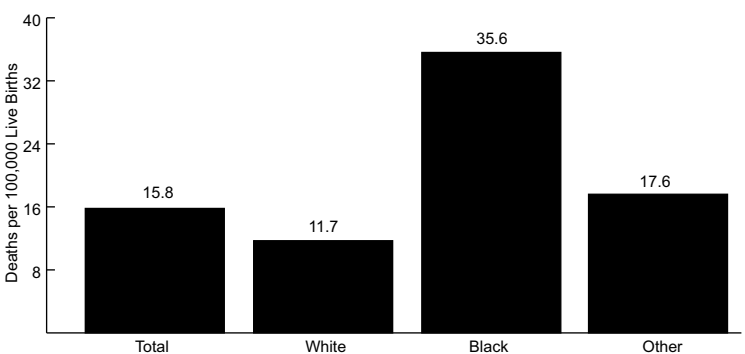
A pregnancy-related death is defined as a death which occurs during or within one year of the end of a pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes such as injury.[42] This definition includes more deaths than the traditional definition of maternal mortality, which counts pregnancy-related deaths only up to 42 days after the end of pregnancy. Although maternal mortality in the United States declined dramatically over the last century, there has been some reversal of this trend in the last several decades, and racial and ethnic disparities in maternal and pregnancy-related mortality persist.[42-44]

In 2006–2009, the latest years for which data are available, a total of 2,689 deaths were found to be pregnancy-related at a rate of 15.8 deaths per 100,000 live births. The pregnancy-related mortality rate has more than doubled from 1987 levels of 7.2 deaths per 100,000.[42] This dramatic rise may reflect improved ascertainment of pregnancy-related deaths as well as increases in chronic conditions and severe maternal morbidity.[41,44] The pregnancy-related mortality ratio among Black women was 3 times the rate for White women in 2006-2008 (35.6 versus 11.7 per 100,000), a disparity that has remained relatively constant. The pregnancy-related mortality ratio also increases with age. Women aged 35–39 years are more than twice as likely to die from pregnancy-related causes as women aged 20–24; for women older than 39 years, the risk increases five-fold (data not shown).[44]

Some of the most common causes of pregnancy-related death in 2006–2009 were cardiovascular disease (14.6%), infection or sepsis (14.0%), non-cardiovascular medical conditions (11.9%) diseases of the heart muscle (cardiomyopathy, 11.8%), and uncontrolled bleeding (hemorrhage, 11.0%). The proportion of pregnancy-related deaths due to cardiovascular disease and cardiomyopathy have increased significantly since 1987, while the percentage of deaths attributable to hemorrhage and hypertensive disorders of pregnancy have declined.[44]

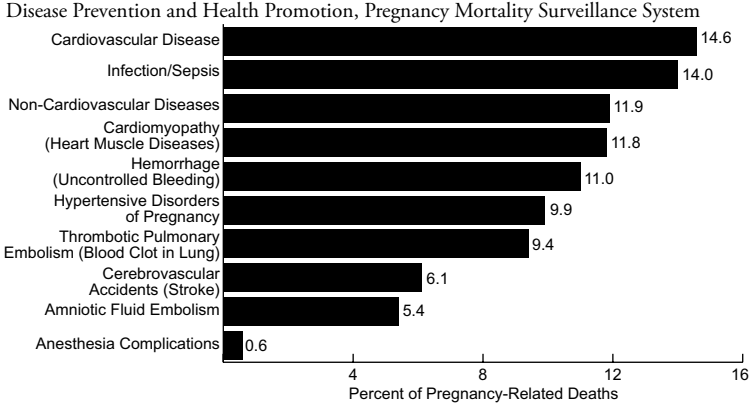
Pregnancy-Related Mortality Ratios, by Race, 2006–2009

Source (I.15): Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Pregnancy Mortality Surveillance System



Leading Causes of Pregnancy-Related Deaths,* 2006–2009

Source (I.15): Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Pregnancy Mortality Surveillance System



**The cause of death was unknown for 5.3% of all pregnancy-related deaths.*

CESAREAN DELIVERY

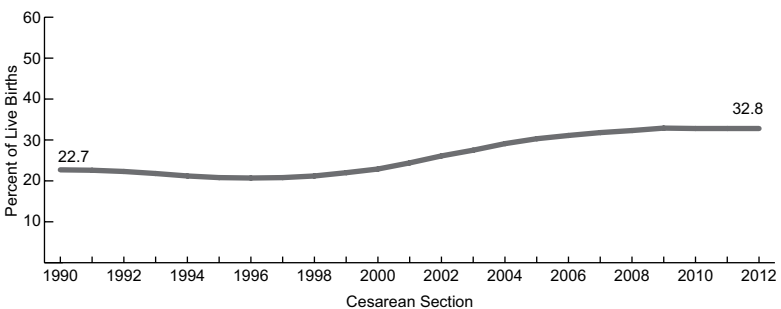
Cesarean delivery represents a potentially life-saving procedure for both mother and infant in cases of labor complications and health conditions that require early or immediate delivery.[45] However, in the absence of medical indications, cesarean sections can pose avoidable risks, including longer maternal recovery, neonatal respiratory problems, and potentially severe complications in subsequent pregnancies.[45,46] After increasing every year from 1996 to 2009, the U.S. cesarean delivery rate declined slightly between 2009 and 2010 from 32.9 percent to 32.8 percent and remained unchanged through preliminary data for 2012. Though no longer increasing, the current rate of about one in three births far exceeds the upper limit of 15 percent advised by the World Health Organization.[47]

Healthy People 2020 has set national objectives to reduce the cesarean delivery rate by ten percent among low-risk women giving birth for the first time and among low-risk women with a prior cesarean section.[48] Low-risk is defined as non-breech, singleton deliveries at 37 weeks or more gestation. In 2011, among the 36 states and District of Columbia that had implemented the 2003 revision to the standard birth certificate as of January 1st, 26.2 percent of low-risk women giving birth for the first time and 89.5 percent of low-risk women with a prior cesarean section delivered by cesarean. Cesarean delivery among low-risk, first births increased greatly with maternal age from 18.7 percent of women less than 20 years of age to 51.6 percent of women aged 40 and older. This pattern may partly reflect age-related increases in medical indications for cesarean delivery. However, the repeat cesarean rate among low-risk women was about 90 percent, regardless of maternal age.

Recently, cesarean delivery rates among low-risk pregnancies were found to vary fifteen-fold across U.S. hospitals from 2.4 percent to 36.5 percent, highlighting the importance of quality improvement and standardization in maternity care.[5] To reduce cesarean delivery rates, there have been calls to expand public and provider education, to tie payments to quality improvement, and to publicly report hospital-level data.[49,50]

Cesarean Delivery Rate, 1990-2012*

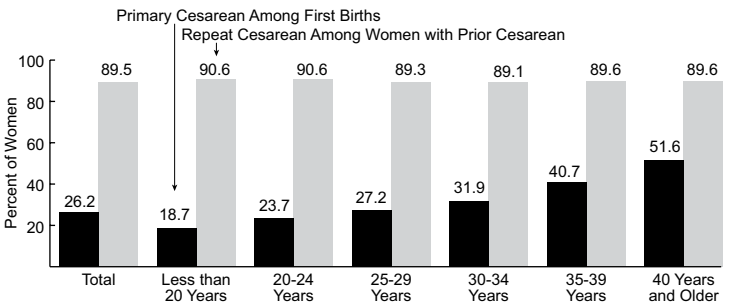
Source (I.1,I.2): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data for 2012 are preliminary.

Primary and Repeat Cesarean Delivery Rates Among Low-Risk Women,* by Age, 2011

Source (I.14): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Low risk is defined as non-breech, singleton deliveries at 37 weeks or more gestation; Data are from 36 states and the District of Columbia that implemented the 2003 revision of the birth certificate as of January 1, 2011, representing 83% of all US births.

POSTPARTUM DEPRESSIVE SYMPTOMS

The birth of a child is a major life event that can be joyous, but also stressful, as a result of new demands and responsibilities. Hormonal changes and lack of sleep can contribute to "baby blues" or mild depressive symptoms, such as sadness, crying, irritability, and trouble concentrating, which are common and may last for a few days to a week or two.[51] Postpartum depression occurs when these symptoms, including depressed mood and loss of interest in activities, are severe and last for more than two weeks.[52] Other symptoms can include changes in appetite, feelings of worthlessness or guilt, and suicidal thoughts. Postpartum depression can occur any time within the first year after childbirth.[53]

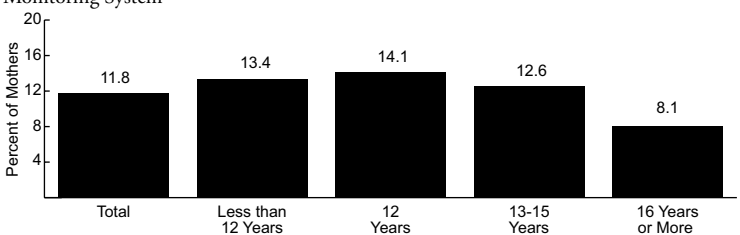
In 2009-2010, 11.8 percent of recent mothers in a 30-state area reported postpartum depressive symptoms since the birth of a child in the previous 2–9 months. Postpartum depressive symptoms were least common (8.1 percent) among mothers with at least 16 years of education as compared to mothers of all other educational groups. By maternal age, 14.6 percent of mothers aged 20-24 years experienced postpartum depression, compared to 10.2 percent of mothers 35 years or older (data not shown).

Postpartum depressive symptoms also varied by race and ethnicity. The proportion of mothers reporting such symptoms varied between some racial and ethnic groups. Non-Hispanic American Indian/Alaska Native mothers (16.6 percent) were significantly more likely to report such symptoms as compared to non-Hispanic Native Hawaiian/Other Pacific Islander mothers (11.4 percent). Factors that may increase the risk of postpartum depression include previous depressive episodes, stressful life events, financial instability and limited social support.[51,52]

Early diagnosis and treatment are important as postpartum depression can interfere with maternal-infant bonding and child development.[52] Treatment for postpartum depression may include both counseling and medications. Screening for depression is encouraged by the American College of Obstetricians and Gynecologists both during and after pregnancy, particularly for women with a history of major depression.[54]

Postpartum Depressive Symptoms* Among Mothers with a Recent Live Birth, by Maternal Education, 2009-2010**

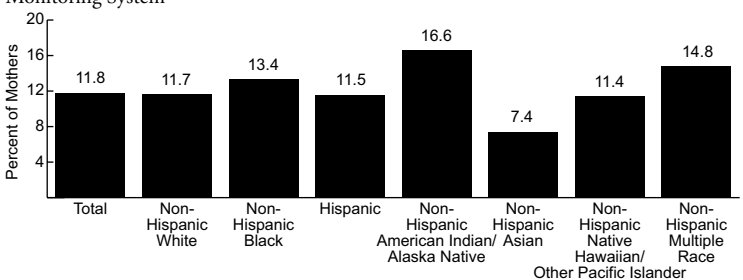
Source (I.3): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Defined as a sum of 10 or higher in response to 3 questions of how often the mother reported feeling down, depressed, or sad; hopeless; or slowed down since the birth of the baby, where 1=never, 2=rarely, 3=sometimes, 4=often, 5=always. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Postpartum Depressive Symptoms* Among Mothers with a Recent Live Birth, by Race/Ethnicity, 2009-2010**

Source (I.3): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Defined as a sum of 10 or higher in response to 3 questions of how often the mother reported feeling down, depressed, or sad; hopeless; or slowed down since the birth of the baby, where 1=never, 2=rarely, 3=sometimes, 4=often, 5=always. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

MATERNAL AGE

Adverse perinatal outcomes, including low birth weight, preterm birth, birth defects, and infant mortality, are generally higher for births to teenagers and women aged 35 and older.[55,56] According to preliminary data for 2012, there were 48.3 births per 1,000 women aged 35-39 years, a birth rate higher than those for teens aged 15-19 years (29.4 per 1,000 women), representing a reversal from just one to two decades earlier. However, birth rates were highest among women aged 25–29 years (106.5 births per 1,000 women), followed by those aged 30–34 years (97.3 births per 1,000 women).

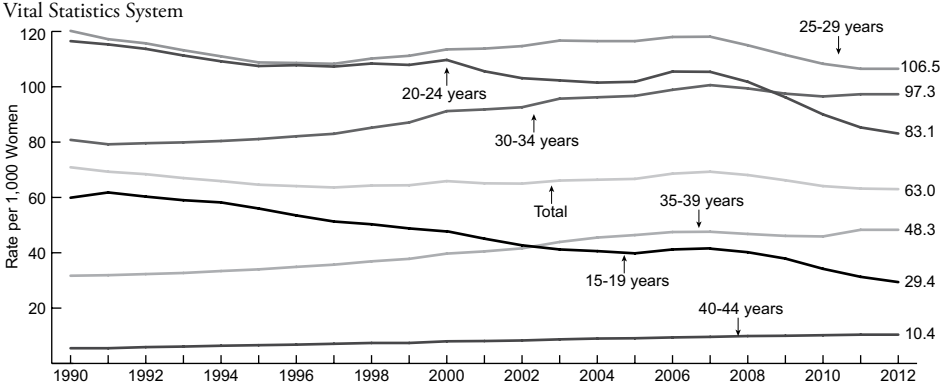
In 2012, according to preliminary data, the overall fertility rate among women aged 15-44 years was 63.0 births per 1,000 women—the lowest level ever reported. Only birth rates among women aged 30 years and older are higher now than in 1990, and those for 40- to 44-year-olds increased from 5.5 in 1990 to 10.4 per 1,000 in 2011. Conversely, birth rates among teenagers aged 15- 19 years and young women aged 20–24 years reached historic lows in 2012 (29.4 and 83.1 per 1,000 women, respectively).

A general decline in teen birth rates began after 1991, with rates having dropped in half since then. Although recent declines have been greater for teens from minority racial and ethnic groups, disparities persist. Birth rates among Hispanic and non-Hispanic Black teens aged 15-19 years (46.3 and 43.9 per 1,000, respectively) are more than twice that of non-Hispanic White teens (20.5 per 1,000) and over 4 times as high as that of Asian/Pacific Islander teens (9.7 per 1,000).

Birth rates for older women aged 35-39 and 40-44 years were highest among Asian-Pacific Islander women (68.1 and 16.1 per 1,000, respectively) and Hispanic women (51.5 and 13.2 per 1,000, respectively). Reflecting the racial/ethnic differences in age patterns of childbearing, birth rates peaked among 20- to 24-year-olds for non-Hispanic Black and American Indian/Alaska Native women (109.0 and 81.7 births per 1,000, respectively), compared to 25- to 29-year-olds for Hispanics and non-Hispanic Whites (119.6 and 104.4 per 1,000, respectively), and 30- to 34-year-olds for Asian/Pacific Islanders (121.4 per 1,000).

Live Births per 1,000 Women, by Age, 1990-2012*

Source (II.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data for 2012 are preliminary.

Live Births per 1,000 Women, by Age and Race/Ethnicity, 2012*

Source (II.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System

Race/Ethnicity	Total	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40-44 Years
Total	63.0	29.4	83.1	106.5	97.3	48.3	10.4
Non-Hispanic White	58.7	20.5	70.2	104.4	100.5	46.8	9.1
Non-Hispanic Black	65.0	43.9	109.0	101.7	75.1	38.9	9.6
Hispanic	74.4	46.3	111.4	119.6	94.3	51.5	13.2
American Indian/Alaska Native**	47.0	34.9	81.7	73.9	49.7	23.3	5.5
Asian/Pacific Islander**†	62.2	9.7	41.4	95.8	121.4	68.1	16.1

*Data are preliminary. **Includes Hispanics. †Separate data for Asians and Other Pacific Islanders are not available.

UNINTENDED PREGNANCY AND CONTRACEPTION USE

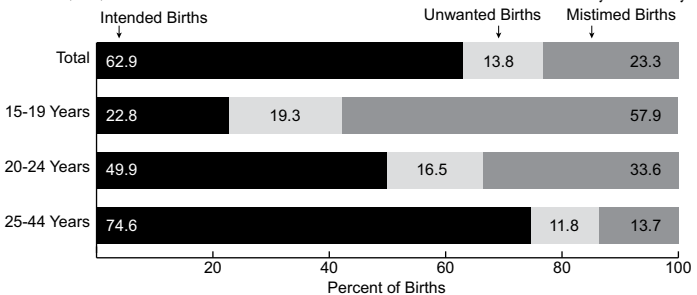
An unintended pregnancy is one that is mistimed (occurred too soon) or unwanted (occurred when the woman wanted no future pregnancies) at the time of conception. Unintended pregnancies that result in births are associated with both short- and long-term negative outcomes for both mother and child, including delayed prenatal care, reduced likelihood of breastfeeding, maternal depression, increased risk for intimate partner violence, and poor developmental and educational outcomes for children.[57] However, in 2006-2010, women reported that 37.1 percent of live births occurring in the past 5 years were unintended at the time of conception. This includes 13.8 percent of pregnancies that were unwanted and 23.3 percent that were mistimed. Fourteen percent of all births were reported by the mother to have occurred 2 or more years too soon (data not shown). Overall, the proportion of births reported to be unintended did not change significantly between 1982 and 2010.[58]

Unintended pregnancy varies by a variety of factors, including maternal age, race/ethnicity, poverty and education. In 2006–2010, over three-quarters of births in the past 5 years to mothers aged 15-19 years were reported to be unintended at the time of conception. The same was true for half of births to women aged 20-24 years and one-quarter to women aged 25-44 years. Births to non-Hispanic Black and Hispanic women were more likely than those to non-Hispanic White women to have been unintended (53.5 and 42.9 versus 30.7 percent, respectively; data not shown).[59]

Unintended pregnancies can be averted with proper use of effective contraceptives. In 2006–2010, 4.7 million, or 11.0 percent, of women at risk of unintended pregnancy—who were having intercourse and not sterile, pregnant, postpartum, or trying to get pregnant—reported that they were not using contraception. Non-Hispanic Black women were more likely than women of other race or ethnic groups to not use contraception while at risk of pregnancy (17.2 percent).

Intendedness of Births at Conception* Among Women Aged 15-44 Years, by Age, 2006–2010

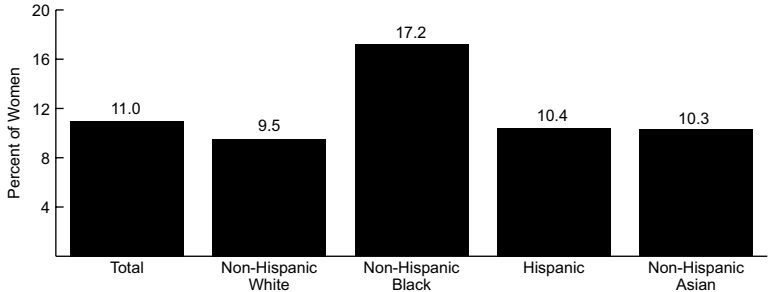
Source (II.2): Centers for Disease Control and Prevention, National Survey of Family Growth



*Limited to births occurring in the 5 years before the interview. Percentages may not add to 100 due to rounding.

No Current Contraceptive Use Among Women Aged 15-44 Years, at Risk of Unintended Pregnancy,* by Race/Ethnicity, 2006–2010**

Source (II.3): Centers for Disease Control and Prevention, 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, postpartum, trying to get pregnant, or sterile for health reasons.
**Estimates for other racial/ethnic groups were not available.

PREGNANCY SPACING

The amount of time between a live birth and the beginning of the next pregnancy, or the interpregnancy interval (IPI), can impact the health of both mother and infant. Short IPIs (generally defined as less than 18 months)[57,60] have been associated with adverse perinatal outcomes, including preterm birth, low birth weight, and small size for gestational age[61] as well as adverse maternal outcomes including uterine rupture among women attempting a vaginal birth after a cesarean, placental abruption and placenta previa.[62]

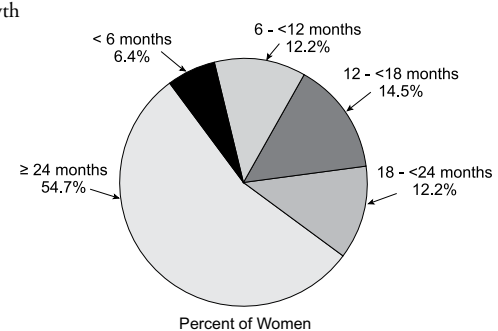
In 2006-2010, 33.1 percent of pregnancies among females aged 15-44 years were conceived within 18 months of a previous live birth. This includes 6.4 percent that were conceived within less than 6 months of a previous live birth, 12.2 percent that were conceived between 6 and 12 months of a previous live birth, and 14.5 percent that were conceived between 12 and 18 months of a previous live birth. The remaining 66.9 percent of pregnancies were conceived at least 18 months after a previous live birth.

Few differences were observed among women with respect to the proportion who conceived within 18 months of a previous live birth. Hispanic women were less likely than non-Hispanic White and non-Hispanic Black females to conceive a pregnancy within 18 months of a previous live birth (25.3 percent compared to 35.5 and 39.0 percent, respectively) as were women with incomes at or above 100% of poverty (30.9 percent) compared to those with incomes below poverty (38.5 percent; data not shown).

Non-Hispanic Black women were more likely than non-Hispanic Whites to conceive within 6 months of a previous birth (10.3 percent versus 5.4 percent) as were those living in poverty (10.9 percent) compared to those with incomes at or above poverty (4.6 percent), and those with less than a high school education (11.3 percent) compared to those with some college (5.3 percent; data not shown).

Pregnancy Spacing Among Women Aged 15-44 Years with a Previous Live Birth,* 2006-2010

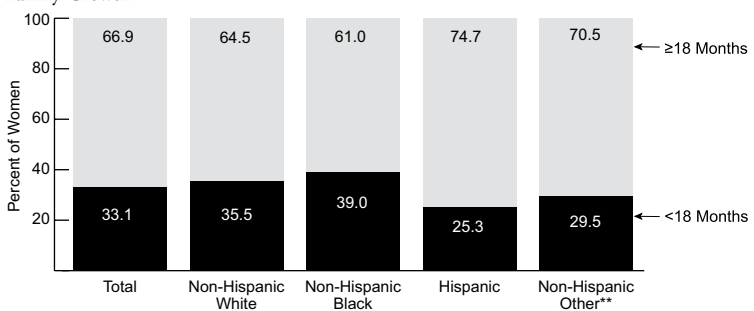
Source (II.4): Centers for Disease Control and Prevention, National Survey of Family Growth



*Limited to births occurring in the 5 years before the interview. Percentages may not add to 100 due to rounding.

Pregnancy Spacing Among Women Aged 15-44 Years with a Previous Live Birth,* by Race/Ethnicity, 2006-2010

Source (II.4): Centers for Disease Control and Prevention, National Survey of Family Growth



*Limited to births occurring in the 5 years before the interview. Percentages may not add to 100 due to rounding. **Includes individuals of two or more races.

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.[63] As many women are not aware of being pregnant at first, it is important to establish healthy behaviors and achieve optimal health well before pregnancy. Key indicators of preconception health include not smoking or abusing alcohol prior to pregnancy, taking a daily multi-vitamin, and maintaining a healthy weight.[64]

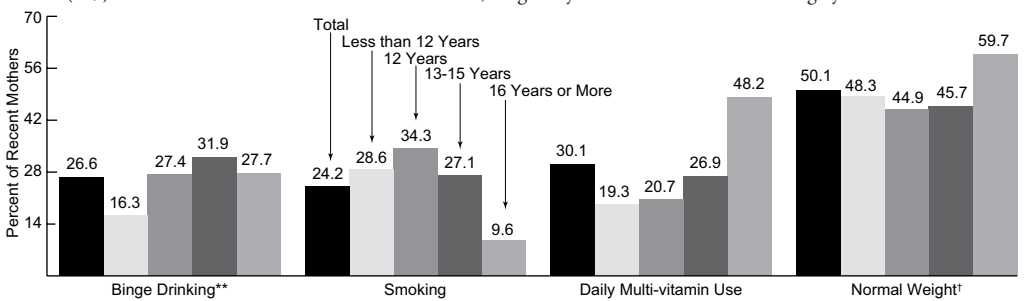
Frequent use of alcohol, especially early in pregnancy, can cause fetal alcohol syndrome and alcohol-related birth defects.[63,65] Smoking also increases the risk of pregnancy complications, preterm birth, and low birth weight.[63] In 2009–2010, about one in four recent mothers in a 30-state area reported binge drinking (consuming 4 or more drinks in a sitting) at least once within 3 months prior to pregnancy (26.6 percent) and 24.2 percent reported smoking during the same time period. Smoking prior to pregnancy varied by maternal education, ranging from 9.6 percent of mothers with 16 or more years of education to 34.3 percent of mothers with 12 years of education. Binge drinking was most common among mothers with 13-15 years of education (31.9 percent), and least common among those who had less than 12 years (16.3 percent). Binge drinking and smoking in the three months prior to pregnancy also tend to be more common among younger mothers. For example, among 20- to 24-year-old women, 31.1 percent reported binge drinking in the 3 months prior to pregnancy and 35.3 percent reported smoking, compared to 18.6 and 13.3 percent, respectively, among women aged 35 and older (data not shown).

Daily use of multi-vitamins containing folic acid can reduce the risk of neural tube defects in infants by two-thirds.[28] In 2009-2010, only 30.1 percent of recent mothers reported daily multi-vitamin use in the month prior to pregnancy. With regard to maternal education, half (48.2 percent) of women with 16 or more years of education reported taking a daily multi-vitamin in the month prior to pregnancy compared to about 20 percent of women with 12 years or less.

Women should also attain a healthy weight prior to pregnancy to prevent complications, such as diabetes and hypertension, which may increase the risk of preterm delivery.[63] About half of new mothers (50.1 percent) reported a healthy pre-pregnancy weight. This proportion varied by maternal age, with teenage mothers being the most likely to have had a normal pre-pregnancy weight (58.7 percent; data not shown). With respect to race and ethnicity, Non-Hispanic Asian mothers were most likely to have a healthy pre-pregnancy weight (66.2 percent, as compared to mothers of all other racial and ethnic groups (data not shown).

Selected Preconception Health Indicators Among Recent Mothers, by Maternal Education, 2009-2010*

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum. **Defined as drinking 4 or more alcohol drinks in one sitting at least once in the 3 months prior to pregnancy. †Defined as a pre-pregnancy body mass index (ratio of weight to height) between 18.5 and 24.9.*

SMOKING DURING PREGNANCY

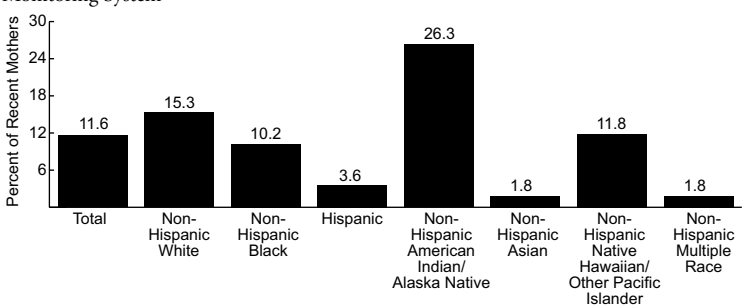
Smoking during pregnancy can have a negative impact on the health of women, infants, and children by increasing the risk of fertility problems and pregnancy complications, as well as preterm birth, low birth weight, some birth defects, and sudden infant death syndrome.[66] Secondhand smoke exposure during pregnancy has also been associated with increased risk for low birth weight.[67]

In 2009–2010, 11.6 percent of recent mothers in a 30-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 race and ethnicity. About one-quarter of non-Hispanic American Indian/Alaska Native mothers (26.3 percent) reported having smoked in the last 3 months of pregnancy, while fewer than 5 percent of non-Hispanic Asian and Hispanic mothers reported doing so (1.8 and 3.6 percent, respectively). Smoking in the last 3 months of pregnancy also varied by maternal education, and was least common (2.0 percent) among mothers with at least 16 years of education. This behavior also tends to be more common among younger mothers: among 20- to 24-year-old women, 17.8 percent reported smoking during the last 3 months of pregnancy, compared to 6.1 percent among women aged 35 years and older (data not shown).

Due to awareness of the neonatal health consequences of smoking, pregnancy may be a period of heightened motivation to quit. In 2009–2010, 52.9 percent of recent mothers who reported smoking in the 3 months prior to pregnancy had not smoked in the last 3 months of pregnancy. Prenatal smoking cessation increased with maternal education, ranging from 39.1 percent of mothers with less than 12 years of education to 80.0 percent of mothers with at least 16 years of education. Non-Hispanic Asian and Hispanic mothers had the highest rates of perinatal smoking cessation at 74.0 and 71.6 percent, respectively, as compared to mothers of all other racial and ethnic groups (data not shown). In addition to clinical screening and counseling,[68] increases in state tobacco taxes and smoke-free laws have been shown to improve prenatal smoking cessation.[69]

Cigarette Smoking in the Last 3 Months of Pregnancy, by Race/Ethnicity, 2009-2010*

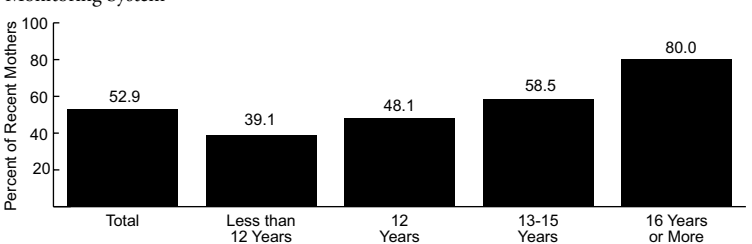
Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Smoking Cessation During Pregnancy,* by Maternal Education, 2009-2010**

Source (II.5): 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 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

ALCOHOL USE DURING PREGNANCY

Drinking alcohol, in any amount, is not recommended for women who are pregnant or may become pregnant.[70] When a pregnant woman consumes alcohol, the alcohol passes across the placenta to the fetus and can increase the risks of miscarriage, stillbirth, and serious and lifelong disorders known as fetal alcohol spectrum disorders (FASDs). Children with FASD may experience delayed development, poor muscle tone, heart defects, and malformation in their faces.[71] In order to prevent FASD, a woman should not drink alcohol during pregnancy, when she is trying to conceive, or if she is sexually active and not using effective contraception.[72]

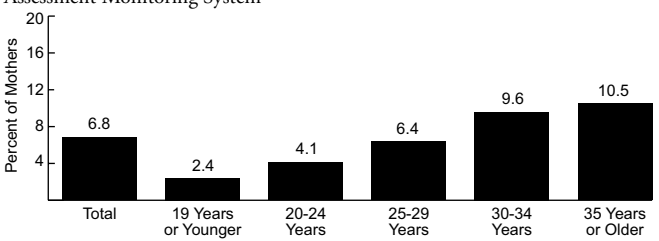
In 2009-2010, any alcohol use during the last three months of pregnancy was reported by 6.8 percent of mothers. The proportion of mothers reporting alcohol use during the last trimester of pregnancy increased with maternal age, ranging from 2.4 percent of those aged 19 years or younger to about 10 percent of women aged 30 years or older. With respect to maternal education, drinking during the last trimester of pregnancy was more common among mothers with 16 years or more of education (11.4 percent) and least common among those with less than 12 years of education (3.5 percent) (data not shown).

Cessation of alcohol use during pregnancy is a key public health issue, as more than half (52.8 percent) of mothers reported that they had consumed alcohol during the three months prior to pregnancy (data not shown). Among those who had consumed alcohol prior to pregnancy, 87.5 percent reported that they did not drink during their third trimester. Non-Hispanic Asian mothers (81.7 percent) were significantly less likely to stop consuming alcohol as compared to mothers of all other racial and ethnic groups. The proportion of mothers to report cessation of alcohol use varied by maternal age, with cessation more common among younger mothers (data not shown).

Some women may need professional help in order to overcome dependency on alcohol. The Centers for Disease Control and Prevention recommends that women contact their doctors, Alcoholics Anonymous, or a local alcohol treatment center.[72] The Substance Abuse and Mental Health Services Administration (SAMHSA) has a treatment facility locator (http://findtreatment.samhsa.gov/).

Any Alcohol Use During the Last 3 Months of Pregnancy, by Maternal Age, 2009-2010*

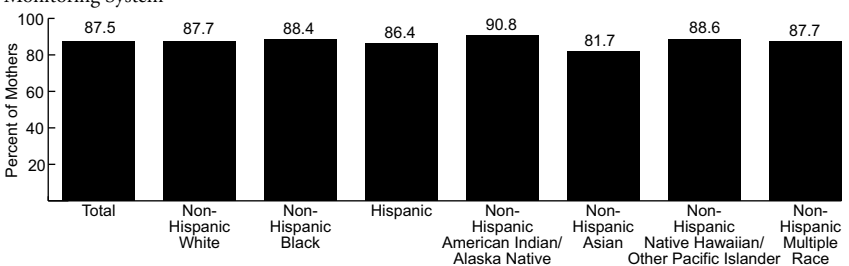
Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years; mothers completed surveys between 2 and 9 months postpartum.

Cessation of Alcohol Use Prior to the Last 3 Months of Pregnancy, by Race/Ethnicity, 2009-2010*,**

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years; mothers completed surveys between 2 and 9 months postpartum. **Includes data from mothers who reported alcohol use prior to pregnancy.

WEIGHT GAIN DURING PREGNANCY

Gaining too much or too little weight during pregnancy can produce immediate and long-term health risks to a woman and her infant.[73] Excessive weight gain may increase the risk of pregnancy complications, cesarean delivery, larger infant birth weight, and postpartum weight retention that may lead to obesity and other related health risks in subsequent pregnancies. Although inadequate weight gain poses little health risk to mothers, it may result in small or growth-restricted infants, which increases the risk for infant mortality and developmental delays.[73]

Recommendations regarding gestational weight gain vary based on a woman's pre-pregnancy body mass index—a ratio of weight to height. According to the Institute of Medicine, women of normal weight are recommended to gain between 25 and 35 pounds while those who are underweight should gain slightly more and those who are overweight or obese at the beginning of pregnancy should gain significantly less. Weight gains below these recommended levels may be considered inadequate, while those above may be excessive. Among women in a 30-state reporting area who delivered singleton infants at 37+ weeks' gestation in 2009–2010, only about 1 in 3 or 31.8 percent gained the recommended amount of weight and nearly half (47.8 percent) gained an excessive amount of weight during pregnancy. About one in five women (20.5 percent) gained an inadequate amount of weight in pregnancy.

Compared to women of other racial and ethnic groups, non-Hispanic Asian women were most likely to gain the recommended amount of weight (39.3 percent) and least likely to gain an excessive amount (33.3 percent). Excessive weight gain exceeded 50 percent among non-Hispanic Native Hawaiian/Other Pacific Islander and non-Hispanic women of multiple races, with rates that were significantly higher than those for non-Hispanic Black, Hispanic and non-Hispanic Asian women. Conversely, about 1 in 4 Hispanic, non-Hispanic Black, and non-Hispanic Asian women had inadequate weight gain. Prenatal care appointments provide an important opportunity to monitor weight gain and receive counseling for dietary and physical activity modifications to meet recommended levels.[73]

Recommended Total Gestational Weight Gain (Pounds), by Pre-Pregnancy Weight,* Institute of Medicine, 2009

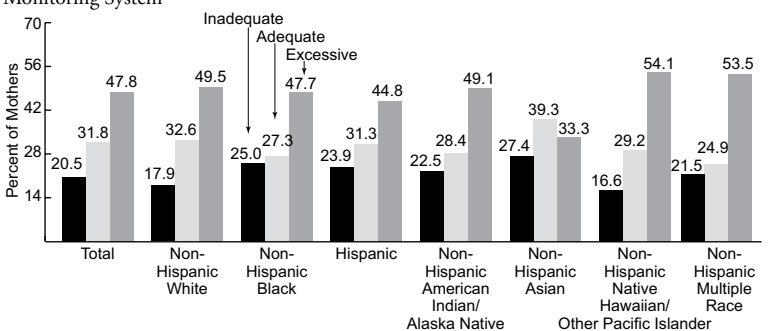
Source (II.6): Institute of Medicine

Pre-pregnancy Weight*	Inadequate	Adequate	Excessive
Underweight	<28	28-40	>40
Normal Weight	<25	25-35	>35
Overweight	<15	15-25	>25
Obese	<11	11-20	>20

**Underweight is defined as having a Body Mass Index (BMI) of less than 18.5; Normal Weight is defined as having a BMI between 18.5 and 24.9; Overweight is defined as having a BMI between 25.0 and 29.9; Obesity is defined as having a BMI of 30.0 or more; recommendations for total weight gain apply to women delivering singleton infants at term (37+ weeks' gestation).*

Gestational Weight Gain Adequacy*, by Race/Ethnicity, 2009-2010**

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Defined according to IOM gestational weight gain recommendations for women delivering singleton infants at term (37+ weeks' gestation). **Includes data from a total of 30 states and New York City; 25 states contributed all 3 years. Mothers completed surveys between 2 and 9 months postpartum.*

STRESS DURING PREGNANCY

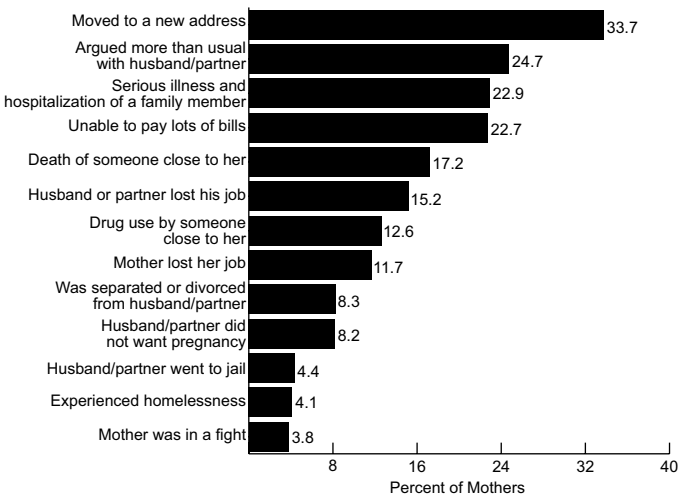
The health and emotional well-being of a woman, both before and during her pregnancy, can impact the future health of her child. Experiencing stressful events or environmental hardships, such as financial instability, the death of a loved one, or divorce, while pregnancy can place an additional strain on a woman and increase her likelihood of adverse birth outcomes, including preterm birth and low birthweight.[74,75] Pregnant women are encouraged to utilize their support networks to help manage stress and to speak with their provider if they experience depression.[76]

In 2009-2010, nearly three-fourths of recent mothers in a 30-state area reported that they had experienced at least one stressful event in the 12 months prior to delivery of their child. The most commonly reported stressful events were moving to a new address (33.7 percent), arguing with husband or partner more than usual (24.7 percent), serious illness and hospitalization of a family member (22.9 percent), and inability to pay lots of bills (22.7 percent).

The proportion of mothers reporting that they had experienced at least one stressful event ranged from 80.1 percent among Non-Hispanic American Indian/Alaska Native women to 56.4 percent among non-Hispanic Asian women. Experiencing six or more stressful events was most common among non-Hispanic American Indian/Alaska Native mothers (13.6 percent), and least common among non-Hispanic Asian mothers (1.0 percent).

Stressful Events Experienced During the 12 Months Prior to Delivery, 2009-2010*

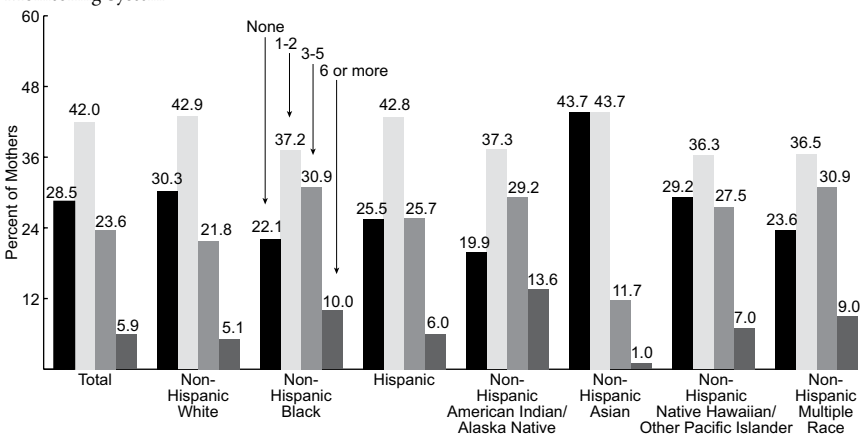
Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.*

Mothers Experiencing Stressful Events* During the 12 Months Prior to Delivery, by Number of Events and Race/Ethnicity, 2009-2010**

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Total number of stressful events experienced by the mother from the following: moved to a new address, argued more than usual with husband/partner, serious illness and hospitalization of a family member, unable to pay lots of bills, death of someone close to her, husband/partner lost job, drug use by someone close to her, lost job, was divorced or separated, husband/partner did not want job, experience homeless, husband/partner went to jail, was in a fight. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.*

INTIMATE PARTNER VIOLENCE AND PREGNANCY

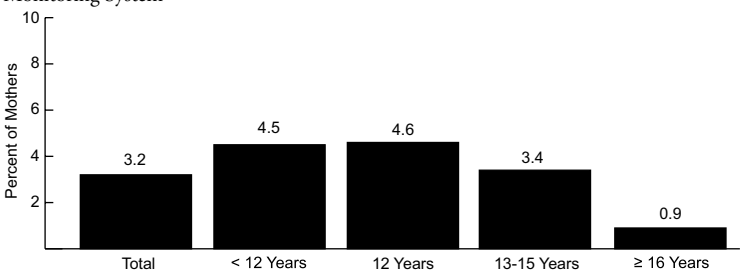
In 2009-2010, 3.9 percent of women with a recent live birth in a 30-state area reported that they had been pushed, hit, slapped, kicked, choked or physically hurt in some other way by an intimate partner in the 12 months prior to becoming pregnant, and 3.2 percent reported experiencing this type of abuse during their most recent pregnancy. Intimate partner violence (IPV), including physical, sexual, and psychological abuse, before and during pregnancy has been associated with adverse maternal and infant outcomes, including preterm birth and low birth weight.[77]

The prevalence of IPV during pregnancy among women with a recent live birth varied by maternal characteristics. Teen mothers were more likely than older mothers to have experienced physical abuse by an intimate partner during their pregnancy. Nearly 7 percent of teen mothers reported IPV during pregnancy, compared to 5.0 percent of mothers aged 20-24 years, 2.7 percent of those aged 25-29 years, and less than 2 percent of those 30 and older (data not shown). Rates of IPV during pregnancy were similar for mothers with 12 years of education or less (approximately 4.5 percent) while less than 1.0 percent of women with 16 or more years of education experienced such abuse. Non-Hispanic American Indian/Alaska Native and non-Hispanic Black women were most likely to experience IPV during pregnancy (6.5 and 5.8 percent, respectively) while non-Hispanic Asian mothers were least likely (1.5 percent; data not shown).

IPV in the year prior to pregnancy was also more common among younger mothers and mothers with less education. In 2009-2010, more than 7 percent of teen mothers reported experiencing physical abuse in the year prior to their pregnancy, compared to less than 2 percent of mothers aged 35 years and older. Similarly while approximately 5.6 percent of mothers with 12 years of education or less reported past-year abuse, the same was true for 1.0 percent of women with 16 years of education or more (data not shown). Experience of past-year abuse remained highest among non-Hispanic American Indian/Alaska Native and non-Hispanic Black women (7.6 and 6.1 percent, respectively), compared to 3.1 percent of non-Hispanic White mothers and 4.8 percent of Hispanic mothers (data not shown).

Intimate Partner Violence* During Pregnancy, by Maternal Education, 2009-2010**

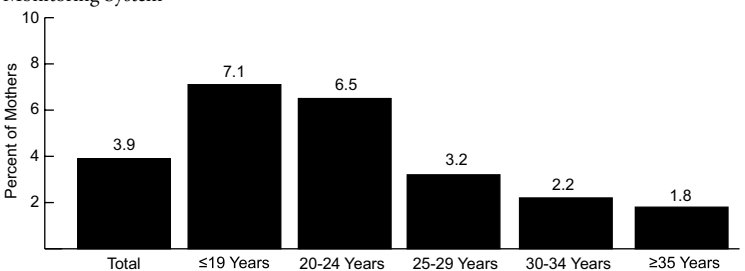
Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Defined as having been pushed, hit, slapped, kicked, choked or physically hurt in some other way by an intimate partner. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.*

Intimate Partner Violence* During 12 Months Prior to Pregnancy, by Maternal Age, 2009-2010**

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



**Defined as having been pushed, hit, slapped, kicked, choked or physically hurt in some other way by an intimate partner. **Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.*

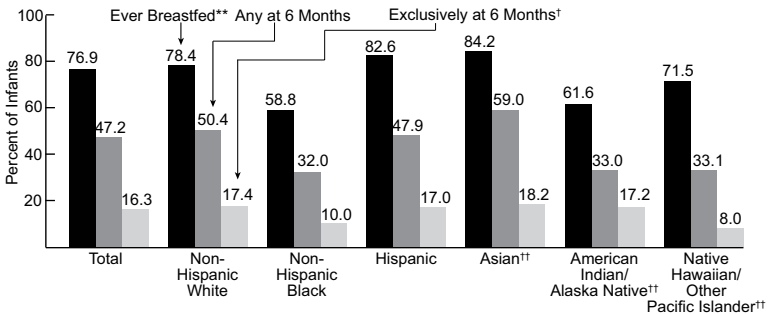
BREASTFEEDING

Breastfeeding has been shown to promote the health and development of infants, as well as their immunity to disease. It also confers a number of maternal benefits, such as a decreased risk of breast and ovarian cancers and other chronic conditions, including cardiovascular disease.[78,79] Among infants born in 2009, 76.9 percent were reported to have ever been breastfed, representing a significant increase over the 70.9 percent of infants ever breastfed in 2000.[80] The American Academy of Pediatrics Section on Breastfeeding recommends exclusive breastfeeding—with no supplemental food or liquids—through the first 6 months of life, and continued supplemental breastfeeding through at least the first year.[81] Studies have indicated that if 90 percent of US newborns breastfed exclusively for their first 6 months, direct medical costs could be reduced by $2.2 billion annually.[82] Breastfeeding practices vary considerably by maternal race/ethnicity, education, age, and income. With respect to race and ethnicity, the proportion of infants to have ever been breastfed was higher among Asian, Hispanic, and non-Hispanic White infants (84.2, 82.6, and 78.4 percent, respectively) as compared to non-Hispanic Black infants (58.8 percent). The proportion of infants to breastfeed was highest among those born to mothers with at least a college education (89.0 percent) as compared to mothers of all other educational levels. Children born to mothers aged 30 years or older were the most likely to have been breastfed (81.7 percent), while children born to mothers aged less than 20 years were the least likely to (55.4 percent; data not shown).

Overall, less than half (47.2 percent) of infants born in 2009 were fed breastmilk for the first six months of life and 16.3 percent were exclusively breastfed. The proportion of infants to exclusively breastfeed was highest among those born to mothers with at least a college education (21.3 percent) as compared to mothers all other educational levels. Common barriers to exclusive breastfeeding include maternal employment, pain related to breastfeeding, and unsupportive hospital policies.[83] The Patient Protection and Affordable Care Act requires most health insurance plans to provide breastfeeding support, counseling, and equipment to pregnant and nursing women (see page 41).[84]

Infants* Who Are Breastfed by Race/Ethnicity and Duration, 2009

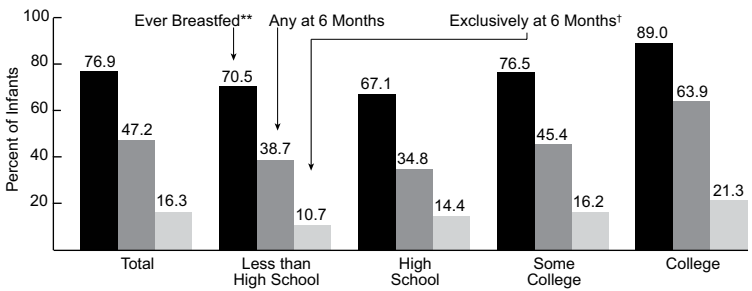
Source (II.7): Centers for Disease Control and Prevention, National Immunization Survey



*Includes only infants born in 2009; data are preliminary. **Reported that child was ever breastfed or fed human breastmilk. †Exclusive breastfeeding is defined as only human breastmilk—no solids, water, or other liquids. ††Includes Hispanics.

Infants* Who Are Breastfed by Maternal Education and Duration, 2009

Source (II.7): Centers for Disease Control and Prevention, National Immunization Survey



*Includes only infants born in 2009; data are preliminary. **Reported that child was ever breastfed or fed human breastmilk. †Exclusive breastfeeding is defined as only human breastmilk—no solids, water, or other liquids.

SAFE SLEEP BEHAVIORS

Safe sleep behaviors are practices that reduce the risk of Sudden Infant Death Syndrome (SIDS) and sleep-related suffocation. SIDS and other sleep-related infant deaths, sometimes called Sudden Unexpected Infant Deaths (SUID), accounted for 15 percent of all infant deaths in 2010 (see page on SIDS/SUID).

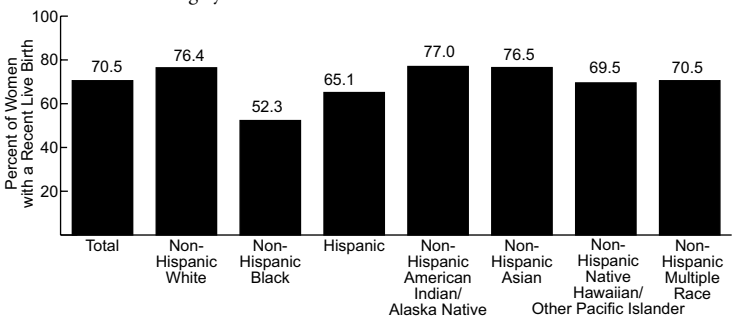
To reduce the risk of SIDS and other sleep-related infant deaths, the American Academy of Pediatrics (AAP) recommends that all infants be placed on their backs (known as supine position) by their caregiver for every sleep until 1 year of age.[85] In 2009-2010, 70.5 percent of recent mothers reported that their infant was laid down to sleep on his or her back most of the time. The proportion of mothers reporting this safe sleep behavior was highest among non-Hispanic White, non-Hispanic American Indian/Alaska Native, and non-Hispanic Asian mothers (76.4, 77.0 , and 76.5 percent, respectively) and was lowest among non-Hispanic Black mothers (52.3 percent).

It is also recommended that infants sleep on a firm sleep surface, without loose bedding, in the same room but not the same bed or sleep surface as parents or other persons.[85] Bed-sharing can increase the risk of SIDS and suffocation. The proportion of mothers reporting that they never practiced bed-sharing was highest among non-Hispanic White mothers (44.9 percent) and lowest among non-Hispanic Black and Asian mothers (19.1 and 19.9 percent, respectively). Conversely, non-Hispanic Black, non-Hispanic Asian and non-Hispanic Native Hawaiian/Other Pacific Islander mothers were the most likely to report that they always or often shared a bed with their infant (37. 6, 41.4 and 39.2 percent, respectively), while non-Hispanic White women were least likely to do so (16.5 percent).

Resources to educate caregivers regarding ways to reduce the risk for SIDS and other sleep-related causes of infant death are provided by the Safe to Sleep® campaign (previously known as the Back to Sleep campaign).[86] This collaborative effort was renamed and expanded in 2012 to reflect the AAP's broader recommendations and to address all sleep-related infant deaths.

Women with a Recent Live Birth Who Reported That Their Infants Were Usually Placed on Their Backs to Sleep, by Maternal Race/Ethnicity, 2009-2010*

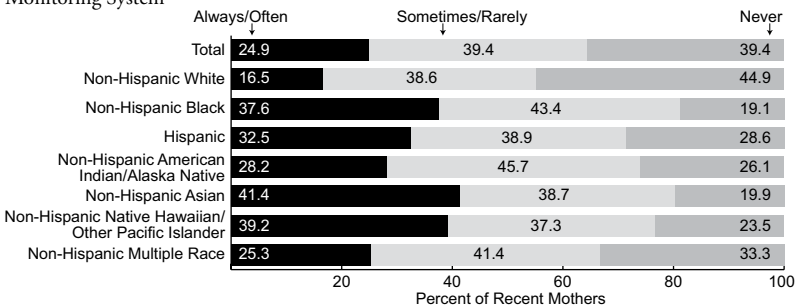
Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Bed-Sharing Among Recent Mothers, by Maternal Race/Ethnicity, 2009-2010*

Source (II.5): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from 16 states; 13 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

IMPAIRED FECUNDITY AND INFERTILITY SERVICES

Infertility generally refers to difficulties in becoming pregnant after trying for 1 year, whereas impaired fecundity includes problems either in becoming pregnant or carrying a pregnancy to term.[87] Factors that can increase a women's risk of infertility or impaired fecundity include older age, smoking, excessive alcohol use, being severely over- or underweight, a history of sexually transmitted infections, and certain health conditions such as polycystic ovarian syndrome (PCOS) which can interfere with ovulation.[87]

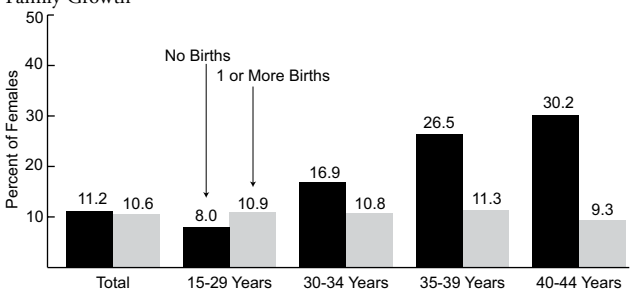
In 2006–2010, 10.9 percent of women aged 15-44 had impaired fecundity (data not shown). Among nulliparous women—those without a previous birth—prevalence of impaired fecundity increased with age from 6.4 percent of women aged 15-24 to 30.2 percent of women aged 40-44. In contrast, impaired fecundity did not vary greatly with age among women with a previous birth, ranging from 9 to 12 percent across age groups. Among women with a previous birth, the proportion who are surgically sterile (i.e., tubal ligation or hysterectomy) increases to 55.4 percent of women by age 40-44, and thus a smaller proportion are at risk of impaired fecundity (data not shown).

Difficulties having a baby can be addressed with medicines, surgery, artificial insemination, and assisted reproductive technology (ART).[87] In 2006–2010, 11.9 percent of women aged 15-44 years reported that they or their spouses or partners had ever received some form of infertility service and 4.9 percent had received medical help to prevent a miscarriage (data not shown). The most common type of infertility service received was advice (6.5 percent), followed by infertility testing (5.0 percent) and medications to improve ovulation (4.0 percent). Between one-fifth and one-quarter of nulliparous women aged 35-39 and 40-44, respectively, had ever received infertility services.

Between 2000-2009, the number of ART treatment cycles (or fertility treatments in which both eggs and sperm are handled) performed in the U.S. increased from 99,629 to 146,244 and the resulting number of infants born more than doubled (from 35,025 to 60,190).[88]

Impaired Fecundity* Among Females Aged 15-44 Years, by Age and Parity, 2006–2010

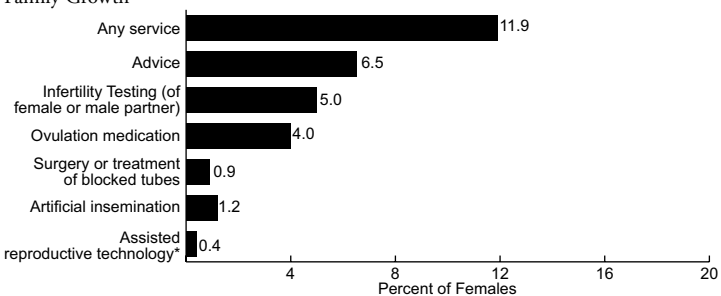
Source (II.8): Centers for Disease Control and Prevention, National Survey of Family Growth



Impaired fecundity is defined as having problems getting pregnant or carrying a baby to term, for reasons unrelated to surgical sterility.

Types of Infertility Services Received by Females Aged 15-44 Years, 2006–2010

Source (II.8): Centers for Disease Control and Prevention, National Survey of Family Growth



Assisted reproductive technology (ART) includes all fertility treatments in which both eggs and sperm are handled outside of the body. Generally, ART procedures involve surgically removing eggs from a woman's ovaries, combining them with sperm in the laboratory, and returning them to the woman's body or donating them to another woman.

PRENATAL CARE UTILIZATION

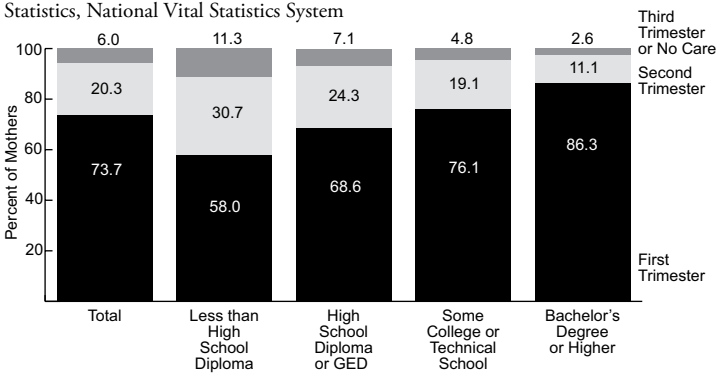
Early and adequate prenatal care helps to promote healthy pregnancies through screening and management of a woman's risk factors and health conditions, as well as education and counseling on healthy behaviors during and after pregnancy.[89] In 2011, among the 36 states and District of Columbia that had implemented the 2003 revision to the standard birth certificate as of January 1st and collected prenatal care information in the same format, 73.7 percent of women giving birth received early prenatal care in the first trimester, while 6.0 percent of women began prenatal care in the third trimester or did not receive any prenatal care.

Rates of first trimester prenatal care increased with greater educational attainment, from only 58.0 percent of mothers with less than a high school diploma to 86.3 percent of mothers with a bachelor's degree or higher. First trimester prenatal care initiation was highest among non-Hispanic White and non-Hispanic Asian women (78.8 and 77.8 percent, respectively), followed by Hispanic (68.3 percent) and non-Hispanic Black women (63.4 percent), while non-Hispanic American Indian/Alaska Native and non-Hispanic Native Hawaiian/Other Pacific Islander women had the lowest rates of early prenatal care (59.0 and 55.7 percent, respectively; data not shown).

In 2011, 84.8 percent of women in 37 jurisdictions received adequate prenatal care, defined as receiving 80 percent or more of expected visits given the timing of prenatal care entry and gestational age at delivery. Non-Hispanic American Indian/Alaska Native and non-Hispanic Native Hawaiian and Other Pacific Islander mothers were least likely to receive adequate care (76.7 and 77.9 percent, respectively), followed by non-Hispanic Black mothers (80.8 percent). Of women with a college degree, 88.1 percent had received adequate care upon initiation compared to 79.2 percent of women without a high school diploma (data not shown).

Timing of Prenatal Care Initiation,* by Maternal Education, 2011

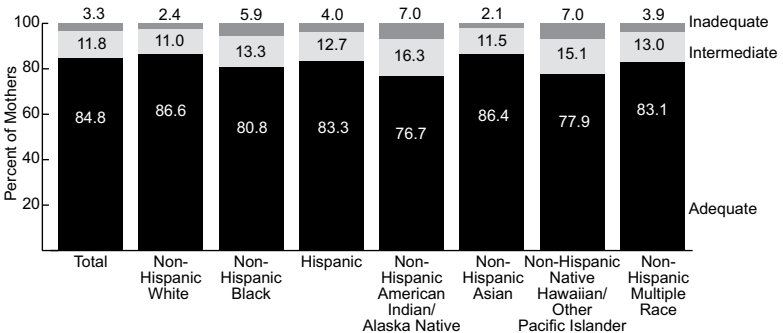
Source (III.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Data are from 36 states and the District of Columbia that implemented the 2003 revision of the birth certificate as of January 1, 2011, representing 83% of all U.S. births. Percentages may not total to 100 due to rounding.

Adequacy of Prenatal Care Utilization Upon Initiation,* by Maternal Race/Ethnicity, 2011

Source (III.1): Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System



*Based on a ratio of observed to expected prenatal care visits given the timing of prenatal care entry and gestational age at delivery (Kotelchuck Index): adequate prenatal care is defined as receiving ≥80% of expected visits, intermediate is receipt of 50–79.9% of expected visits, and inadequate is receipt of <50% of expected visits. Data are from 36 states and the District of Columbia that implemented the 2003 revision of the birth certificate as of January 1, 2011, representing 83% of all U.S. births. Percentages may not total to 100 due to rounding.

BARRIERS TO PRENATAL CARE

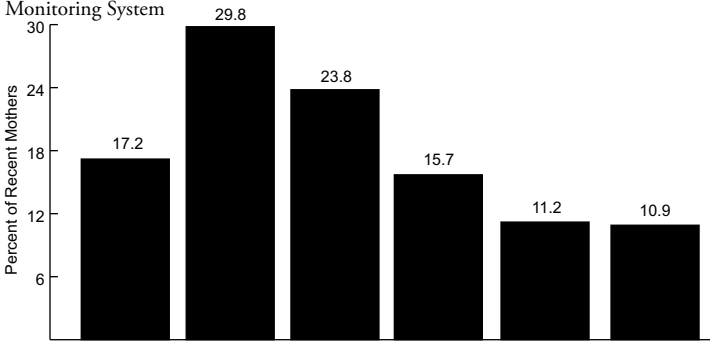
Early and adequate prenatal care is important for ensuring a healthy pregnancy. It is recommended that women schedule their first prenatal visit as soon as they think they might be pregnant.[90] Unfortunately, not all mothers are able to access early prenatal care (see also *Prenatal Care Utilization*).

In 2009-2010, 17.2 percent of recent mothers in a 30-state area reported that they were not able to access prenatal care as early as they had wanted. Mothers aged 19 years or younger were the most likely to report delayed prenatal care (29.8 percent) as compared to all other age groups. With respect to race and ethnicity, the proportion of mothers reporting delayed access to care was highest among non-Hispanic American Indian/Alaska Native mothers, non-Hispanic mothers of multiple race, and non-Hispanic Black mothers (24.2 percent, 23.2, and 22.2 percent, respectively), as compared to non-Hispanic Asian mothers, and was lowest among non-Hispanic White mothers (15.1 and 14.7 percent, respectively; data not shown). These patterns are consistent with first trimester entry rates into prenatal care (see also Prenatal Care Utilization).

Common barriers to getting prenatal care as early as desired (or at all) can include limited resources, transportation issues, and not knowing that one is pregnant. In 2009-2010, more than one-third (37.1 percent) of mothers who reported delayed care attributed this to not knowing that they were pregnant. Additionally, a lack of resources was a common barrier, as 38.7 percent of mothers reported that care had been delayed because they lacked the money or insurance to pay for their visits, while 36.4 percent of mothers cited not having a Medicaid card. More than half (59.0 percent) of women who reported experiencing a delay in care listed 1 or 2 of the barriers described below, while 34.9 percent reported experiencing 3 or more of the listed barriers.

Mothers Who Experienced Barriers to Receiving Prenatal Care as Early as Desired, by Maternal Age, 2009–2010*

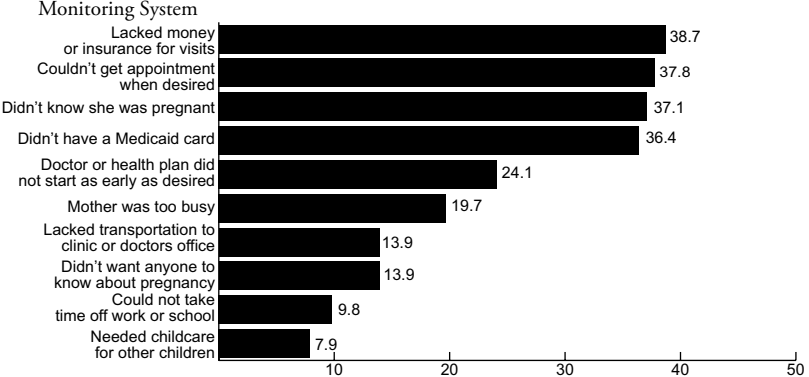
Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Barriers to Receiving Prenatal Care at All or as Early as Desired Among Women Who Reported Delayed Care, 2009–2010*

Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

COUNSELING RECEIVED DURING PRENATAL CARE

Prenatal care visits are an opportunity for a health care provider to discuss a variety of health and safety topics with the expectant mother. This can include such topics as injury prevention, genetic screening, infant care, and domestic violence.

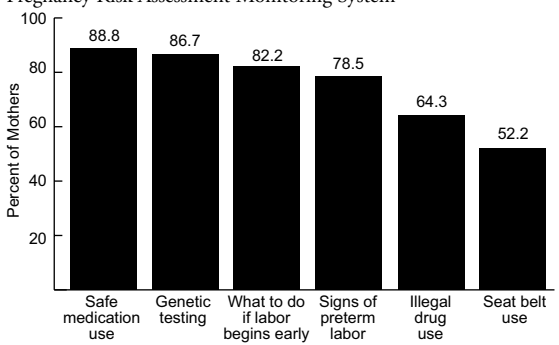
In 2009-2010, more than three quarters of recent mothers in a 30-state area reported that their doctor had discussed at least one of the following topics with them during a prenatal visit: safe use of medications while pregnant (88.8 percent), genetic testing (86.7 percent), what to do in the case of early labor (82.2 percent) and signs of preterm labor (78.5 percent). Illegal drug use was discussed with 64.3 percent of expectant mothers, while approximately half (52.2 percent) received counseling on seat belt use. Public health efforts to increase prenatal counseling on seat belt use remain critical for reducing the number of traffic related deaths and hospitalizations that occur during pregnancy.[91]

Alcohol use was more likely to be discussed with those who had Medicaid coverage than any other type of insurance. Women with private insurance (62.3 percent) were the least likely to receive counseling on smoking during pregnancy compared to women with Medicaid coverage, other types of insurance, or no insurance (82.6, 75.2, and 70.1 percent, respectively).

Physical abuse by a husband or partner was discussed with half of all women. Women with private insurance (40.7 percent) were the least likely to have received counseling on this issue, while women with Medicaid coverage were the most likely (61.5 percent). The proportion of women to receive counseling on domestic abuse also varied by maternal age, ranging from 61.7 percent of women aged 19 years or younger to about 43 percent of women aged 30 years and older (data not shown). Studies have shown that women in need of counseling on domestic abuse, breastfeeding, and preterm labor are not more likely to receive this information than those without reported risk factors, such as having had a previous preterm birth.[92]

Topics Discussed by Health Care Provider During Prenatal Care Visits, 2009–2010*

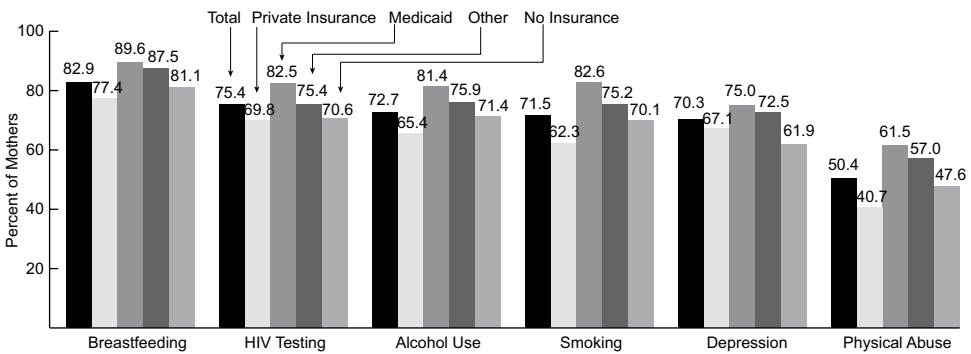
Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

Topics Discussed by Health Care Provider During Prenatal Care Visits, by Insurance Type, 2009–2010*

Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years. Mothers completed surveys between 2 and 9 months postpartum.

POSTPARTUM VISIT AND WELL-BABY CARE

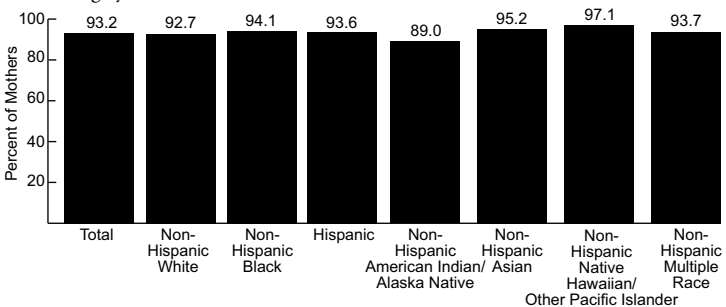
Care for a mother and her infant continues after delivery through postpartum check-ups and well-baby exams. Well-baby exams provide an opportunity for a mother to monitor her infant's development and establish a relationship with her infant's pediatrician.[93] The American Academy of Pediatrics recommends that the first well-baby exam take place 3 to 5 days after birth.[94] During this visit, the physician will measure the infant's height, weight, and head circumference in addition to examining the infant.[93]

In 2009-2010, 93.2 percent of women reported that their infant was seen by a health care provider for a check-up within one week after birth. The proportion of mothers reporting these visits varied significantly by race and ethnicity and was highest among non-Hispanic Native Hawaiian/Other Pacific Islander mothers (97.1 percent), and lowest among non-Hispanic American Indian/Alaska Native mothers (89.0 percent).

Postpartum visits provide a woman and her health care provider with the opportunity to assess the mother's current physical health, including the status of pregnancy-related conditions like gestational diabetes, screen for postpartum depression, provide counseling on infant care and family planning as well as screening and referrals for the management of chronic conditions. Additionally, a provider may use this opportunity to conduct a breast exam and discuss breastfeeding.[95] The American College of Obstetricians and Gynecologists recommends that mothers receive a postpartum care visit 4-6 weeks after delivery.[96] In 2009-2010, nearly 90 percent of all mothers met this recommendation. The proportion of mothers to receive a postpartum visit varied significantly by education level, ranging from 78.6 percent of mothers with less than 12 years of education to 95.1 percent of mothers with 16 or more years of education. With respect to race and ethnicity, 81.8 percent of non-Hispanic American Indian/Alaska Native mothers reported a postpartum visit compared to 91.9 percent of non-Hispanic White mothers (data not shown).

Mothers Reporting that Their Infants had a 1-Week Checkup, by Race/Ethnicity, 2009-2010*

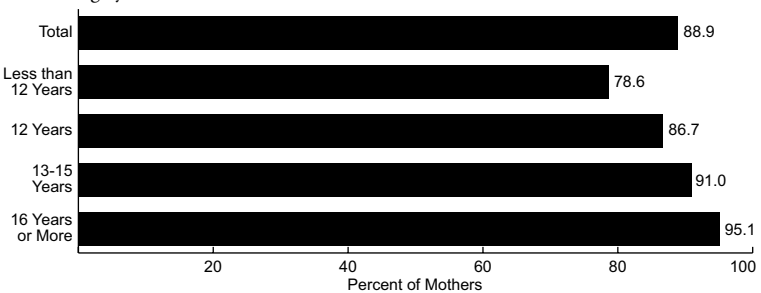
Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 30 states and New York City; 25 states contributed both years; mothers completed surveys between 2 and 9 months postpartum.

Mothers Who Had a Postpartum Checkup, by Maternal Education, 2009-2010*

Source (III.2): Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System



*Includes data from a total of 17 states and New York City; 14 states contributed both years; mothers completed surveys between 2 and 9 months postpartum.

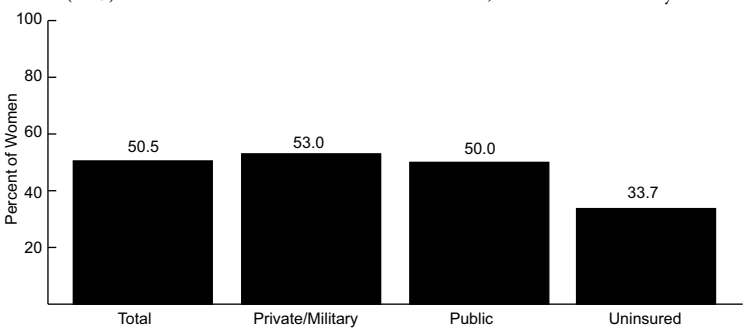
MATERNAL AND INFANT VACCINATION

Vaccination is one of the greatest public health achievements of the 20th century, resulting in dramatic declines in mortality and morbidity for many infectious diseases.[97] An annual influenza (flu) vaccination is now recommended for all persons aged 6 months and older; however, it is especially important for certain groups, including pregnant women and older adults, who are at higher risk for flu complications.[98] By mid-April of 2013, only 50.5 percent of pregnant women reported receiving flu vaccine for the 2012-2013 season. Those with insurance, either private/military or public insurance, were more likely to have received the flu vaccine (53.0 and 50.0 percent, respectively), compared to only 33.7 percent of pregnant women without insurance. Pregnant women are also specifically recommended to receive a tetanus, diphtheria, and acellular pertussis (whooping cough) vaccine (Tdap), regardless of whether they have been previously vaccinated, to prevent potentially fatal infection in the newborn.[99]

The Centers for Disease Control and Prevention recommends a series of vaccinations from birth through 24 months of age, many of which require multiple doses for effectiveness as well as boosters to sustain immunity.[100] In 2012, 68.4 percent of children 19–35 months of age received each of seven vaccines in a series of recommended vaccines (4:3:1:3:3*:1:4). This series includes four doses of diphtheria, tetanus, and acellular pertussis vaccine (DTaP/DT/DTP); three doses of poliovirus vaccine; one dose of measles, mumps, and rubella vaccine (MMR); three or four doses of the *Haemophilus influenzae* type b (Hib) vaccine, depending on brand type; three doses of the hepatitis B vaccine (HepB); one dose of the varicella (chicken pox) vaccine; and four doses of the pneumococcal conjugate vaccine (PCV). Children living in households below the poverty level were less likely to have completed the recommended vaccination series than those living at or above the poverty level (63.4 percent versus 71.6 percent). Hepatitis A and Rotavirus vaccinations are also recommended for children under age 2.

Influenza Vaccination Coverage* Among Pregnant Women, by Insurance Type, 2013**

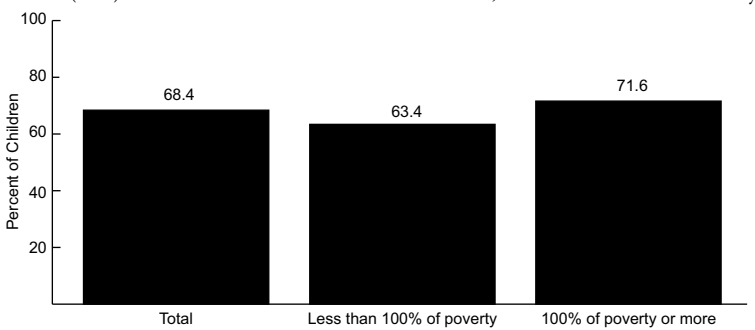
Source (III.3): Centers for Disease Control and Prevention, Internet Panel Survey



*Having received the influenza vaccination since July 1, 2012. **Women pregnant at any time from October, 2012 to January, 2013 were surveyed in April, 2013.

Recommended Vaccination Series Coverage* Among Children Aged 19-35 Months, by Poverty Status, 2012**

Source (III.4): Centers for Disease Control and Prevention, National Immunization Survey



*Receipt of 4+ DTaP, 3+ Polio, 1+ MMR, 3+ or 4+ Hib depending on brand type, 3+ HepB, 1+ Varicella, 4+ PCV; . **Poverty level, defined by the U.S. Census Bureau, was $23,681 for a family of four in 2012.

HEALTH INSURANCE – WOMEN OF REPRODUCTIVE AGE

The preconception health of women has been strongly linked to future reproductive health outcomes for both women and infants. Preconception health care and counseling provide an important opportunity to deliver risk-appropriate screening, health promotion, and disease prevention services to improve the health of women and their infants.[101] Individuals who are uninsured—including women of reproductive age—are less likely to receive preventive health services and chronic disease management.[102]

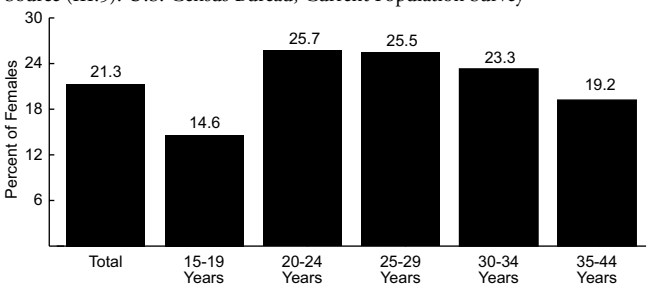
In 2011, over one-fifth of reproductive-aged females were uninsured (21.3 percent) representing 13.3 million females aged 15-44 years. Younger (15-19 years) and older females (35-44 years) were least likely to be uninsured, 14.6 percent and 19.2 percent, respectively, compared to over one-quarter of those aged 20-24 and 25-29 years. Hispanic and non-Hispanic American Indian/Alaska Native females of reproductive age were most likely to lack insurance coverage in 2011, 37.5 percent and 32.9 percent, respectively, compared to about one-quarter of non-Hispanic Black females (24.0 percent), one-fifth of non-Hispanic Asians (20.2 percent) and one-sixth of non-Hispanic Whites (15.2 percent).

The majority of reproductive-aged females had private insurance coverage in 2011 (63.9 percent) alone or in combination with some form of public coverage, while 14.8 percent had publicly-funded insurance such as Medicaid.[103] Non-Hispanic American Indian/Alaska Native and Black females of reproductive age were most likely to be publicly insured: 26.6 percent and 23.5 percent, respectively, followed by Hispanic females (19.8 percent); 11.4 percent of non-Hispanic White females had public coverage.

Medicaid, in particular, is an important safety net for pregnant women, financing approximately 40 percent of all births in the United States. This coverage includes prenatal care, labor and delivery, and postpartum care up to 60 days after birth.[104] Of the 14.8 percent or 9.2 million women of reproductive age who rely on publicly funded insurance, the majority (88.2 percent) are covered by Medicaid (data not shown).

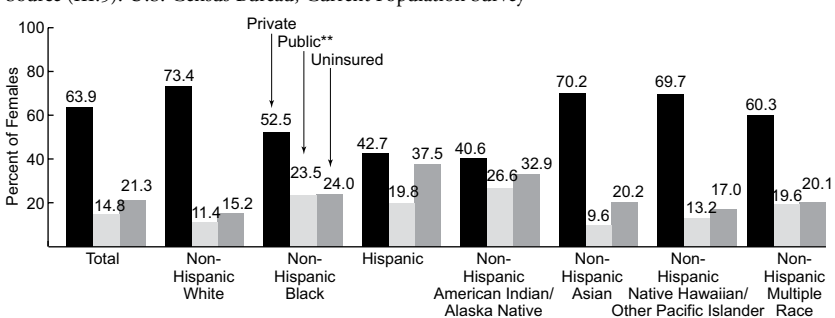
Females Aged 15-44 Years Without Health Insurance, by Age, 2011

Source (III.5): U.S. Census Bureau, Current Population Survey



Health Insurance Coverage of Females Aged 15-44 Years, by Type of Coverage* and Race/Ethnicity, 2011

Source (III.5): U.S. Census Bureau, Current Population Survey



**Estimates for private coverage include individuals that may have some other form of insurance; estimates for public coverage exclude individuals with any form of private coverage. Estimates may not equal 100 due to rounding. **Public or Government health insurance includes federal programs such as Medicare, Medicaid, and military health care, and individual state health plans.*

HEALTH INSURANCE – INFANTS

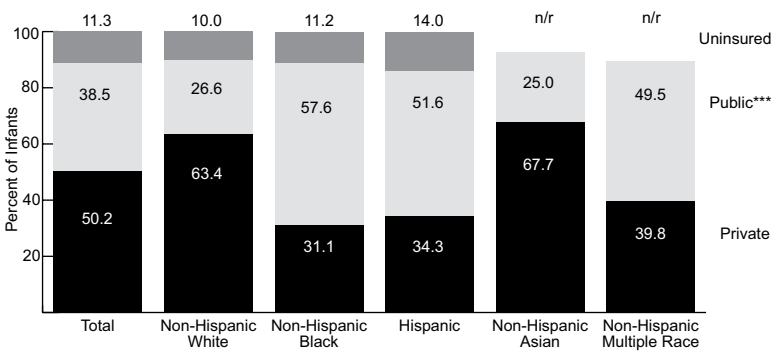
In 2011, approximately 441,000 U.S. infants under 1 year of age had no health insurance coverage, representing 11.3 percent of this population. About half of infants (50.2 percent) were covered by private insurance, alone or in combination with some form of public coverage, and 38.5 percent were insured only through public programs such as Medicaid, the Children's Health Insurance Program, and military health insurance. The majority of those with public insurance (93.7 percent) were covered by Medicaid.

Infants' insurance status varies by race and ethnicity. In 2011, 67.7 percent and 63.4 percent of non-Hispanic Asian and White infants, respectively, had private coverage, while the same was true for approximately one-third of Hispanic and non-Hispanic Black infants (34.3 and 31.1 percent, respectively). Conversely, over half of non-Hispanic Black and Hispanic infants were publicly insured, followed by 49.5 percent of non-Hispanic infants of more than one race.

As family income increases, private health insurance coverage among infants rises and the proportions of infants with public coverage and no coverage decrease. In 2011, infants in households with incomes below 100 percent of the poverty threshold were most likely to have public coverage (75.5 percent) or to be uninsured (14.1 percent); a similar proportion of infants living in households with incomes above but less than twice the poverty threshold were also uninsured (13.7 percent). Infants with family incomes of four times or more of the poverty threshold were most likely to have private coverage, and least likely to have public coverage or to be uninsured.

Health Insurance Coverage Among Infants Under Age 1, by Type of Coverage* and Race/Ethnicity, 2011**

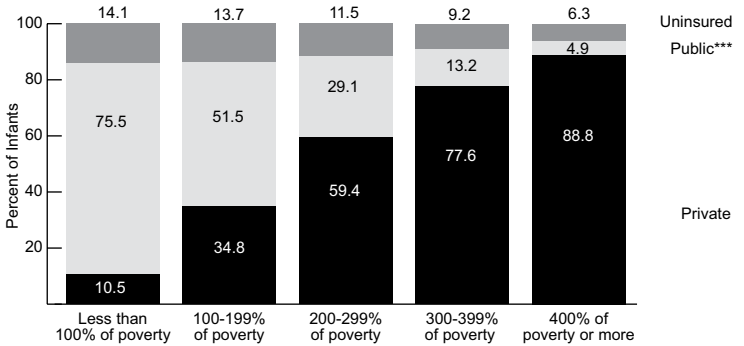
Source (III.5): U.S. Census Bureau, Current Population Survey



*Estimates for private coverage include individuals that may have some other form of insurance; estimates for public coverage exclude individuals with any form of private coverage. Estimates may not total to 100 due to rounding. **The samples of American Indian/Alaska Native and Native Hawaiian and Other Pacific Islander infants were too small to produce reliable estimates. ***Public or Government health insurance includes federal programs such as Medicare, Medicaid, and military health care, the Children's Health Insurance Program (CHIP), and individual state health plans. n/r – not reportable, estimate did not meet standard for reliability.*

Health Insurance Coverage Among Infants Under Age 1, by Type of Coverage* and Poverty Status, 2011**

Source (III.5): U.S. Census Bureau, Current Population Survey



*Estimates for private coverage include individuals that may have some other form of insurance; estimates for public coverage exclude individuals with any form of private coverage. Estimates may not total to 100 due to rounding. **U.S. Census Bureau's poverty threshold was $23,021 for a family of four in 2011. ***Public or Government health insurance includes federal programs such as Medicare, Medicaid, and military health care, the Children's Health Insurance Program (CHIP), and individual state health plans.*

FEDERAL NUTRITION PROGRAMS SERVING WOMEN

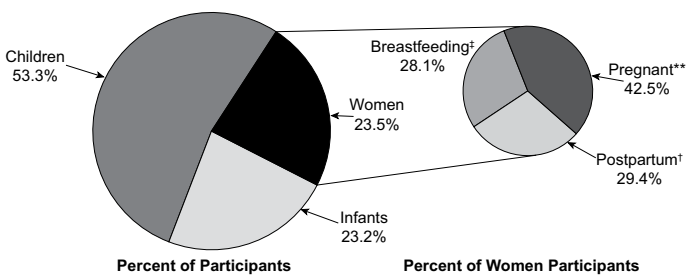
Federal programs can provide essential help to low-income women and their families in obtaining food and income support. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) supports low-income women and families by providing supplementary nutritious foods, nutrition education, and referrals to health and other social services. Pregnant, postpartum, and breastfeeding women, as well as infants and children up to age 5, are eligible to receive WIC benefits. Between 1974 and 2012, the number of women, infants, and children served by WIC has increased over 100-fold from 88,000 to 8.9 million (data not shown).[105]

In 2012, 8.9 million women, infants and children received WIC benefits, averaging $45 per participant each month.[105] More than three-quarters of all individuals receiving WIC benefits in 2012 were infants and children (76.5 percent); however, the program also served nearly 2.1 million pregnant women and mothers, representing 23.5 percent of WIC participants. Of these women, 42.5 percent were pregnant, 29.4 percent were postpartum (up to 6 months after the birth of the infant or the end of the pregnancy), and 28.1 percent were postpartum and breastfeeding (up to the infant's first birthday).

The Supplemental Nutrition Assistance Program (SNAP), formerly the Federal Food Stamp Program, also helps low-income individuals and families purchase food. SNAP is available to all individuals who meet the federal eligibility guidelines. In 2011, 44.1 million people living in 20.8 million households participated in SNAP on average each month (data not shown). Women comprised 62.5 percent of the 24.2 million adult SNAP recipients in 2011, while children accounted for nearly half (45.2 percent) of all recipients. Among the households that relied on SNAP in 2011, 5.1 million or 24.5 percent were female-headed households with children, accounting for 52.1 percent of all SNAP households with children (data not shown).[106]

WIC Participants, 2012*

Source (III.6, III.7): U.S. Department of Agriculture, WIC Program Participation Data

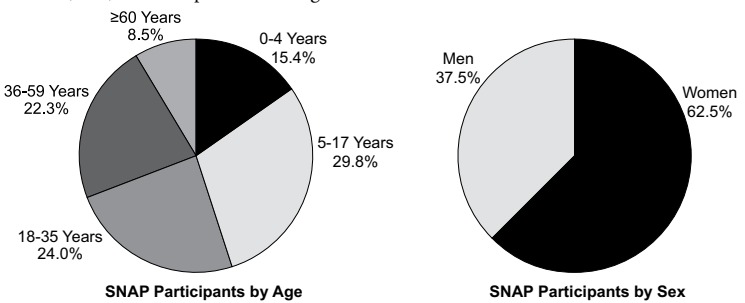


*Based on Federal Fiscal Year (October 1 to September 30).

**During pregnancy and up to 6 weeks after the birth of an infant or the end of the pregnancy;
†Up to six months after the birth of the infant or the end of the pregnancy; ‡Up to the infant's first birthday.

SNAP Participants, by Age and Sex, 2011*

Source (III.8): U.S. Department of Agriculture, Food and Nutrition Service



*Based on Federal Fiscal Year (October 1 to September 30).

MATERNITY LEAVE

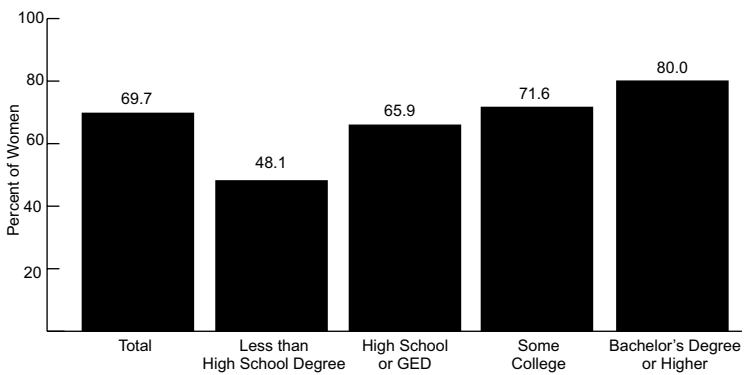
Maternity leave from a job after childbirth provides critical time for maternal-infant bonding and adjustment to life with a new baby. Longer maternity leave is associated with increased breastfeeding duration as well as improved maternal mental health and child development.[107,108] The Family and Medical 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 do not qualify for FMLA or cannot afford to take unpaid leave and may 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.[109]

In 2006-2010, 66.0 percent of women reported being employed during their last pregnancy, of whom 69.7 percent reported taking maternity leave. Thus, nearly one-third of employed women did not report taking any maternity leave (30.3 percent). Women with at least a college degree were more likely to have taken leave than those who had attended college but not graduated (80.0 versus 71.6 percent, respectively) while less than half of women without a high school degree reported having taken leave. Hispanic and non-Hispanic Black women were less likely to report having taken maternity leave than non-Hispanic White women (62.5 and 64.3 percent, respectively, versus 72.2 percent). When taken, the average length of maternity leave was 10.0 weeks (data not shown).

Among employed women who did not take maternity leave for their last pregnancy, 5.1 percent did not take it because it was not offered or allowed by their employer. Of non-Hispanic White women, 3.2 percent reported this reason, compared to 8.2 percent of Hispanic women and 10.2 percent of non-Hispanic Black women.

Employed Women Aged 18-44 Years Who Took Maternity Leave After Their Last Childbirth,* by Educational Attainment, 2006–2010

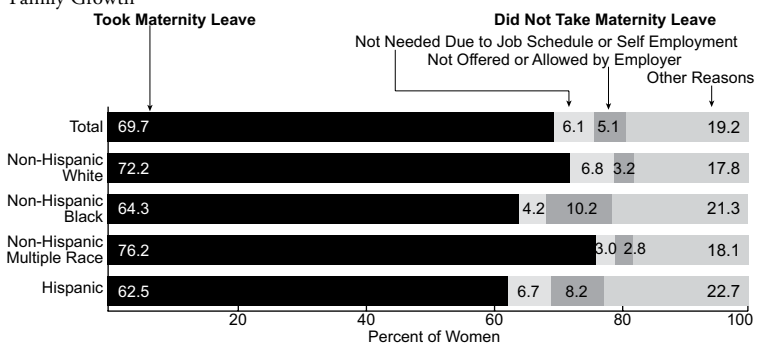
Source (III.9): Centers for Disease Control and Prevention, National Survey of Family Growth



Following a live birth occurring in the 5 years before the survey.

Employed Women Aged 18-44 Years Who Took Maternity Leave After Their Last Childbirth*, and Reasons for Not Taking Maternity Leave, by Race/Ethnicity, 2006–2010**

Source (III.9): Centers for Disease Control and Prevention, National Survey of Family Growth



*Following a live birth occurring in the 5 years before the survey. **The samples of American Indian/Alaska Native, Asian, and Native Hawaiian/Pacific Islander were too small to produce reliable results.*

AFFORDABLE CARE ACT

The Affordable Care Act was enacted March 23, 2010. The Affordable Care Act contains provisions to expand access to health insurance coverage, contain costs and improve health care quality.[110] Selected provisions with special significance for reproductive health are discussed on this page.

The Affordable Care Act includes several provisions that seek to expand access to health insurance coverage, including the establishment of Health Insurance Marketplaces, also known as Exchanges. These Marketplaces or Exchanges are one-stop marketplaces where consumers can choose a private health insurance plan based on their health needs. The Marketplaces or Exchanges identify qualified health plans; facilitate consumer assistance, shopping and enrollment; and monitor eligibility for premium assistance. The Affordable Care Act also extends dependent coverage, allowing children to remain on their parents' insurance through age 26.[111] This provides an important safety net for young adults who have some of the highest rates of uninsurance.[112]

The Affordable Care Act also includes provisions to extend access to preventive health care with no cost sharing. This includes eight preventive health services for women included in HHS Women's Preventive Services Guidelines, based on recommendations by the Institute of Medicine.

Sixty-two percent of women of reproductive age are currently using contraception. The most common method used is the pill (28 percent).[113] Because of the Affordable Care Act, most health insurance plans cover contraceptives without charging a co-pay or deductible.[114]

Breastfeeding is one of the most effective preventive measures mothers can take to protect their health and that of their children.[115] Although three-quarters of infants start out being breastfed, only about 15 percent are exclusively breastfed by 6 months of age,[116] as recommended by the Academy of Pediatrics. As part of the Affordable Care Act, pregnant and postpartum women have access to comprehensive lactation support and counseling from trained providers, as well as breastfeeding equipment, such as pumps for expressing milk when separated from their babies, through their insurance.

The Affordable Care Act also requires additional preventive services be covered for adults generally, including tobacco use screening and cessation services with expanded coverage of services for pregnant smokers. In 2008-2010, approximately 12 percent of mothers reported smoking during the last three months of pregnancy. Smoking during pregnancy has been associated with adverse maternal and infant outcomes, including premature birth, birth defects, infant death, difficulty conceiving, and miscarriage.[117] Under the Affordable Care Act, private health insurance plans are required to cover tobacco cessation services, as is Medicaid for pregnant women, with no patient cost-sharing.[118]

Preventive Health Services for Women

Source (III.10): U.S. Department of Health and Human Services, Health Resources and Services Administration, Women's Preventive Services Guidelines

Well-woman visits to obtain recommended preventive services
Gestational diabetes screening for women 24 to 28 weeks pregnant and those at high risk of developing gestational diabetes
Human Papillomavirus (HPV) DNA Test: high risk HPV DNA testing every three years for women with normal cytology results who are 30 or older
Sexually Transmitted Infections (STI) counseling for sexually active women
Human Immunodeficiency Virus (HIV) screening and counseling for sexually active women
Contraception: Food and Drug Administration-approved contraceptive methods, sterilization procedures, and patient education and counseling, not including abortifacient drugs
Breastfeeding comprehensive support and counseling from trained providers, as well as access to breastfeeding supplies, for pregnant and nursing women
Domestic and interpersonal violence screening and counseling for all women

SELECTED FEDERAL EFFORTS TO REDUCE INFANT MORTALITY AND IMPROVE BIRTH OUTCOMES

Part of the **U.S. Department of Health and Human Services, the Health Resources and Services Administration's** (HRSA) **Maternal and Child Health Bureau** (MCHB) works to improve the physical and mental health, safety, and well-being of the maternal and child population through a variety of programs.

Enacted in 1935, the **Title V Maternal and Child Health Block Grant** Program is the Nation's oldest Federal-State partnership. State maternal and child health agencies apply for and receive formula grants each year which support programs designed to provide and ensure access to quality care for at-risk mothers and children and reduce infant mortality. A total of 59 states and jurisdictions receive Title V Maternal and Child Health Block Grant funding. In fiscal year 2011, Title V programs served over 44 million individuals, including 2.4 million pregnant women, 4.3 million infants, 30.8 million children, and 2.9 million children with special health care needs.

The **Healthy Start Program** works to reduce the rate of infant mortality and improve perinatal outcomes through grants to communities with high infant mortality rates. The program began in 1991 with grants to 15 communities with infant mortality rates 1.5 to 2.5 times the national average. In 2013, 105 Healthy Start projects were providing services in 39 states, the District of Columbia and Puerto Rico, serving 196 different communities. These projects provide core services: direct outreach and client recruitment, health education, case management, depression screening and referral, and services between pregnancies.

The Maternal, Infant, and Early Childhood Home Visiting Program facilitates collaboration and partnership at the federal, state, and community levels to improve health and development outcomes for at-risk children through evidence-based home visiting programs. The program provides grants to states, jurisdictions, Indian Tribes and Tribal/Indian organizations which support programs to improve maternal and newborn health, promote school readiness and achievement, prevent family violence and child injury, and develop family economic self-sufficiency. In 2012, HRSA awarded $125 million to the 54 eligible states and territories. In addition, approximately $84 million was awarded to 16 states to expand existing programs.

Collaborative Improvement and Innovation Network (CoIIN) to Reduce Infant Mortality: CoIIN is a public-private partnership which helps states utilize the science of quality improvement and collaborative learning to reduce infant mortality and improve birth outcomes. The CoIIN was launched July 2012 in the 13 southern states of Public Health Regions IV and VI focused on reducing elective deliveries prior to 39 weeks of gestation; prenatal smoking cessation; promotion of safe infant sleep; expansion of Medicaid-financed interconception care for women with a prior adverse pregnancy outcome; and enhanced regional perinatal care systems. In March 2013, CoIIN was expanded to Public Health Region V. CoIIN will continue to expand to other Regions until it becomes a nationwide initiative by the end of 2014.

Interconception Care (ICC) **Implementation Program** is a national initiative to identify the components of effective ICC and develop strategies to improve perinatal outcomes. Using the life course perspective, the initiative focuses on promoting disease prevention and wellness before the next pregnancy. Program components include risk assessment, health promotion, and clinical and psychosocial interventions. A toolkit, practice curriculum, measures, and local assessments are planned.

National Maternal Health Initiative (NMHI) is a comprehensive national initiative to strengthen state and local systems capacity and infrastructure to promote, protect and improve maternal health. The initiative's overarching goal is to reduce maternal morbidity and mortality by improving women's health across the life course and by ensuring high quality and safety of maternity care. This will be achieved

by strengthening state and local systems capacity and infrastructure to identify maternal risks and enable linkages to prenatal/postpartum primary care, support the use of clinical guidelines and protocols for obstetric emergencies and referrals, and facilitate the translation of findings from surveillance and research into practice.

Text4Baby is a free information service designed to promote maternal and child health through SMS text messaging. A project of the non-profit **National Healthy Mothers, Healthy Babies Coalition** (HMHB), Text4Baby is made possible through a broad public-private partnership of government, state, local, business, and community organizations, including HRSA and other agencies with the U.S. Department of Health and Human Services. Participants can voluntarily sign up for the service in English or Spanish and receive three weekly text messages timed to their due date or their baby's birth date through age 1. Text message topics include labor signs and symptoms, prenatal care, immunizations, nutrition, and safe sleep, among many others. Text4baby is the largest national mobile health initiative in the U.S., reaching over 610,000 individuals since its launch in 2010.

The **Centers for Disease Control and Prevention** (CDC), the **Centers for Medicare and Medicaid Services** (CMS), and the **Administration for Children and Families** (ACF) are also agencies within the **U.S. Department of Health and Human Services** which play important roles in the Nation's efforts to reduce infant mortality and improve birth outcomes.

A joint effort between CMS, HRSA, and ACF, the **Strong Start for Mothers and Newborns Initiative** aims to reduce preterm births and improve outcomes for newborns and pregnant women. The program works to achieve these goals through: 1) a public-private partnership and awareness campaign to reduce the rate of early elective deliveries prior to 39 weeks among all pregnant women; and 2) grants to states to test the effectiveness of enhanced prenatal care approaches to reduce the frequency of preterm births among pregnant Medicaid or Children's Health Insurance Program (CHIP) beneficiaries at high risk for preterm births. The 27 awardees will test one of three approaches to enhanced prenatal care: through Centering/Group Visits, at birth centers, and at maternity care homes.

The **National Initiative on Preconception Health and Health Care** (PCHHC) is a public-private partnership launched by the CDC to guide the implementation of 10 core recommendations to improve preconception health and health care as defined by the Select Panel on Preconception Care. These 10 recommendations were published in the ***Morbidity and Mortality Weekly Report*** in 2006 and identified approaches to improve preconception health and health care. Implementation of these recommendations and related action steps is supported by PCHHC workgroups focused on the clinical, policy and finance, consumer, public health, and surveillance and research aspects of preconception health. To date, the PCHHC has supported the inclusion of preconception care as part of the Institute of Medicine's recommendations for women's clinical preventive services, advanced state-level policy reforms to expand coverage of preconception care, and laid the groundwork for a national social marketing campaign to increase public awareness of the importance of preconception health.

In partnership with HRSA, CDC and other private partners, the **Eunice Kennedy Shriver National Institute for Child Health and Human Development** at the **National Institutes of Health** supports the **Safe to Sleep Public Education Campaign**—formerly known as the Back to Sleep campaign—which works to educate parents, caregivers, and health care providers about ways to reduce the risk for Sudden Infant Death Syndrome (SIDS) and other sleep-related causes of infant death. The expanded Safe to Sleep campaign builds on the success and reach of the Back to Sleep campaign and promotes actions that parents and caregivers can take that, in addition to SIDS, will also reduce the risk of other sleep-related causes of infant death, such as suffocation.

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CONTRIBUTORS

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