March of Dimes Special Report

Maternal and Infant Health in US Hispanic Populations: Prematurity and Related Health Indicators

For Release June 4, 2014

The problem of preterm birth

Prematurity is the leading obstetric problem impacting both mothers and babies in the United States. Prematurity (or preterm birth) refers to births occurring before the 37th week of pregnancy. While rates of preterm birth have been declining nationally for the past six years, in 2012, more than 450,000 babies were born preterm in the US. Prematurity is the leading cause of neonatal mortality (death in the first month of life) and is a major contributor to infant and childhood morbidity. The Institute of Medicine estimates the annual societal cost of preterm birth to be $26.2 billion.[1]

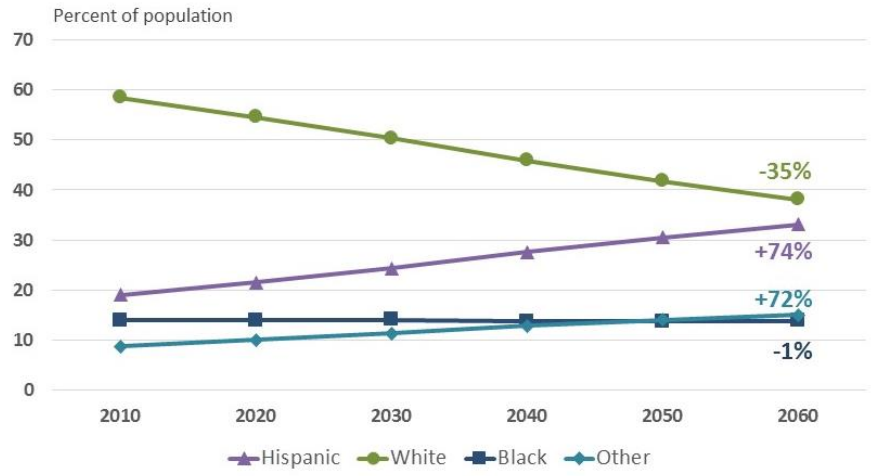
Population growth and births among Hispanics

Hispanics are the largest and fastest growing racial/ethnic minority group in the United States, according to the US Census Bureau.[2] By 2020, the Census Bureau projects that there will be more than 13.8 million Hispanic women of childbearing age (15-44 years) in the US, up from more than 11.8 million in 2010. In contrast, the number of non-Hispanic white women of childbearing age is projected to decrease from 36.5 million in 2010 to 35.2 million in 2020. Between 2010 and 2060, the proportion of Hispanic women of childbearing age is expected to increase 74 percent, compared with a 35 percent decline in non-Hispanic white women, a one percent decline in non-Hispanic black women and a 72 percent increase in all other non-Hispanic women of childbearing age (Figure 1). By 2040, non-Hispanic white women

Figure 1. Population Projections for Women

Ages 15-44 years, by Hispanic Origin and Race

United States, 2010-2060



Race categories (White, Black and Other) include only women of non-Hispanic ethnicity.
"Other" includes all other racial categories and multiple races.
Source: US Census Bureau
Prepared by March of Dimes Perinatal Data Center, 2014

Quick Facts: Population

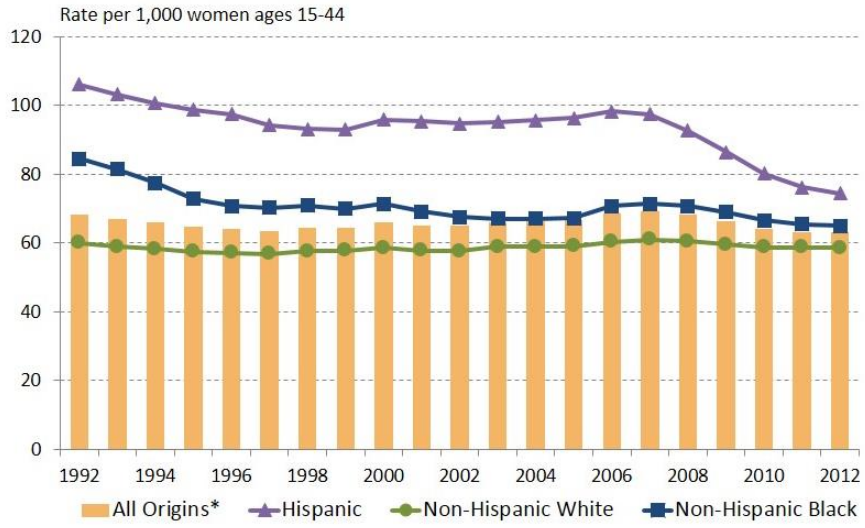
- There are currently more than 11.8 million Hispanic women of childbearing age in the US.
- The Hispanic population continues to grow at the fastest rate.
- Hispanic women of childbearing age have the highest birth rate of all racial/ethnic groups.
- The Hispanic population is diverse and includes many different cultures.

are expected to represent less than half of all women of reproductive age for the first time ever.

The increase in the US Hispanic population is driven in part by high fertility rates. In 2012, the fertility rate for Hispanic women was 74.4 births per 1,000 women ages 15-44 (Figure 2). Despite substantial declines since 2007, fertility rates among Hispanics in 2012 were still 27 percent higher than rates among non-Hispanic white women. In 2012, 907,677 of the 3,952,841 US live births were to Hispanic women, accounting for 23.0 percent of all births.

Figure 2. Fertility Rates by Maternal Race/Ethnicity

United States, 1992-2012



* Includes origin not stated
1992 excludes data for New Hampshire which did not report Hispanic origin that year.
Source: National Center for Health Statistics, 1992-2012 final natality data
Prepared by March of Dimes Perinatal Data Center, 2014

Births to Hispanic women are heavily concentrated in the southwest region of the US. In 2010-2012, the five states with the highest proportion of Hispanic births were New Mexico (55.2%), California (49.6%), Texas (48.4%), Arizona (39.4%), and Nevada (36.9%) (Table 1).

The US Hispanic population is made up of heterogeneous subgroups that reflect many different cultures. In 2012, the majority of US births to Hispanic women occurred among those of Mexican descent (61.2%), followed by Central/South American (14.5%), Puerto Rican (7.4%), and Cuban (1.9%) (Figure 3). A substantial proportion of births to Hispanic women either did not list their specific ethnicity, listed multiple ethnicities, or listed a different ethnicity than those above (14.9%). Because little is known about the profile of live births in this group, outcomes are not shown for this group of other and unknown Hispanic women.

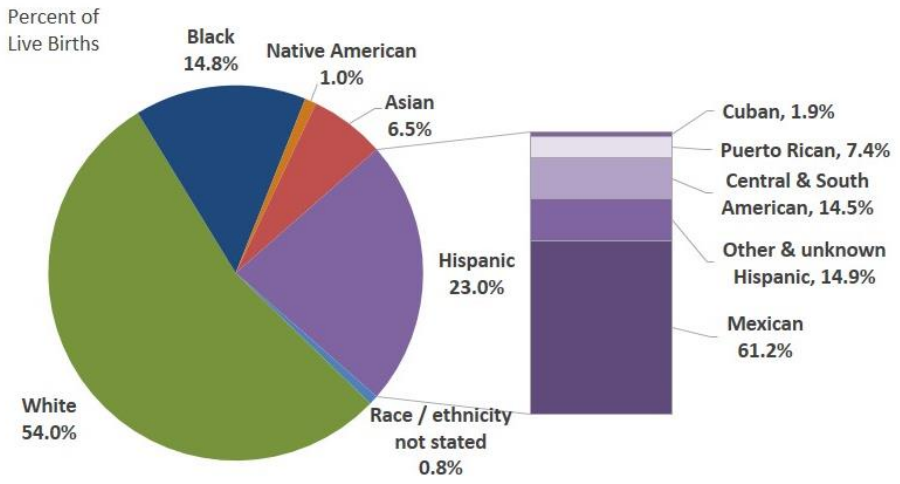
Table 1. Hispanic live births and preterm births, by state, 2010-2012

State	% of live births that are Hispanic	Hispanic preterm birth rate
AL	7.4	14.2
AK	6.3	10.1
AZ	39.4	12.2
AR	10.3	12.1
CA	49.6	9.9
CO	28.1	11.0
CT	22.0	11.0
DE	12.5	12.1
DC	14.7	12.0
FL	27.5	13.4
GA	14.5	11.8
HI	15.8	13.1
ID	15.5	11.6
IL	22.2	12.1
IN	8.7	11.0
IA	8.1	11.9
KS	15.8	11.5
KY	5.0	12.5
LA	5.8	12.4
ME	1.6	11.2
MD	14.0	12.8
MA	16.4	11.2
MI	6.7	12.5
MN	7.1	10.1
MS	3.4	14.1
MO	5.5	11.9
MT	3.7	10.8
NE	14.7	12.4
NV	36.9	13.7
NH	4.3	11.3
NJ	26.4	12.0
NM	55.2	11.8
NY	23.5	11.9
NC	15.1	11.9
ND	3.4	11.9
OH	4.6	12.3
OK	12.9	13.2
OR	19.6	10.1
PA	9.8	11.9
RI	22.2	11.9
SC	8.3	12.0
SD	4.4	12.1
TN	8.8	11.6
TX	48.4	13.0
UT	15.1	11.9
VT	1.3	8.9
VA	12.3	12.0
WA	18.4	11.2
WV	1.0	12.5
WI	9.6	10.6
WY	11.8	11.1

Source: National Center for Health Statistics

Figure 3. Distribution of Live Births by Race/Ethnicity

United States, 2012



Totals do not add to 100 percent due to rounding.
Race categories (White, Black, Native American and Asian) include only women of non-Hispanic ethnicity.
Source: National Center for Health Statistics, final natality data, 2012
Prepared by March of Dimes Perinatal Data Center, 2014

Preterm births

In 2012, more than one in nine, or 104,977 Hispanic births in the US were preterm (11.6%). The rate among births to Hispanic mothers is more than 12 percent higher than the rate among non-Hispanic white mothers (10.3%), and Hispanics account for nearly one out of every four (23.2%) babies born preterm in the United States. Similar to the US population as a whole, more than 70 percent of Hispanic preterm births were born late preterm (34-36 weeks gestation), accounting for 8.3 percent of all births to Hispanic mothers.

Within the Hispanic population, rates of preterm birth in 2012 were highest for infants born to women of Cuban descent (14.5%), and lowest for infants born to women of Mexican descent (11.1%) (Table 2). No subgroup within the Hispanic population has met the March of Dimes 2020 preterm birth rate goal of no more than 9.6 percent of live births.

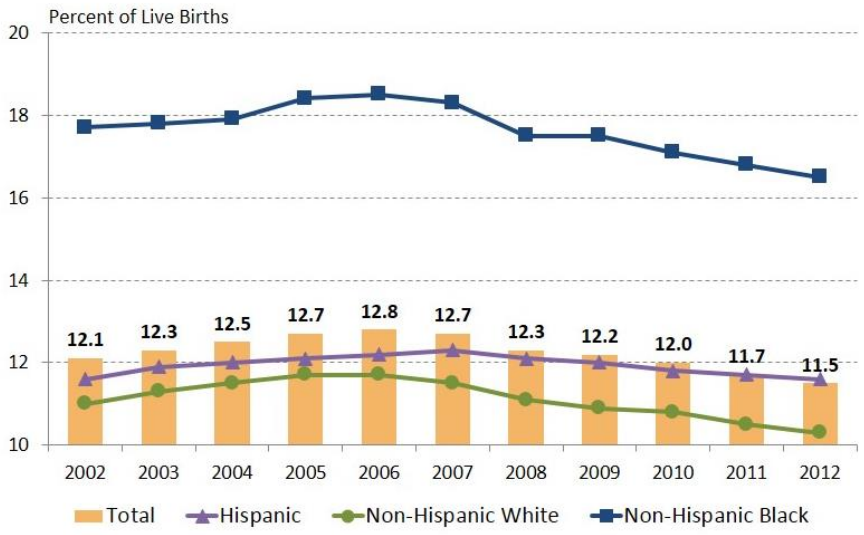
In the US, preterm birth rates increased steadily since the early 1980s, peaking in 2006 at 12.8 percent of all live births (Figure 4). Since 2006, preterm birth rates have declined more than 10 percent to 11.5 percent in 2012. Preterm birth rates among Hispanic births peaked at 12.3 percent in 2007, and they have declined at a slower rate (declined 5.7% between 2007 and 2012) compared to declines from the peak year of 2006 among births to non-Hispanic white (declined 12.0% between 2006 and 2012 to 10.3%) and non-Hispanic black women (declined 10.8% between 2006 and 2012 to 16.5%).

Quick Facts: Preterm Births

- Preterm births to Hispanic women account for **nearly 1 out of 4 preterm births** in the US.
- **Preterm birth rates varied by Hispanic ethnicity,** with the highest rates among mothers of Cuban descent, followed by those of Puerto Rican, Central/ South American, and Mexican descent.
- The preterm birth rate among Hispanics is **declining at a slower pace** since the peak compared to other racial/ethnic groups.
- **The gap between white and Hispanic preterm birth rates has been increasing** since 2005.

Figure 4. Preterm Birth Rates by Maternal Race/Ethnicity

United States, 2002-2012



Preterm is less than 37 weeks of pregnancy.
Source: National Center for Health Statistics, 2002-2012 final natality data
Prepared by March of Dimes Perinatal Data Center, 2014

Table 2. Preterm Birth Rates by Maternal Nativity (place of birth) and Race/Ethnicity

United States, 2012

Race/ Ethnicity	Total	Born in US	Not Born in US
All	**11.5**	**11.7**	**10.9**
White	10.3	10.4	9.2
Black	16.5	17.0	13.4
Total Hispanic	**11.6**	**11.8**	**11.4**
Mexican	11.1	11.3	10.9
Puerto Rican	13.2	13.1	13.6
Cuban	14.5	13.5	15.5
Central/ South Am	11.8	11.1	11.9

White and black categories exclude Hispanic.
Source: National Center for Health Statistics.

Hispanic preterm birth rates also varied by maternal birthplace/nativity. In 2012, the majority of non-Hispanic births (86.1%) were to women born in one of the US states or the District of Columbia (DC), compared to less than one-half of Hispanic births (47.8%). The percentage varied considerably by Hispanic subgroup, with mothers of Central and South American descent being the least likely to have been born in the states or DC (16.5%) and mothers of Puerto Rican descent being the most likely to have been born in the states or DC (72.6%). Rates of preterm birth were slightly higher for Hispanic infants whose mothers were born in the states or DC compared to those born to women born elsewhere, but those differences varied by specific ethnicities (Table 2).

There is substantial geographic variation in preterm birth rates. Based on 2010-2012 average data, Alabama (14.2%) had the highest rate of Hispanic preterm birth, followed by Mississippi (14.1%), Nevada (13.7%), Florida (13.4%), and Oklahoma (13.2%) (Table 1 and Figure 5).

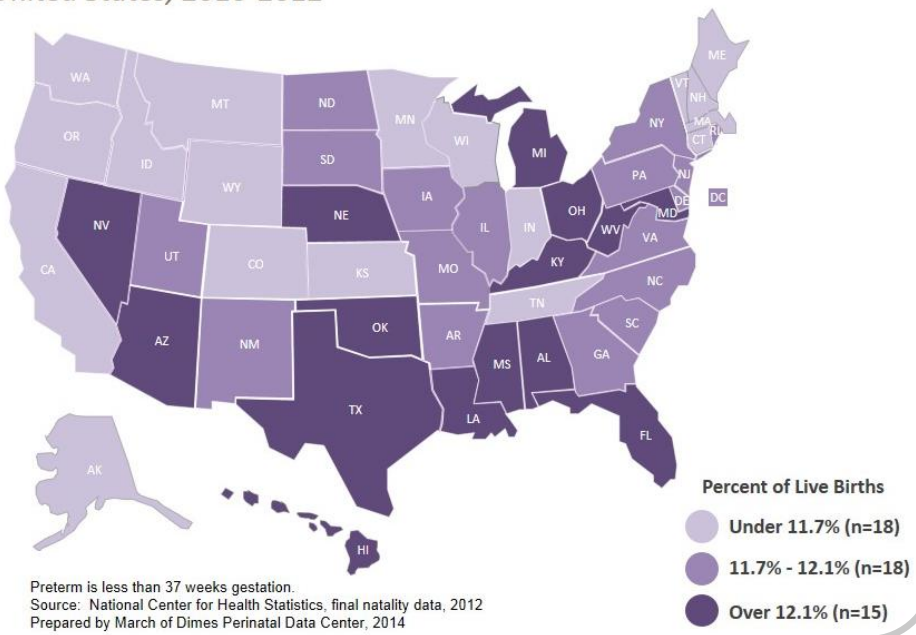
Other perinatal outcomes

Infant mortality

In the US in 2010, the infant mortality rate among Hispanic women was 5.3 per 1,000 live births, accounting for more than 20 percent of all infant deaths (death during the first year of life). Hispanic infant mortality rates were highest among births to women of Puerto Rican descent (7.1 per 1,000 live births), followed by Mexican (5.1 per 1,000), Central/South American (4.4 per 1,000), and Cuban descent (3.8 per 1,000).

Figure 5. Preterm Birth Rates among Hispanic Women

United States, 2010-2012



Preterm is less than 37 weeks gestation.
Source: National Center for Health Statistics, final natality data, 2012
Prepared by March of Dimes Perinatal Data Center, 2014

Prematurity is a major contributor to infant mortality, and preterm-related causes accounted for more than 35 percent of infant deaths in the United States in 2010. Among Hispanic infant deaths, 34.7 percent were due to preterm-related causes, and varied by Hispanic origin with 32.8 percent of infant deaths due to preterm-related causes among Central/South Americans, 34.0 percent among Mexicans and 41.6 percent among Puerto Ricans in 2010.

When specific causes of infant mortality are examined, the leading cause of infant deaths in 2010 among Hispanics was birth defects (136.5 per 100,000 live births), followed by prematurity/low birthweight (85.0 per 100,000 live births), maternal complications of pregnancy (32.3 per 100,000 live births), and Sudden Infant Death Syndrome (31.4 per 100,000 live births). The two leading causes of neonatal death among Hispanics in 2010 were birth defects and prematurity/low birthweight, together accounting for more than half of all deaths in the first month of life.

Neural tube defects and folic acid

Neural tube defects (NTDs), including spina bifida and anencephaly, are birth defects of the brain and spine that cause life-long disability and mortality. Despite 30-40 percent declines in NTD rates across all three race/ethnicity groups since folic acid fortification was introduced,[3] NTD rates were significantly higher among births to Hispanic women compared to births to non-Hispanic white women (Figure 6). Similarly, more recent data on spina bifida and anencephaly also show differences by race/ethnicity with significantly higher rates of spina bifida among Hispanic women as compared to non-Hispanic black women and higher rates of anencephaly among

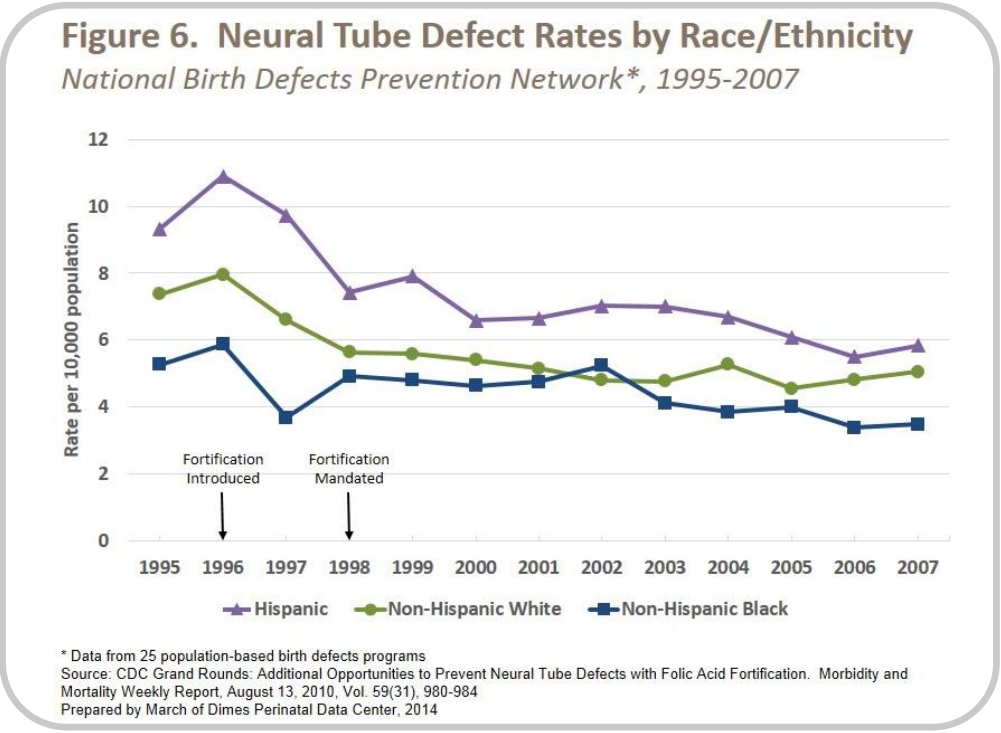
Quick Facts: Infant Mortality

- Infant deaths among Hispanics accounted for 20% of all infant deaths in the US in 2010.
- More than one-third of infant deaths among Hispanics were due to preterm-related causes.
- The leading cause of infant mortality among Hispanics was birth defects.

Quick Facts: NTDs

- Since mandatory folic acid fortification of wheat flour and related products in 1998, there have been significant and substantial reductions in NTDs in the US.
- NTDs are significantly higher among births to Hispanic women compared to non-Hispanic white and non-Hispanic black women.
- Hispanic women are less likely to report taking a multivitamin prior to becoming pregnant.

Hispanic women as compared to both non-Hispanic white and non-Hispanic black women.[4]



Adequate folic acid intake before and during early pregnancy has been shown to reduce a woman's risk of having a baby with a NTD. Since 1992, the US Public Health Service and the Centers for Disease Control and Prevention have recommended that women of childbearing age consume 0.4 mg of folic acid daily to reduce their risk of having a pregnancy affected by a NTD.[5] While national surveys have shown no differences in awareness of the importance of folic acid between Hispanic and non-Hispanic women (85% and 84%, respectively),[6] the proportion of women who report taking a multivitamin prior to pregnancy is lower among Hispanics compared to non-Hispanic white women. The percentage of Hispanic women who report taking a multivitamin prior to pregnancy ranges from 19.9 percent in Colorado to 44.1 percent in Ohio among states participating in the Pregnancy Risk Assessment Monitoring System (Table 3). Variation in blood folate levels by race/ethnicity do not fully explain the increased risk for NTDs among Hispanic women. Genetic and environmental factors related to folate metabolism may contribute to higher NTD rates among Hispanic women.[7]

Table 3.
Proportion of women taking a multivitamin prior to pregnancy
By State, 2010

State	Hispanic	White	Black
AK	28.7	35.1	11.0
AR	24.7	27.0	20.4
CO	19.9	42.1	24.1
DE	28.3	34.7	20.7
GA	22.8	28.5	17.8
HI	21.8	37.4	--
ME	--	35.0	--
MD	31.8	41.8	23.8
MA	26.8	40.2	28.4
MI	29.0	31.0	19.0
MN	20.6	39.0	29.2
MO	23.9	32.2	16.7
NE	26.6	37.6	20.7
NJ	25.7	44.8	22.2
NY	22.5	38.8	24.4
NYC	21.1	44.6	25.0
OH	44.1	34.1	20.2
OK	20.3	30.8	23.7
OR	24.7	34.9	27.0
PA	26.2	34.8	26.8
RI	28.6	41.4	14.1
TX	23.5	35.8	25.1
UT	26.2	34.3	--
VT	--	39.0	--
WA	25.9	36.8	23.6
WV	--	25.3	11.3
WY	20.9	33.7	--
Minimum	19.9	25.3	11.0
Median	25.7	35.1	22.2
Maximum	44.1	44.8	29.2

-- not able to calculate a reliable rate due to small sample sizes.
Source: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System, 2010 Accessed at http://apps.nccd.cdc.gov/cPONDER/ on May 20, 2014.

Risk factors

Socioeconomic and Demographic

Hispanic women of childbearing age generally experience a higher prevalence of socioeconomic and demographic risk factors for preterm birth and other adverse outcomes than do non-Hispanic women. For example, in 2012, Hispanic mothers

were three times as likely as non-Hispanic white mothers to be less than 17 years of age (1.8% and 0.6%, respectively). Hispanic mothers were four times as likely as non-Hispanic white mothers to have completed less than 12 years of school (36.6% and 8.9%, respectively) (data for 38 states and DC with the 2003 revision of the birth certificate in 2012, representing 86% of all live births in US). In addition, Hispanic women ages 15-44 were more than twice as likely to be without health insurance compared to non-Hispanic white women (36.1% and 15.0%, respectively). Among Hispanic births, 69.0 percent occurred to women who received early prenatal care (pregnancy-related care begun in the first trimester), compared to 78.9 percent of non-Hispanic white women (data for states with the 2003 revision of the birth certificate in 2012).

Behavioral and Medical

Behavioral and medical factors known to be associated with adverse birth outcomes vary by maternal race/ethnicity. Nearly 12 percent of Hispanic women of childbearing age reported binge drinking (11.7%), and 3.0 percent reported heavy drinking, significantly lower than rates among non-Hispanic white women. About 1 in 10 Hispanic women of childbearing age reported smoking some days or every day. Studies have shown that waiting less than 18 months after a birth before getting pregnant again can also be associated with adverse outcomes.[8,9] One out of four Hispanic women (25.3%) who had a previous live birth reported less than 18 months to the beginning of the next pregnancy, compared to 35.5 percent of non-Hispanic white women.[10]

Medical risk factors associated with poor birth outcomes also vary by maternal race/ethnicity. Hispanic women of childbearing age report significantly higher rates of obesity, diabetes, pregnancy-related diabetes, and pregnancy-related hypertension compared to non-Hispanic white women (Table 4).

Table 4. Medical Risk Factors among Women ages 18-44
United States

Risk Factor	Percent (95% Confidence Interval)
Obesity	
Hispanic	27.8 (26.0-29.5)
White	22.0 (21.4-22.7)
Black	39.7 (37.8-41.7)
Diabetes	
Hispanic	3.9 (3.2-4.5)
White	2.7 (2.5-2.9)
Black	4.6 (3.8-5.4)
Pregnancy-related diabetes	
Hispanic	4.2 (3.5-4.9)
White	2.4 (2.1-2.6)
Black	2.5 (2.0-3.1)
Hypertension	
Hispanic	8.5 (7.5-9.4)
White	10.4 (9.9-10.9)
Black	18.2 (16.9-19.6)
Pregnancy-related hypertension	
Hispanic	4.3 (3.5-5.0)
White	2.8 (2.6-3.0)
Black	4.1 (3.4-4.9)

White and black categories exclude Hispanics.
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2011 (for *Hypertension* and *Pregnancy-related hypertension* only) and 2012.

Findings and Recommendations

1. **Nearly one in four babies born in the US is Hispanic, and the proportion of Hispanics in the population is growing.** It is essential that our health care system ensure access to high quality care for pregnant women, moms and babies, and that health information is culturally appropriate.

2. **Babies born to Hispanic mothers are at increased risk of being born prematurely compared to those born to non-Hispanic white mothers.** More research is needed to understand the genetics, nutrition, environment, and other factors that may be associated with these outcomes. Hispanic women and families need greater access to information from providers, community programs, and media about how to reduce their risk of delivering too soon.

3. **Hispanic babies are at increased risk of being born with a neural tube defect.** The March of Dimes urges the Food and Drug Administration to allow the fortification of corn masa flour with folic acid to reduce the risk of these birth defects. More education and outreach is needed to encourage Hispanic women of childbearing age to take a multivitamin daily, in addition to consuming a healthy diet.

Key Findings and March of Dimes Activities

There are **more than 11.8 million Hispanic women of childbearing age** in the US, and these numbers are growing every year.

- The **March of Dimes Hispanic Advisory Council** was formed to advise the organization on best practices for improving the health of Hispanic mothers and babies.
- The March of Dimes is a leader in education and health promotion efforts for Spanish-speaking women around the world. Resources include a **Spanish language website (nacersano.org), bilingual consumer education materials, social media, videos and one-on-one health education and support** to reach millions of Spanish-speaking women and families.

Nearly 105,000 Hispanic infants are born preterm annually, accounting for **1 out of 4 preterm births** in the US.

The **gap between white and Hispanic preterm birth rates has been increasing** since 2005.

- The March of Dimes **funds research grants** to investigate better prediction and prevention strategies to improve birth outcomes among Hispanic women.
- **Transdisciplinary research centers** are pioneering an innovative team approach to identify causes of premature birth, and the sociobiology of racial inequities is among their areas of exploration.
- March of Dimes **NICU Family Support®** offers information and support to families whose babies are in intensive care, providing parent educational materials in Spanish and conducting parent education in Spanish where there is need. Online support for Spanish-speaking families is available at compartasuhistoria.org.

Rates of **neural tube defects are significantly higher among births to Hispanic women** compared to those of other racial/ethnic groups, and Hispanic women are less likely to report taking a multivitamin prior to becoming pregnant.

- In 2012, the March of Dimes, along with other partners, filed a citizen petition with the US Food and Drug Administration to allow the **fortification of corn masa flour with folic acid** to reduce neural tube birth defects and continues to work closely with the agency to advance this initiative through the approval process.
- The March of Dimes is working to **increase folic acid use and awareness among Hispanic women of childbearing age** through programs including the New Mexico Folic Acid Initiative, funded by the W.K. Kellogg Foundation.

Hispanic women have **higher percentages of certain risk factors for adverse outcomes**, including teen pregnancy, lack of early prenatal care, lack of health insurance, and presence of medical risk factors.

- The March of Dimes **local community grants** fund programs that reach or prioritize Hispanic women, including **programs that increase access to prenatal care** and help manage maternal chronic diseases during their pregnancies. These funds also provide health information and services through *promotoras* who help Hispanic women **navigate the health care system** in their communities.
- ***Comenzando bien®*** is a March of Dimes prenatal curriculum designed to be used with pregnant women in a culturally supportive group setting.
- The March of Dimes **advocates at both the state and federal levels for programs that reduce risk factors common in the Hispanic population**, such as wellness promotion and disease prevention efforts, teen pregnancy prevention, access to health insurance, and funding for the Special Supplemental Nutrition Program for Women, Infants and Children (WIC).

Outreach to Hispanic Women and Families

The March of Dimes has played a leading role in maternal and infant health for Hispanic moms, providing Spanish language educational materials for more than 70 years. Most consumer materials are written in both English and Spanish. Since this time, health promotion efforts have expanded to include the following:

Pregnancy & Newborn Health Education Center

NACERSANO (www.nacersano.org)	Information and referrals	Spanish language educational resources	Social media in Spanish
• A trusted culturally and linguistically relevant source of maternal and baby health information for Spanish-speaking women and families. • Contains hundreds of health articles, interactive tools, educational videos, and other resources. • Nearly 5 million visitors annually.	• One-on-one health education and support in English and Spanish. • Assists nearly 20,000 families every year from around the world.	• High quality, award-winning bilingual and Spanish language educational resources and materials for preconception and pregnant women, new moms, and affected families.	• Provides health updates, engagement, and awareness in the Hispanic community. ○ nacersano blog ○ Twitter accounts @nacersano and @nacersanobaby ○ Facebook fan page

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10. Centers for Disease Control and Prevention, National Survey of Family Growth, 2006-2010. http://mchb.hrsa.gov/chusa13/perinatal-risk-factors-behaviors/p/pregnancy-spacing.html. Accessed May 2014.

Data Sources:

Population and health insurance: US Census Bureau, Population Division. Monthly Population Estimates by Age, Sex, Race and Hispanic Origin for the United States: April 1, 2010 to July 1, 2012; Projected Population by Single Year of Age, Sex, Race and Hispanic Origin for the United States: 2012 to 2060.

Birth rates and preterm births: National Center for Health Statistics, natality data.

Maternal education and prenatal care: National Center for Health Statistics, natality data, 38 dates and DC with the 2003 revision of the birth certificate in 2012, representing 86% of all live births in US.

Infant mortality: National Center for Health Statistics, linked birth/infant death data.

Smoking, alcohol use, and medical risk factors: Centers for Disease Control and Prevention, Behavior Risk Factor Surveillance System.

Definitions

Drinking
- *Binge*: Women ages 18-44 having 4 or more drinks on one occasion in past month.
- *Heavy*: Women ages 18-44 having more than 1 drink per day.

Fertility rate: Number of live births per 1,000 women ages 18-44.

Folate: a term for the B vitamin that includes folic acid and natural form folate.

Folic acid: A synthetic form of the B vitamin folate that is found in enriched grain products and dietary supplements.

Infant mortality: An infant death is one that occurs within the first year of life.

Neonatal mortality: A neonatal death is one that occurs in the first 28 days of life.

Neural tube defect: Birth defects of the brain (anencephaly) and spine (spina bifida).

Obesity: Body Mass Index ≥30 kg/m^2

Preterm: A birth before 37 weeks of pregnancy.

Smoking: Current smoking is defined as having smoked at least 100 cigarettes in one's life and smoking every day or some days at the time of the survey.

Prepared by the March of Dimes Perinatal Data Center, June 2014.