

# 2010 Medi-Cal Birth Statistics



**Errata Page:**

*Watkins, J. and Herrndorf, A. 2014. 2010 Medi-Cal Birth Statistics. California Department of Health Care Services. Sacramento, CA. June 2014.  
Compiled by Cris DeMorais, Chief*

**Page 2, Continuing to Page 3:** Narrative and statistics pertaining to prenatal care initiation were revised to reflect updated data.

**Page 22:** Narrative and statistics pertaining to prenatal care initiation were revised to reflect updated data.

**Figure 17:** Narrative and statistics pertaining to prenatal care initiation were revised to reflect updated data.

**Appendix H, Table 2:** Statistics pertaining to prenatal care initiation were revised to reflect updated data.

**Appendix H, Table 8:** Statistics pertaining to prenatal care initiation were revised to reflect updated data.

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>MEDI-CAL PROGRAM BACKGROUND .....</b>	<b>5</b>
MEDI-CAL'S POPULATION .....	8
MEDI-CAL'S SPECIAL PREGNANCY-RELATED PROGRAMS .....	8
<i>Presumptive Eligibility (PE) Program</i> .....	8
<i>200 Percent Federal Poverty Level (FPL) Pregnant Income Disregard Program</i> .....	9
<i>Transferring from a Limited-Scope Coverage Program to a Full-Scope Coverage Program During Pregnancy</i> .....	9
<i>Postpartum Program</i> .....	10
<i>Access for Infants and Mothers (AIM)</i> .....	10
MEDI-CAL-RELATED PREGNANCY EDUCATION PROGRAMS .....	11
<i>Comprehensive Perinatal Services Program</i> .....	11
<i>Black Infant Health Program</i> .....	11
<i>Prenatal Care Guidance Program</i> .....	11
<b>REPORT INTRODUCTION .....</b>	<b>12</b>
REPORT STRUCTURE .....	12
METHODS.....	12
LIMITATIONS .....	13
HEALTHY PEOPLE 2020 OBJECTIVES .....	14
<b>FINDINGS .....</b>	<b>15</b>
NATIONAL AND CALIFORNIA FERTILITY TRENDS .....	15
MEDI-CAL POPULATION STATISTICS.....	15
<i>Medi-Cal as Percent of Total California Births</i> .....	15
<i>Medi-Cal Births by Eligibility Pathway</i> .....	15
<i>Medi-Cal Births by Medi-Cal Health Delivery System</i> .....	16
<i>Medi-Cal Births by Geographic Region</i> .....	16
MATERNAL DEMOGRAPHIC CHARACTERISTICS.....	17
<i>Age</i> .....	17

<i>Race/Ethnicity</i> .....	18
<i>Nativity</i> .....	19
<i>Education Status</i> .....	20
<i>Parity</i> .....	21
<i>Multiple-Gestation births</i> .....	21
<i>Prenatal Care</i> .....	22
<i>Delivery Method</i> .....	23
<i>Hypertension</i> .....	25
<i>Diabetes</i> .....	27
<i>Smoking</i> .....	29
<i>Substance Use:</i> .....	31
<i>Pre-Pregnancy Weight</i> .....	33
BIRTH OUTCOMES .....	35
<i>Low Birthweight</i> .....	36
<i>Very Low Birthweight</i> .....	40
<i>Preterm Births</i> .....	43
<i>Very Preterm Births</i> .....	47
<b>CONCLUSION .....</b>	<b>50</b>
<b>APPENDIX A – DEFINITIONS.....</b>	<b>51</b>
<b>APPENDIX B – ACRONYMS .....</b>	<b>54</b>
<b>APPENDIX C – REGIONAL ASSIGNMENT OF CALIFORNIA COUNTIES .....</b>	<b>55</b>
<b>APPENDIX D - AID CODE GROUPINGS USED FOR THIS ANALYSIS .....</b>	<b>56</b>
<b>APPENDIX E – HEALTHY PEOPLE 2020 GOALS – MATERNAL AND INFANT HEALTH .....</b>	<b>57</b>
<b>APPENDIX F – RECONCILIATION TO VITAL STATISTICS REPORTS .....</b>	<b>58</b>
<b>APPENDIX G – END NOTES AND REFERENCES .....</b>	<b>59</b>
<b>APPENDIX H – DETAILED TABLES.....</b>	<b>67</b>

## LIST OF DETAILED TABLES

- Table 1** - Comparison of Medi-Cal Births to Other Payer Sources, by Select Maternal Characteristics, California Resident Hospital Births, 2010
- Table 2** - Comparison of Medi-Cal Births to Births from Other Payer Sources, by Select Birth Characteristics, California Resident Hospital Births, 2010
- Table 3a** - Comparison of Delivery Methods among Medi-Cal Births, by Select Maternal Characteristics, California Resident Hospital Births, 2010
- Table 3b** - Comparison of Delivery Methods among Non-Medi-Cal Births, by Select Maternal Characteristics, California Resident Hospital Births, 2010
- Table 4** - Comparison of Medi-Cal Births to Births from Other Payer Sources, by Select Maternal Comorbidities, California Resident Hospital Births, 2010
- Table 5a** - Comparison of Select Birth Outcomes, Medi-Cal vs. Births from Other Payer Sources, California Resident Hospital Births, 2010
- Table 5b** - Comparison of Select Birth Outcomes among Singleton Births, Medi-Cal vs. Births from Other Payer Sources, California Resident Hospital Births, 2010
- Table 6a** - Comparison of Birthweight among Medi-Cal Births, by Select Maternal and Birth Characteristics, California Resident Hospital Births, 2010
- Table 6b** - Comparison of Birthweight among Medi-Cal Births, by Select Comorbidities, California Resident Hospital Births, 2010
- Table 6c** - Comparison of Birthweight among Non-Medi-Cal Births, by Select Maternal and Birth Characteristics, California Resident Hospital Births, 2010
- Table 6d** - Comparison of Birthweight among Non-Medi-Cal Births, by Select Comorbidities, California Resident Hospital Births, 2010
- Table 7a** - Comparison of Gestational Age among Medi-Cal Births, by Select Maternal and Birth Characteristics, California Resident Hospital Births, 2010
- Table 7b** - Comparison of Gestational Age among Medi-Cal Births, by Select Comorbidities, California Resident Hospital Births, 2010
- Table 7c** - Comparison of Gestational Age among Non-Medi-Cal Births, by Select Maternal and Birth Characteristics, California Resident Hospital Births, 2010
- Table 7d** - Comparison of Gestational Age among Non-Medi-Cal Births, by Select Comorbidities, California Resident Hospital Births, 2010
- Table 8a** - Medi-Cal Births by Aid Category and Select Birth Characteristics, California Resident Hospital Births, 2010
- Table 8b** - Medi-Cal Births by Aid Category and Select Comorbidities, California Resident Hospital Births, 2010
- Table 9a** - Medi-Cal Births by Beneficiary County and Maternal Race/Ethnicity, California Resident Hospital Births, 2010
- Table 9b** - Medi-Cal Births by Beneficiary County and Maternal Age, California Resident Hospital Births, 2010
- Table 9c** - Medi-Cal Births by Beneficiary County and Aid Category, California Resident Hospital Births, 2010
- Table 9d** - Medi-Cal Births by Beneficiary Region and Maternal Race/Ethnicity, California Resident Hospital Births, 2010
- Table 9e** - Medi-Cal Births by Beneficiary Region and Maternal Age, California Resident Hospital Births, 2010
- Table 9f** - Medi-Cal Births by Beneficiary Region and Aid Category, California Resident Hospital Births, 2010
- Table 10** - Medi-Cal and Non-Medi-Cal Births by Select Comorbidities and Maternal Race/Ethnicity, California Resident Hospital Births, 2010

Jim Watkins, Chief  
Research and Analytic Studies Division  
Homepage – [http://www.dhcs.ca.gov/dataandstats/statistics/Pages/RASB\\_Default.aspx](http://www.dhcs.ca.gov/dataandstats/statistics/Pages/RASB_Default.aspx)

Cris DeMorais, Chief  
Research and Analytic Studies Section #1

This document is intended to provide unbiased birth statistics pertaining to Medi-Cal program beneficiaries. The analyses, interpretation of data, and conclusions reached herein are solely those of the authors, and do not necessarily reflect the policies or legal positions of the California Health and Human Services Agency (CHHS), the California Department of Health Care Services (DHCS), or the California Department of Public Health – Health Information and Research Section (CDPH/HIRS). The statistics and other informational content in this report do not render any legal, accounting or other professional advice, nor are they intended to explain fully all of the provisions or exclusions of the relevant laws, regulations, and rulings of the Medicaid program. Original sources of authority should be consulted for additional information.

Inquiries regarding this report should be directed to Jim Watkins, Chief, Research and Analytic Studies Division, 1501 Capitol Avenue, Suite 6069, MS 1200 P.O. Box 997413, Sacramento CA 95899-7413, or by calling (916) 552-8550.

The production of this report was made possible with the assistance of the following departmental staff:

- My Ai Bui
- Robin Finnestead
- Kenneth Lee
- Tom Wyant
- Whitney Carpenter
- Dean Scourtes
- Jan Rains
- Chelsea Brock
- Stefanie Foos

#### **Suggested Citation**

Watkins, J. and Herrndorf, A. 2014. 2010 Medi-Cal Birth Statistics. California Department of Health Care Services. Sacramento, CA. June 2014.

## EXECUTIVE SUMMARY

In 2010, approximately 10% of all hospitalizations in the U.S. were for maternity care. Live born (newborn infant) deliveries are the most common reason for hospital care in the U.S., and this phenomenon is no different in the Medi-Cal program. Among female beneficiaries under age 65, childbearing is the primary reason for seeking health care in the Medi-Cal program.<sup>1</sup>

During calendar year 2010, 9.2 million Californians were eligible for Medi-Cal for at least one month. Of these beneficiaries, 23%, or 2.01 million, were women between the ages of 15 and 44.<sup>2</sup>

From 2007 to 2010, the U.S. general fertility rate (GFR) decreased 7.8%, while the California GFR declined 11.6%.<sup>3,4</sup> Literature suggests that the economic recession which began in 2007 is partially responsible for this decline; those states that experienced the greatest levels of economic hardship during the recession had correspondingly large decreases in fertility.<sup>5</sup>

The relationship between external economic factors and birth rates is particularly relevant to Medi-Cal. As a safety-net program, Medi-Cal responds inversely to economic trends, increasing enrollment as the economy declines. Within the Medi-Cal program, the impact of the recession, birthrates, and enrollment into the program is complex. On the one hand, the number of women of reproductive age enrolling into Medi-Cal increased due to the loss of employer sponsored insurance coverage, while at the same time birth rates declined and Medi-Cal enrollment growth among some subpopulations slowed. Several populations most vulnerable to decreasing birth rates are overrepresented in the Medi-Cal population. Hispanic mothers, immigrant mothers, and mothers under 25 years old experienced the greatest decrease in birth rates during the recession.<sup>6,7,8</sup>

The 2010 Medi-Cal Birth Statistics report presents the descriptive statistics for 2010 California resident births that occurred in a hospital setting, including data on maternal characteristics, delivery methods, and select birth outcomes such as [low birthweight](#) and [preterm delivery](#). This report includes key [comorbidities](#) and health behaviors known to influence birth outcomes such as [hypertension](#), [diabetes](#), [substance use](#), [pre-pregnancy weight](#), and smoking during pregnancy.

RASD additionally presents birth statistics for women participating in the Medi-Cal Fee-For-Service (FFS) and Medi-Cal managed care delivery systems, as well as births financed by private insurance, births financed by other public funding sources, and births among uninsured mothers.

The descriptive statistics presented in this report show that a large proportion of women enrolled in Medi-Cal were from subgroups most vulnerable to adverse birth outcomes. These subgroups included women receiving services through Medi-Cal's [Blind/Disabled aid category](#), teen mothers, African-American mothers, mothers of increased [parity](#) levels, and mothers of lower educational attainment. Modifiable risk factors that are associated with poor birth outcomes, such as smoking during pregnancy, [substance use](#), and [pre-pregnancy weight](#) outside of normal ranges, were most prevalent among Medi-Cal mothers, and particularly among those participating in Medi-Cal managed care. [Protective factors](#) such as being foreign-born and receiving early prenatal care were less prevalent among Medi-Cal managed care participants than the FFS population. These factors may explain some of the differences among health delivery systems in rates of [low birthweight](#), [very low birthweight](#), [preterm](#) and [very preterm](#) births that are reported here.

This section provides a brief summary of key findings detailed in this statistical report, organized by report section. It is important to note that because this report does not account for patients' risks, readers should be careful not to make comparisons concerning effectiveness or quality of care across health delivery systems based on the statistics presented.

### Medi-Cal Birth Trends

- Over the period of 2007 through 2010, the number of hospital deliveries to Medi-Cal mothers declined by nearly 12,000 deliveries, or 4.5% over 4 years.

### Health Delivery System Participation

- In 2010, the Medi-Cal program financed 50.7% of all births to [resident Californians](#) occurring in a hospital setting (Figure 1). Of the 256,372 births financed by Medi-Cal, 65.9% were to mothers participating in the FFS delivery system and 34.1% were to mothers participating in the managed care delivery system.

### Maternal Demographics

- **Age:** The mean maternal age for Medi-Cal-financed births was 26.2 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.7 years (median = 30 years). Medi-Cal financed 81.0% of all California resident hospital births for mothers age 19 and younger.
- **Race/Ethnicity:** Mothers of Hispanic ethnicity made up a large percentage of Medi-Cal-financed births (68.9%). The proportion of African-American mothers participating in Medi-Cal managed care was more than three-times higher than non-Medi-Cal funding sources and Medi-Cal's FFS program. African-American mothers constituted 13.7% of Medi-Cal managed care participants, but only

4.0% of its FFS participants.

- **Education Status:** Mothers whose births were financed by Medi-Cal had lower educational attainment than non-Medi-Cal mothers. Among Medi-Cal mothers, 39.7% had less than a high school education, 33.9% had a high school diploma, 22.0% had some college, and 4.3% had a college degree. Conversely, only 7.3% of non-Medi-Cal mothers had less than a high school education, 18.2% had a high school diploma, 27.0% had some college, and 47.5% attained a college degree.
- **Nativity:** Among Medi-Cal-financed births, 52.6% were to U.S.-born mothers and 47.4% were to foreign-born mothers. Among non-Medi-Cal-financed births, 64.8% were to U.S.-born mothers and 35.2% to foreign-born mothers. Foreign-born mothers made up 61.7% of mothers who participated in Medi-Cal's FFS program, but only 19.8% of mothers who participated in Medi-Cal managed care.

### Birth Characteristics

- **Parity:** **Parity** levels were higher among Medi-Cal mothers than among non-Medi-Cal mothers. Among Medi-Cal mothers, 35.5% were first time mothers, 28.4% had one previous birth, and 36.1% had two or more previous births. Among non-Medi-Cal mothers, 43.2% were first-time mothers, 34.2% had one previous birth, and 22.6% had two or more previous births.
- **Multiple-gestation births:** **Multiple gestation** births were more common among non-Medi-Cal mothers than Medi-Cal mothers (4.1% vs. 2.2%).
- **Prenatal Care:** The percent of Medi-Cal mothers who initiated prenatal care during their first trimester of pregnancy was 77.2%. In

contrast, 92.1% of mothers with private insurance initiated prenatal care in the first trimester of pregnancy. Among Medi-Cal mothers, 75.7% of those participating in managed care and 78.0% of those in FFS initiated early prenatal care. These percentages reflect the fact that Medi-Cal finances roughly 8 out of 10 teen births and provides coverage to women who enroll in the program after being diagnosed with a pregnancy that, in many cases, was unplanned. These mothers may have insurance policies that did not cover specific pregnancy-related services or no insurance at all. Medi-Cal becomes the insurer of last resort, when alternative options do not exist. In many cases, navigating into Medi-Cal, denial of pregnancy, etc., may all contribute to late entry into prenatal care.

- **Delivery Method:** The percentage of Medi-Cal births delivered using the cesarean section method was slightly lower than the statewide average. Among non-Medi-Cal-financed births, the overall percent of deliveries via the cesarean section method was 34.2%, and highest among privately insured births at 34.6%. The primary cesarean section rate was lower among Medi-Cal births (16.5%) than non-Medi-Cal births (20.5%).

### Maternal Comorbidities and Health Behaviors

- **Hypertension:** The prevalence of [hypertension](#) was similar among Medi-Cal mothers (7.2%) and privately insured mothers (7.3%). Hypertension was associated with [low birthweight](#) and [preterm](#) births for both Medi-Cal mothers and non-Medi-Cal mothers.
- **Diabetes:** The prevalence of diabetes among non-Medi-Cal mothers was 8.7%, slightly higher than the prevalence among Medi-Cal mothers (7.8%).
- **Smoking:** Among Medi-Cal managed care mothers, 4.8% smoked

during pregnancy, compared to 2.8% among mothers who participated in Medi-Cal’s FFS delivery system. Mothers with births not financed by Medi-Cal sources had a smoking prevalence of 1.0%, while the overall frequency of smoking among Medi-Cal mothers was 3.5%. Medi-Cal mothers who smoked were more likely to have a [low birthweight](#) outcome than those who did not smoke.

- **Substance Use:** Substance use was nearly four times higher among Medi-Cal mothers than non-Medi-Cal mothers (1.8% vs. 0.5%), and more common among mothers who participated in Medi-Cal managed care (2.7%). There was a substantial increase in the percentage of low birthweight among mothers who engaged in substance use during their pregnancy.
- **Pre-Pregnancy Weight:** Among Medi-Cal mothers, 53.1% had a [pre-pregnancy weight](#) considered overweight or obese, compared to only 39.8% of non-Medi-Cal mothers. Medi-Cal mothers enrolled in Blind/Disabled [aid codes](#) had pre-pregnancy overweight/obesity rates of 58.5%, whereas 54.8% of Medi-Cal mothers without satisfactory immigration status (SIS), also referred to as “Undocumented,” had a pre-pregnancy weight considered overweight/obese.

### Birth Outcomes

- **Low Birthweight (<2500 grams):** The overall low birthweight percent among Medi-Cal births was 6.7%, and 6.9% among all non-Medi-Cal births, both meeting the Healthy People 2020 goal of reducing low-birthweight births to 7.8% or less.
- **Very Low Birthweight (<1500 grams):** The very low birthweight percent among Medi-Cal births was 1.1%, and 1.2% among all non-Medi-Cal births, both meeting the Healthy People 2020 goal of

reducing low-birthweight deliveries to 1.4% or less. The percentage of Medi-Cal-financed low birthweight births was slightly lower than the very low birthweight births financed by non-Medi-Cal funding sources.

- **Preterm Births (<37 weeks of gestation):** The percent of preterm births among Medi-Cal mothers was 10.4%, while the percent among non-Medi-Cal mothers was 9.6%. Both Medi-Cal and non-Medi-Cal percentages of preterm births met the Healthy People 2020 goal of reducing the rate of preterm births to 11.4% nationwide. Preterm births were more common among [singleton](#) Medi-Cal births (9.4%)

than [singleton](#) non-Medi-Cal births (7.7%).

- **Very Preterm Births (<32 weeks of gestation):** The percent of very preterm births among Medi-Cal mothers was 1.6%, while the percent among non-Medi-Cal mothers was 1.4%. Both Medi-Cal and non-Medi-Cal percentages of preterm births met the Healthy People 2020 goal of reducing the percent of preterm births to 1.8%. Very preterm delivery percentages were similar among births financed by Medi-Cal's FFS delivery system (1.5%) and its managed care delivery system (1.7%).

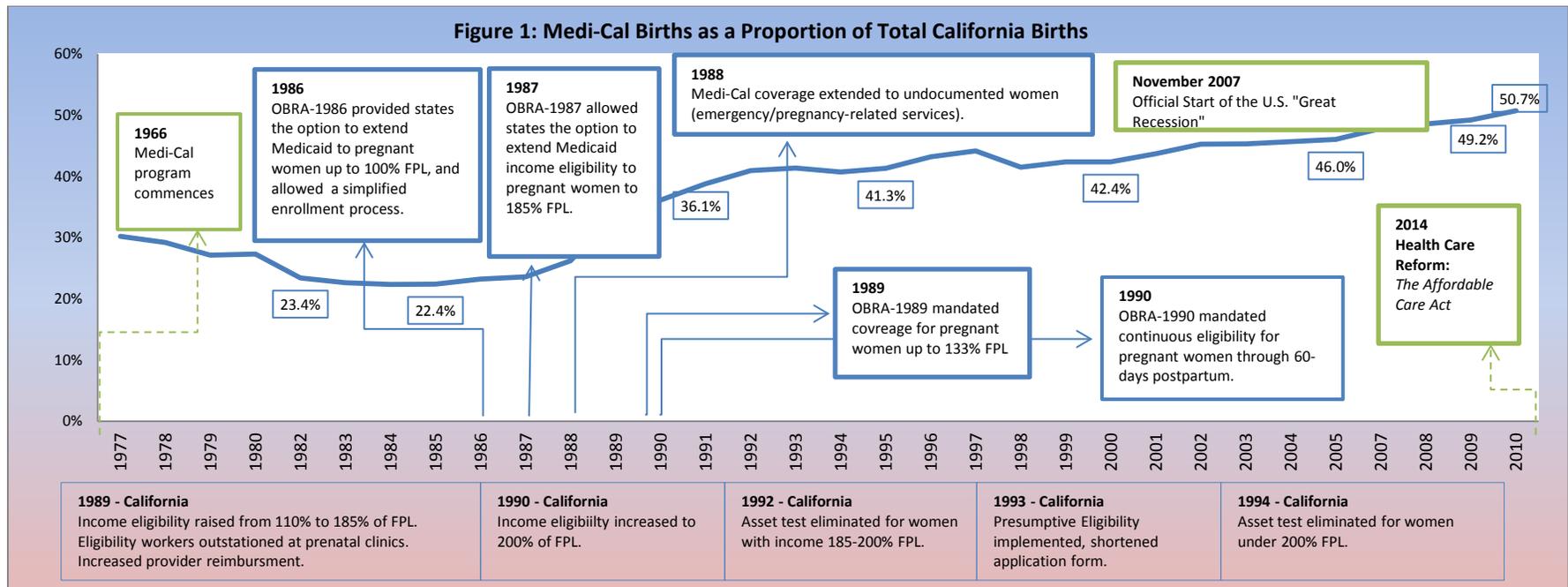
## MEDI-CAL PROGRAM BACKGROUND

Medi-Cal provides comprehensive health care services at no cost or low cost for low-income individuals.<sup>9</sup> The federal government dictates a mandatory set of basic services be provided to beneficiaries including, but not limited to: physician services, family nurse practitioner services, nursing facility services, hospital inpatient and outpatient services, laboratory and radiology services, family planning, early and periodic screening, diagnosis, and treatment services for children. In addition to these mandatory services, California provides optional benefits such as outpatient drugs, home and community-based services, and medical supplies.

Medicaid is a significant financier of maternal and child health care services nationwide. Nationally, the Medicaid program financed approximately 1.8 million births, or 48% of births, in 2010.<sup>10</sup> In the same year, Medi-Cal financed 50.7% of all resident births occurring in California hospitals.

Medi-Cal beneficiaries are generally low-income or have limited means to pay for the cost of their health care services. In order to be eligible for Medi-Cal, individuals must fit into one of several categories:

- Individuals who are blind or disabled according to Social Security rules (SSI-Linked),
- Families with children where deprivation exists (CalWORKs-linked),



- Pregnant women, infants, and children within certain income and resource levels,
- Individuals with specific health care needs, such as dialysis, tuberculosis, breast and cervical cancer, or being in need of nursing home services.

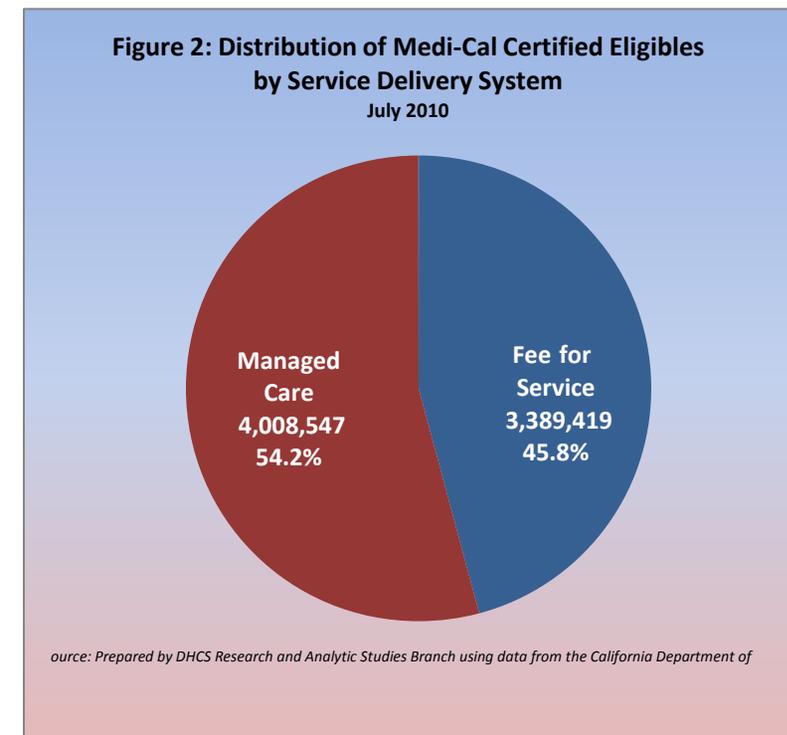
An “eligibility pathway” is the method by which a beneficiary qualifies for Medi-Cal. The state frequently determines a beneficiary’s eligibility pathway by income relative to the federal poverty level (FPL), but resources, health, age, and disability status are also factors in eligibility determinations. For administrative purposes, “aid codes” represent these eligibility pathways. Aid codes are a combination of numbers and letters used administratively to track the criteria by which each person qualified for Medi-Cal. A beneficiary’s aid code represents whether that beneficiary will receive full or limited-scope health coverage, and whether the coverage will be free of cost. Full-scope coverage includes all federally mandated Medicaid services and all “optional” services offered by the state in the State Plan. (For Medi-Cal purposes, the State Plan serves as the state’s contract with the federal government, documenting all of the services available to enrolled beneficiaries.) Some beneficiaries, such as immigrants without SIS,<sup>11</sup> or those enrolled in special programs like the Tuberculosis Program<sup>12</sup> or 200 Percent Federal Poverty Level (FPL) Pregnant Income Disregard Program, qualify for limited- or restricted-scope benefits. In general, beneficiaries with restricted-scope Medi-Cal receive only emergency services, pregnancy-related services, or services necessary to treat their qualifying condition.<sup>13,14</sup>

A beneficiary’s aid code also represents whether the beneficiary will be required to meet a monthly share-of-cost (SOC) obligation to receive coverage. Beneficiaries enrolled in aid codes associated with Medi-

Cal’s SOC program are individuals and families whose incomes are too high to qualify for cash assistance, but insufficient to cover their medical expenses. Beneficiaries with a SOC obligation must contribute to their medical expenses up to a predetermined monthly threshold; it is only after beneficiaries meet their monthly obligation that they qualify for Medi-Cal covered benefits.

### Medi-Cal Service Delivery Systems

Once qualified for Medi-Cal, a beneficiary will receive care through one of Medi-Cal’s two service delivery systems, traditional FFS or managed care (Figure 2). Under the FFS delivery system, beneficiaries seek medical services from a qualified Medi-Cal provider and the provider

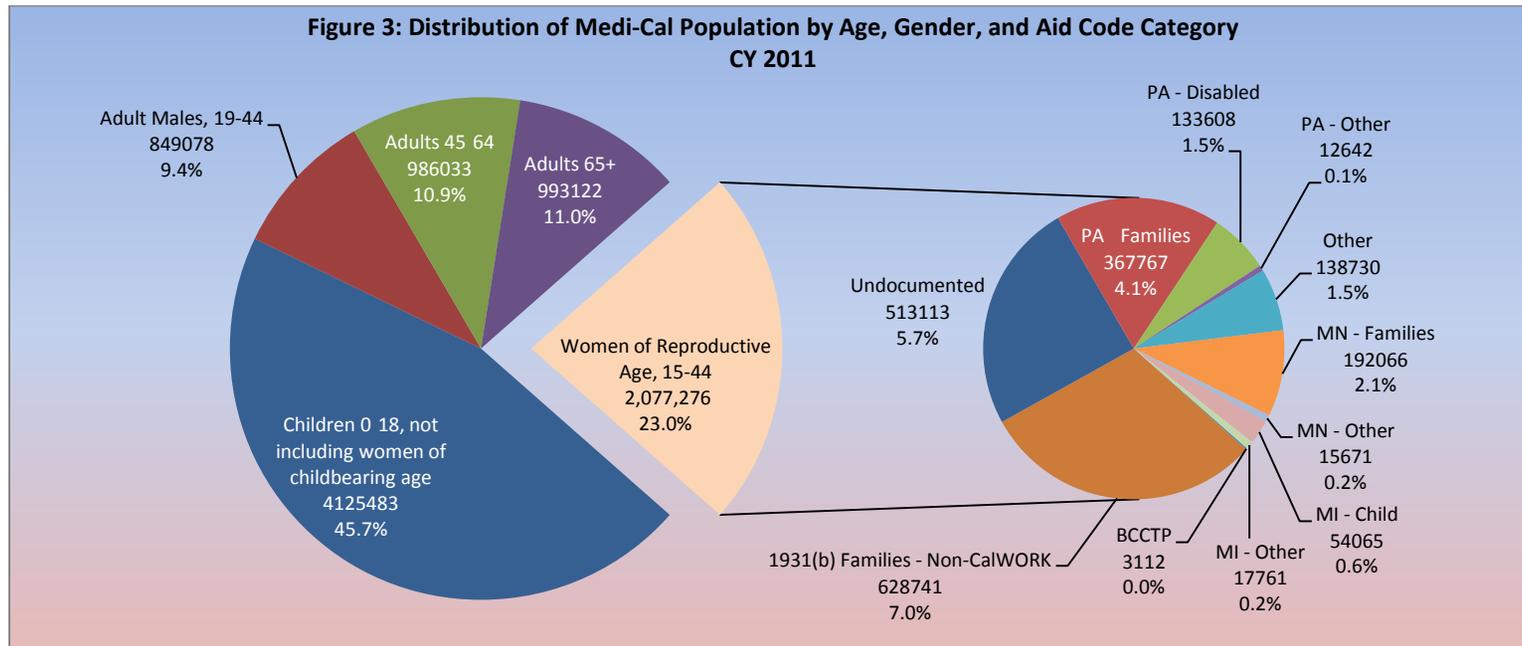


bills Medi-Cal for each service administered. Beneficiaries in FFS must locate providers willing to accept Medi-Cal as a payer source.

The second delivery system is Medi-Cal managed care. In 2010, roughly 54.2% of all Medi-Cal certified eligibles participated in Medi-Cal's managed care delivery system. Under the managed care delivery system, the Medi-Cal program contracts with health care plans to administer health care services to the enrolled population. Medi-Cal pays the contracting health plans a monthly payment for each enrolled member, and the health plan assumes the financial risk for all necessary health care services. Health plans assign beneficiaries to participating providers and arrange care through their network of providers. Transitions between health payment systems impact approximately 6% of all Medi-Cal identified births. RASD classified

births as FFS or Managed Care based on the mother's status at the time of delivery.

Medi-Cal managed care is currently administered using three models based on county jurisdiction: the Two-Plan model, the Geographic Managed Care model (GMC), and the County Organized Health System (COHS) model. In counties using the Two-Plan model, the Department of Health Care Services (DHCS) contracts with two plans, one commercial health plan and one locally based county initiative, allowing beneficiaries to choose either plan. In GMC counties, DHCS contracts with several commercial health plans and beneficiaries choose the plan that suits their needs. In counties with a COHS model of care, enrollment in a county-level health plan is mandatory for almost all resident beneficiaries.



Source: Prepared by DHCS Research and Analytic Studies Division using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

## Medi-Cal's Population

During calendar year 2010, nearly 9 million Californians were eligible for Medi-Cal for at least one month. Women between the ages of 15 and 44 made up 23.0% of the Medi-Cal population. Among women of reproductive age, the most common eligibility pathways included: 1931(b) Families – Non-CalWORKs, Undocumented (lacking SIS), Public Assistance – Families, Medically Needy Families, Public Assistance Disabled, and 200 Percent FPL Pregnant Income Disregard Program (Figure 3).

As previously noted, a beneficiary's eligibility pathway represents whether they are entitled to full-scope Medi-Cal benefits without an SOC, full-scope benefits after meeting a monthly SOC obligation, or limited-scope services such as emergency and pregnancy-related services only. Some women enroll in an aid code that requires a monthly SOC obligation prior to pregnancy, but become eligible during pregnancy for special programs designed to ensure access to early prenatal, postpartum, and other services without a SOC obligation.

## Medi-Cal's Special Pregnancy-Related Programs

In the late 1980s and early 1990s, federal legislation expanded publicly sponsored health insurance to low-income pregnant women.<sup>15</sup> This provided states the opportunity to improve birth outcomes among vulnerable women by improving access to early prenatal care. States invested in outreach activities, enrollment simplification, and enhanced prenatal benefits. The passage of federal simplification legislation provided states with the flexibility to adopt:

- Simplified enrollment processes,
- Continuous eligibility through pregnancy and 60 days postpartum,

- Presumptive eligibility,
- Out-stationed eligibility workers in community health centers and safety-net hospitals,
- Dropping asset tests, and
- Expediting eligibility determinations.

In response to these federal legislative changes, California adopted many of these options and established several special Medi-Cal eligibility pathways for pregnant women. California designed eligibility pathways to encourage early and appropriate prenatal care, and to ensure that pregnant women could easily gain Medi-Cal coverage. Many special pregnancy programs offer only emergency, family planning, and pregnancy-related services. In some cases, it is possible for qualifying women to enroll simultaneously in a second Medi-Cal aid code that entitles them to non-pregnancy-related services after meeting a SOC.

**Presumptive Eligibility (PE) Program:** Medi-Cal's PE program enables providers to bestow immediate, temporary prenatal Medi-Cal coverage to a pregnant woman based on her responses to a few income and residency questions.<sup>16</sup> Medi-Cal provides this coverage under the assumption that the pregnant woman will be eligible for Medi-Cal once she applies. Once the woman becomes eligible for the PE program, she must start the formal Medi-Cal application process by the end of the month following the month the temporary presumptive benefits started.<sup>17</sup> Women who apply for Medi-Cal coverage or CalWORKs during the PE period will receive another 60 days of PE coverage.<sup>18</sup> The PE program covers all ambulatory prenatal care services,<sup>19</sup> but does not cover the costs of delivery, family planning, or induced abortion procedures.<sup>20</sup>

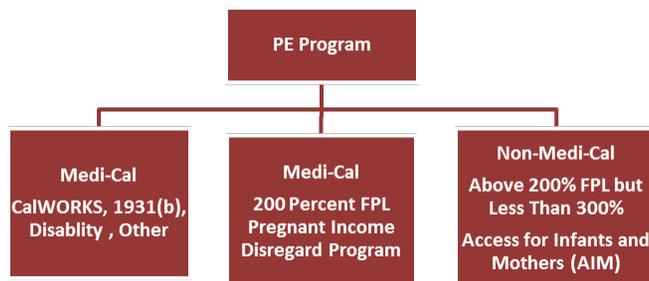
When Medi-Cal deems a pregnant woman with PE coverage eligible,

she transfers into the Medi-Cal pathway that best reflects her eligibility status. Former PE eligibles may move into a specialized Medi-Cal pregnancy category of eligibility such as the 200 Percent FPL Pregnant Income Disregard Program, or any other Medi-Cal category of eligibility (Figure 4). If the applicant is not eligible, PE coverage ends at the end of the month of the determination.<sup>21</sup> Those who do not qualify for Medi-Cal may seek enrollment into California’s Access for Infants and Mothers (AIM) program.

Women receiving coverage under the PE program may also be eligible for Medi-Cal through the Medically Indigent (MI) or Medically Needy (MN) programs, which may require a SOC. These women may receive Medi-Cal covered services unrelated to pregnancy through this eligibility linkage.

**200 Percent Federal Poverty Level (FPL) Pregnant Income Disregard Program:**<sup>22</sup> The 200 Percent FPL program provides eligible women with an income below 200% FPL with pregnancy-related health coverage with no SOC, co-payments, or deductibles.<sup>23,24</sup> Both citizens and non-citizens (residents who cannot prove SIS) may participate in this program.

**Figure 4: Potential Coverage Options after PE Coverage Ends**



“Pregnancy-related services” are defined as those required to ensure the health of the pregnant woman and the fetus.<sup>25</sup> In practice, this includes office visits, prenatal care, services for complications of pregnancy, lab tests, prescription medicine, anesthesia, labor and delivery, postpartum care, and family planning services.

Medi-Cal counts the pregnant woman as a family of two when determining her eligibility. A woman enrolled in Medi-Cal via the MN or MI programs prior to becoming pregnant may also enroll into the 200 Percent FPL Pregnant Income Disregard Program. These women will receive pregnancy-related services under the 200 Percent FPL program at no cost, and the MN or MI programs will cover non-pregnancy-related health services that may have a SOC obligation.

Pregnant women enrolled in the 200 Percent FPL Pregnant Income Disregard Program may also enroll in a non-Medi-Cal insuring organization such as Kaiser Permanente, etc. Approximately 15% of the pregnant women enrolled in the 200 Percent FPL Pregnant Income Disregard Program have some type of other health care coverage. Prior to July 2012, many individual health insurance policies did not cover maternity care.<sup>26,27,28,29</sup>

**Transferring from a Limited-Scope Coverage Program to a Full-Scope Coverage Program During Pregnancy:** It is possible for women to transfer from a limited-scope to a full-scope Medi-Cal program (such as 1931(b) Non-CalWORKS) in the third trimester of their pregnancy.<sup>30</sup> By transferring from a restricted-scope program to a full-scope program, an eligible woman can receive all services contained within the State Plan, including non-pregnancy related services.

Medi-Cal’s 1931(b) Non-CalWORKS program provides children through age 18, their parents, and caretaker relatives with free Medi-Cal with

no SOC, based on the deprivation of the child. If a family meets the income and property-limit requirements, and can prove that the child is deprived (Medi-Cal determines deprivation based on the absence of one parent in the family, or the underemployment or unemployment of the principal wage earner), they may receive full-scope 1931(b) coverage with no time limit.<sup>31</sup> Medi-Cal evaluates a pregnant woman for 1931(b) coverage based on the deprivation of the unborn child during the third trimester of the pregnancy. The father of the child is not eligible to receive coverage under 1931(b) until the birth of the child.<sup>32</sup>

In a number of counties, when a woman enrolls in a full-scope aid code program such as 1931(b), she is mandatorily required to participate in a Medi-Cal managed care plan. If a pregnant woman has established a relationship with a specific FFS provider who is not a participant of the Medi-Cal managed care plan's provider network, Medi-Cal provides for a medical exemption option.<sup>33</sup> The exemption allows the pregnant woman to maintain continuity of care; she can remain in Medi-Cal's FFS system and continue to receive health care services from her established Medi-Cal FFS provider. A woman may establish eligibility in a number of different aid codes throughout her pregnancy by initiating enrollment into Medi-Cal via the PE program, transitioning to Medi-Cal's 200 Percent FPL Pregnant Income Disregard Program, and finally enrolling into Medi-Cal under the 1931(b) program.

It is important to point out that this transition results in complexity when attempting to compare one health care system to another with respect to outcomes such as early initiation of prenatal care. For example, a woman may transition from Medi-Cal's traditional FFS

system in her third trimester into a Medi-Cal managed care plan. In this scenario, the woman's birth event, using the aid code at time of birth, will assign this pregnancy event to Medi-Cal managed care. However, in the case of early prenatal initiation, the woman's first six months of pregnancy occurred while enrolled in Medi-Cal's FFS system.<sup>34</sup> The FFS system's effectiveness, in this case, will inappropriately accrue to Medi-Cal managed care if not accounted for properly. Switches in health care delivery systems impact approximately 6% of all Medi-Cal identified births.

**Postpartum Program:** Because financial barriers may inhibit a woman's access to postpartum services, a special postpartum program is available. The postpartum program offers coverage with no SOC for up to 60 days after the pregnancy ends. Women who participated in an MN or MI program when they were pregnant may enroll in this program to receive postpartum care without a SOC obligation.<sup>35</sup>

**Access for Infants and Mothers (AIM):** Although the AIM program is not a Medi-Cal program, it provides medically necessary services to pregnant women with incomes between 200% and 300% of FPL through participating health plans. The Managed Risk Medical Insurance Board administers the AIM program. Women with family incomes too high to qualify for no-cost Medi-Cal qualify for participation in the AIM program if they have no maternity insurance, or have health insurance with a high maternity-only deductible (over \$500).<sup>36</sup> AIM provides full-coverage private health insurance at low cost to pregnant women during pregnancy, as well as 60 days postnatal care.

### **Medi-Cal-Related Pregnancy Education Programs**

In addition to the special pregnancy programs listed above, Medi-Cal coordinates with other state and county departments to provide educational and non-traditional prenatal services to qualified Medi-Cal mothers.

**Comprehensive Perinatal Services Program:** Through the Comprehensive Perinatal Services Program (CPSP), qualified Medi-Cal providers can receive reimbursement for pregnancy-care-coordination services outside of the “traditional” maternity services. After becoming a recognized CPSP provider, participating providers can receive reimbursement for nutrition services, psychosocial services, health education services, and prenatal vitamin and mineral supplements provided to Medi-Cal beneficiaries. Participation in this program is voluntary for Medi-Cal mothers and is available from CPSP-qualified hospital outpatient departments, community clinics, county clinics, physician groups, and certified nurse midwives. Medi-Cal managed care plans are required to provide CPSP-equivalent services to managed care enrollees.<sup>37</sup> Although Medi-Cal providers deliver the services offered by the CPSP program to enrolled Medi-Cal beneficiaries, California’s Maternal, Child & Adolescent Health Program administers the program.

**Black Infant Health Program:** The Black Infant Health (BIH) program, funded by a combination of Title V and Title XIX, aims to reduce health disparities within the African-American community. Even when studies control for the influence of maternal health conditions and negative health behaviors such as smoking and substance use, African-American mothers are more likely to experience negative birth outcomes.<sup>38</sup> To account for this disparity, the BIH program addresses social issues (poverty, lack of social support, low-income status) through weekly case management focused on pregnancy-related, newborn parent-related and personal empowerment topics.<sup>39</sup> The BIH program is administered by California’s Maternal, Child & Adolescent Health Program, and is currently available to mothers in 15 local health jurisdictions within California.<sup>40</sup>

**Prenatal Care Guidance Program:** The Prenatal Care Guidance program (PCG) is an effort within local California health departments to educate Medi-Cal-eligible women about the importance of prenatal care and assist them in obtaining and completing that care. Existing Maternal and Child Health (MCH) programs integrate PCG program at the county level, allowing welfare departments to inform eligible women about the publicly funded prenatal and well-baby care available without duplicative cost and effort. Local health departments administer PCG programs to cater to regional differences and needs.

## REPORT INTRODUCTION

The Medi-Cal Birth Statistics Report presents detailed data for 2010 California resident births occurring in a hospital setting. The report covers data on maternal and birth characteristics and select outcomes for births financed by Medi-Cal's FFS and managed care programs, as well as births financed by private insurance and other non-Medi-Cal sources. These data are important in several ways: 1) they provide a profile of the Medi-Cal beneficiaries who seek care for delivery services; 2) they identify factors that may contribute to variations in birth outcomes; and 3) they provide useful comparisons between Medi-Cal birth outcomes and those financed by other sources in the state. It is important to note, however, that because this report does not take into account patients' risks, readers should be careful not to make inferences regarding differences in the effectiveness or quality of care between the health care delivery systems evaluated.

### Report Structure

The report organizes findings into five sections: Medi-Cal Characteristics, Maternal Demographic Characteristics, Birth Characteristics, Maternal Comorbidities and Health Behaviors, and Birth Outcomes. Each section provides data for the four studied populations (Medi-Cal FFS, Medi-Cal managed care, private insurance, and mothers with other funding sources) as well as broader comparisons between the Medi-Cal and non-Medi-Cal populations.

Embedded figures highlight key findings in each section; Appendix H, (Detailed Tables), provides additional data for each studied characteristic. Missing, unknown, unreported, and invalid counts were eliminated from all statistics calculated.

## Methods

The primary source of data for this report comes from the birth certificates registered in California and recorded on the 2010 Birth Statistical Master File maintained by the California Department of Public Health, Center for Health Statistics and Informatics. To identify comorbidities among women with hospital births, RASD used additional data from the Office of Statewide Health Planning and Development (OSHPD) hospital discharge file. Medi-Cal inpatient hospital claims containing dates-of-services from January 1, 2010 through December 31, 2010 and containing a delivery diagnosis code were used to confirm birth certificate records for women giving birth in 2010 under the Medi-Cal FFS program. Women with a delivery financed by Medi-Cal's managed care program were confirmed in the Birth Statistical Master File by using Medi-Cal eligibility records from the Medi-Cal Eligibility Determination System (MEDS).

Over 96% of birth certificate records indicating a hospital delivery were confirmed with data from the OSHPD hospital discharge file, totaling 505,259 hospital-based births to California residents (see Appendix – F for the reconciliation to CDPH Vital Statistics statewide total births, including out-of-hospital and non-resident births).

RASD grouped the data into four broad categories based on the Medi-Cal confirmations made in the process described above and by using the payer source reported in the Birth Statistical Master File. These groupings are: Medi-Cal FFS, Medi-Cal managed care, Private Insurance, and Other. Medi-Cal FFS and Medi-Cal managed care births account for 17.3% and 33.4%, respectively. The combined total of Medi-Cal FFS and Medi-Cal managed care births are referred to as "Medi-Cal Births" or "All Medi-Cal Births" in this report. Private insurance births accounted for 41.2%.

RASD categorized the remaining records as “Other Payment Source.” It includes birth records containing a reported payer source of “Other Federal, State or Local Government Programs,” “Self Pay,” “Indian Health,” “Champus/Tricare,” “Other,” and “Unknown” as well as 18,186 birth records with a payer source of “Medi-Cal” that could not be confirmed using the Medi-Cal eligibility data or data from FFS claims. RASD refers to the total of Private Insurance and Other Payment Source as “Non-Medi-Cal Births” or “All Non-Medi-Cal Births” in this report. The “Uninsured” group in our dataset represents an insignificant number of births compared to Medi-Cal and Private Insurance totals. Therefore, “Uninsured” was not analyzed as an independent category in this report.

Data presented on maternal characteristics (mother’s age, race/ethnicity, nativity, and education), birth characteristics (singleton/multiple birth, delivery method, prenatal care), and birth outcomes (birthweight, gestational age) are the data as reported on the birth certificate. Observations from the birth certificate containing a maternal age of less than 10 or greater than 60 were considered outside the range of plausibility, and were recoded to “unknown” age.

Beginning in 2007, data pertaining to pre-pregnancy weight and smoking were collected on California birth certificates, and are included in this report. Data pertaining to maternal comorbidities such as hypertension, diabetes, and substance use were extracted from the OSHPD hospital discharge file. Comorbid conditions reported during hospital delivery were identified using the Clinical Classification Software (CCS) available from the Agency for Healthcare Research and Quality (AHRQ).<sup>41</sup> Medi-Cal aid groupings were derived using data from the Medi-Cal eligibility file for the month during which the birth occurred, and are reported for both FFS and managed care

beneficiaries. Detailed data tables are presented in the back of this report (Appendix H) allowing the readers the ability for further analysis. Data tables which reflect county-specific tabulations have been suppressed for counties with populations less than 20,000 (based on county population estimates by the Department of Finance) to protect the confidentiality of Medi-Cal beneficiaries.<sup>42</sup>

### Limitations

The statistics presented in this report represent crude metrics that have not been adjusted for confounding factors. As noted, risk adjustment has not been performed. Readers should note that pregnant women enrolled in Medi-Cal are generally poor, usually unemployed, and lack private insurance. Their pregnancies may be marked not only by substance use, but by lack of self-care, poor nutrition, smoking, homelessness, and stress that may affect their pregnancy and their children. Because these factors have not been controlled for, readers should not attempt to compare health delivery systems or financiers of births to one another based solely on the statistics presented in this report.

The comorbidity data in this report represents ICD-9 diagnostic codes reported in the OSHPD patient discharge data, and are dependent on the mother having a diagnosis at the time of delivery. Many factors influence the likelihood of receiving a comorbidity diagnosis prior to or at the time of delivery, including insurance status, language barriers, and continuity of care.<sup>43</sup> These factors may result in the underreporting of chronic conditions, especially in vulnerable populations. RASD drew data on maternal smoking from self-reported data provided in the California Birth Statistical Master File. Because mothers are likely to underreport smoking, this factor may be underrepresented.<sup>44</sup>

As noted above, data presented on maternal characteristics (mother’s

age, race/ethnicity, nativity, and education), birth characteristics (singleton/multiple birth, delivery method, prenatal care), and birth outcomes (birthweight, gestational age) are the data as reported on the birth certificate. To the extent that these data are incorrectly captured and coded, specific statistics presented in this report will be influenced.

RASD identified hospital birth records with a payer source of “Medi-Cal” within the OSHPD patient discharge dataset that could not be confirmed using Medi-Cal eligibility data or data from FFS claims. As noted previously, these individuals were grouped to the “Uninsured” category. Categorizing these births as Medi-Cal eligible would influence the specific outcome statistics presented in this report. Based on a review of the data and re-characterizing these births as Medi-Cal eligible, RASD estimated the impact to the four birth outcome measures presented. RASD found that if these births were classified as Medi-Cal financed births, the low birthweight percent would rise slightly from 6.7% to 6.8%, the very low birthweight percent would rise from 1.1% to 1.2%, the preterm birth percent would rise from 10.4% to 10.6%, and the very preterm birth percent would remain unchanged at 1.6%. While several of these percentages would increase under this classification, none of the revised percentages would exceed the Healthy People 2020 standards.

When comparing Medi-Cal populations, readers should be aware of subpopulation size. Although some Medi-Cal subpopulations may disclose a high percentage of adverse birth outcomes, they only constitute a small fraction of Medi-Cal’s total births. For example, Medi-Cal enrollees in the Blind/Disabled aid category accounted for only 1.6% of total Medi-Cal births, but had a low birthweight percent of 13.2%. Similarly, 11.8% of mothers age 17 and younger had a preterm

birth outcome, but this age group represented only 4.0% of Medi-Cal births. Readers should interpret the greater occurrence of negative health outcomes in these small groups in light of their population size.

A necessary step in comparing outcomes among health systems is risk adjustment. Risk adjustment is a method used to remove or reduce the effects of confounding factors in studies in which cases are not randomly assigned to different treatments, or in this case, systems of care. Multivariable adjustment is outside the scope of this type of statistical report. This report is intended to provide descriptive statistics, not to draw conclusions about the health care delivery system. However, where applicable, potential confounding factors were evaluated and analysis is presented for specific demographic groups.

### **Healthy People 2020 Objectives**

Where applicable, this report compares California and Medi-Cal statistics to the Healthy People 2020 objectives produced by the U.S. Department of Health and Human Services. For three decades, Healthy People has provided science-based national health objectives with the goal of improving the health of all Americans. To this end, Healthy People established benchmarks and processes for monitoring the progress of the U.S. health community in achieving these objectives.

Healthy People 2020 identified the following mission intentions:

- Identify nationwide health improvement priorities,
- Increase public awareness and understanding of the determinants of health, disease, and disability and the opportunities for progress,
- Provide measurable objectives and goals that are applicable at the national, state, and local levels, and
- Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge.<sup>45</sup>

## FINDINGS

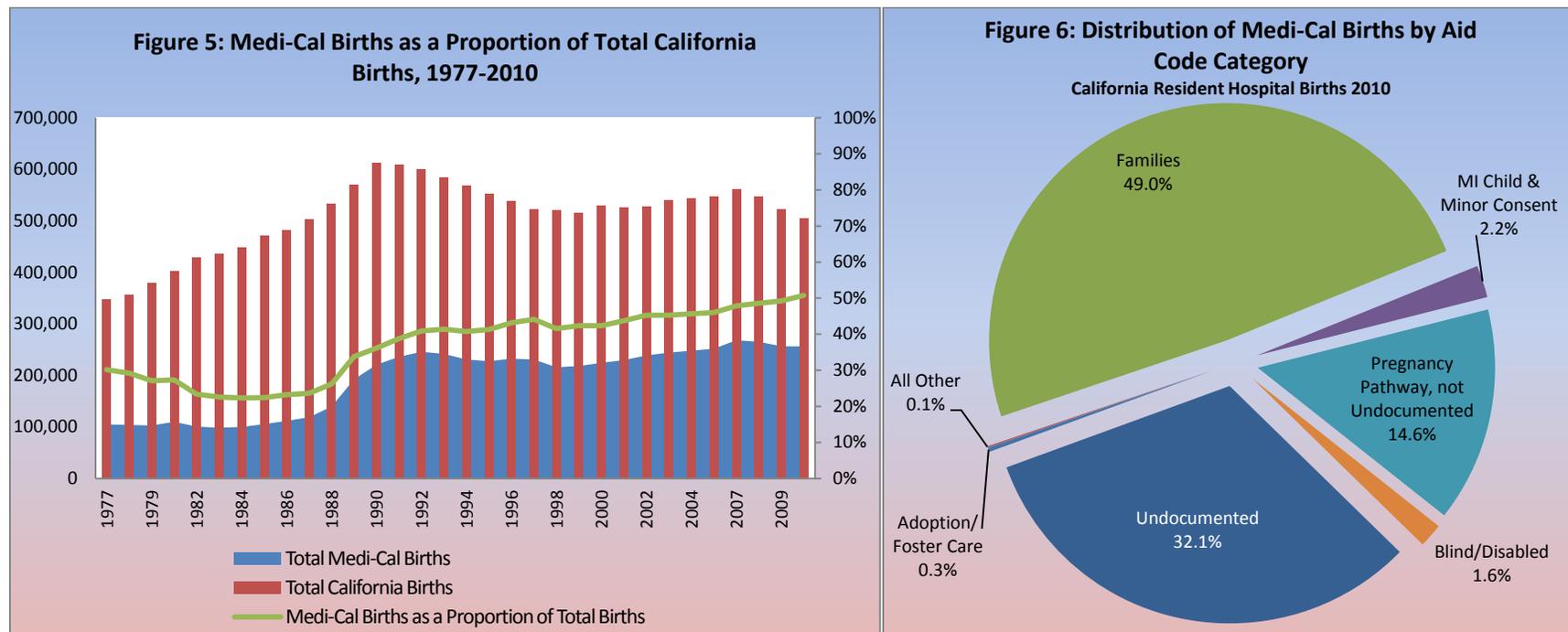
### National and California Fertility Trends

The U.S. general fertility rate (GFR) in 2010 was 64.1 births per 1,000 women of childbearing age (ages 15-44), a 3.2% decline from 2009 (66.2 per 1,000 women of childbearing age).<sup>46</sup> In California, fertility rates decreased from 65.5 in 2009 to 63.0 in 2010, representing a 3.8% decline from 2009.<sup>47,48</sup>

### Medi-Cal Population Statistics

**Medi-Cal as Percent of Total California Births:** In 2010, Medi-Cal financed a record 50.7% of hospital births to California residents (Figure 5). Medi-Cal represented 256,372 of the total 505,259 California resident hospital births (see Appendix F for the reconciliation to CDPH Vital Statistics statewide total births, including out-of-hospital and non-resident births).

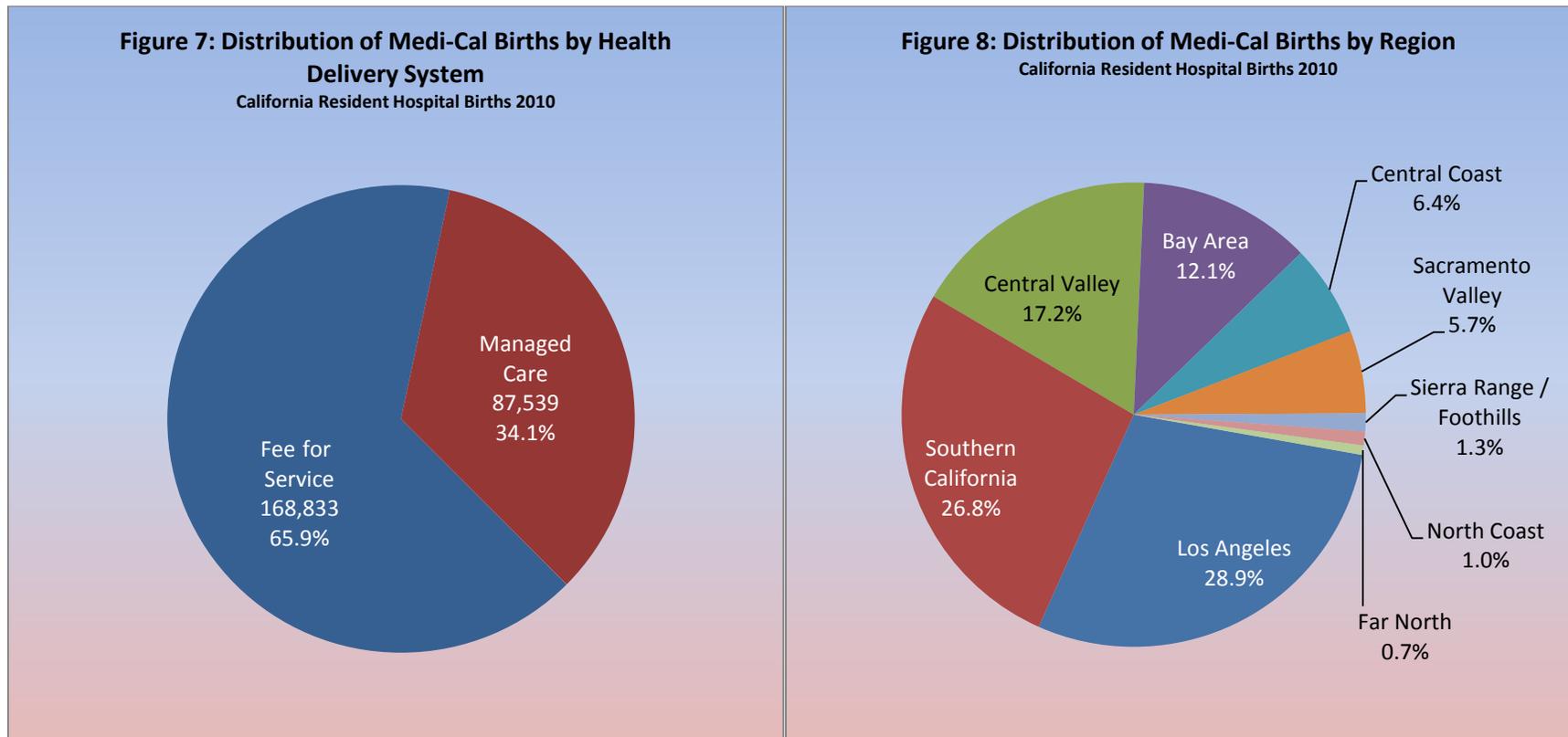
**Medi-Cal Births by Eligibility Pathway:** A large segment of the Medi-Cal-financed births was to mothers without SIS (32.1%) or mothers enrolled in Families aid codes (49.0%) (Figure 6).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Medi-Cal Births by Medi-Cal Health Delivery System:** Of the 256,372 Medi-Cal-financed births, 65.9% were to mothers participating in the FFS program, and 34.1% were to mothers participating in the managed care program (Figure 7).

**Medi-Cal Births by Geographic Region:** More than half of the Medi-Cal births were to mothers residing in Los Angeles or other parts of Southern California, with the next-largest region being the Central Valley (Figure 8) (see Appendix C – Regional Assignments of California Counties).



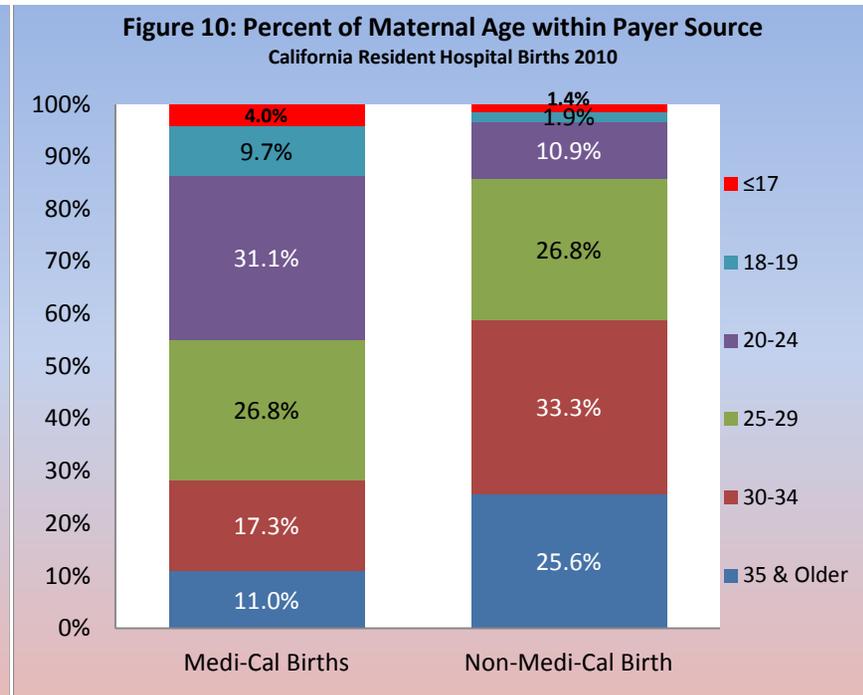
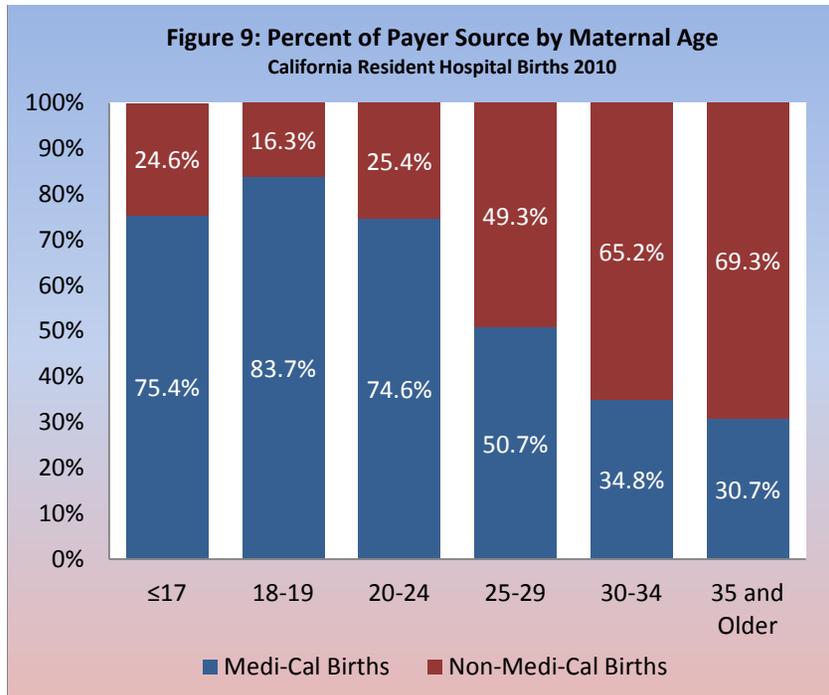
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

## Maternal Demographic Characteristics

**Age:** Births to teen mothers are of particular concern since they are more likely to be premature and of low birthweight. Premature and low-birthweight newborns are at increased risk for death and a host of disabling health conditions.<sup>49,50,51</sup>

Mothers whose births were financed by Medi-Cal were, on average, younger than mothers whose births were financed by non-Medi-Cal sources. Among Medi-Cal-financed births, the mean maternal age was 26.2 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.7 years (median = 31 years).

Medi-Cal financed a significant percentage of California’s births for younger women. Medi-Cal financed 75.4% of the births to women age 17 and younger, 83.7% of the births to women between 18 and 19 years of age, and 74.6% of the births to women between 20 and 24 years of age (Figure 9). Medi-Cal mothers 24 years of age or younger accounted for 44.8% of total Medi-Cal births, while among non-Medi-Cal mothers, only 14.2% were 24 years of age or younger. Among non-Medi-Cal mothers, 58.9% were to mothers 30 years of age or older (Figure 10).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

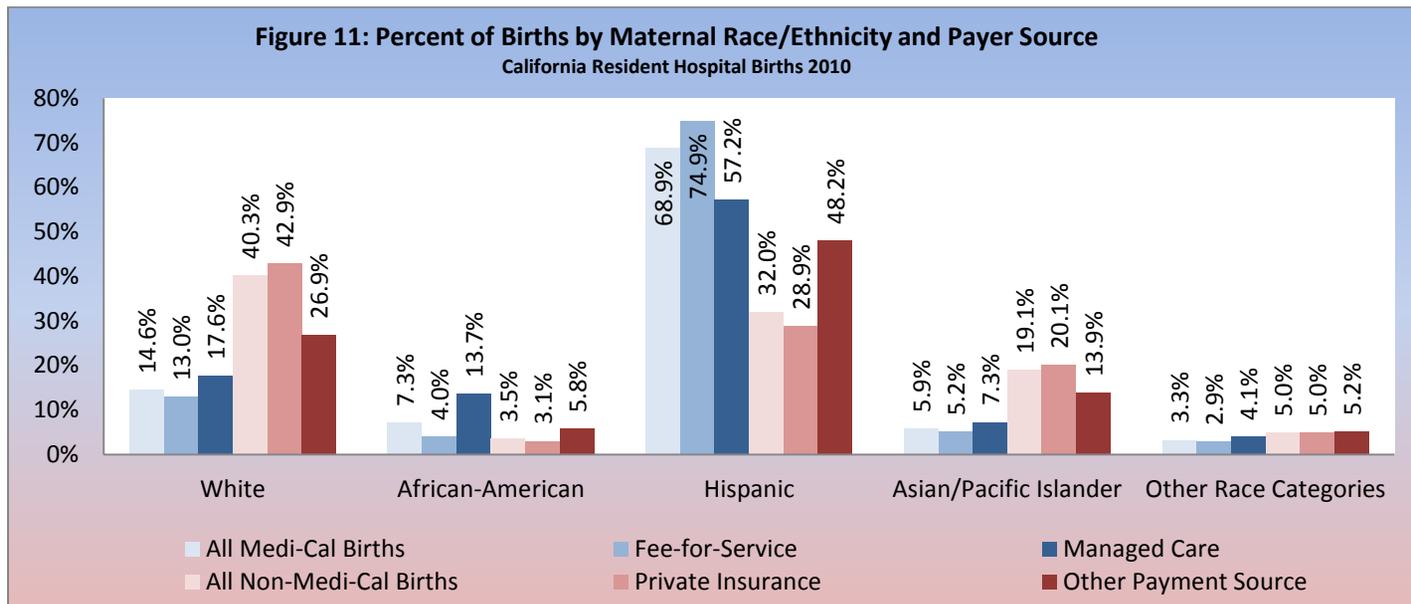
\*Note: Values in figures may not add up to 100.0% due to rounding.

**Race/Ethnicity:** Hispanic mothers comprised the largest percentage of Medi-Cal-financed births. Overall, 68.9% of births financed by Medi-Cal were to Hispanic mothers, while only 32.0% of non-Medi-Cal-financed births were to mothers of Hispanic ethnicity (Figure 11). Additionally, 14.6% of Medi-Cal-financed births were to white mothers compared to 40.3% of non-Medi-Cal mothers (Figure 11).

The remaining Medi-Cal births were attributed to the following groups: 7.3% to African-American mothers, 5.9% to Asian or Pacific Islander mothers, and 3.3% to mothers of other race/ethnic backgrounds (Figure 11). Non-Medi-Cal births displayed significantly different proportions: Asian or Pacific Islander mothers comprised 19.1%;

African-American mothers constituted 3.5% and mothers of other race/ethnic backgrounds made up 5.0% of the total births (Figure 11).

Differences in race/ethnic composition were noted between mothers who participated in the Medi-Cal FFS system and those who participated in the Medi-Cal managed care delivery system. While 7.3% of all Medi-Cal births were to African-American mothers, the percent of African-American births financed by the Medi-Cal managed care program was nearly twice that, or 13.7% (Figure 11). These differences are important to recognize because compared to most other race/ethnic groups, deliveries to African-American mothers are more likely to be low birthweight and preterm.<sup>52,53,54,55</sup>

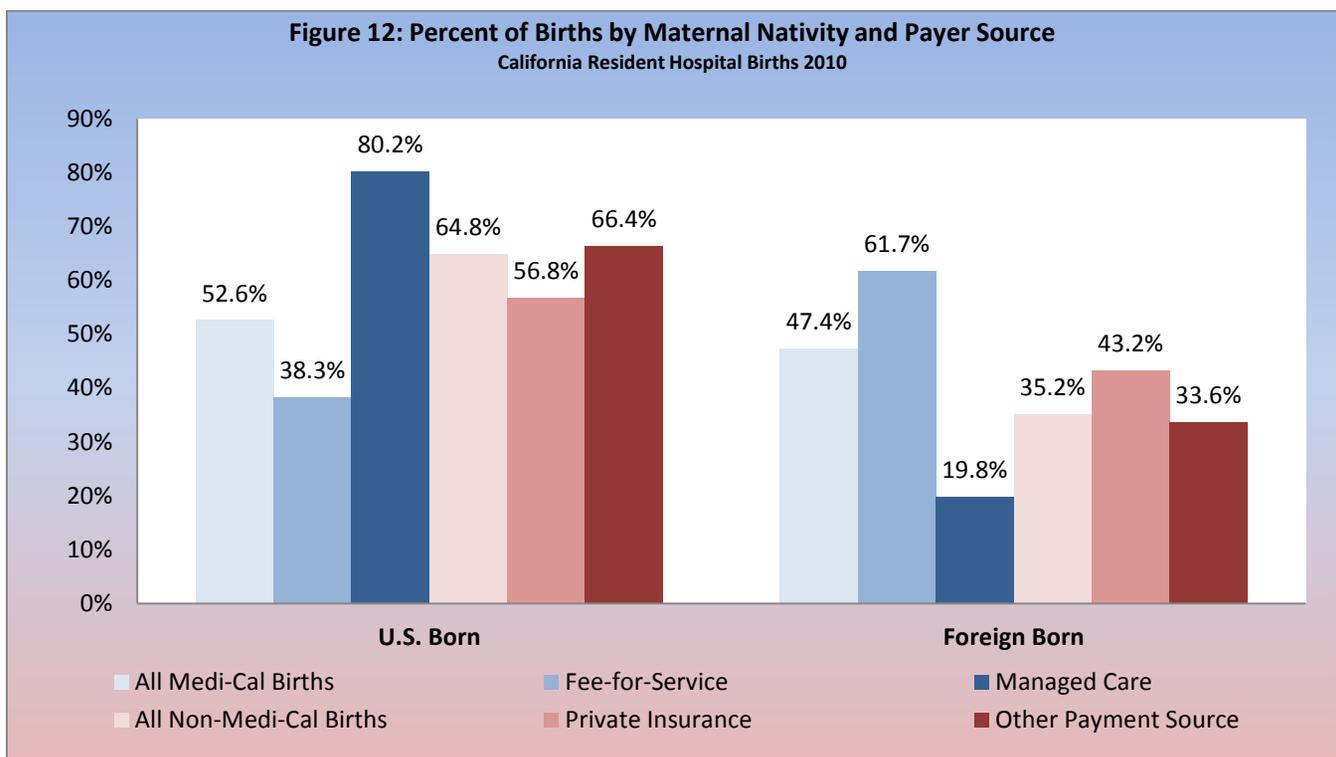


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

\*Note: Values in figures may not add up to 100.0% due to rounding.

**Nativity:** Differences between U.S.-born and foreign-born mothers with regard to low birthweight and premature births have long been reported in the literature. Foreign-born mothers of virtually every racial and ethnic group in the U.S. experience better birth outcomes compared to their U.S.-born counterparts, despite their low socioeconomic status, low educational attainment, and lack of or late initiation of prenatal care.<sup>56,57</sup>

Among Medi-Cal-financed births, 52.6% were to U.S.-born mothers and 47.4% were to foreign-born mothers. A larger segment of non-Medi-Cal-financed births was to U.S.-born mothers (64.8%), and a smaller segment (35.2%) was to foreign-born mothers (Figure 12). Among Medi-Cal mothers who participated in managed care, 19.8% were foreign-born, whereas 61.7% of mothers who participated in Medi-Cal’s FFS program were foreign-born (Figure 12).



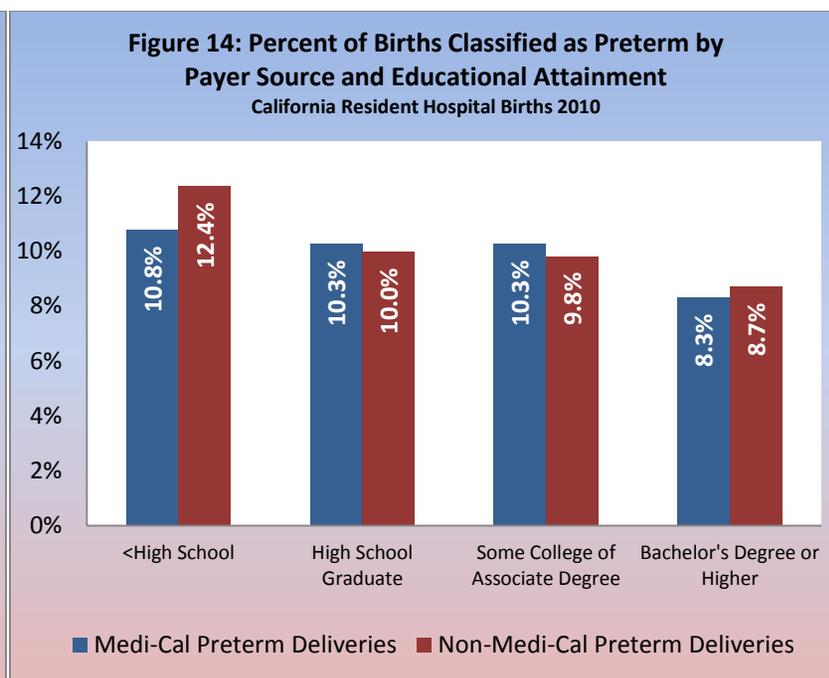
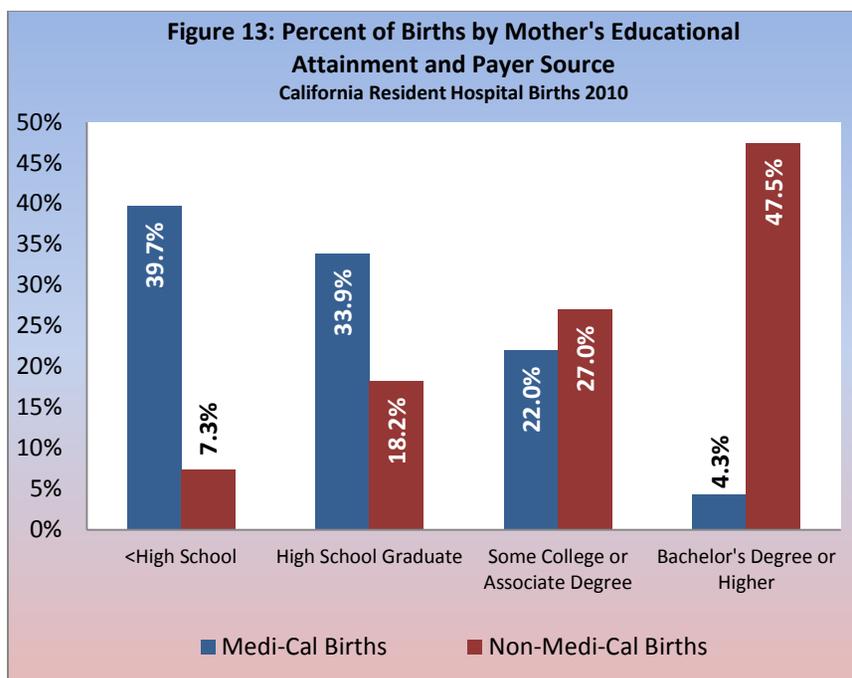
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

\*Note: Values in figures may not add up to 100.0% due to rounding.

**Education Status:** Lower maternal educational attainment is associated with higher parity levels, closer birth spacing, having an unwanted pregnancy, and an increased prevalence of smoking during pregnancy. Lower educational attainment is also associated with adverse birth outcomes such as preterm and low-birthweight births, and an increased risk of stillbirth as well as neonatal and post neonatal deaths.<sup>58,59</sup>

Medi-Cal mothers had lower educational attainment than non-Medi-

Cal mothers did. Overall, 39.7% of mothers enrolled in Medi-Cal had less than a high school education, 33.9% had a high school diploma, 22.0% had some college, and 4.3% had a college degree (Figure 13). Conversely, only 7.3% of non-Medi-Cal mothers had less than a high school education, 18.2% had a high school diploma, 27.0% had some college, and 47.5% attained a college degree. Between both Medi-Cal and non-Medi-Cal births, mothers with the highest educational attainment had the lowest percentages of low birthweight and preterm births (Figure 14).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

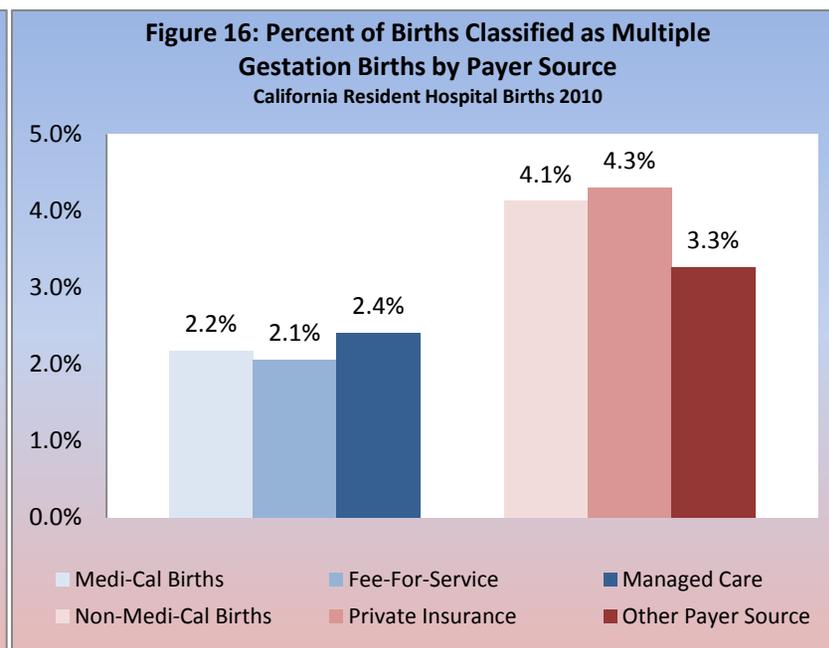
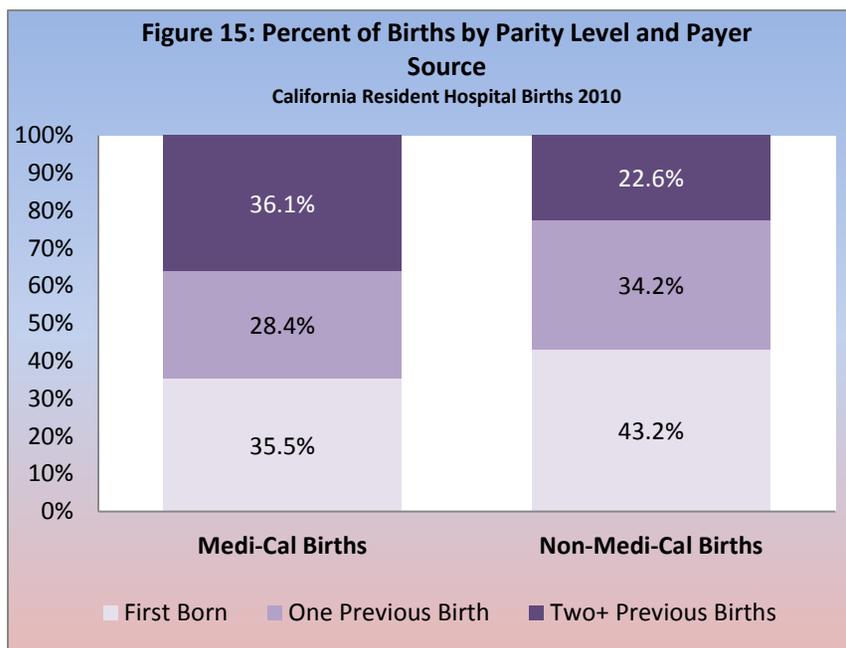
\*Note: Values in figures may not add up to 100.0% due to rounding.

**Parity:** Parity refers to the number of live births a woman has during her reproductive years. High parity can increase the risk for adverse birth outcomes such as low birthweight, premature birth, stillbirth and neonatal death.<sup>60,61</sup>

Among Medi-Cal mothers in 2010, 35.5% were first-time mothers, 28.4% had one previous birth, and 36.1% had two or more previous births (Figure 15). Medi-Cal managed care mothers had the highest parity with 37.4% having two or more previous births (Appendix H). Among non-Medi-Cal births, and particularly among the privately insured, mothers had lower parity. Of the non-Medi-Cal mothers, 43.2% were first-time mothers, 34.2% had one previous birth, and 22.6% had two or more previous births (Figure 15).

**Multiple-Gestation births:** Babies born in multiple-gestation births (twins or higher) are more likely to be of low birthweight or born prematurely.<sup>62</sup> Multiple-gestation births are more common among older mothers or mothers using artificial reproductive technology.<sup>63,64</sup> These babies are also more likely to be delivered via cesarean section.

Among mothers that participated in Medi-Cal’s FFS delivery system, 2.1% experienced multiple-gestation births, while among mothers who participated in Medi-Cal’s managed care, 2.4% experienced multiple-gestation births. Twin or higher births were more common among all non-Medi-Cal births at 4.1%, particularly among births financed by private insurance sources (4.3%) (Figure 16).



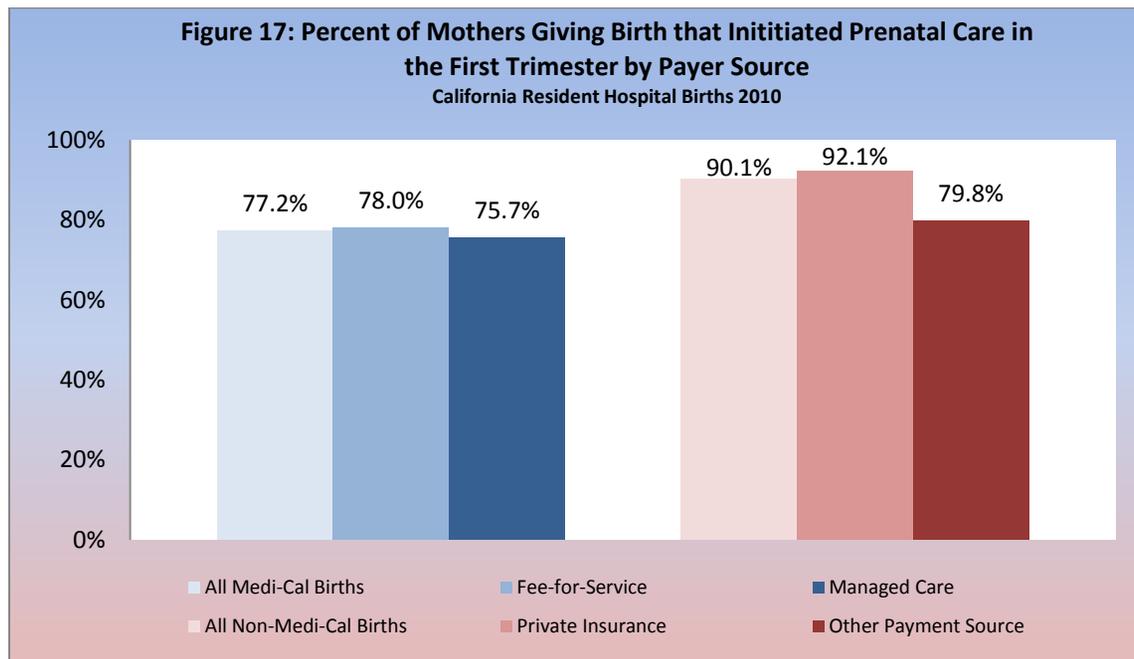
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.  
 \*Note: Values in figures may not add up to 100.0% due to rounding.

**Prenatal Care:** Effective and early prenatal care helps to avoid negative birth outcomes such as low birthweight, preterm births, or infant mortality.

Important developments occur within the fetus in the first 12 weeks of pregnancy; therefore, timely prenatal care is essential. Women who initiate prenatal care later in their pregnancies are at increased risk for having a preterm or low-birthweight newborn, and having a baby requiring care in an intensive care unit.<sup>65</sup> The Healthy People 2020 goal states that 77.9% or more of all pregnant women in the U.S. should initiate prenatal care in their first trimester.<sup>66</sup>

Among all Medi-Cal mothers, 77.2% initiated prenatal care during their

first trimester of pregnancy, 18.2% initiated prenatal care in their second trimester, and 3.9% began care in their third trimester of pregnancy (Figure 17 and Appendix H). In contrast, 92.1% of privately insured mothers initiated prenatal care in their first trimester, while only 7.9% initiated care during their second or third trimester of pregnancy (Figure 17 and Appendix H). Mothers enrolled in Medi-Cal managed care initiated early prenatal care 75.7% of the time, and 78.0% of FFS mothers also initiated prenatal care early (Figure 17). Among Medi-Cal mothers, the Undocumented and Pregnancy Pathway aid categories had the highest percentages of prenatal care during the first trimester of pregnancy (81.1% and 79.5%, respectively) (Appendix H).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

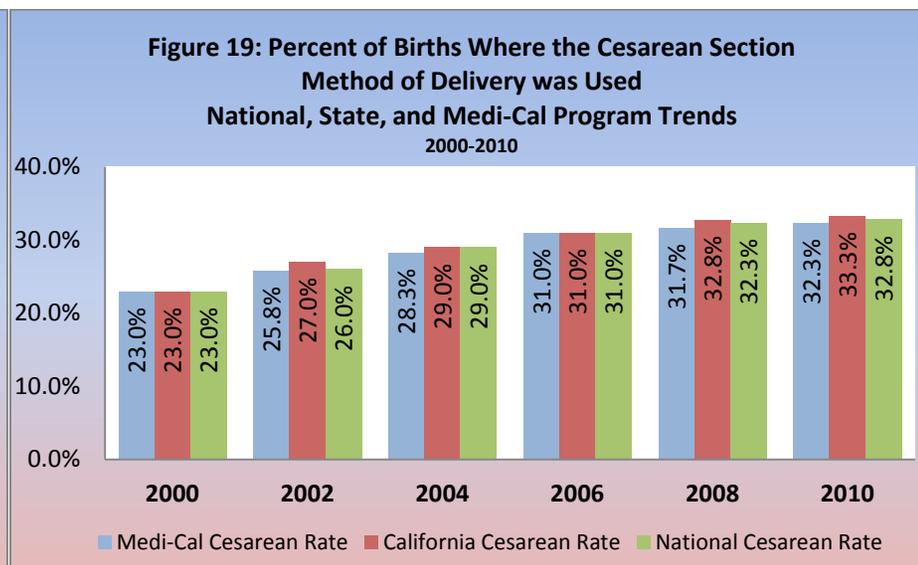
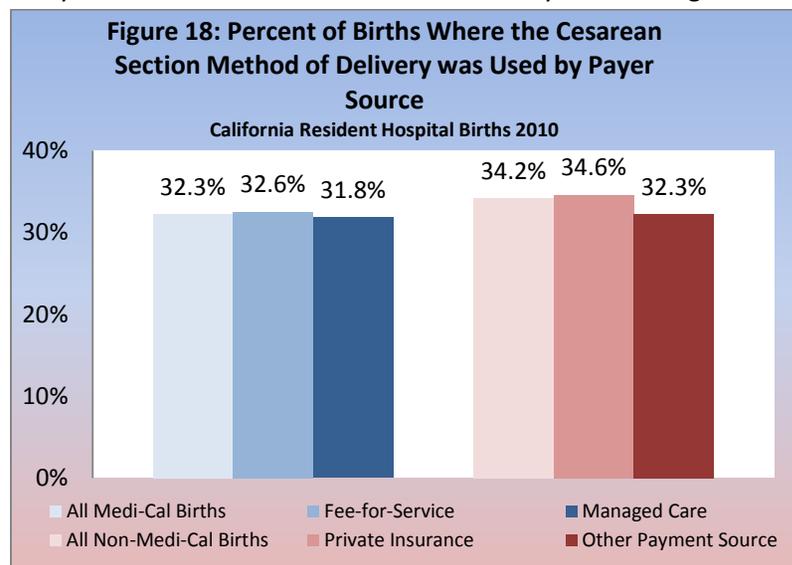
**Delivery Method:** From 1996 to 2009, the national cesarean rate increased annually, culminating in a 60% overall increase in cesarean sections.<sup>67</sup> The cesarean rate has since stabilized, showing a slight decline from 2009 to 2010.<sup>68</sup> Compared with vaginal birth, cesarean section is costly and poses additional health risks for both mother and child.<sup>69</sup> Clear clinical indications exist for undergoing a cesarean delivery, but non-medical factors such as maternal choice and physician practice patterns also influence these rates. Cesarean delivery is more common among older mothers.

Nationally, mothers age 40 and older are twice as likely to deliver via cesarean section as mothers age 20 and younger.<sup>70</sup> Because non-Medi-Cal mothers tend to be older than Medi-Cal mothers, age may contribute to the greater percentage of cesarean deliveries in that population. Similarly, multiple-birth pregnancies are 2.5 times more likely to result in a cesarean section delivery than a singleton birth.<sup>71</sup>

The prevalence of multiple births among non-Medi-Cal mothers (4.1%) compared to Medi-Cal mothers (2.2%) suggests that non-Medi-Cal mothers would have a higher occurrence of cesarean delivery.

In 2010, cesarean section deliveries comprised 32.8% of all births in the U.S. Among all resident California hospital births occurring in a hospital, cesarean section deliveries made up 33.3% of births, slightly above the national average (Figure 19). California's cesarean rates have increased by nearly 45% in the last several years, from 23.0% in 2000 to 33.3% in 2010 (Figure 19).

The cesarean section rate was slightly lower than the state average among Medi-Cal births (32.3%). Among non-Medi-Cal financed births, the percentage of cesarean deliveries was highest among privately insured births at 34.6% (Figure 18).

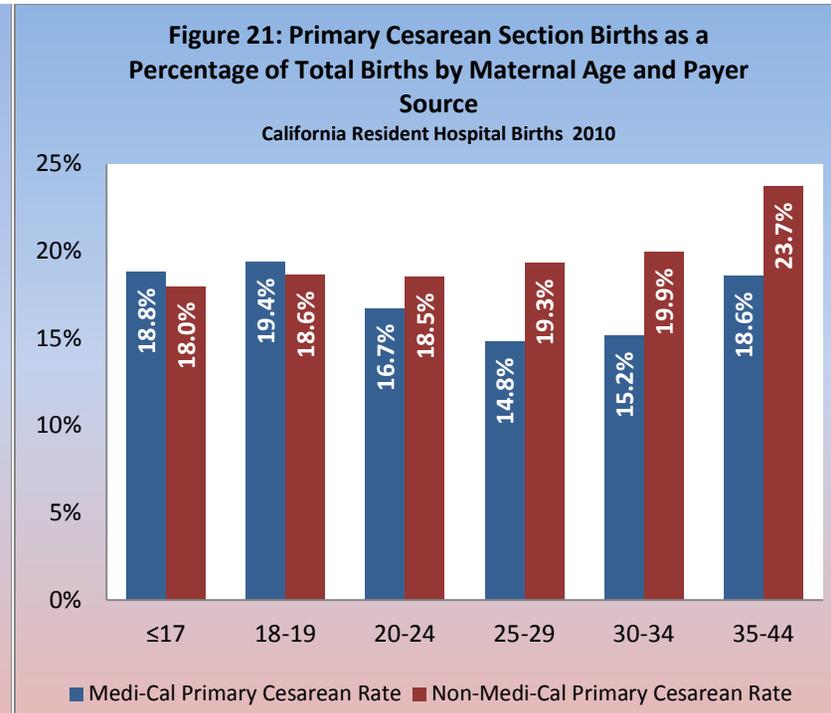
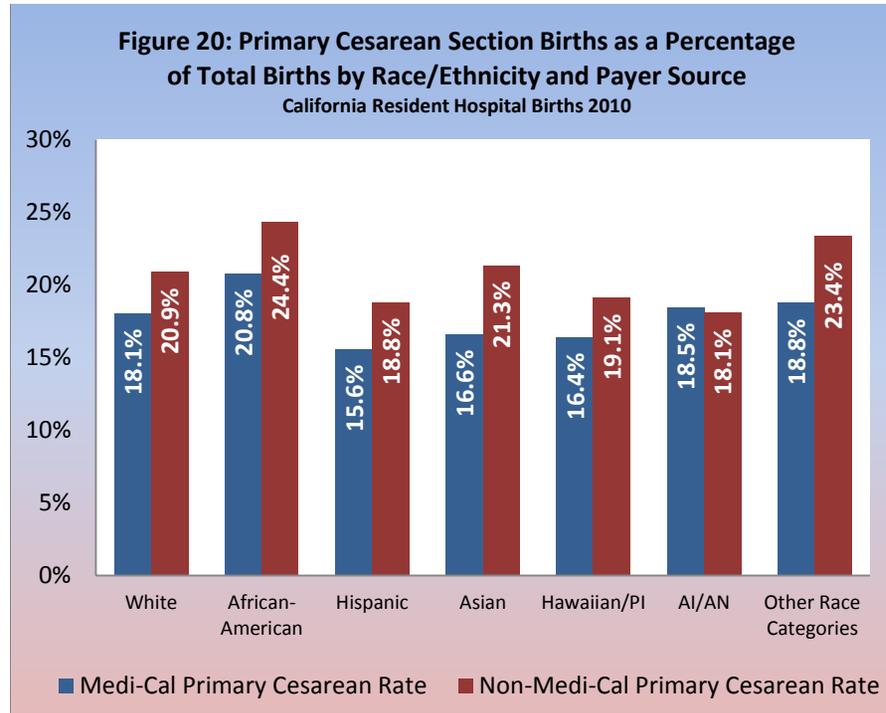


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

It is unlikely that a woman will have a vaginal birth after delivering via cesarean section; therefore, the primary cesarean measure is important for understanding the possibility of future cesarean sections for that mother. In 2003, the likelihood that a mother with a previous cesarean section would have a cesarean during subsequent deliveries was roughly 90%.<sup>72</sup> The percentage of primary cesarean section births was lower among Medi-Cal (16.5%) than non-Medi-Cal mothers (20.5%) (Appendix H). Among Medi-Cal mothers, the primary cesarean section percentage was highest among mothers age 17 and younger (18.8%), mothers ages 18 to 19 (19.4%), African-American women

(20.8%), American Indian/Alaskan Native women(18.5%), and women in other race categories (18.8%)(Figures 20 and 21). Medi-Cal mothers with a college degree also delivered via primary cesarean section at percentages higher than the program average (21.0% vs. 16.5%, respectively) (Appendix H).

In contrast, the percentage of non-Medi-Cal mothers who delivered via cesarean section increased with age. Non-Medi-Cal mothers ages 35 to 44 (23.7%) and African-American mothers (24.4%), experienced the highest rates of primary cesarean section delivery (Figure 20).



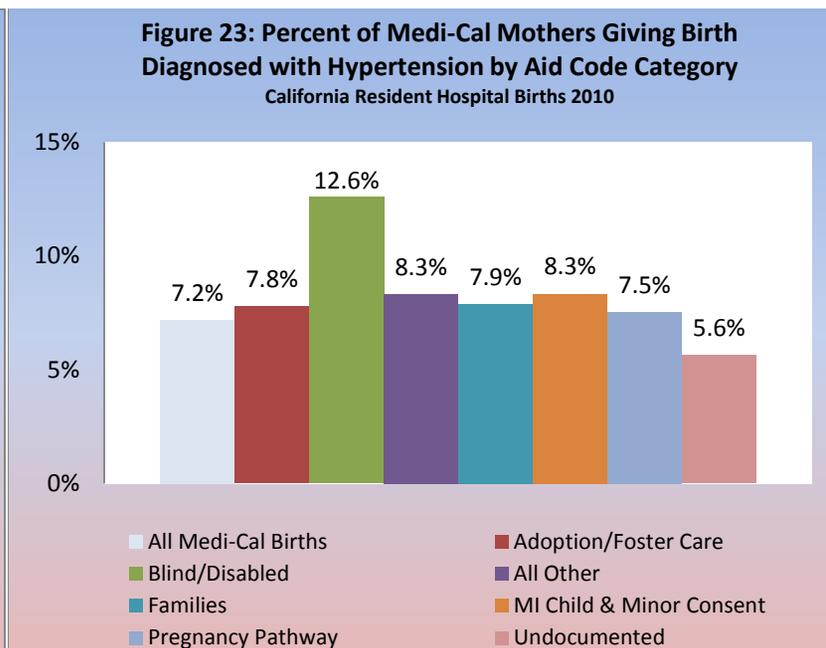
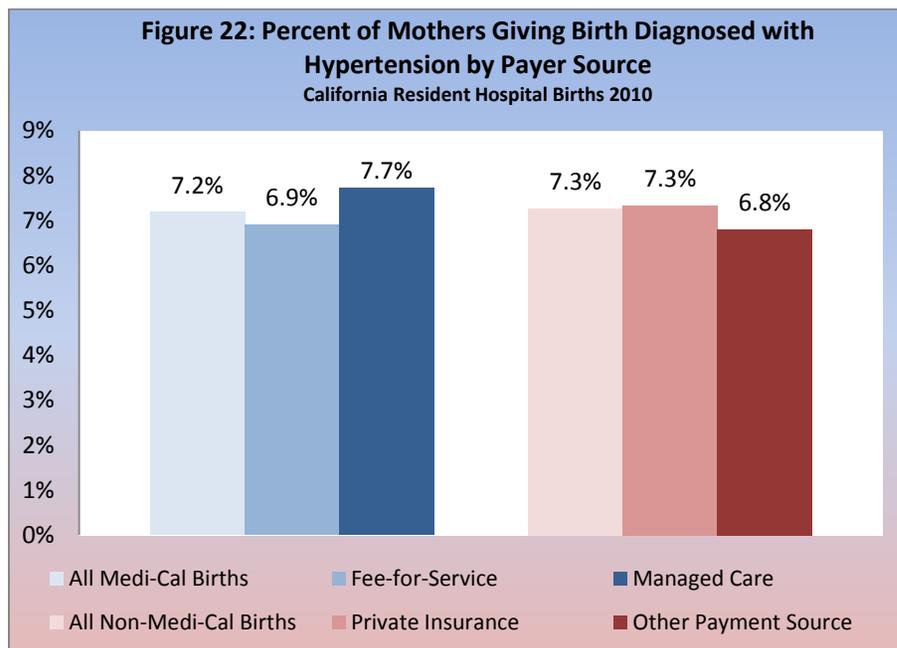
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Hypertension:** Hypertension is a condition characterized by high blood pressure. Gestational hypertension is a variation of hypertension that develops due to pregnancy and diminishes after childbirth. Whether chronic or gestational, hypertension during pregnancy is dangerous to both the mother and the fetus. Hypertension contributed to 11.1% of pregnancy-related maternal deaths in 2006 and 2007.<sup>73</sup> The adverse birth outcomes linked to hypertension include low birthweight, preterm birth, and placental abruption. Women who are obese prior to pregnancy, under 20 years old or over 40 years old, or have diabetes are at a greater risk for developing hypertension during pregnancy.<sup>74</sup>

It is important to note that the data represented in this report is dependent on the mother having a hypertension diagnosis at the time

of delivery. Many factors influence the likelihood of a mother receiving such a diagnosis, including insurance status, language barriers, and continuity of care.<sup>75</sup>

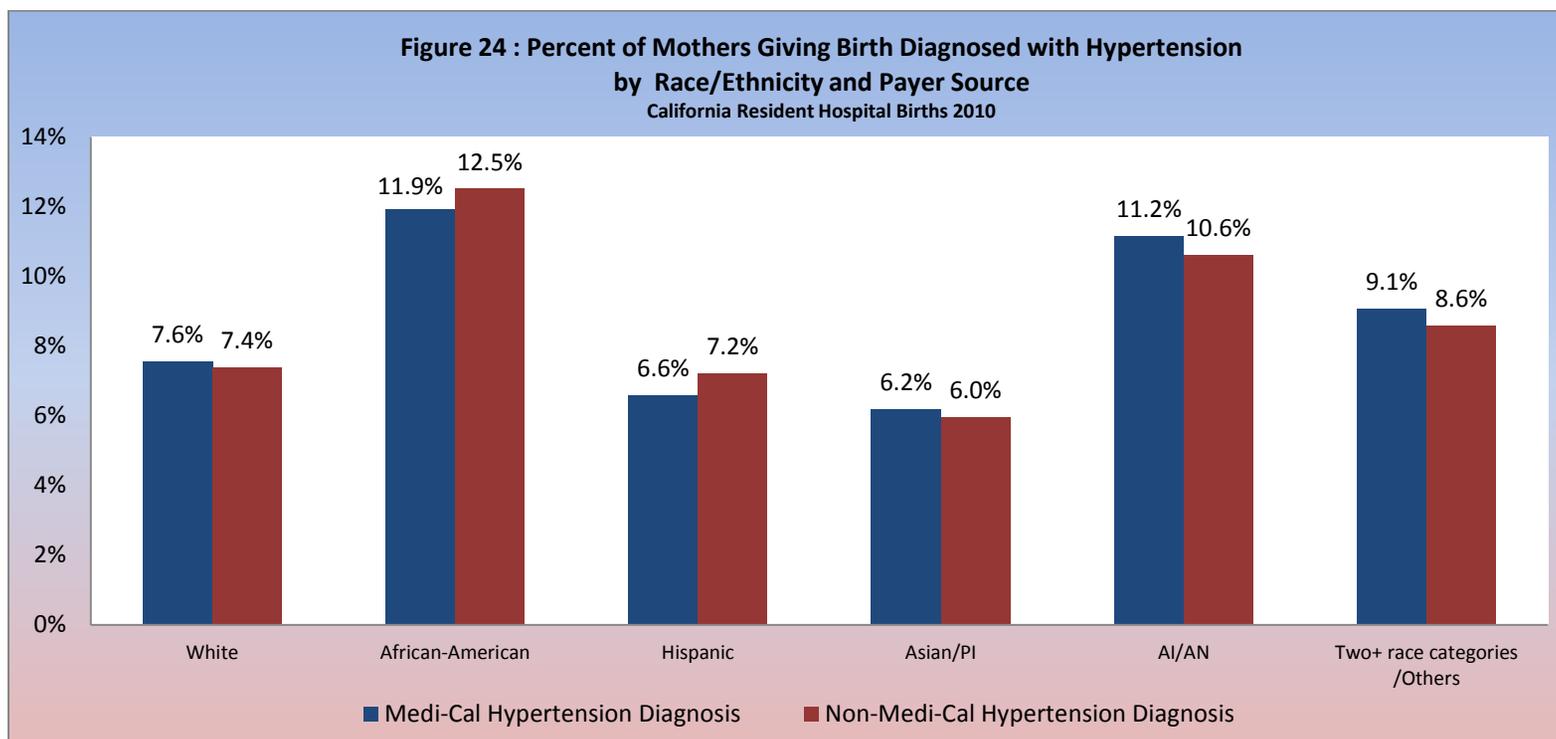
In 2010, 7.2% of Medi-Cal mothers had a hypertension diagnosis (either gestational or chronic hypertension), compared to 7.3% of non-Medi-Cal mothers (Figure 22). Hypertension was most prevalent among mothers participating in Medi-Cal managed care (7.7%) and least prevalent among women whose births were financed by Medi-Cal FFS (6.9%) or other funding sources (6.8%) (Figure 22). Hypertension was most prevalent among mothers enrolled in Medi-Cal’s Blind/Disabled aid codes (12.6%) (Figure 23).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

In 2010, hypertension diagnoses in the study population fluctuated between a low of 6.8% (other funding source) and a high of 7.7% (Medi-Cal managed care). Although it is impossible to pinpoint a single reason for this variation, the literature suggests race as a possible indicator of hypertension prevalence within a population. Nationally, African-American adults (42.5%) are far more likely to have a hypertension diagnosis than white (29.1%) or Hispanic (26.1%) adults.<sup>76</sup>

Similar to the national population, the Medi-Cal (11.9%) and non-Medi-Cal (12.5%) population showed that African-American mothers had the highest prevalence of hypertension. Asian/Pacific Islander mothers had the lowest prevalence of hypertension diagnoses among Medi-Cal (6.0%) and non-Medi-Cal (6.2%) groups (Figure 24).



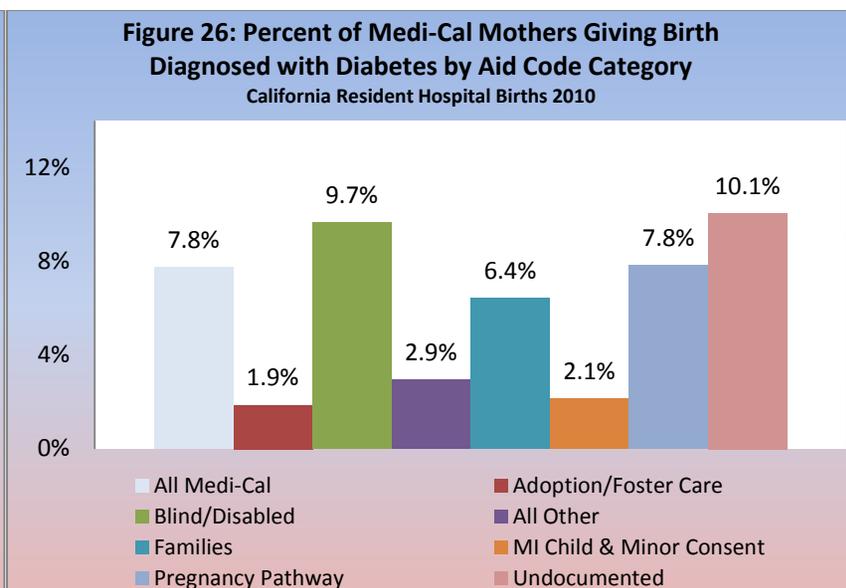
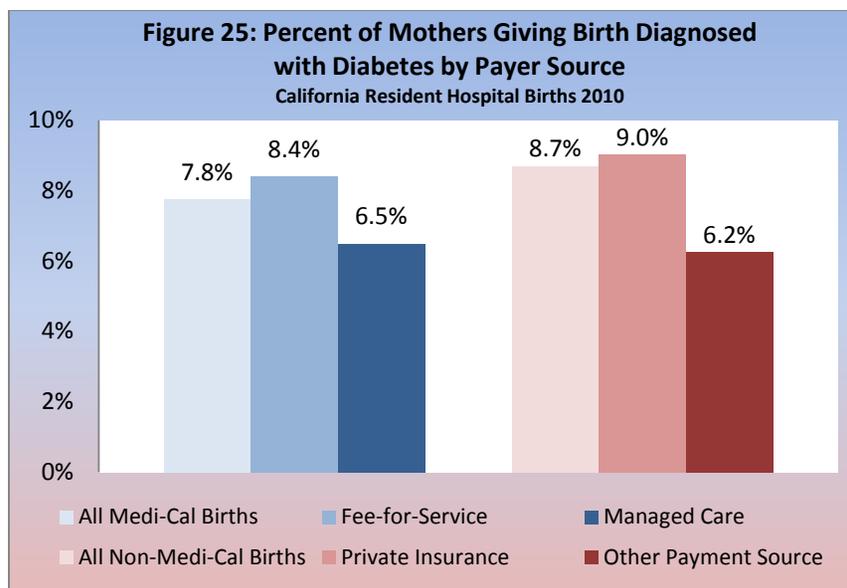
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Diabetes:** Maternal diabetes is associated with several adverse birth outcomes, including large-for-gestational-age birth, preterm birth, miscarriage, stillbirth, or congenital birth defects.<sup>77</sup> Because of their larger size, newborns born to mothers with diabetes are more likely to be born via cesarean section or be injured during vaginal delivery.<sup>78</sup> Maternal diabetes can have long-term negative effects on the mother and newborn. Children born to mothers with diabetes are more likely to be overweight later in life and develop diabetes themselves, while 35% to 60% of women with gestational diabetes (a temporary disorder brought on by pregnancy) develop Type 2 diabetes within 10 years of delivery.<sup>79</sup>

It is important to note that the data represented in this report is dependent on the mother having a diabetes diagnosis at the time of delivery. Many factors influence the likelihood of a mother receiving a

diagnosis, including insurance status, language barriers, and continuity of care.<sup>80</sup> These factors may result in studies underreporting diabetes, especially in vulnerable populations.

The incidence of gestational or pre-pregnancy diabetes was 7.8% among mothers enrolled in the Medi-Cal program and 8.7% among all non-Medi-Cal mothers (Figure 25). Mothers who were privately insured and those who participated in the Medi-Cal FFS delivery system had higher percentages of any diabetes diagnosis (9.0% and 8.4%, respectively), than mothers with other coverage (6.2%) and mothers participating in Medi-Cal managed care (6.5%) (Figure 25). Diabetes was most prevalent among mothers without SIS (10.1%), mothers enrolled in Blind/Disabled aid codes (9.7%), and in Pregnancy Pathway aid codes (7.8%) (Figure 26).



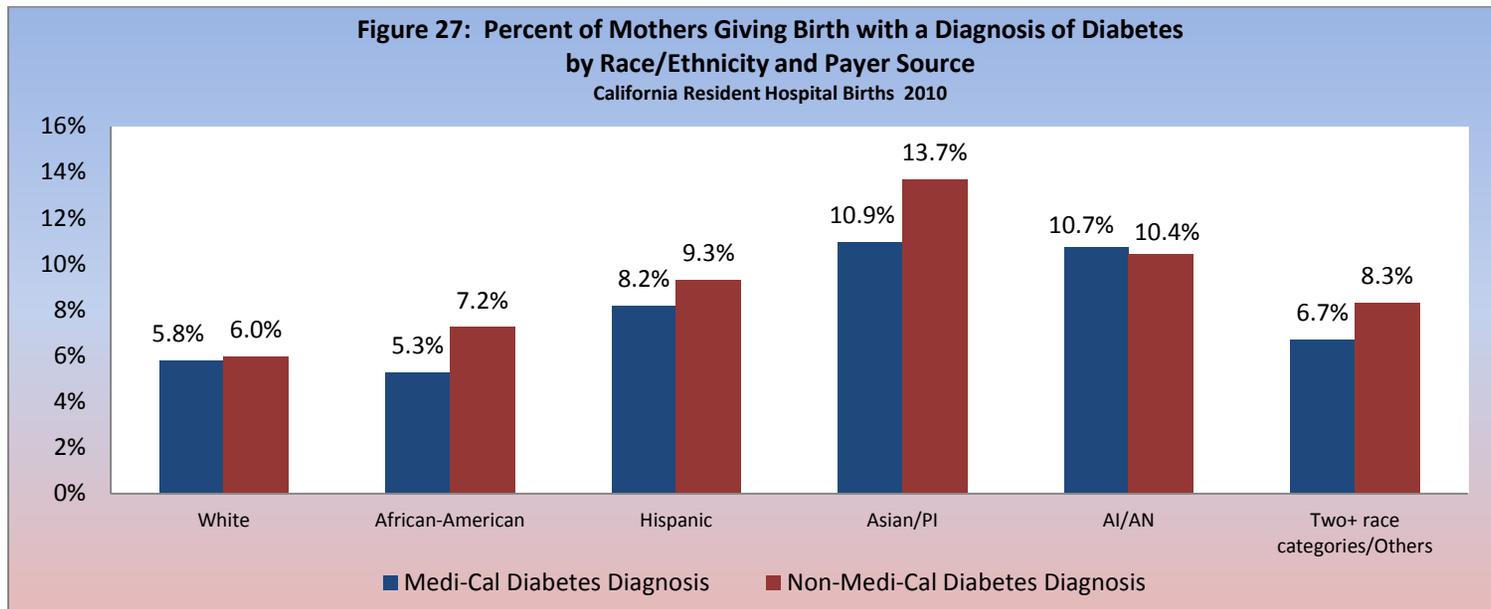
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Race is the greatest risk indicator for both gestational and non-gestational diabetes.<sup>81</sup> The CDC considers non-white mothers to be at high risk for developing gestational diabetes.<sup>82</sup> While there is no consensus in the medical community, literature suggests cultural, socioeconomic, and genetic factors as reasons for this disparity, as well as obesity prevalence and issues of access to care.<sup>83</sup>

As noted previously, RASD identified the incidence of diabetes among women giving birth using OSHPD’s patient discharge records and AHRQ’s clinical classification algorithm. For purposes of this analysis, both gestational diabetes and pre-existing diabetes were captured when diagnosed. Roughly 90% of the women giving birth diagnosed with diabetes were classified into AHRQ’s Category 186 “Diabetes or

abnormal glucose tolerance complicating pregnancy; childbirth; or the puerperium.”

In California, diabetes diagnoses were most common among non-Medi-Cal Asian/Pacific Islander mothers (13.7%) and Asian/Pacific Islander mothers enrolled in Medi-Cal (10.9%). This elevated percentage of Asian/Pacific Islander diagnoses may reflect the greater presence of Asian subpopulations at high risk for diabetes (i.e., Filipino, Asian Indian, and Vietnamese mothers) in California when compared to the national distribution.<sup>84</sup> American Indian/Alaskan Natives were also among the highest percentages, as 10.7% of Medi-Cal mothers and 10.4% of non-Medi-Cal mothers had a diabetes diagnosis. White mothers (6.0%) had the lowest percentage of diabetes diagnoses among non-Medi-Cal mothers.



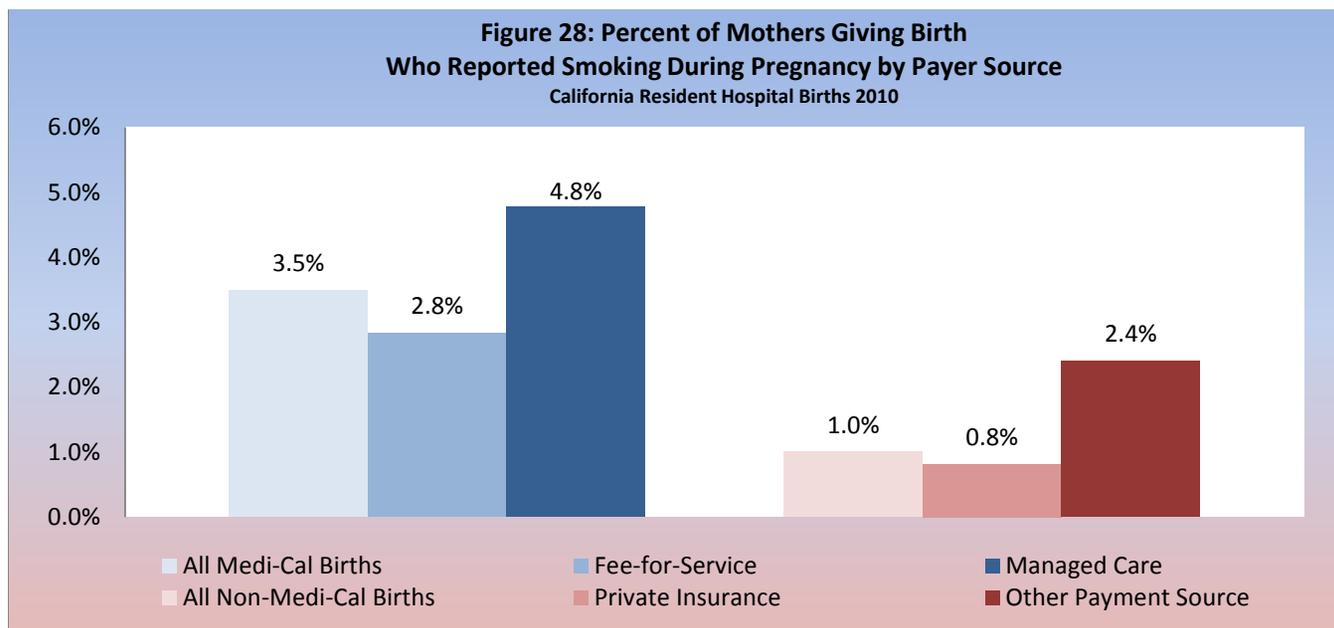
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Smoking:** The California birth certificate began collecting data on maternal smoking behaviors in 2007. The greater number of maternal smokers in the Medi-Cal population reflects the national trends for maternal smoking, especially in Medi-Cal managed care. However, the risk of maternal smoking encompasses socioeconomic status, age, and access to prenatal care. Further, research suggests that mothers underreport their smoking behavior on the birth certificate. Therefore, prevalence of smoking among California mothers is likely underrepresented in the data.<sup>85</sup>

According to the CDC, 15.6% of U.S. mothers smoked during their last three months of pregnancy in 2010.<sup>86,87</sup> Smoking during pregnancy is associated with the potential for spontaneous abortion, low

birthweight, stillbirth, growth retardation, preterm delivery, lung or brain tissue damage, and a higher occurrence of sudden infant death syndrome (SIDS).<sup>88</sup> Women who smoke during pregnancy are more likely to be young mothers, white or African-American, low-income earners, and enrolled in a Medicaid program or have no insurance.<sup>89</sup>

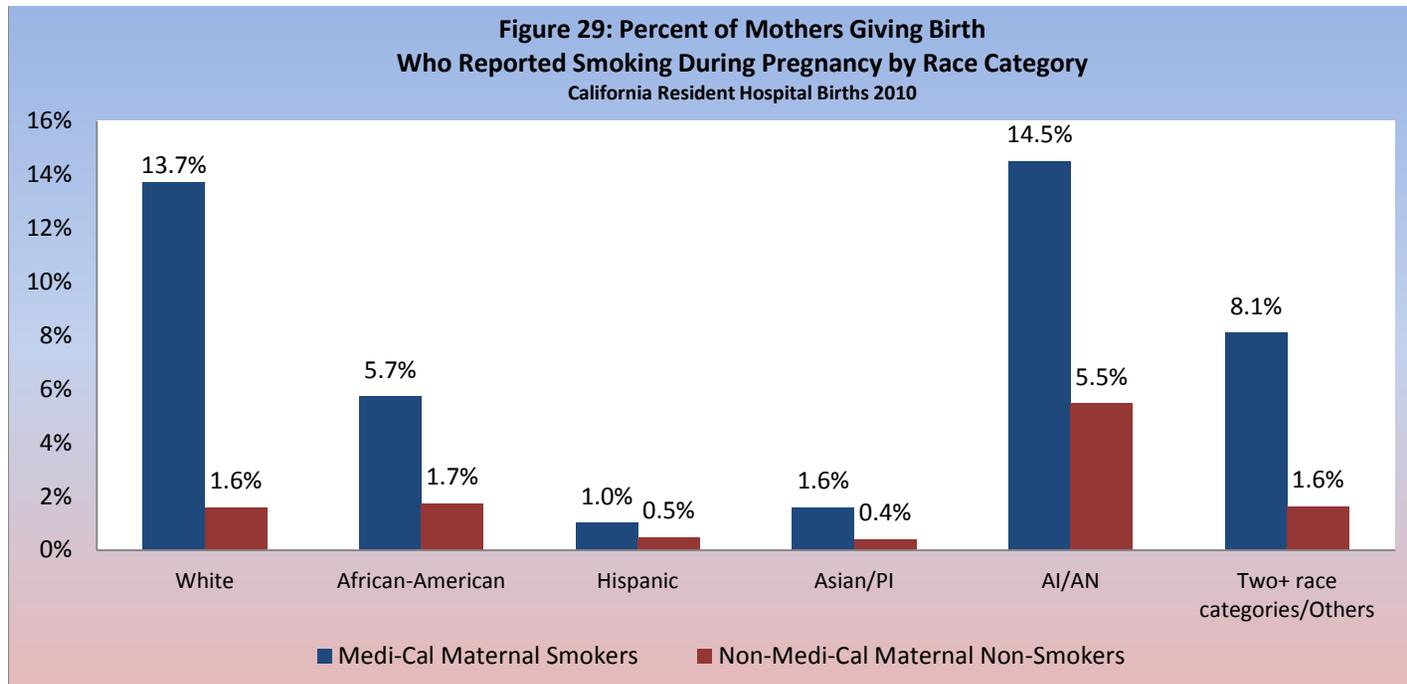
A higher percentage of Medi-Cal mothers reported smoking (3.5%) than non-Medi-Cal mothers (1.0%). Among Medi-Cal managed care mothers, 4.8% smoked during pregnancy, compared to 2.8% among mothers who participated in Medi-Cal’s FFS delivery system (Figure 28). Mothers with private insurance had the lowest percentage of smoking during pregnancy (0.8%). The Healthy People 2020 goal states that 98.6% of pregnant mothers will not smoke during pregnancy.



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

The CDC reports a wide disparity in smoking during pregnancy by ethnicity. Nationally, 30.4% of Alaskan Native and 21.1% of American Indian mothers smoked during pregnancy.<sup>90</sup> The percentage of smoking during pregnancy was comparatively moderate for white (15.9%) and African-American (10.3%) mothers and lowest for Hispanic (3.9%) and Asian/Pacific Islander (2.2%) mothers.<sup>91</sup> The literature identifies similar trends among mothers in California, with Hispanic and Asian/Pacific Islander mothers displaying the lowest percentages of maternal smoking.<sup>92</sup>

California’s maternal smoking prevalence is lower than the national level; however, Medi-Cal mothers smoked at considerably higher percentages than their non-Medi-Cal counterparts. White and American Indian/Alaskan Native mothers had the highest percentages among Medi-Cal mothers (13.7% and 14.5% respectively); whereas American Indian/Alaskan Native mothers and African-American mothers were more likely to report smoking among non-Medi-Cal mothers. Hispanic and Asian mothers were the least likely to report smoking between both categories (Figure 29).



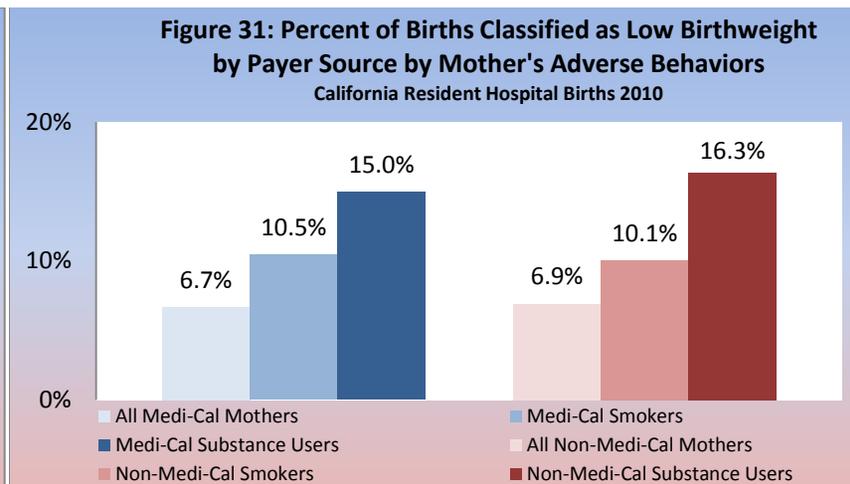
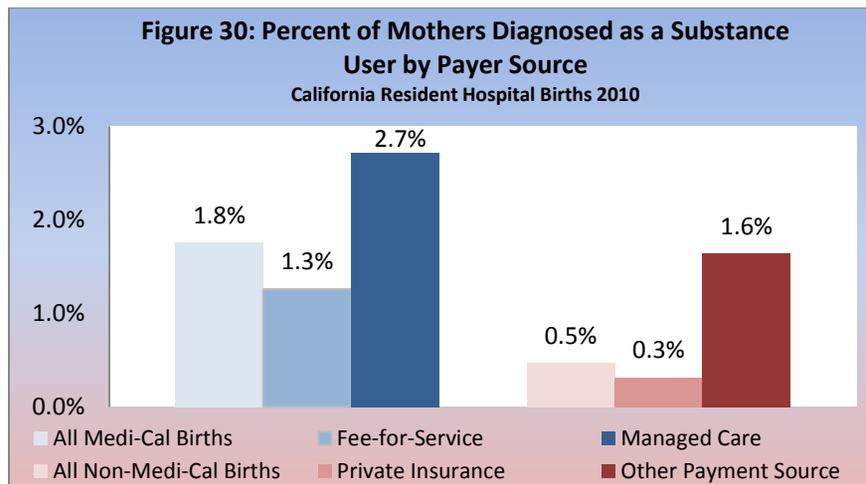
*Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.*

**Substance Use:** An estimated 4% of pregnant women in the U.S. are substance users.<sup>93</sup> The birth outcomes and developmental problems commonly associated with substance use during pregnancy include spontaneous miscarriage, low birthweight, preterm birth, stillbirth, fetal withdrawal symptoms, small head size, abnormal facial features, learning disabilities, speech/language delays, and vision/hearing problems.<sup>94,95</sup>

Medi-Cal has a greater proportion of women at risk for maternal substance use, including younger mothers and American Indian/Alaskan Native mothers, when compared to the non-Medi-Cal population. The risk of maternal substance use encompasses socioeconomic status, age, and access to prenatal care. Research findings vary substantially regarding substance use and adverse birth outcomes. While some drugs have been shown to be more harmful to the mother and baby than others, this report does not draw a distinction between the substances, and includes any drug for which the mother admitted use.

Substance use during pregnancy was nearly four times higher among Medi-Cal mothers than non-Medi-Cal mothers (1.8% and 0.5%, respectively), and twice as common among mothers that participated in Medi-Cal managed care than in Medi-Cal’s FFS delivery system (2.7% and 1.3%, respectively) (Figure 30). Mothers with private insurance had the lowest prevalence of these negative health behaviors, just 0.8% smoked, and 0.3% used substances during pregnancy.

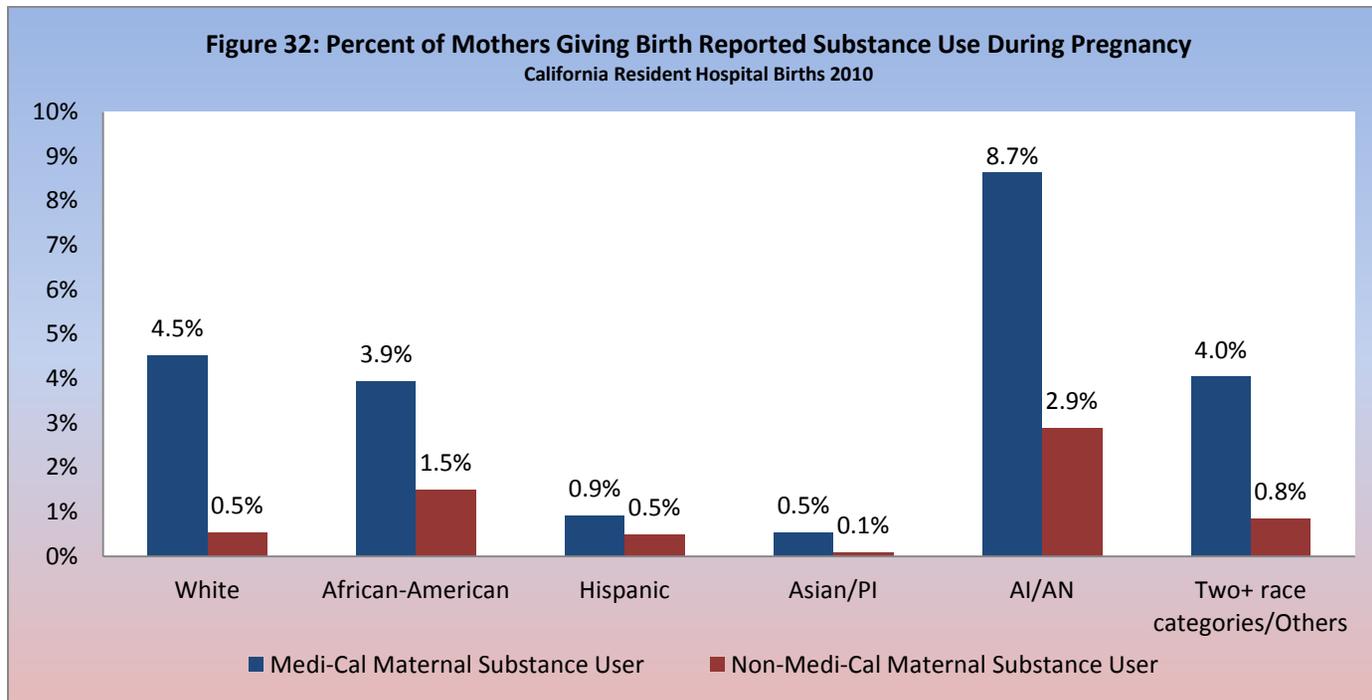
Adverse health behaviors such as smoking and substance use during pregnancy were significantly associated with an increased incidence of low birthweight. Regardless of payer source, the incidence of low birthweight increased for each of the adverse health behaviors. Substance use was associated with the greatest percentage of low birthweight between the two studied adverse behaviors. The incidence of low birthweight increased 57% in Medi-Cal mothers who smoked. Medi-Cal mothers who used substances during their pregnancy had increased percentages of low birthweight by 124% (Figure 31).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

The CDC reports a wide disparity in maternal substance use among age groups and race cohorts. A study of pregnant women from 2002 to 2010 found that 7.7% of African-American respondents had used illicit drugs in the last month, compared to 4.4% of white respondents.<sup>96</sup> Nationally, Hispanic mothers have the lowest percentage of both alcohol and illicit drug use.<sup>97</sup> Within these racial cohorts, younger mothers were most likely to use illicit drugs while pregnant. Mothers ages 15-17 were twice as likely as mothers were ages 18-25 and more than five times more likely than mothers ages 26-44 to use illicit drugs.<sup>98</sup>

Analogous to smoking, substance use is a self-reported behavior and therefore underreported. Medi-Cal had higher reported percentages of substance use, particularly among American Indian/Alaskan Native mothers (8.7%) and white mothers (4.5%). Non-Medi-Cal mothers reported high percentages of substance users in American Indian/Alaskan Native (2.9%) and African-American (1.5%) mothers. Similar to national trends, Hispanic and Asian/Pacific Islander mothers had the lowest percentages reported in both categories.



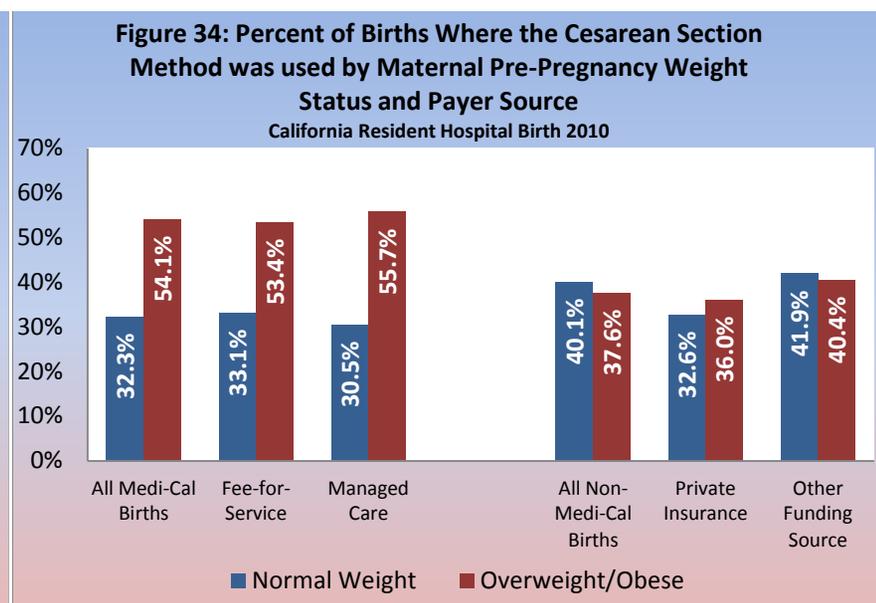
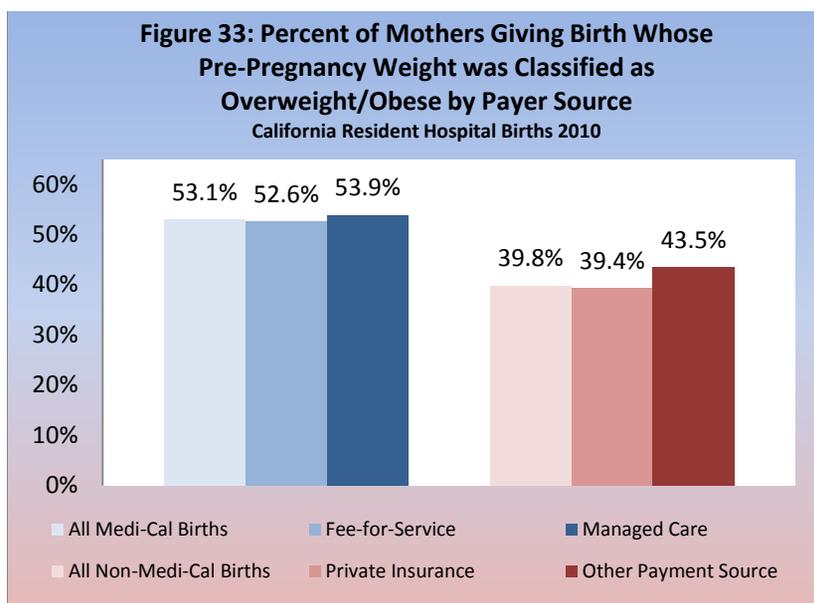
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Pre-Pregnancy Weight:** Maternal pre-pregnancy weight ranging outside of normal is associated with many adverse birth outcomes such as large-for-gestational age, macrosomia, neural tube defects, stillbirth, neonatal death, and congenital heart defects (the leading cause of infant death when attributed to birth defects).<sup>99</sup> Newborns who are born large-for-gestational age or affected by macrosomia also have an increased risk of future obesity and diabetes.<sup>100,101</sup> Women within a normal weight range are less likely to deliver preterm, develop gestational hypertension or diabetes, or require a cesarean section in comparison to women who are overweight or obese.<sup>102</sup>

The California birth certificate captured each mother’s height and weight for the first time in 2007, with weight recorded prior to pregnancy as well as at the time of delivery. Pre-pregnancy height and

weight were used to calculate a mother’s Body Mass Index (BMI), though a large proportion of records contained missing or invalid height and/or weight information (N=55,479, or 11.2% of all observations).

The association between pre-pregnancy weight and the incidence of cesarean section delivery was not consistent among payer sources. Among Medi-Cal births, the incidence of cesarean section delivery was higher among women with pre-pregnancy weights considered overweight or obese than those with pre-pregnancy weights considered normal (Figure 34). Among non-Medi-Cal mothers, women with pre-pregnancy weights considered normal were more likely (40.1%) to deliver via cesarean section than women with pre-pregnancy weights considered overweight/obese (37.6%).

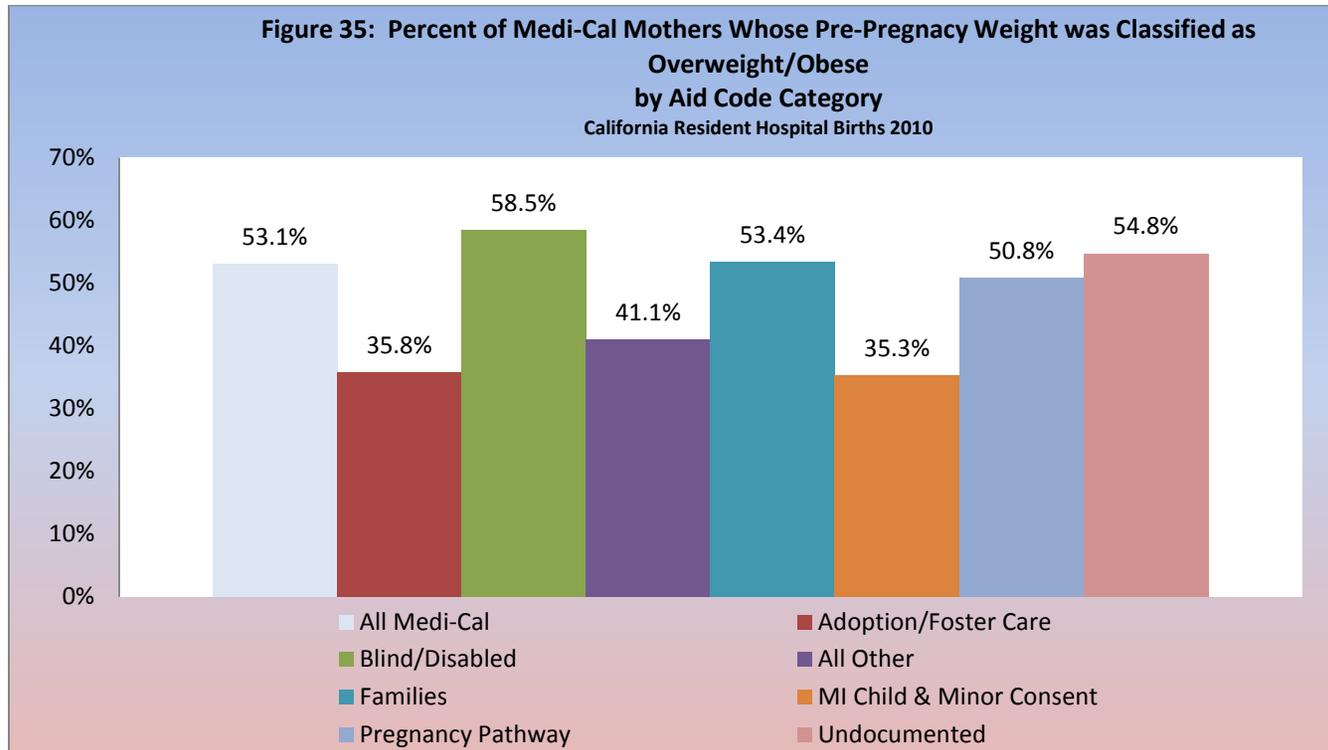


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

The National Heart, Lung, and Blood Institute (NHLBI) define BMI as a measurement for gauging weight and obesity. Calculated from height and weight, BMI is an estimate of body fat that helps measure risk of certain diseases and overall health. For this analysis, BMI was grouped according to criterion from NHLBI into the following categories: Underweight (BMI<18.5); Normal Weight (BMI 18.5-24.9); and Overweight/Obese (BMI 25+).

Among Medi-Cal mothers, 53.1% entered their pregnancy as

overweight or obese, compared to 39.8% of mothers whose births were financed by non-Medi-Cal sources (Figure 33). Among certain Medi-Cal subpopulations, the prevalence of overweight/obese mothers prior to pregnancy was higher yet. Mothers enrolled in Blind/Disabled aid codes had pre-pregnancy overweight/obesity prevalence as high as 58.5%, and 54.8% of women enrolled in Undocumented aid codes had pre-pregnancy weights considered overweight or obese (Figure 35).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

## Birth Outcomes

The birth outcomes presented in the 2010 Medi-Cal Birth Statistics include:

- [Low Birthweight](#)
- [Very Low Birthweight](#)
- [Preterm Births](#)
- [Very Preterm Births](#)

The statistics presented in this section can be used to create fundamental knowledge about the health of Medi-Cal mothers and their babies, influences on birth outcomes, and interactions among those influences. These statistics can also be used to identify and understand groups at risk for poor birth outcomes, and to develop information for guiding health policy development, assessment, and evaluation.

California’s birth statistics disclosed that overall, the state has met the Healthy People 2020 Goals with respect to the four outcomes evaluated (Figure 36). However, there were some subpopulations in which this was not the case. Consistent with national figures, RASD identified variations among racial cohorts, age groups, and payer sources.

In the sections that follow, RASD describes each birth outcome measure, discusses the importance of the outcome, and presents birth outcome statistics by various dimensions. The statistics are compared to the Healthy People 2020 Goals where applicable.

**Figure 36 – Comparison of Select Medi-Cal Birth Outcomes with All U.S. Births, Healthy People 2020 Goals, All California Resident Hospital Births, and Non-Medi-Cal Births**

Outcome Measure	All U.S. Births	All California Hospital Resident Births	Medi-Cal Hospital Resident Births	Non-Medi-Cal Hospital Resident Births	Healthy People 2020 Goal
Low Birthweight	8.2%	6.8%	6.7%	6.9%	7.8%
Very Low Birthweight	1.5%	1.1%	1.1%	1.2%	1.4%
Preterm Delivery	12.0%	10.0%	10.4%	9.6%	11.4%
Very Preterm Delivery	2.0%	1.5%	1.6%	1.4%	1.8%
<b>Populations shaded in green represent those that met the Healthy People 2020 goal in 2010. Populations in red didn't meet the Healthy People 2020 Goal in 2010.</b>					

*Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag. The outcomes presented above were derived for California resident hospital births. Births to mothers that occurred outside of a hospital or to non-resident mothers have been excluded.*

**Low Birthweight:** Low birthweight (<2,500 grams) is a major contributor to infant mortality. In the U.S., the three leading causes of infant death are congenital defects, low birthweight, and sudden infant death syndrome (SIDS), all of which account for 44% of infant deaths nationally.<sup>103</sup> Hospital costs for newborns delivered in the low birthweight and very low birthweight ranges (<1,500 grams) are substantially higher than for normal-birthweight newborns (≥2,500 grams).<sup>104</sup> In addition, newborns delivered at low or very low birthweight are at increased risk for life-long disabilities.

According to the CDC, the proportion of low-birthweight deliveries in the United States in 2010 was 8.2%,<sup>105</sup> whereas only 6.8% of California births were low birthweight.

The sections that follow show that California has met the Healthy People 2020 birth outcome goals, and in many cases, the Medi-Cal program has exceeded these benchmarks. However, it is important to recognize that the demographic profile of California mothers is different from that found in other parts of the country in ways that often favor positive birth outcomes. For example, California has a large foreign-born population compared to the rest of the country.<sup>106</sup> These mothers, regardless of other factors (income, insurance coverage, race, etc.) tend to experience better birth outcomes than U.S.-born mothers.<sup>107,108</sup>

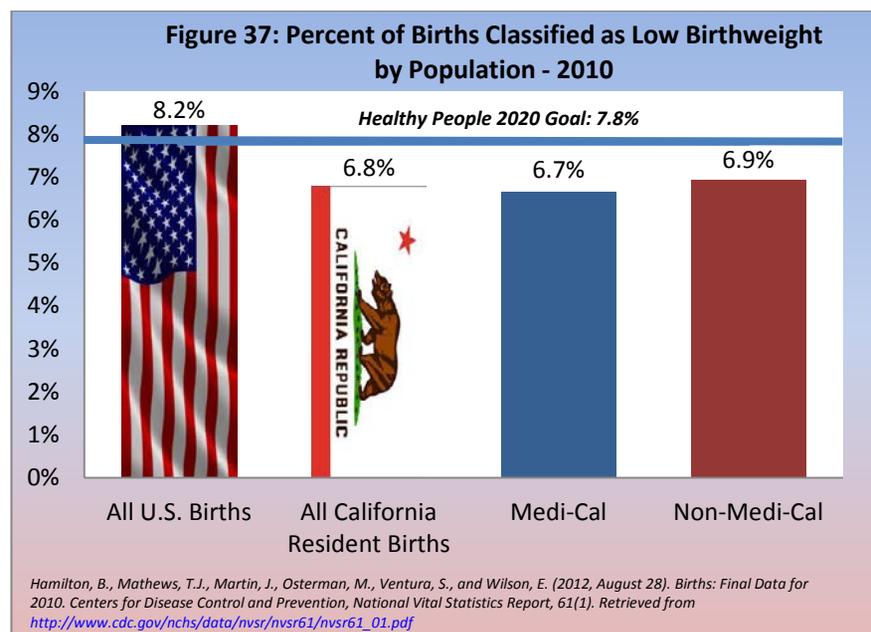
RASD found that the following factors were associated with higher percentages of low birthweight among Medi-Cal mothers:

- Multiple-gestation births
- Hypertension
- Substance Use

- Blind/Disabled Aid Category
- African-American Mothers
- Smoking During Pregnancy

The following factors were associated with lower percentages of low birthweight among Medi-Cal mothers:

- Mothers Without SIS
- Singleton Birth
- Foreign Born Mothers
- One Previous Birth
- Hispanic Mothers
- Age 20-24

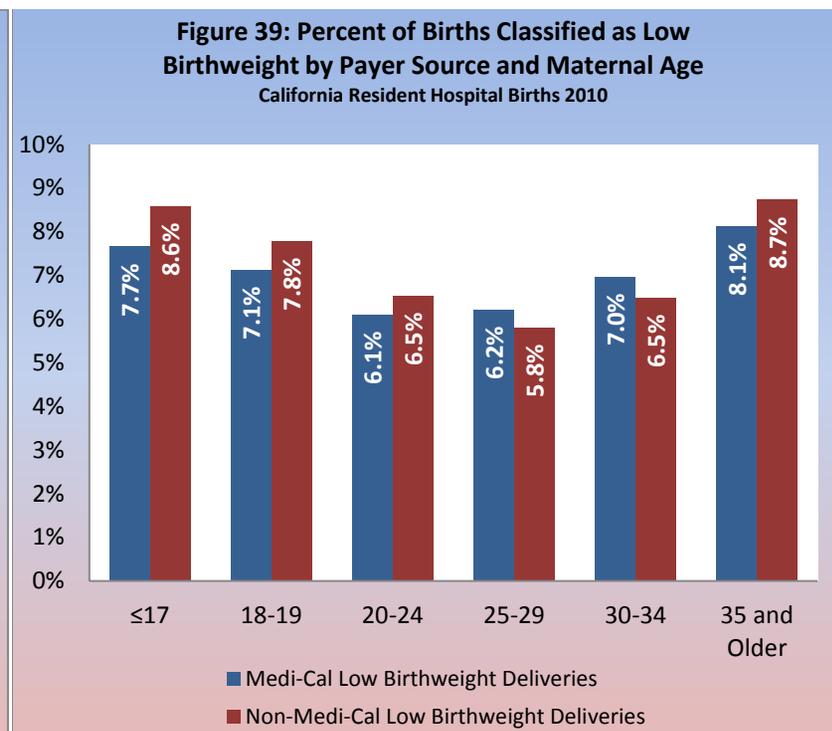
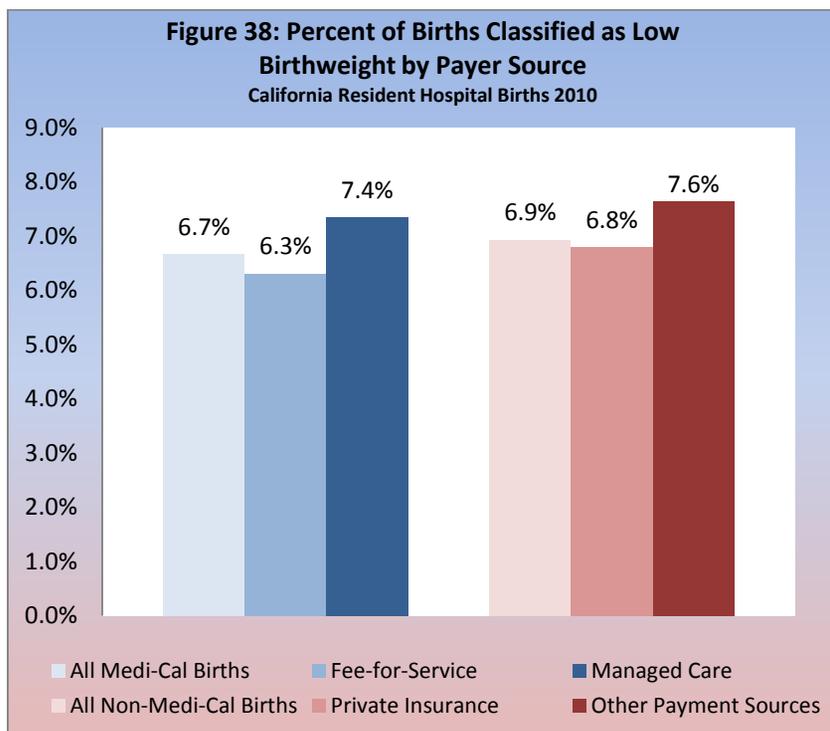


Low-birthweight percentages were slightly higher among births to mothers who participated in Medi-Cal managed care (7.4%) than those who participated in Medi-Cal’s traditional FFS system (6.3%). Mothers with births financed by other funding sources had the highest rate of low-birthweight outcomes (7.6%).

High percentages of low birthweight among older mothers may be due, in part, to the increased prevalence of multiple-gestation births among

this age group.<sup>109,110</sup> For Medi-Cal mothers age 35 and older, the percent of low-birthweight deliveries was 8.1%. Among non-Medi-Cal mothers age 35 and older, the percent was slightly higher at 8.7%.

Younger mothers also displayed higher percentages of low birthweight. For Medi-Cal mothers age 17 and younger, the percent of low-birthweight deliveries was 7.7%, and 8.6% for non-Medi-Cal mothers age 17 and younger (Figure 39).

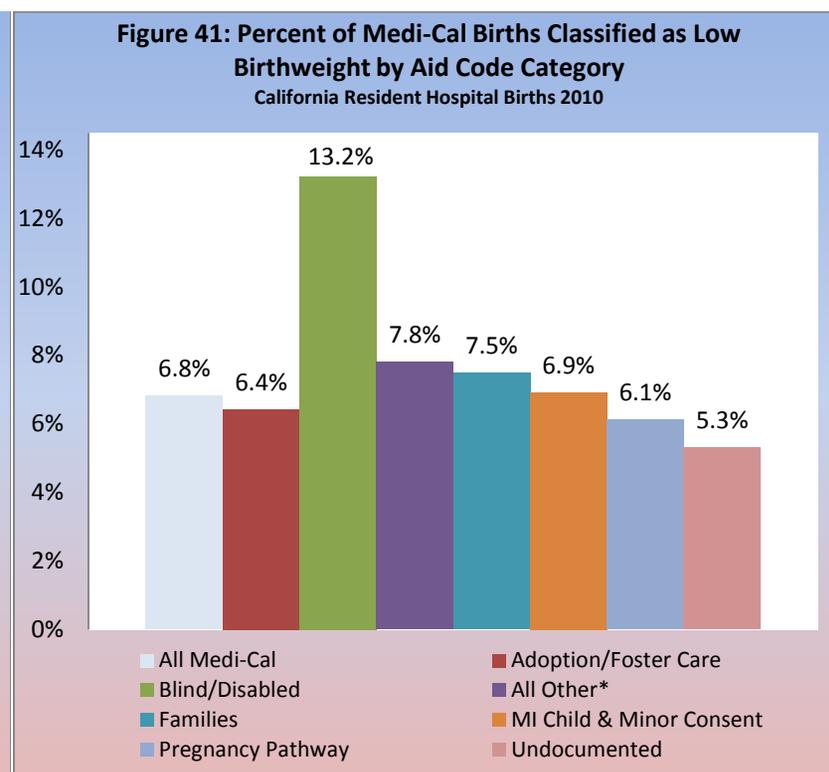
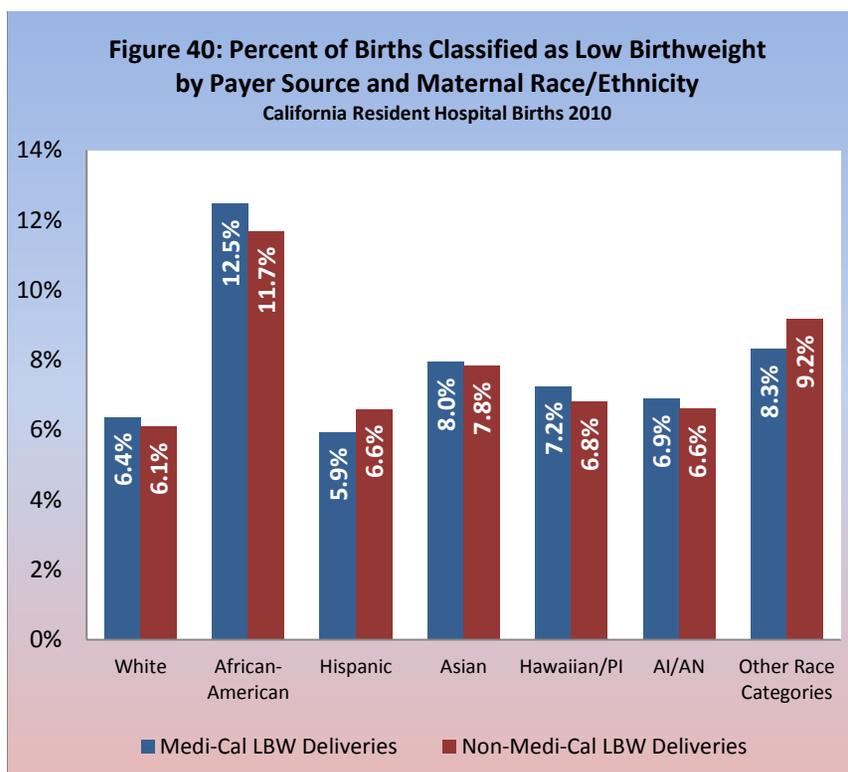


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Although the percentage of low-birthweight deliveries varied among mothers of different racial cohorts, Medi-Cal and non-Medi-Cal mothers within the same racial cohort exhibited similar percentages. African-American mothers had the highest percentages of low birthweight for Medi-Cal (12.5%) and non-Medi-Cal (11.7%) births (Figure 40). Mothers in the Hispanic cohort had the lowest percentage of low-birthweight deliveries for Medi-Cal (5.9%). Among non-Medi-Cal

mothers, white mothers had the lowest percentage of low birthweight (6.1%).

Among Medi-Cal mothers, the highest percentage of low birthweight was found among mothers enrolled in Blind/Disabled aid codes (13.2%), and the lowest percentage was found among mothers without SIS (Undocumented, 5.3%) (Figure 41).

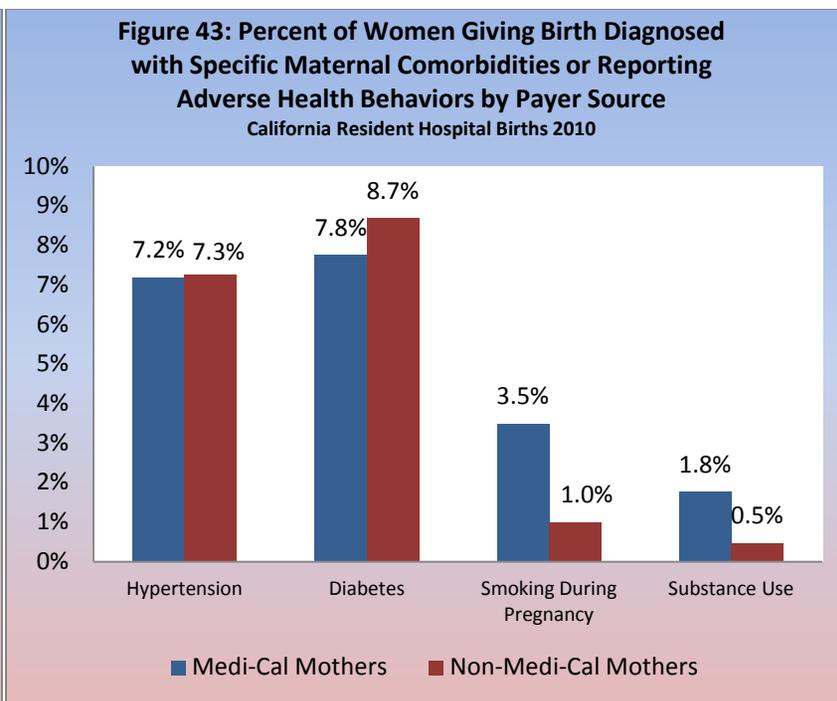
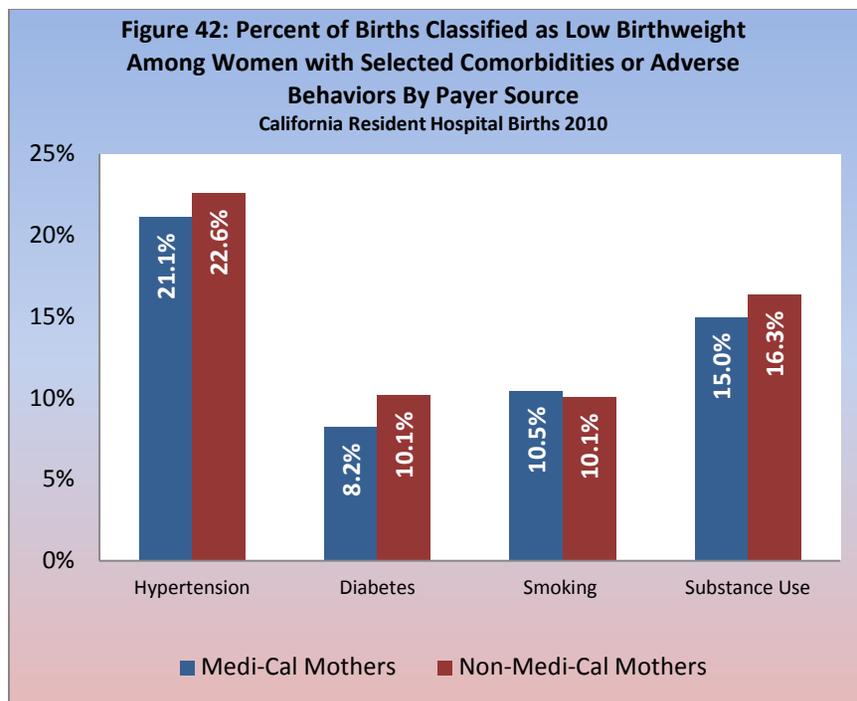


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Most clinical conditions studied in this report showed an association with births resulting in low birthweight. For example, while the prevalence of low birthweight among Medi-Cal births was 6.7%, low birthweight was substantially higher among mothers with hypertension (21.1%), mothers diagnosed with substance use at the time of delivery (15.0%), and among smokers (10.5%). Among non-Medi-Cal mothers, the percentage of low birthweight was also elevated for those with hypertension (22.6%), mothers diagnosed with substance use (16.3%),

those diagnosed with diabetes (10.1%), and among smokers (10.1%) (Figure 42).

As displayed in Figure 43, the prevalence of hypertension and diabetes among Medi-Cal and non-Medi-Cal mothers was similar. However, Medi-Cal mothers displayed a markedly higher prevalence of being overweight/obese (53.1%) (not shown), smoking during pregnancy (3.5%), and substance use (1.8%).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Very Low Birthweight:** Newborns delivered at a very low birthweight (<1500 grams) account for over half (53.1%) of all infant deaths in the U.S.<sup>111</sup> Among all births financed by Medi-Cal, the percent classified as very low birthweight was 1.1%. The Healthy People 2020 goal is to reduce the percent of very low birthweight to 1.4% or below.

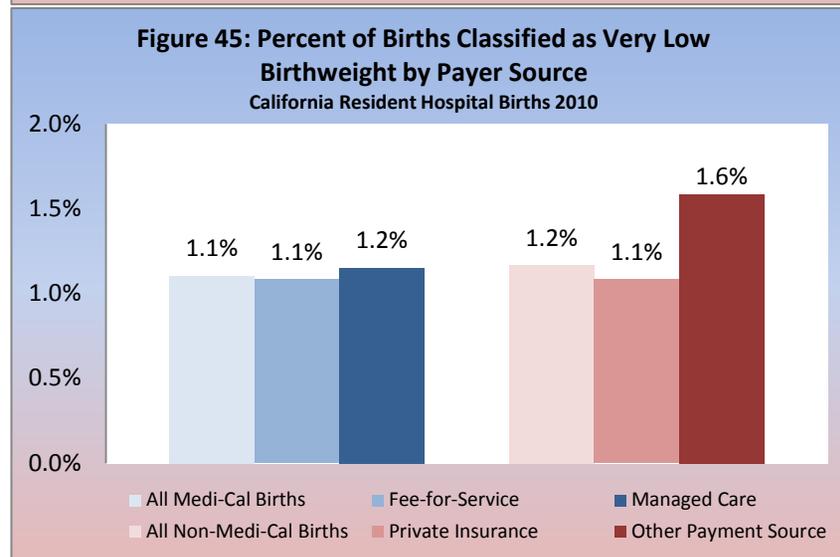
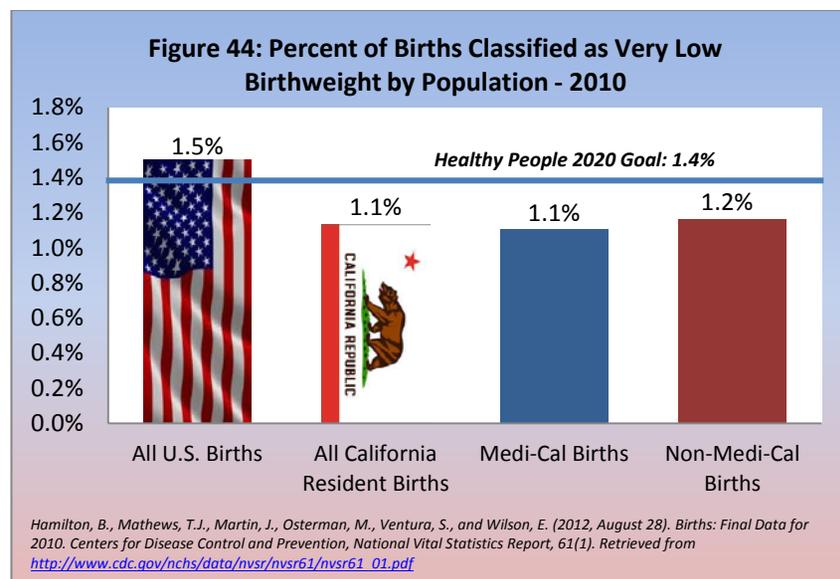
The percentages of very low birthweight were similar for births to Medi-Cal managed care beneficiaries (1.2%), Medi-Cal FFS beneficiaries (1.1%), and mothers with private insurance (1.1%).

RASD found that the following factors were associated with higher percentages of very low birthweight deliveries among Medi-Cal mothers:

- Multiple-Gestation Births
- Hypertension
- Substance Use
- Blind/Disabled Aid Category
- African-American Mothers
- Mothers Over Age 35

The following factors are associated with lower percentages of very low birthweight among Medi-Cal mothers:

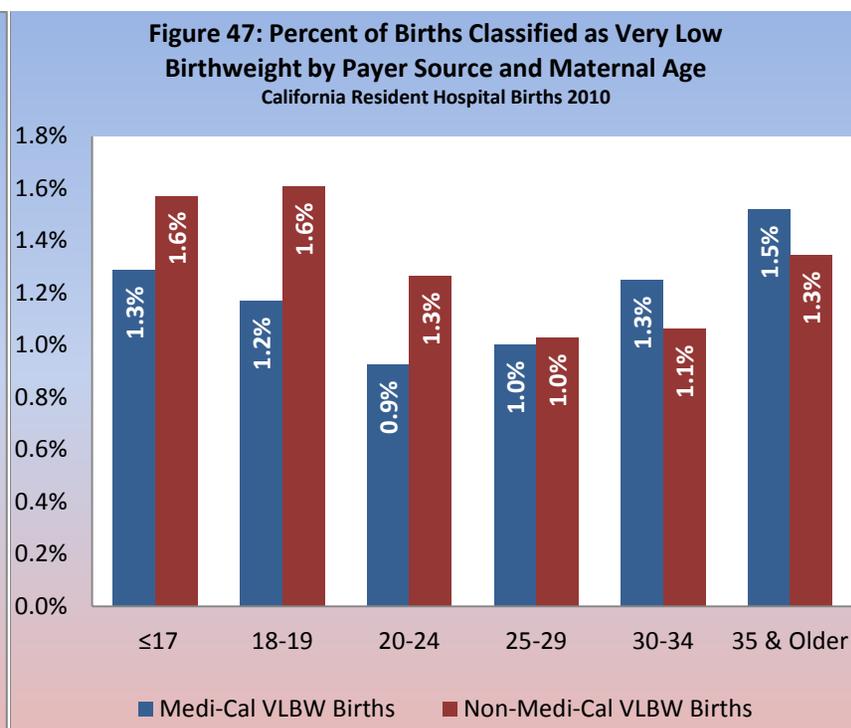
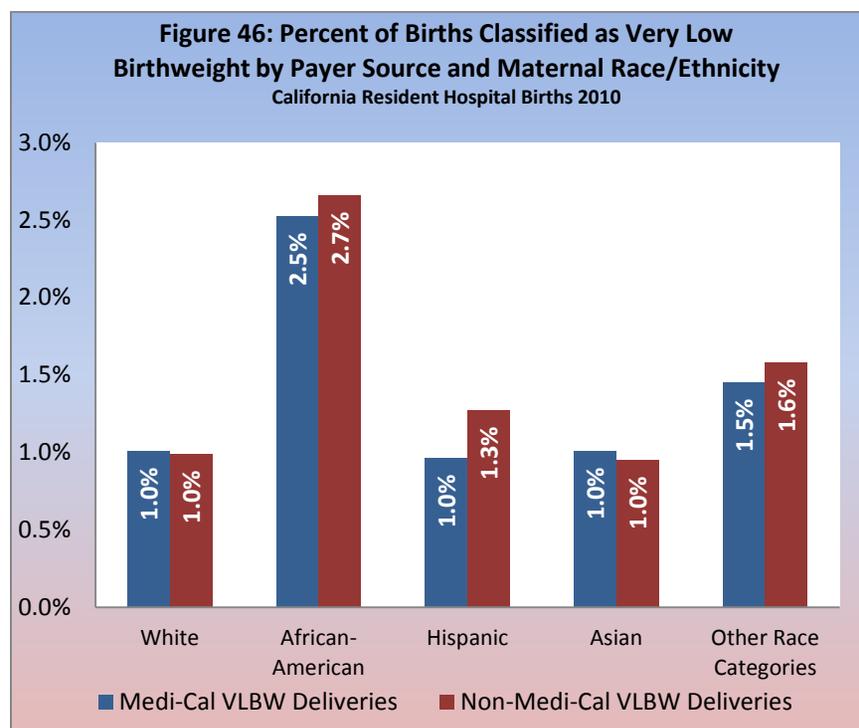
- Mothers without SIS
- Singleton Births
- Age 20-24
- One Previous Birth
- Hispanic, White, or Asian mothers
- Less than a High School Education



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Among maternal racial cohorts, African-American mothers had the highest percentages of very low-birthweight at 2.5% for Medi-Cal births and 2.7% for non-Medi-Cal births (Figure 46). The lowest percentages of very low birthweight occurred among white, Asian, and Hispanic mothers.

Very low birthweight was lowest among Medi-Cal mothers ages 20-29, ranging from 0.9% to 1.0%. Percentages of very low birthweight within Medi-Cal were somewhat higher among women age 17 or younger (1.3%). The highest percent was among this same age group for non-Medi-Cal births at 1.6%. The percent of very low birthweight among mothers 35 and older was high among Medi-Cal mothers at 1.5%, but lower among non-Medi-Cal births in this age group at 1.3% (Figure 47).

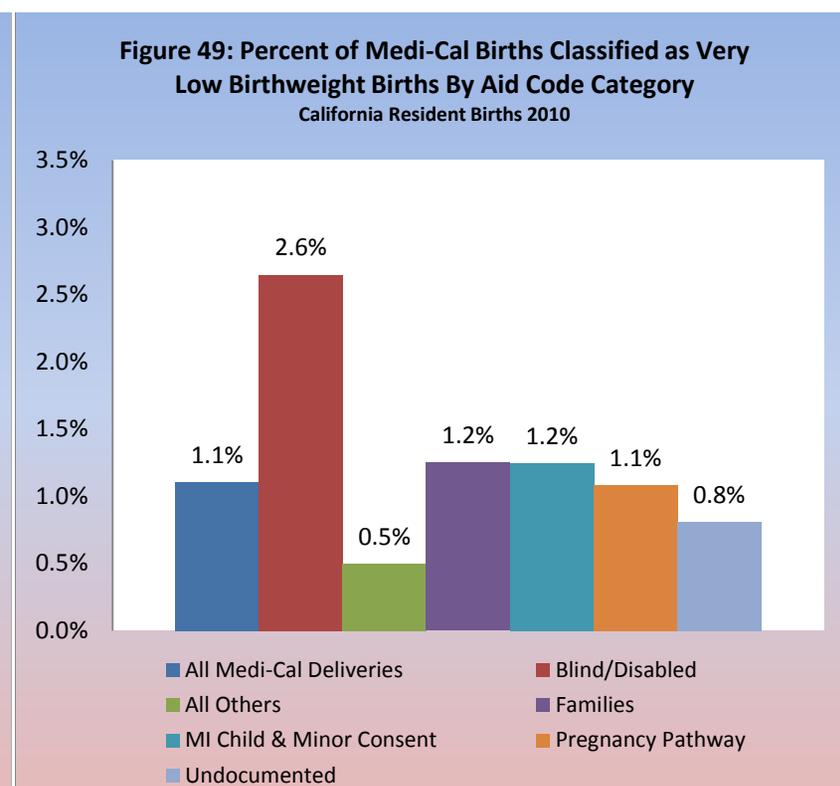
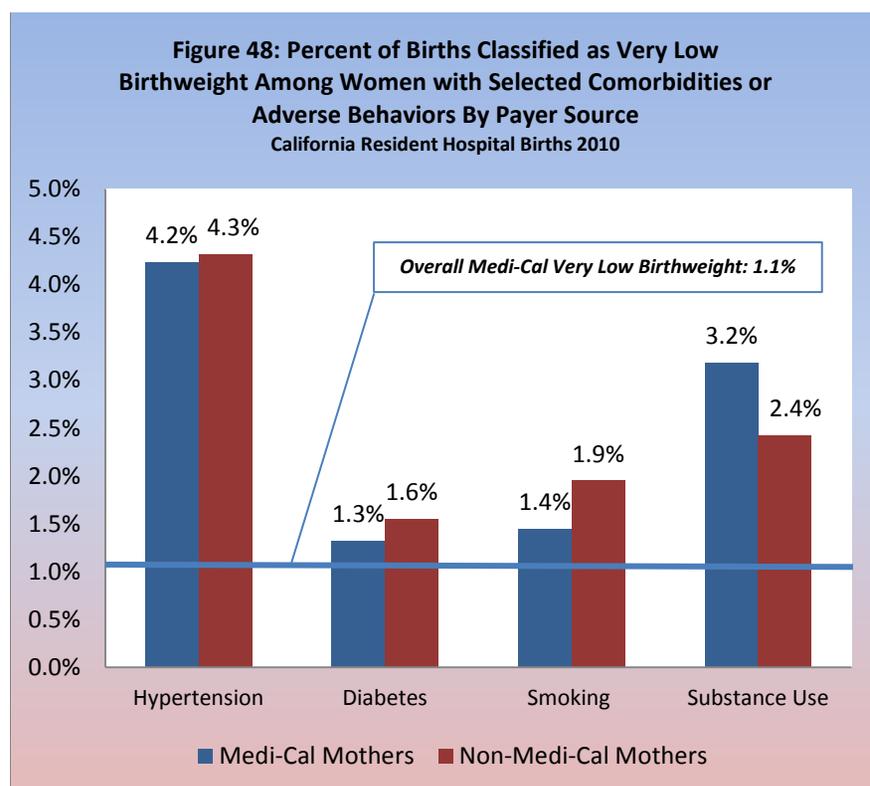


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

The prevalence of very low birthweight was highest among mothers with negative health behaviors and those diagnosed with select comorbidities. For example, very low birthweight was four times higher for mothers diagnosed with hypertension and more than twice as high for both Medi-Cal and non-Medi-Cal mothers diagnosed with substance use than the overall Medi-Cal percent of 1.1% (Figure 48). Factors such as smoking and diabetes also modestly elevated the

likelihood of a very low birthweight delivery between both Medi-Cal and non-Medi-Cal populations.

Among Medi-Cal mothers, the highest percentages of very low birthweight was found among mothers enrolled in Blind/Disabled aid codes (2.6%), and the lowest were found among mothers without SIS (Undocumented, 0.8%) and all other aid categories (0.5%) (Figure 49).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

**Preterm Births:** The rate of preterm births is almost twice as high in the U.S. compared to other developed countries.<sup>112</sup> Babies born prematurely (<37 complete weeks of gestation) are at increased risk for death and life-long disabling conditions including hearing and vision loss, respiratory problems, mental retardation and cerebral palsy.<sup>113</sup> The Healthy People 2020 goal is to reduce the percent of preterm births to 11.4%.

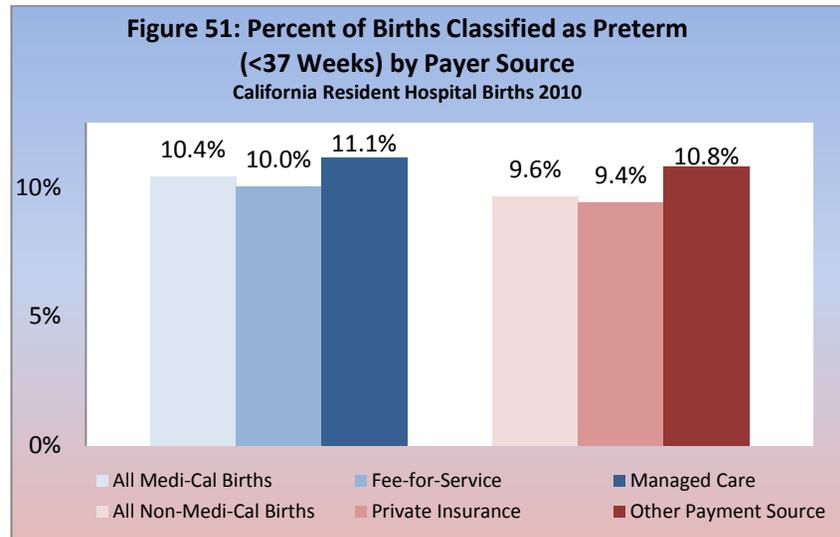
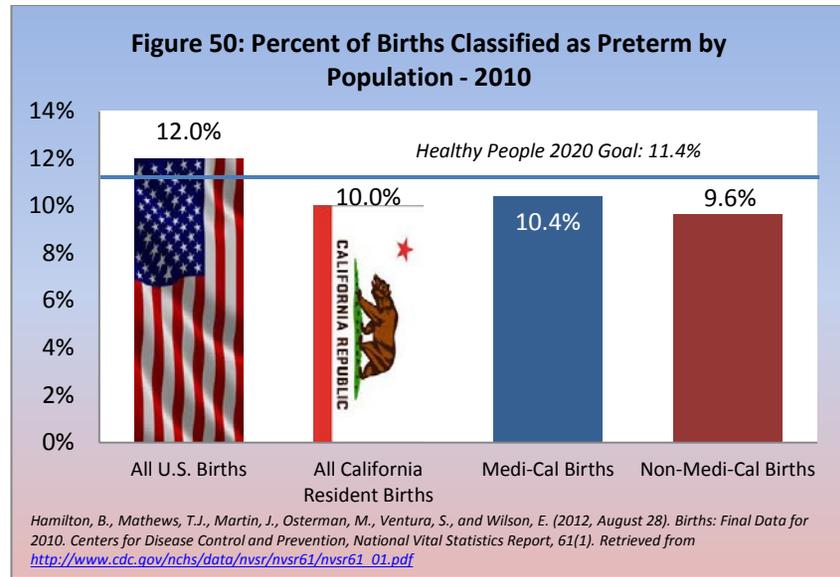
In 2010, 10.0% of hospital births to all California resident mothers were premature. Preterm births were more common among Medi-Cal-financed births (10.4%) than non-Medi-Cal-financed births (9.6%) (Figure 50). Preterm percentages were slightly higher among Medi-Cal FFS beneficiaries (10.0%) than births financed by private insurance (9.4%), and more prevalent among Medi-Cal managed care beneficiaries (11.1%) and births financed by other funding sources (10.8%) (Figure 51).

Medi-Cal categories with higher percentages of preterm births:

- Multiple-Gestation Births
- Hypertension
- Substance Use
- Blind/Disabled Aid Category
- African-American Mothers
- Diabetes

Medi-Cal categories with lower percentages of preterm births:

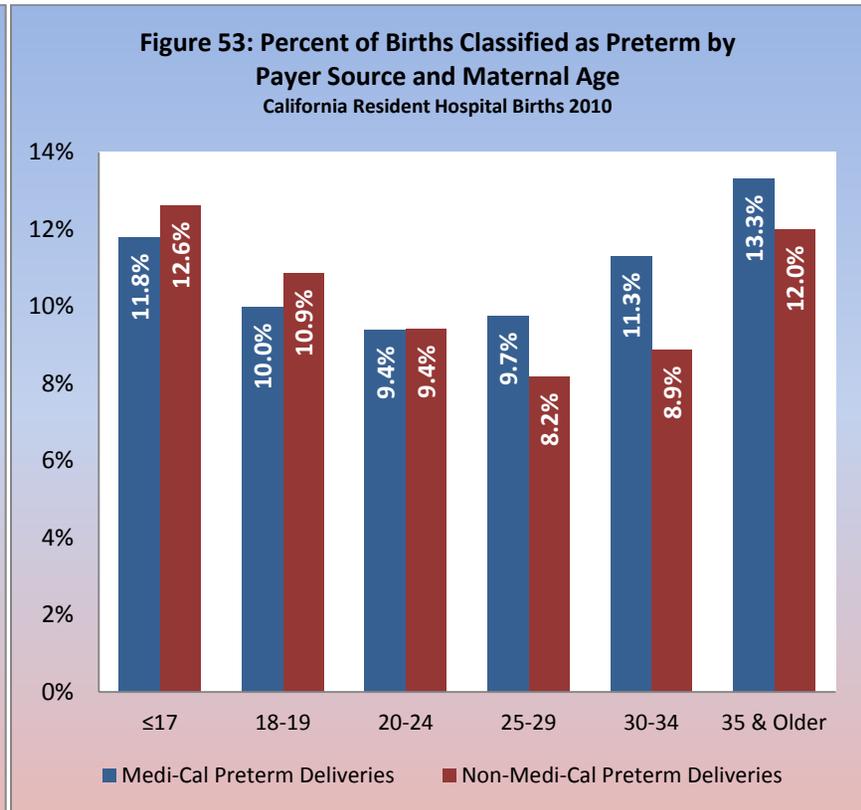
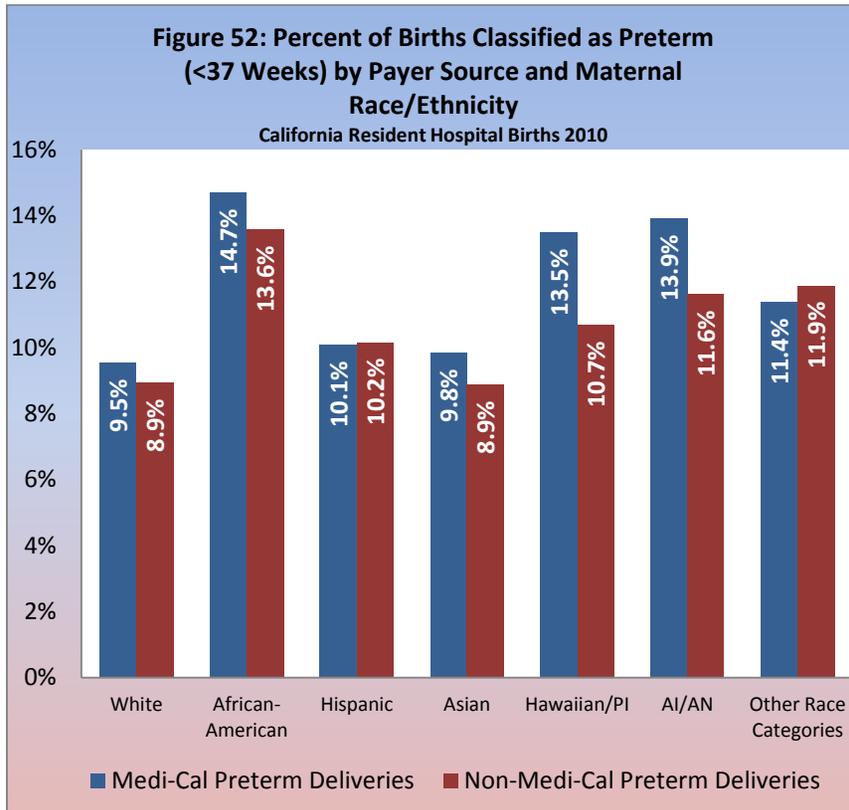
- Bachelor's Degree or higher
- First-born child
- Pregnancy-related aid category
- Adoption/Foster Care Aid Category
- White Mothers
- Foreign-Born Mothers



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag

Similar to low-birthweight deliveries, African-American mothers had the highest percentages of preterm deliveries among racial cohorts (14.7% for Medi-Cal-financed births and 13.6% for non-Medi-Cal-financed births). Between both Medi-Cal and non-Medi-Cal-financed births, white mothers experienced the lowest percent of preterm delivery with rates of 9.5% and 8.9%, respectively (Figure 52).

The incidence of preterm births was lowest among mothers 20-34 years of age, while the youngest and oldest age cohorts had the highest percentages of preterm births. Percentages for mothers 17 and younger, and over 34 years of age were above the Healthy People 2020 goal of 11.4% (Figure 53).

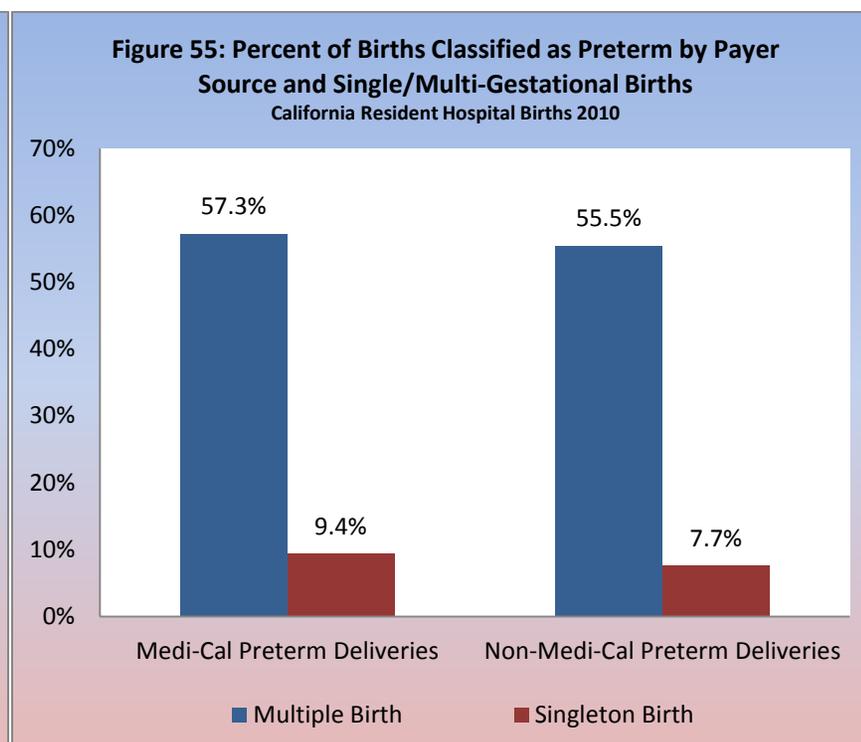
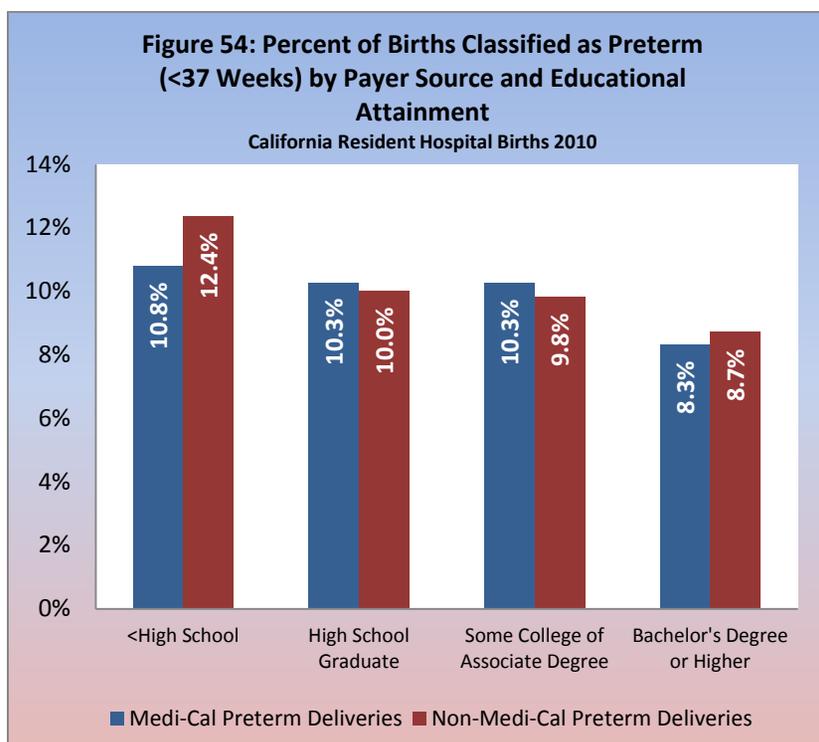


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Percentages of preterm delivery were inversely associated with educational attainment. Mothers with less than a high school education had the highest percentage of preterm birth (10.8% for Medi-Cal-financed births and 12.4% for non-Medi-Cal-financed births), and those with a bachelor’s degree or higher experienced the lowest percentage of preterm birth (8.3% for Medi-Cal-financed births and 8.7% for non-Medi-Cal-financed births) (Figure 54). Non-Medi-Cal

mothers were particularly illustrative of this trend.

The highest percentage of preterm birth was associated with births of more than one infant, or multiple gestations. Percentages for Medi-Cal and non-Medi-Cal-financed births involving multiple-gestation births were similar (Figure 55).

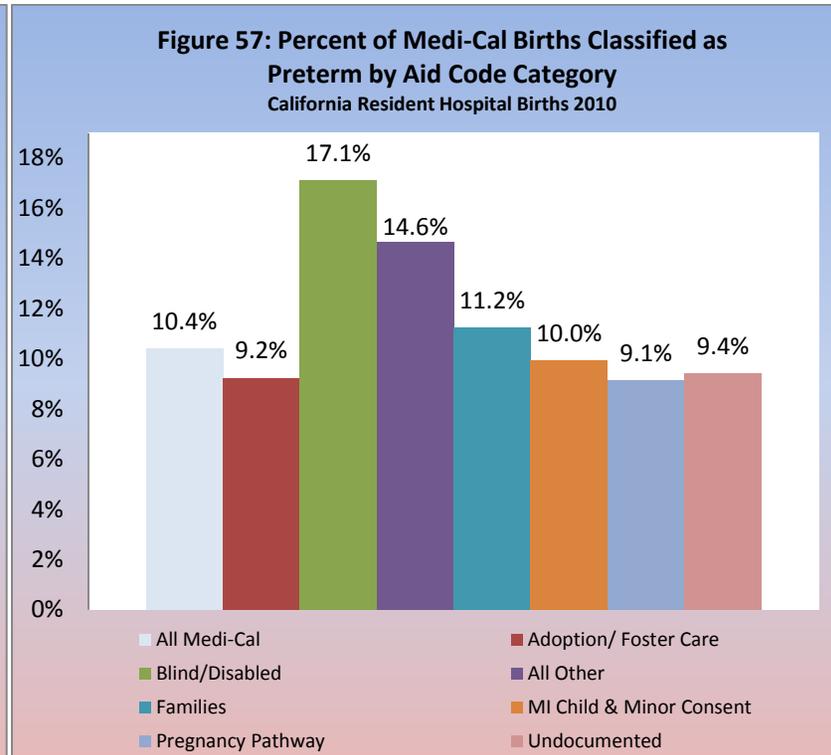
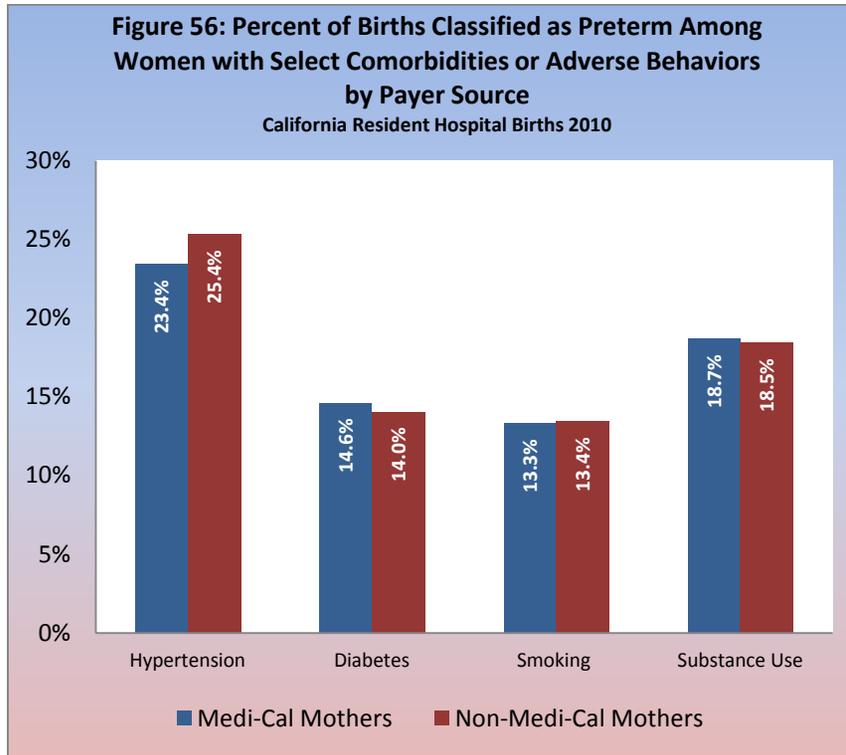


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Medi-Cal and non-Medi-Cal mothers with hypertension experienced a percentage of preterm birth about twice the Healthy People 2010 goal of 11.4%. The percentage for mothers with hypertension were 23.4% for Medi-Cal-financed births and 25.4% for non-Medi-Cal-financed births. Mothers with diabetes also exhibited elevated incidence of preterm delivery, with percentages of 14.6% and 14.0% for Medi-Cal and non-Medi-Cal-financed births, respectively (Figure 56). Significantly higher percentages of preterm delivery were also found among

mothers with a diagnosis for substance use, 18.7% for Medi-Cal-financed births and 18.5% for non-Medi-Cal-financed births (Figure 56).

Medi-Cal mothers enrolled in the Blind/Disabled aid category experienced a higher percentage of preterm delivery (17.1%) compared to Medi-Cal mothers enrolled in other aid codes. Women enrolled in Pregnancy aid codes (9.1%) and mothers in the Adoption/Foster Care aid codes (9.2%) had the lowest percentages of preterm deliveries (Figure 57).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag

**Very Preterm Births:** Very preterm births are those that occur at less than 32 weeks of pregnancy. Nationally, according to the CDC, 12.0% of infants were born preterm in 2010. Of those, 8.5% of babies were born at 34 to 36 weeks gestation, 1.5% of babies were born at 32-33 weeks, and 2.0% were “very preterm” (less than 32 weeks).<sup>114</sup>

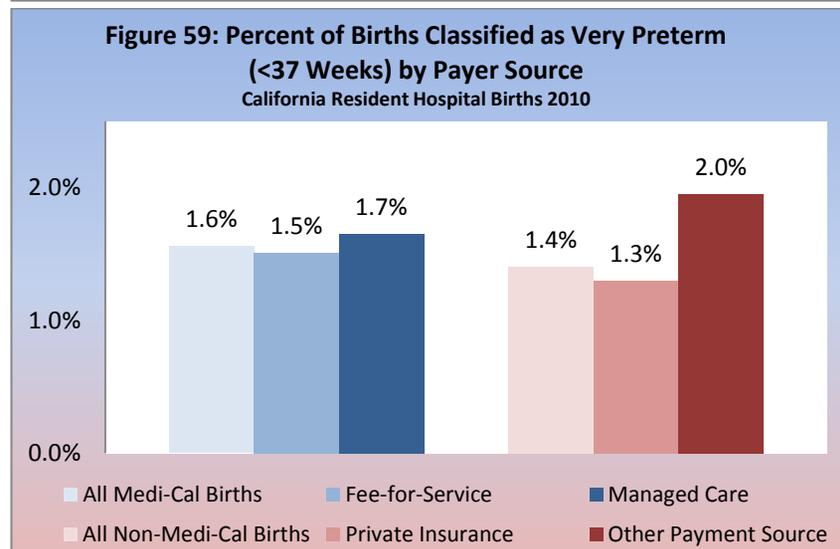
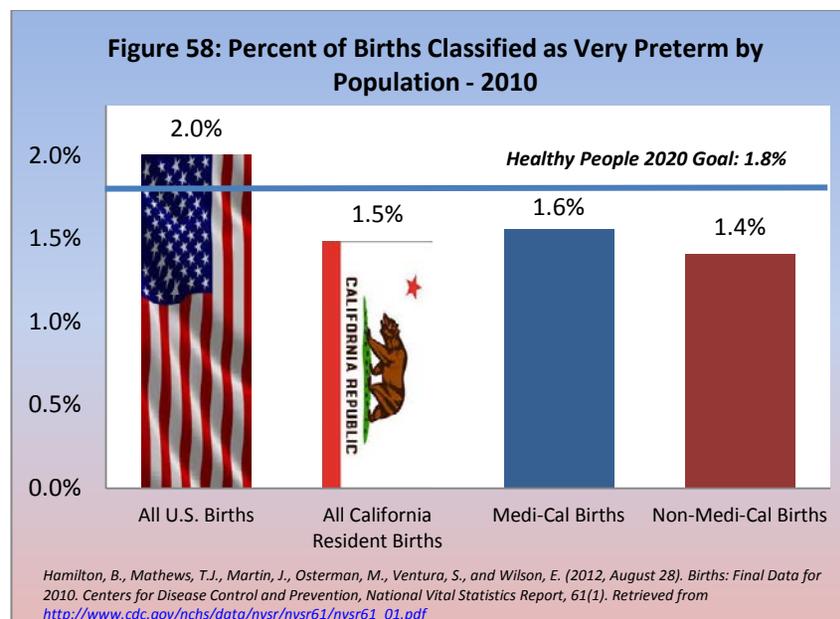
In California, the percentage of very preterm births (1.5%) was lower than the national average. Very preterm births were slightly higher among Medi-Cal births (1.6%) than non-Medi-Cal births (1.4%). Among Medi-Cal financed births, very preterm delivery percentages were similar among births financed by the FFS delivery system (1.5%) and births to mothers participating in Medi-Cal managed care (1.7%).

Medi-Cal categories with higher percentages of very preterm births:

- Multiple-gestation births
- Hypertension
- Substance Use
- Blind/Disabled Aid Code
- African-American Mothers
- Smoking During Pregnancy
- 17 Years Old or Younger and Age 35 and Older

Medi-Cal categories with lower percentages of very preterm births:

- Asian Mothers
- Mothers Without SIS
- Bachelor's Degree or Higher
- Singleton Birth
- Age 20-24, and Age 25-29
- One Previous Birth

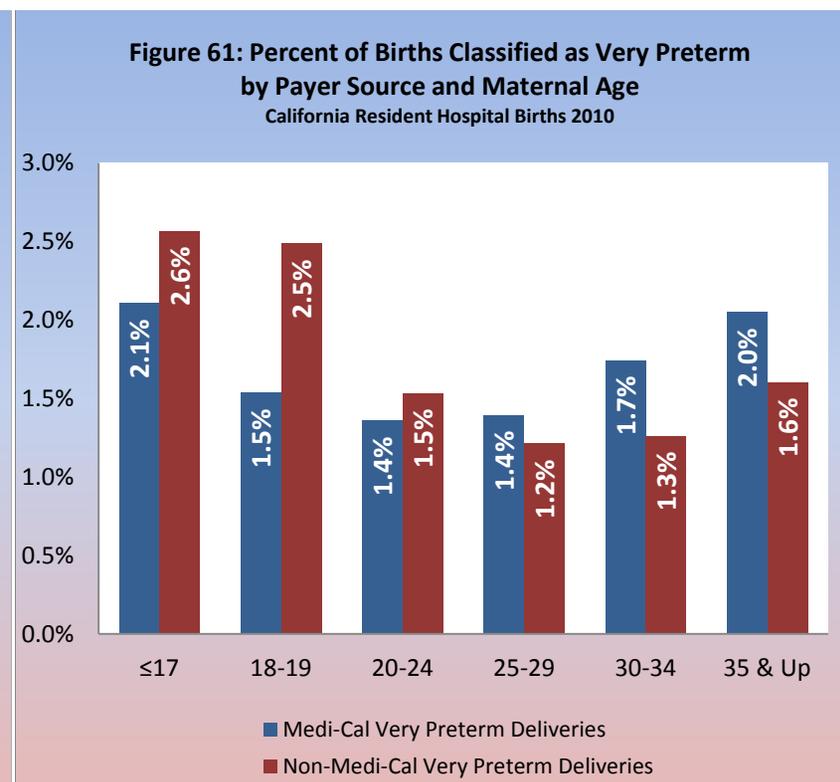
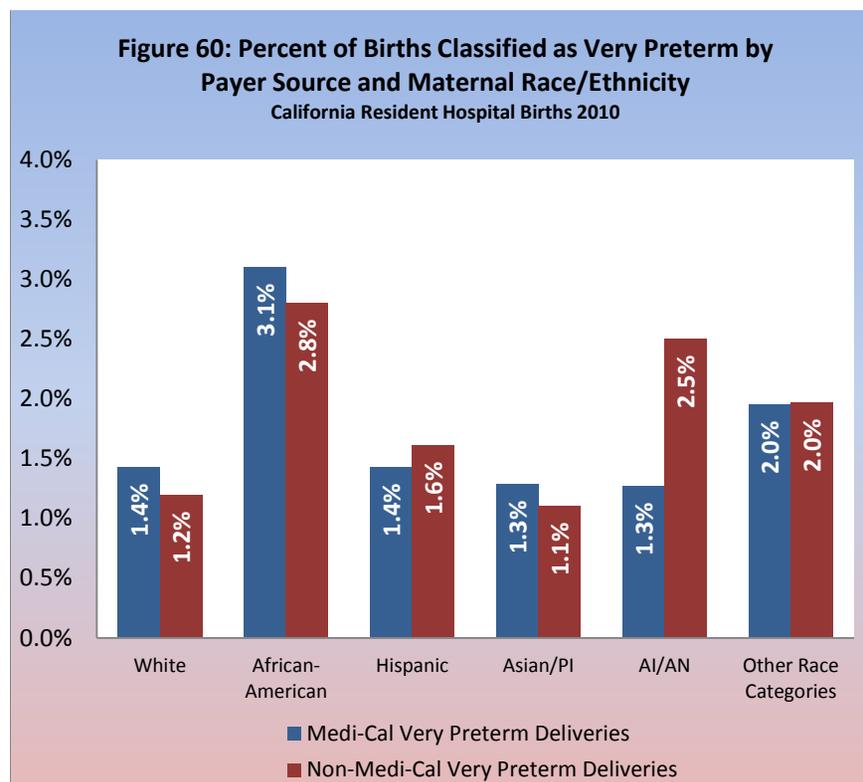


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

The incidence of very preterm births was elevated for African-American mothers regardless of payer source. Non-Medi-Cal American Indian/Alaskan Native mothers (2.5%) and mothers who self-identified in the “Other” racial cohort (2.0%) had similarly heightened percentages.

When considering only Medi-Cal mothers, very preterm birth

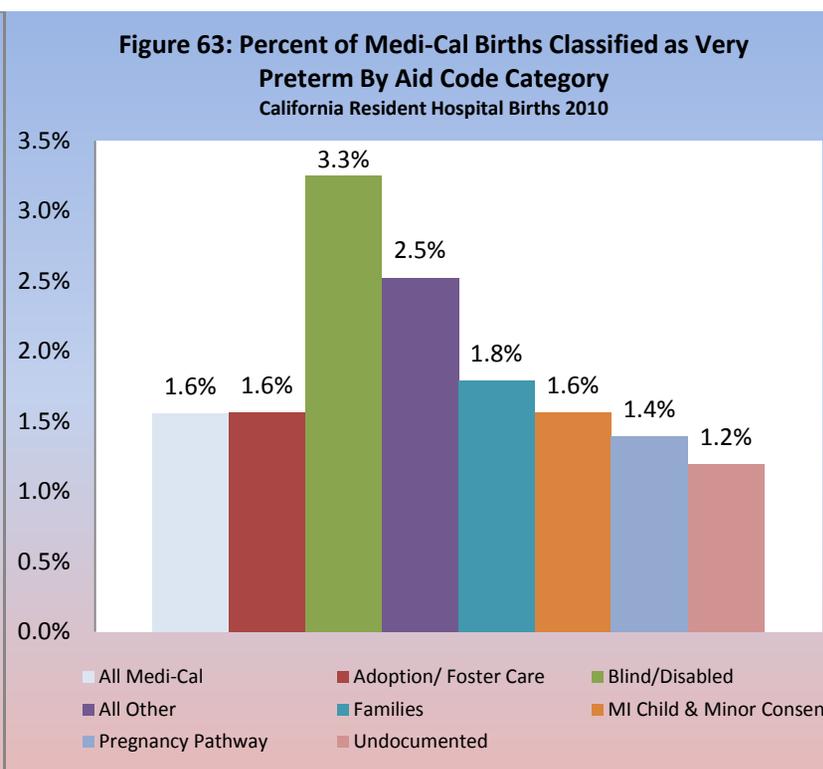
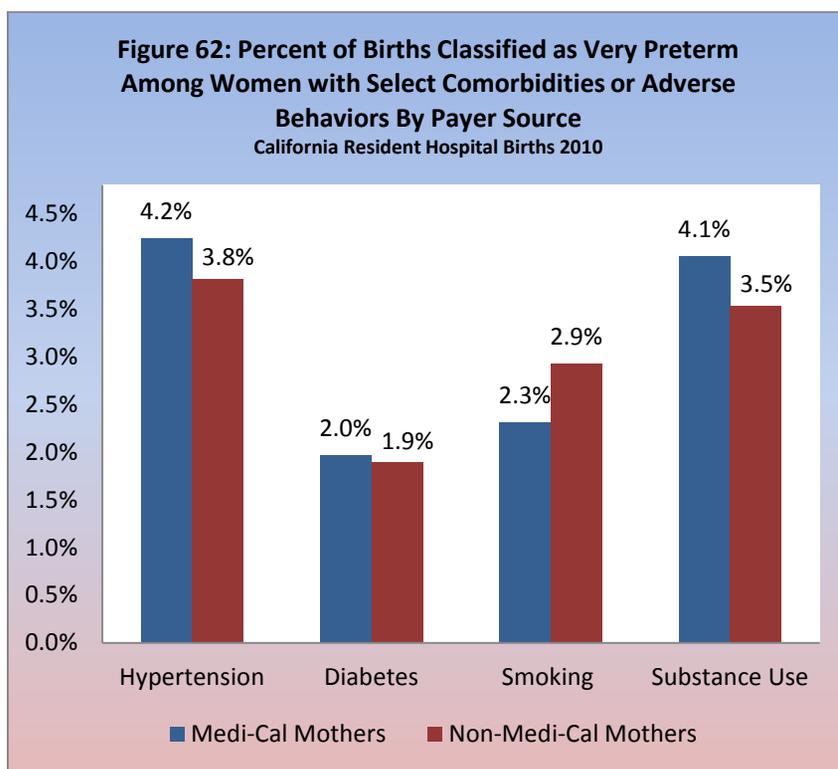
outcomes were most common among those age 17 and younger (2.1%), and mothers age 35 and older (2.0%) (Figure 61). Within these age groups, non-Medi-Cal mothers displayed a similarly high incidence of very preterm births. Non-Medi-Cal mothers age 17 and younger had a very preterm percent of 2.6%, while non-Medi-Cal mothers age 35 and older had a percent of 1.6%.



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

Very preterm births among Medi-Cal mothers with hypertension (4.2%) and substance use (4.1%) diagnoses were more than twice the Healthy People 2020 goal of 1.8% or less. Medi-Cal mothers who smoked during pregnancy (2.3%) or had a diagnosis for diabetes (2.0%) also had percentages of very preterm delivery above the Healthy People 2020 target (Figure 62).

The incidence of very preterm births varied slightly across Medi-Cal aid code categories. Very preterm births were more prevalent among mothers enrolled in Blind/Disabled aid codes (3.3%), while mothers enrolled in the Pregnancy Pathway (1.4%) and Undocumented (1.2%) aid codes were the least likely to have a very preterm birth (Figure 63).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2010 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2010 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2010 – December 2010 reflecting a 12-month reporting lag.

## CONCLUSION

Despite declining fertility rates at the national, state, and program levels, Medi-Cal continues to finance a growing proportion of births in California, accounting for over 50% of resident hospital births in 2010. This report highlights differences in birth outcomes among various payers and within Medi-Cal's two delivery systems: FFS and managed care. Clear differences in outcomes exist between the Medi-Cal and non-Medi-Cal populations, Medi-Cal delivery systems, and among specific Medi-Cal subpopulations.

Among singleton births, Medi-Cal mothers had a slightly higher percentage of low birthweight, but similar percentages of very low birthweight when compared with non-Medi-Cal mothers. Preterm births among singleton deliveries were modestly higher among mothers who participated in Medi-Cal's managed care system than births financed by all other sources. Privately insured mothers had the lowest occurrences for most adverse birth outcomes studied.

A large percentage of Medi-Cal beneficiaries are from subgroups most vulnerable to adverse birth outcomes, which can account for variations in low birthweight and preterm delivery percentages. For example, mothers enrolled in Medi-Cal's Blind/Disabled aid category represented a subgroup with complex health care needs. Consequently, 13% of births to Medi-Cal mothers enrolled in the Blind/Disabled aid categories resulted in a low-birthweight outcome.

Medi-Cal also provided services to a number of subgroups with higher risks for adverse outcomes, such as African-American mothers, mothers with increased parity levels, and mothers with lower educational attainment. Medi-Cal delivered nearly four times as many teen pregnancies, a subgroup at increased risk for low birthweight and preterm delivery, than other payers.

A greater proportion of Medi-Cal mothers live with comorbidities as compared to non-Medi-Cal mothers. With the exception of diabetes, Medi-Cal mothers showed a greater tendency toward the comorbidities and negative health behaviors studied, particularly smoking while pregnant, substance use, and a pre-pregnancy weight that qualified as overweight or obese. Incidences of hypertension were similar between Medi-Cal and non-Medi-Cal births, and both groups exhibited an increased prevalence of low birthweight and preterm births.

Mothers participating in Medi-Cal's managed care delivery system had the highest prevalence of several comorbidities and negative health behaviors, including smoking during pregnancy, substance use, hypertension, and pre-pregnancy weight qualifying as overweight or obese. The Medi-Cal managed care delivery system provided services to a significant number of the high-risk subgroups mentioned above, including a greater percentage of African-American women and mothers under age 19 than the Medi-Cal FFS system. In addition, protective factors such as being foreign-born and receiving early prenatal care were less prevalent among beneficiaries who participated in Medi-Cal managed care. The characteristics of each payer source's participants may explain much of the variation in percentages of low birthweight, very low birthweight, preterm and very preterm births that are reported here.

Considering the California population overall, RASD found, based on the birth outcomes studied, Medi-Cal mothers were largely comparable to those of non-Medi-Cal mothers, despite the program's high-risk population. Further, birth outcomes for Medi-Cal mothers were more favorable than national averages for all studied areas. Medi-Cal continues to meet national goals for prenatal care and birth outcomes, while financing a growing number of births in California.

## APPENDIX A – DEFINITIONS

**Birthweight:** The birth certificate reports the newborn’s birthweight in grams. Reported birthweights less than 227 grams or greater than 8,650 grams are outside the range of plausible values and were recoded to “missing/out-of-range.”

**Cesarean Section:** The delivery of a baby through a surgical opening in the mother’s lower abdomen area.

**Comorbidities:** Select diagnoses recorded on the hospital record in addition to birth and delivery-related conditions were examined in this report as comorbid conditions of pregnancy. These conditions include hypertension, diabetes, and substance use.

**Delivery Diagnosis:** Deliveries were identified in the Medi-Cal FFS claims data using a primary diagnosis code of 650.0 or 640.0 - 676.0 with a 5th digit of ‘1’ or ‘2.’

**Diabetes:** Diabetes was identified using one of several available ICD-9 fields on the hospital record. ICD-9 fields were grouped using the Clinical Classification Software (CCS) available from the Agency for Healthcare Research and Quality. The grouping of 186 was used to identify gestational diabetes, and 49 and 50 identified diabetes not related to pregnancy.

**Extremely Obese:** A mother’s pre-pregnancy weight as self-reported on the birth certificate was used in conjunction with self-reported height to develop a body mass index (BMI). BMI was categorized into 4 groupings as follows: underweight = BMI less than 18.5; normal weight = BMI 18.5 to 24.9; overweight = BMI 25.0 to 29.9; Obese/Extremely Obese = BMI 30.0 and greater.

**Fertility Rate:** The total number of children that would be born to each woman if she were to live to the end of her child-bearing years and bear children in accordance with current age-specific fertility rates.

**Gestational Age:** Gestational age is recorded on the birth certificate, and reflects the number of days between the mother’s last menstrual period and the date of birth. Gestational age less than 119 days or greater than 329 days were considered outside the range of plausible values and were recoded to “missing/out-of-range.”

**Hypertension:** Hypertension was identified using one of several available ICD-9 fields on the hospital record. ICD-9 fields were grouped using the Clinical Classification Software (CCS) available from the Agency for Healthcare Research and Quality. The grouping of 183 was used to identify gestational preeclampsia, eclampsia and hypertension; and 98 and 99 identified hypertension not related to pregnancy.

**Infant Mortality:** Death of an infant within the first year of life.

**Low Birthweight:** A newborn was considered low birthweight if the weight at delivery was <2,500 grams.

**Medi-Cal Aid Code:** Aid codes identify the criteria by which each person qualifies for Medi-Cal and the types of services he or she receives, and make clear whether the services are funded by the State or Federal government or both. An aid code is a combination of two numbers or a letter and a number and is attached to a Medi-Cal beneficiary’s identification numbers. Aid code category refers to a unique grouping of distinct aid codes into broad categories such as disabled, family, blind, aged, etc.

**Multiple Gestation Birth:** A delivery resulting in a twin or higher order birth.

**Neonatal Mortality:** Death of an infant within the first 28 days of life.

**Normal Weight:** A mother's pre-pregnancy weight as self-reported on the birth certificate was used in conjunction with self-reported height to develop a body mass index (BMI). BMI was categorized into four groupings as follows: underweight = BMI less than 18.5; normal weight = BMI 18.5 to 24.9; overweight = BMI 25.0 to 29.9; Obese/Extremely Obese = BMI 30.0 and greater.

**Overweight/Obese:** A mother's pre-pregnancy weight as self-reported on the birth certificate was used in conjunction with self-reported height to develop a body mass index (BMI). BMI was categorized into four groupings as follows: underweight = BMI less than 18.5; normal weight = BMI 18.5 to 24.9; overweight = BMI 25.0 to 29.9; Obese/Extremely Obese = BMI 30.0 and greater.

**Parity:** The number of live births a woman has during her reproductive years.

**Pre-Pregnancy Weight:** A mother's pre-pregnancy weight as self-reported on the birth certificate was used in conjunction with self-reported height to develop a body mass index (BMI). BMI was categorized into four groupings as follows: underweight = BMI less than 18.5; normal weight = BMI 18.5 to 24.9; overweight = BMI 25.0 to 29.9; Obese/Extremely Obese = BMI 30.0 and greater.

**Preterm:** Gestational age is recorded on the birth certificate, and reflects the number of days between the mother's last menstrual period and the date of birth. A newborn with a gestational age of <37 weeks was considered to be a preterm delivery.

**Primary Cesarean Section:** The first cesarean section delivery regardless of parity.

**Protective Factors:** Individual or environmental characteristics, conditions, or behaviors that reduce the effects of stressful life events. These factors also increase an individual's ability to avoid risks or hazards, and promote social and emotional competence to thrive in all aspects of life, now and in the future.

**Reproductive Age:** Reproductive age refers to those between the ages of 15 and 44.

**Resident Births:** Resident births are defined as births to mothers who report an address on the 2011 birth certificate that is within the state of California.

**Satisfactory Immigration Status (SIS):** As pertains to Medi-Cal, SIS is verified by presenting documentation from the United States Citizenship and Immigration Services (USCIS) as proof of the immigrant's legal registration; the term "undocumented" refers to immigrants without USCIS documentation. Immigrants with verifiable SIS are evaluated using the same needs-based determinations as U.S.-born citizens and, if approved, will receive the same full-scope Medi-Cal coverage.

**Singleton Birth:** When a mother is carrying and delivers one baby; not a twin or multiple birth outcome.

**Substance Use:** Identified by CCS codes 660 and 661, substance use is defined as a state of dependence on any drug, including alcohol. Drug dependence is defined as a state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioral and other responses that always include a compulsion to take the drug on a continuous or periodic basis in

order to experience its psychic effects, and sometimes to avoid the discomfort of its absence.

**Underweight:** A mother's pre-pregnancy weight as self-reported on the birth certificate was used in conjunction with self-reported height to develop a body mass index (BMI). BMI was categorized into four groupings as follows: underweight = BMI < 18.5; normal weight = BMI 18.5 to 24.9; overweight = BMI 25.0 to 29.9; Obese/Extremely Obese = BMI 30.0 and greater.

**Very Low Birthweight:** A newborn was considered very low birthweight if the weight at delivery was <1,500 grams.

**Very Preterm:** Gestational age is recorded on the birth certificate, and reflects the number of days between the mother's last menstrual period and the date of birth. A newborn with a gestational age of <32 weeks was considered to be a very preterm delivery.

## APPENDIX B – ACRONYMS

Acronym	
<b>AHRQ</b>	Agency for Healthcare Research Quality
<b>AI</b>	American Indian
<b>AIM</b>	Access for Infants and Mothers
<b>AN</b>	Alaskan Native
<b>BIH</b>	Black Infant Health
<b>BMI</b>	Body Mass Index
<b>CalWORKS</b>	California Work Opportunity and Responsibility to Kids
<b>CCS</b>	Clinical Classification Software
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CDPH</b>	California Department of Public Health
<b>COHS</b>	County Organized Health System
<b>CPSP</b>	Comprehensive Perinatal Services Program
<b>DHCS</b>	Department of Health Care Services
<b>FFS</b>	Fee-for-Service
<b>FPL</b>	Federal Poverty Level
<b>GFR</b>	General Fertility Rate
<b>GMC</b>	Geographic Managed Care
<b>LGA</b>	Large for gestational age
<b>MEDS</b>	Medi-Cal Eligibility Data System
<b>MI</b>	Medically Indigent
<b>MN</b>	Medically Needy
<b>NHLBI</b>	National Heart, Lung, and Blood Institute
<b>OSHPD</b>	Office of Statewide Health and Planning and Development
<b>PA</b>	Public Assistance
<b>PCG</b>	Prenatal Care Guidance
<b>PE</b>	Presumptive Eligibility
<b>PI</b>	Pacific Islander
<b>PRAMS</b>	Pregnancy Risk Assessment Monitoring Systems
<b>RASD</b>	Research and Analytic Studies Department
<b>SIDS</b>	Sudden Infant Death Syndrome
<b>SIS</b>	Satisfactory Immigration Status
<b>SOC</b>	Share of Cost

## APPENDIX C – REGIONAL ASSIGNMENT OF CALIFORNIA COUNTIES

Region	County
Bay Area	Alameda
Bay Area	Contra Costa
Bay Area	Marin
Bay Area	Napa
Bay Area	San Francisco
Bay Area	San Mateo
Bay Area	Santa Clara
Bay Area	Solano
Bay Area	Sonoma
Central Coast	Monterey
Central Coast	San Benito
Central Coast	San Luis Obispo
Central Coast	Santa Barbara
Central Coast	Santa Cruz
Central Coast	Ventura
Central Valley	Fresno
Central Valley	Kern
Central Valley	Kings
Central Valley	Madera
Central Valley	Merced
Central Valley	San Joaquin
Central Valley	Stanislaus
Central Valley	Tulare
Far North	Modoc
Far North	Shasta
Far North	Siskiyou
Far North	Trinity
Los Angeles	Los Angeles
North Coast	Del Norte
North Coast	Humboldt
North Coast	Lake
North Coast	Mendocino
Sacramento Valley	Butte
Sacramento Valley	Colusa
Sacramento Valley	Glenn
Sacramento Valley	Sacramento
Sacramento Valley	Sutter
Sacramento Valley	Tehama
Sacramento Valley	Yolo
Sacramento Valley	Yuba
Sierra Range/Foothills	Alpine
Sierra Range/Foothills	Amador
Sierra Range/Foothills	Calaveras
Sierra Range/Foothills	El Dorado
Sierra Range/Foothills	Inyo
Sierra Range/Foothills	Lassen
Sierra Range/Foothills	Mariposa
Sierra Range/Foothills	Mono
Sierra Range/Foothills	Nevada
Sierra Range/Foothills	Placer
Sierra Range/Foothills	Plumas
Sierra Range/Foothills	Sierra
Sierra Range/Foothills	Tuolumne
Southern California	Imperial
Southern California	Orange
Southern California	Riverside
Southern California	San Bernardino
Southern California	San Diego

**APPENDIX D - AID CODE GROUPINGS USED FOR THIS ANALYSIS**

<b>Aid Category</b>	<b>Budget Aid Category</b>	<b>Delivery Aid Code</b>
Adoption/Foster Care	All Other	40, 45
	Categorically Needy	42, 4F, 4M 5K
Blind/Disabled	All Other	2E, 6E
	Categorically Needy	20, 60, 66, 6C, 6H, 6N
	Medically Needy	64, 67
All Other	All Other	1, 2, 81, 6J
	Categorically Needy	47, 0P, 6G, 7H, 8E
Families	Categorically Needy	30, 32, 33, 35, 38, 39, 54, 59, 3A, 3C, 3D, 3E, 3G, 3H, 3L, 3M, 3N, 3P, 3R, 3U, 3W, 7J
	Medically Needy	34, 37
MI Child & Minor Consent	All Other	82, 83, 7C, 7M, 7N, 7P, 8T
	Categorically Needy	7A, 8R, 8W
Pregnancy Pathway, not Undocumented	All Other	86, 87
	Categorically Needy	44, 76
Undocumented	All Other	48, 58, 0U, 0V, 3T, 3V, 5F, 5T, 5W, 6U, 7K

**APPENDIX E – HEALTHY PEOPLE 2020 GOALS – MATERNAL AND INFANT HEALTH**

Healthy People 2020 Goals – Maternal and Infant Health	
Target Goal	Baseline
<b>Reduce the Rate of Low Birthweight</b>	
Low Birthweight(<2500g)	
<b>7.8%</b>	8.2% (2007)
	5% Improvement
Very Low Birthweight (1500g)	
<b>1.4%</b>	1.5% (2007)
	5% Improvement
<b>Reduce the Rate of Preterm Births</b>	
Preterm Births(<36 weeks)	
<b>11.4%</b>	12.7% (2007)
	10% Improvement
Very Preterm Births (32 weeks)	
<b>1.8%</b>	2.0% (2007)
	10% Improvement
<b>Increase the Rate of Prenatal Care</b>	
First Trimester Initiation	
<b>77.9%</b>	70.8% (2007)
	10% Improvement
<b>Increase the Rate of Abstaining From Cigarette Use During Pregnancy</b>	
<b>98.6%</b>	89.6% (2007)*
	10% Improvement
<b>Increase the Rate of Abstaining From Illicit Drug Use During Pregnancy (women ages 15-44 in the last 30 days)</b>	
<b>100%</b>	94.9% (2007-2008)*
	Total Coverage
National Vital Statistics System (NVSS), CDC, NCHS	
*National Survey on Drug Use and Health (NSDUH), SAMHSA	

**APPENDIX F – RECONCILIATION TO VITAL STATISTICS REPORTS**

<b>Totals</b>	<b>Subtractions</b>	<b>Vital Statistics</b>
Birth Records on File		511,825
	Out-of State Resident	(1,846)
California Resident Births		<u>509,979</u>
	Non-Hospital Birth or Birth in Transit	(3,069)
	Out-of-State Hospital	(844)
	Location Not Classifiable	(188)
	Maternity Hospital Code Could Not be Confirmed	(619)
California Resident In-Hospital Births		<u><u>505,259</u></u>

*California Department of Public Health. Vital Statistics and Population Summary Tables. Retrieved from <http://www.cdph.ca.gov/data/statistics/Pages/VitalStatisticsandPopulationSummaryTables.aspx>*

## APPENDIX G – END NOTES AND REFERENCES

- <sup>1</sup> Healthcare Cost and Utilization Project (HCUP). (2013, January). Most Frequent Conditions in U.S. Hospitals, 2010. *Agency for Healthcare Research and Quality*. Retrieved from <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb148.pdf>
- <sup>2</sup> Research and Analytic Studies Branch. (2011, July). Medi-Cal Program Enrollment Totals for Fiscal Year 2010-2011. *Department of Health Care Services*. Retrieved from [http://www.dhcs.ca.gov/dataandstats/statistics/Documents/2\\_1\\_Reporting\\_Year\\_FY2010-11.pdf](http://www.dhcs.ca.gov/dataandstats/statistics/Documents/2_1_Reporting_Year_FY2010-11.pdf).
- <sup>3</sup> California Department of Public Health (CDPH). (2007, July). *General Fertility Rates, Total Fertility Rates, and Birth Rates by Age and Race/Ethnic Group of Mother, California, 2006 - 2010 (by Place of Residence)*. [Data Table]. Retrieved from: <http://www.cdph.ca.gov/data/statistics/Documents/VSC-2010-0202.pdf>
- <sup>4</sup> Martin, J.A., Hamilton, B.E., Sutton, P.D., Ventura, S.J., Mathews, T.J., Kirmeyer, S., Osterman, M.J.K. (2010, August 9). Births: Final Data for 2007. *Centers for Disease Control and Prevention, National Vital Statistics Report, 58(24)*. Retrieved from [http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58\\_24.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_24.pdf)
- <sup>5</sup> Livingston, G., Motel, S., and Taylor, P. (2011, October). *In a Down Economy, Fewer Births*. Pew Research Center – Social & Demographic Trends. Retrieved from <http://www.pewsocialtrends.org/files/2011/10/REVISITING-FERTILITY-AND-THE-RECESSION-FINAL.pdf>
- <sup>6</sup> Livingston, Motel, and Taylor. 2011
- <sup>7</sup> Livingston, G. (2012, November 29). *Immigrant Women Lead Recent Drop in U.S. Births and Birth Rates*. Pew Research Center – Social & Demographic Trends. Retrieved from <http://www.pewsocialtrends.org/2012/11/29/immigrant-women-lead-recent-drop-in-u-s-births-and-birth-rates/>
- <sup>8</sup> Cohn, D. and Livingston, G. “Birth rates hit record low for those under 25, still on the rise for those 40+.” Pew Research Center – Social & Demographic Trends. Retrieved from <http://www.pewresearch.org/fact-tank/2013/07/03/birth-rates-hit-record-low-for-those-under-25-still-on-the-rise-for-those-40/>
- <sup>9</sup> Medi-Cal incorporates a nominal co-payment of \$1 for certain services. Certain services, such as pregnancy-related, are exempt from co-payments.
- <sup>10</sup> Andres, E., Garro, N., Pellegrini, C., Markus, A., and West, K. (2013, June 28). Medicaid Covered Births, 2008 through 2010, in the Context of the Implementation of Health Reform. *Women’s Health Issues*. Retrieved from [http://www.whijournal.com/article/S1049-3867\(13\)00055-8/fulltext](http://www.whijournal.com/article/S1049-3867(13)00055-8/fulltext).
- <sup>11</sup> W&I CODE § 14007.5 : California Code - Section 14007.5
- <sup>12</sup> Medi-Cal Eligibility Procedures Manual, 5N-F
- <sup>13</sup> Medi-Cal Eligibility Procedures Manual, 5N-F
- <sup>14</sup> W&I CODE § 14007.5 : California Code - Section 14007.5
- <sup>15</sup> OBRA-1986 provided states the option to extend Medicaid income eligibility to pregnant women up to 100% of FPL, and allowed simplified enrollment processes. OBRA-1987 allowed states the option to extend Medicaid income eligibility to pregnant women to 185% of FPL. OBRA-1989 mandated coverage for pregnant women up to 133% of FPL. OBRA-1990 mandated continuous eligibility for pregnant women through 60-days postpartum.

- <sup>16</sup> 42 U.S.C. Section 1396r-1; Cal. Welf. & Inst. Code Section 14148.7; ACWDL # 93-78 (Oct. 27, 1993), 95-74 (Nov. 23, 1995); Medi-Cal Eligibility Procedures Manual Article 5M.
- <sup>17</sup> 42 U.S.C. Section 1396r-1(b) (1) (B).
- <sup>18</sup> Medi-Cal Eligibility Procedures Manual, 5M-4, 5M-6
- <sup>19</sup> 42 U.S.C. Section 1396r-1 (a)
- <sup>20</sup> ACWDL # 93-78 (Oct. 27 1993), 94-103 (Dec. 26, 1994); Medi-Cal Medical Services Provider Manual, 200-92-13. The PE program will cover treatment of a septic abortion, a spontaneous abortion (miscarriage), or missed abortion. Medi-Cal Provider Manual, 200-92-11.
- <sup>21</sup> Medi-Cal Eligibility Procedures Manual 5M-4
- <sup>22</sup> Introduced as the 185 percent program under the Omnibus Budget Reconciliation Act (OBRA) of 1987 [Public Law (PL) 100-203], federal funding was provided to states for Medicaid benefits to eligible pregnant women with family incomes not exceeding 185% of the FPL. On June 30, 1993, Senate Bill (SB) 35 provided an income deduction for eligible pregnant women, based on the families' size, by disregarding the income which is the difference between the 185% and 200% FPL [Welfare and Institutions Code (W&I) §14148]. Under this program, assets are disregarded. This extended no SOC Medi-Cal to eligible pregnant women and infants whose income does not exceed 200% of the FPL.
- <sup>23</sup> 42 U.S.C. Sections 1396a(a) (10) (A) (i) (IV), (VI), 1396a(l)(1) (A); Cal. Welf. & Inst. Code Section 14148(f); Medi-Cal Eligibility Procedures Manual, Article 5F.
- <sup>24</sup> 42 U.S.C. Section 1396o(a) (2) (B); 42 C.F.R. Section 447.53(b) (2).
- <sup>25</sup> Medi-Cal Medical Services Provider Manual at 100-31-2
- <sup>26</sup> Prior to July 2012, California did not require all health insurance policies to provide coverage for maternity-related expenses. In 2004, 82% of plans included maternity coverage while in 2011, only 12% did. In some parts of the state, it is less than 1%. Health Access, California Coverage Now Includes Maternity Care For Individual & Small Group Health Plans. <http://www.health-access.org/files/advocating/Maternity%20Fact%20Sheet%207-1-12.pdf>
- <sup>27</sup> Sonfield, A. (2010). The Potential of Health Care Reform to Improve Pregnancy-Related Services and Outcomes. *Guttmacher Policy Review*. 13(3). Retrieved from <http://www.guttmacher.org/pubs/gpr/13/3/gpr130313.html>. A 2008 study by the National Women's Law Center found that among more than 3,500 individual insurance plans sold across the country, only 12% included comprehensive maternity coverage.
- <sup>28</sup> SB 222 (eff. July 1, 2012) amended the California Insurance Code to require individual insurance policies to include maternity benefits. The California Health and Safety Code (Knox Keen Act) already requires health care services plans to include maternity benefits. SB 222 also defines coverage for maternity services to include pre-natal care, ambulatory care, maternity services, involuntary complications of pregnancy, neonatal care, and in-hospital maternity care, including labor and delivery and post-partum care. AB 210 (eff. July 1, 2012) expanded maternity coverage to all those covered under individual and group health policies.

- <sup>29</sup> Andrews, M. (2010, November 6). Pregnancy not covered by most individual health policies: Many don't know they need to buy extra coverage; health law will close gap by 2014. *NBC News/KHN*. Retrieved from [http://www.nbcnews.com/id/40201197/ns/health-health\\_care/t/pregnancy-not-covered-most-individual-health-policies/#.UoUcr3CkpQY](http://www.nbcnews.com/id/40201197/ns/health-health_care/t/pregnancy-not-covered-most-individual-health-policies/#.UoUcr3CkpQY)
- <sup>30</sup> Medi-Cal Eligibility Procedures Manual, 5S
- <sup>31</sup> Medi-Cal Eligibility Procedures Manual, 5S
- <sup>32</sup> Medi-Cal Eligibility Procedures Manual, 5S
- <sup>33</sup> All County Welfare Directors Letter No. 11-39, November 9, 2011.
- <sup>34</sup> All County Welfare Directors Letter No. 11-39, November 9, 2011.
- <sup>35</sup> 42 U.S.C. Section 1396a(e) (5); Cal. Welf. & Inst. Code Section 14005.18
- <sup>36</sup> All County Welfare Director's Letter No. 12-33, November 16, 2012
- <sup>37</sup> California Department of Public Health (CDPH). (2013a). Comprehensive Prenatal Services Program. Retrieved from <http://www.cdph.ca.gov/HEALTHINFO/HEALTHYLIVING/CHILDFAMILY/Pages/CPSP.aspx>
- <sup>38</sup> CDPH. (2013b). California Black Infant Health (BIH) Program. Retrieved from: <http://www.cdph.ca.gov/programs/bih/Pages/default.aspx>
- <sup>39</sup> CDPH. (2013b).
- <sup>40</sup> CDPH. (2013b).
- <sup>41</sup> HCUP Clinical Classifications Software (CCS). (2012, March *updated*). Healthcare Cost and Utilization Project (HCUP). *U.S. Agency for Healthcare Research and Quality*, Rockville, MD. Available at <http://www.hcup.us.ahrq.gov/toolssoftware/ccs/ccs.jsp>.
- <sup>42</sup> California Department of Finance. (Accessed 2014). Department of Finance: Demographic Research Unit. Retrieved from: <http://www.dof.ca.gov/research/demographic/>
- <sup>43</sup> Eamranond, P., Legedza, A., Leveille, S., Marcantonio, E., and Patel, K. (2007). "The association of language with the prevalence of undiagnosed hypertension among older Mexican Americans." *Ethnicity and Disease*. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18072382>
- <sup>44</sup> Dietz, P.M., Adams, M.M., Kendrick, J.S., Mathis, M.P. (1998, December 1). Completeness of Ascertainment of Prenatal Smoking using Birth Certificates and Confidential Questionnaires Variations by Maternal Attributes and Infant Birthweight. *American Journal of Epidemiology*, 148(11), 1048-1054. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9850126>
- <sup>45</sup> Department of Health and Human Services (DHHS). (2012 *updated*) *Healthy People 2020*. Retrieved from <http://www.healthypeople.gov/2020/about/default.aspx>
- <sup>46</sup> Hamilton, Mathews, Martin, Osterman, Ventura, and Wilson. (2012)

- <sup>47</sup> CDPH. *General Fertility Rates, 2006 - 2010*
- <sup>48</sup> Hamilton, B., Kirmeyer, S. Mathews, T.J., Martin, J., Osterman, M., Ventura, S., and Wilson, E. (2011, November 3). Births: Final Data for 2009. *National Vital Statistics Report*. Centers for Disease Control and Prevention. Retrieved from [http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60\\_01.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_01.pdf)
- <sup>49</sup> Martin, J.A., Hamilton, B.E., Sutton, P.D., Ventura, S.J., Menacker, F., Kirmeyer, S., and Mathews, T.J. (2010, December 21). Annual Summary of Vital Statistics: 2007. *Neo Reviews*, 125(1). Retrieved from <http://neoreviews.aappublications.org/content/pediatrics/125/1/4.full>
- <sup>50</sup> Chen, X.K., Wen, S.W., Fleming, N., Demissie, K., Rhoads, G.G., Walker, M. (2007, January 8). Teenage Pregnancy and Adverse Birth Outcomes: A Large Population Based Retrospective Cohort Study. *International Journal of Epidemiology*. 36(2):368-373. Retrieved from <http://ije.oxfordjournals.org/content/36/2/368.full>
- <sup>51</sup> Fraser, A.M., Brockert, J.E., Ward, R.H. (1995). Association of Young Maternal Age with Adverse Reproductive Outcomes. *New England Journal of Medicine* 332:1113-7. Retrieved from DOI: 10.1056/NEJM199504273321701
- <sup>52</sup> Mathews, T.J. and MacDorman, M.F. (2008, July 30). Infant Mortality Statistics from the 2005 Period Linked Birth/Infant Death Data Set. *Centers for Disease Control, National Center for Health Statistics, National Vital Statistics System*, 57(2). Retrieved from [http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57\\_02.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_02.pdf)
- <sup>53</sup> Singh, G.K., Yu, S.M. (1995, July). Infant Mortality in the United States: Trends, Differentials and Projections, 1950 through 2010. *American Journal of Public Health* 85(957-64). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1615523/>
- <sup>54</sup> Schempf, A.H., Branum, A.M., Lukacs, S.L., Schoendorf, K.C. (2007, July). The Contribution of Preterm Birth to the Black-White Infant Mortality Gap, 1990 and 2000. *American Journal of Public Health*, 97(7):1255-60. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1913065/>
- <sup>55</sup> Lu, M.C. and Halfon, N. (2003, March). Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective. *Maternal Child Health Journal* 7(1):13-30. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12710797>
- <sup>56</sup> Singh, G.K., Miller, B.A. (2004, June). Health, Life Expectancy, and Mortality Patterns among Immigrant Populations in the United States. *Canadian Journal of Public Health*, 95(3):114-21. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15191127>
- <sup>57</sup> Acevedo-Garcia, D., Soobader, M., Berkman, L.F. (2005, January). The Differential Effect of Foreign-Born Status on Low Birthweight by Race/Ethnicity and Education. *Pediatrics*, 115(1):20-30. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15629963>
- <sup>58</sup> Luo, Z.C., Wilkins, R., Kramer, M.S. (2006, May). Effect of Neighborhood Income and Maternal Education on Birth Outcomes: a Population-based Study. *Canadian Medical Association Journal*, 174(10). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1455422/pdf/20060509s00014p1415.pdf>
- <sup>59</sup> Chandra, A., Martinez, G.M., Mosher, W.D., Abama, J.C., Jones, J. (2005, December). Fertility, Family Planning, and Reproductive Health of U.S. Women: Data from the 2002 National Survey of Family Growth. *National Center for Health Statistics. Vital Health Stat* 23(25). Retrieved from [http://www.cdc.gov/nchs/data/series/sr\\_23/sr23\\_025.pdf](http://www.cdc.gov/nchs/data/series/sr_23/sr23_025.pdf)

- <sup>60</sup> Bai, J., Wong, F.W.S., Bauman, A., Mohsin, M. (2002, February). Parity and Pregnancy Outcomes. *American Journal of Obstetric Gynecology*, 186(2):274–8. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11854649>
- <sup>61</sup> Yang, Q., Greenland, S., and Flanders, D. (2006, May). Associations of Maternal Age and Parity-Related Factors with Trends in Low Birthweight Rates: United States, 1989 through 2000. *American Journal of Public Health*, 96(5):856–61. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1470574/>
- <sup>62</sup> U.S. Department of Health and Human Services. (2010, October). Child Health USA - 2010. *Health Resources and Services Administration, Maternal and Child Health Bureau, Rockville, Maryland: U.S. Department of Health and Human Services*. Retrieved from <http://mchb.hrsa.gov/publications/pdfs/childhealth2010.pdf>
- <sup>63</sup> Guttmacher Institute. (2000, June). Maternal Factors and Multiple Births Are Main Cause Of Poor Birth Outcomes After In Vitro Fertilization. *Family Planning Perspectives*, 32(3). 2000. Retrieved from <http://www.guttmacher.org/pubs/journals/3214900.html>
- <sup>64</sup> CDC. (2000, June 23). Contribution of Assisted Reproductive Technology and Ovulation-Inducing Drugs to Triplet and Higher-Order Multiple Births, United States, 1980-1997. *MMWR* 49(24):535-8. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4924a4.htm>
- <sup>65</sup> Bollman, D. L. (ed.). (2011). Perinatal Services Guidelines for Care: A Compilation of Current Standards – 2011. California Department of Public Health, Maternal Child and Adolescent Health Division. Retrieved from <http://www.cdph.ca.gov/programs/rppc/Documents/MO-RPPC-PerinatalServicesGuidelines-CompilationofStandards-2011.pdf>
- <sup>66</sup> DHHS. Healthy People 2020, Maternal, Infant and Child objective MICH-10.1 Retrieved from <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=26>
- <sup>67</sup> Martin, J. and Osterman, M. (2013). Changes in Cesarean Delivery Rates by Gestational Age: United States, 1996-2011. *NCHS Data Brief*. No. 124. National Center for Health Statistics. U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db124.htm>
- <sup>68</sup> Hamilton, Mathews, Martin, Osterman, Ventura, and Wilson. (2012)
- <sup>69</sup> CDC. (2012, August 28). Births: Final Data for 2011. *National Vital Statistics Report*, 62,(1). Retrieved from [http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62\\_01\\_tables.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_01_tables.pdf)
- <sup>70</sup> Martin, J.A., Hamilton, B.E., Ventura, S.J., Osterman, M.J.K., Mathews, T.J. (2013, June 28). National Vital Statistics Report – Births: Final Data for 2011. *Centers for Disease Control, National Center for Health Statistics, National Vital Statistics System* (62)1. Retrieved from [http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62\\_01.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_01.pdf)
- <sup>71</sup> Centers for Disease Control and Prevention (CDC). (2005, January 21). QuickStats: Total and Primary Cesarean Rate and Vaginal Birth After Previous Cesarean Section (VBAC) Rate --- United States, 1989–2003. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5402a5.htm>
- <sup>72</sup> Centers for Disease Control and Prevention (CDC). (2005, January 21). QuickStats: Total and Primary Cesarean Rate and Vaginal Birth After Previous Cesarean Section (VBAC) Rate --- United States, 1989–2003. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5402a5.htm>

- <sup>73</sup> CDC. (2012, March 8). Pregnancy-Related Mortality in the United States. *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/Pregnancy-relatedMortality.htm>
- <sup>74</sup> National Institutes for Health (NIH). (2013, March 4 (ed.)). High Blood Pressure in Pregnancy. *National Heart, Lung, and Blood Institute*. Retrieved from [http://www.nhlbi.nih.gov/health/public/heart/hbp/hbp\\_preg.htm](http://www.nhlbi.nih.gov/health/public/heart/hbp/hbp_preg.htm)
- <sup>75</sup> Eamranond, P., Legedza, A., Leveille, S., Marcantonio, E., and Patel, K. (2007). "The association of language with the prevalence of undiagnosed hypertension among older Mexican Americans." *Ethnicity and Disease*. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18072382>
- <sup>76</sup> Eberhardt, M., Fryar, C., Hirsch, R., Wright, J., and Yoon, S. (2010, April). "Hypertension, High Serum Total Cholesterol, and Diabetes: Racial and Ethnic Prevalence Differences in U.S., 1999-2006." *NCHS Data Brief*. Centers for Disease Control and Prevention. U.S. Department of Health and Human Services. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db36.htm>
- <sup>77</sup> CDC. (2012, August 4 (ed.)). CDC Features: Diabetes & Pregnancy. *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdc.gov/features/DiabetesPregnancy/>
- <sup>78</sup> CDC. (n.d.). 2011 National Diabetes Fact Sheet: Diagnosed and Undiagnosed Diabetes in the United States, All Ages, 2011. *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdc.gov/diabetes/pubs/estimates11.htm#8>
- <sup>79</sup> CDC. (n.d.). 2011 National Diabetes Fact Sheet: Diagnosed and Undiagnosed Diabetes in the United States, All Ages, 2011. *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdc.gov/diabetes/pubs/estimates11.htm#8>
- <sup>80</sup> Eamranond, P., Legedza, A., Leveille, S., Marcantonio, E., and Patel, K. (2007). "The association of language with the prevalence of undiagnosed hypertension among older Mexican Americans." *Ethnicity and Disease*. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18072382>
- <sup>81</sup> Darbinian, J., Ehrlich, S., Ferrara, A., Hedderson, M., Moore, S., and Sridhar, S. (2012). "Racial/Ethnic Disparities in the Prevalence of Gestational Diabetes by BMI." *Diabetes Care Journal*. American Diabetes Organization. Retrieved from <http://care.diabetesjournals.org/content/early/2012/05/20/dc11-2267.full.pdf>
- <sup>82</sup> National Institutes of Health. (2012 June). *Am I at Risk for Gestational Diabetes?* U.S. Department of Health and Human Services. Retrieved from [http://www.nichd.nih.gov/publications/pubs/Documents/gestational\\_diabetes\\_2012.pdf](http://www.nichd.nih.gov/publications/pubs/Documents/gestational_diabetes_2012.pdf)
- <sup>83</sup> Haffner, S. (1998). "Epidemiology of Type 2 Diabetes: Risk Factors." *Diabetes Care Journal*. American Diabetes Organization. Retrieved from [http://care.diabetesjournals.org/content/21/Supplement\\_3/C3.full.pdf+html](http://care.diabetesjournals.org/content/21/Supplement_3/C3.full.pdf+html)
- <sup>84</sup> United States Census Bureau. (2012 May). Asian Population in the United States: Results from the 2010 Census. Prepared for the 2010 Asian Profile America Event. Retrieved from <http://www.ssa.gov/people/aapi/materials/pdfs/2010census-data.pdf>
- <sup>85</sup> Dietz, P.M., Adams, M.M., Kendrick, J.S., Mathis, M.P. (1998, December 1). Completeness of Ascertainment of Prenatal Smoking using Birth Certificates and Confidential Questionnaires Variations by Maternal Attributes and Infant Birthweight. *American Journal of Epidemiology*, 148(11), 1048-1054. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9850126>

- <sup>86</sup> California Department of Public Health. (2006, August). Smoking During Pregnancy. *Tobacco Control Section*. Retrieved from <http://www.cdph.ca.gov/programs/tobacco/Documents/CTCPPregnancy06.pdf>
- <sup>87</sup> CDC. (2010). Pregnancy Risk Assessment Monitoring Systems (PRAMS): CPONDER. Retrieved from <http://apps.nccd.cdc.gov/cPONDER/default.aspx>
- <sup>88</sup> CDC. (2011). Highlights: Scientific Review of Finds Regarding Reproductive Health. *National Center for Chronic Disease Prevention and Health* Retrieved from [http://www.cdc.gov/tobacco/data\\_statistics/sgr/2011/highlight\\_sheets/pdfs/scientific\\_reproductive.pdf](http://www.cdc.gov/tobacco/data_statistics/sgr/2011/highlight_sheets/pdfs/scientific_reproductive.pdf)
- <sup>89</sup> CDC (b). (2011). Tobacco Smoke Harms Overall Reproductive Health. *Centers for Disease Control and Prevention*. Retrieved from <http://www.cdph.ca.gov/programs/tobacco/Documents/CTCPPregnancy06.pdf>
- <sup>90</sup> Centers for Disease Control and Prevention (CDC). (2014). Pregnancy Risk Assessment Monitoring System (PRAMS) and Smoking Data Tables. Retrieved from <http://www.cdc.gov/prams/data-tobaccotables.htm#Table1>
- <sup>91</sup> Centers for Disease Control and Prevention (CDC). (2014). Pregnancy Risk Assessment Monitoring System (PRAMS) and Smoking Data Tables. Retrieved from <http://www.cdc.gov/prams/data-tobaccotables.htm#Table1>
- <sup>92</sup> Maternal and Infant Health Assessment (MIHA) Survey. (2014). *MIHA Snapshot, California by Race/Ethnicity, 2011*. California Department of Public Health. Retrieved from <http://www.cdph.ca.gov/data/surveys/MIHA/MIHASnapshots/SnapshotbyRace2011.pdf>
- <sup>93</sup> March of Dimes. (n.d.) Illicit Drug Use During Pregnancy. *March of Dimes*. Retrieved from [http://www.marchofdimes.com/pregnancy/alcohol\\_illicitdrug.html](http://www.marchofdimes.com/pregnancy/alcohol_illicitdrug.html)
- <sup>94</sup> NIH. (2011, May). Topics in Brief: Prenatal Exposure to Drugs of Abuse. *National Institute on Drug Abuse*. Retrieved from <http://www.drugabuse.gov/publications/topics-in-brief/prenatal-exposure-to-drugs-abuse>
- <sup>95</sup> CDC. (2011, October 6 (ed.)). Fetal Alcohol Spectrum Disorders (FASD). *Centers for Disease Control and Prevention*, Retrieved from <http://www.cdc.gov/ncbddd/fasd/facts.html>
- <sup>96</sup> Center for Behavioral Health Statistics and Quality. (2012 May). "Substance Use during Pregnancy Varies by Race and Ethnicity." *Data Spotlight: National Survey on Drug Use and Health*. U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Retrieved from <http://www.samhsa.gov/data/spotlight/Spot062PregnantRaceEthnicity2012.pdf>
- <sup>97</sup> Center for Behavioral Health Statistics and Quality. (2012 May). "Substance Use during Pregnancy Varies by Race and Ethnicity." *Data Spotlight: National Survey on Drug Use and Health*. U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Retrieved from <http://www.samhsa.gov/data/spotlight/Spot062PregnantRaceEthnicity2012.pdf>
- <sup>98</sup> Center for Behavioral Health Statistics and Quality. (2012 May). "Substance Use during Pregnancy Varies by Race and Ethnicity." *Data Spotlight: National Survey on Drug Use and Health*. U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Retrieved from <http://www.samhsa.gov/data/spotlight/Spot062PregnantRaceEthnicity2012.pdf>

- <sup>99</sup> Kent, H., Skala, J., Desmarais, J. (2006, January). Promoting Healthy Weight Among Women of a Reproductive Age. *Association of Maternal and Child Health Programs*. Retrieved from <http://www.cdph.ca.gov/programs/NutritionandPhysicalActivity/Documents/MO-NUPA-PromotingHealthyWeightAmongWomenofReproductiveAge.pdf>
- <sup>100</sup> CDC. (n.d.) CDC's Tracking and Research for the Prevention of Congenital Heart Defects. *Centers for Disease Control and Prevention*. Retrieved from [http://www.cdc.gov/ncbddd/heartdefects/documents/223287\\_CHD%20fact%20sheet\\_9-14-11\\_508.pdf](http://www.cdc.gov/ncbddd/heartdefects/documents/223287_CHD%20fact%20sheet_9-14-11_508.pdf)
- <sup>101</sup> Kent, Skala, Desmarais. (2006).
- <sup>102</sup> Kent, Skala, Desmarais. (2006).
- <sup>103</sup> Callaghan, W.M., MacDorman, M.F., Rasmussen, S.A., Qin, C., Lackritz, E.M. (2006, October 1). The Contribution of Preterm Birth to Infant Mortality Rates in the United States. *Pediatrics*, 118, 1566-1573. Retrieved from <http://pediatrics.aappublications.org/content/118/4/1566.abstract>
- <sup>104</sup> Russell, R.B, Green, N.S., Steiner, C.A., Meikle, S., Howse, J.L., Poschman, K., Dias, T., Potetz, L., Davidoff, M.J., Damus, K., and Petrini, J.R. (2007, July). Cost of Hospitalization for Preterm and Low Birthweight Infants in the United States. *Pediatrics*, 120(1): e1-e9. <http://www.ncbi.nlm.nih.gov/pubmed/17606536>
- <sup>105</sup> Martin, Hamilton, Ventura, Osterman, and Mathews. (2013).
- <sup>106</sup> U.S. Census Bureau (2012). The Foreign-Born Population in the United States: 2010. Retrieved from American Community Survey Reports website: <http://www.census.gov/prod/2012pubs/acs-19.pdf>
- <sup>107</sup> Singh, G.K., Miller, B.A. (2004, June). Health, Life Expectancy, and Mortality Patterns among Immigrant Populations in the United States. *Canadian Journal of Public Health*, 95(3):14–21. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15191127>
- <sup>108</sup> Acevedo-Garcia, D., Soobader, M., Berkman, L.F. (2005, January). The Differential Effect of Foreign-Born Status on Low Birthweight by Race/Ethnicity and Education. *Pediatrics*, 115(1):20–30. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15629963>
- <sup>109</sup> Guttmacher Institute. (2000, June).
- <sup>110</sup> CDC. (2000, June 23).
- <sup>111</sup> Mathews and MacDorman. (2008).
- <sup>112</sup> MacDorman, M.F. and Mathews, T.J. (2010, November). Behind International Rankings of Infant Mortality: How the United States Compares with Europe. *CDC: National Center for Health Statistics*, 23. 2010. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db23.pdf>
- <sup>113</sup> Behrman, R.E., Butler, A.S., ed. (2006, July 13). Preterm Birth: Causes, Consequences, and Prevention. *Institute of Medicine of the National Academies*. Retrieved from <http://www.iom.edu/Reports/2006/Preterm-Birth-Causes-Consequences-and-Prevention.aspx>
- <sup>114</sup> Hamilton, Mathews, Martin, Osterman, Ventura, and Wilson. (2012).

Appendix H

Table 1. Medi-Cal and Non-Medi-Cal Births by Select Maternal Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
<b>AGE OF MOTHER</b>						
Age ≤17	10,321	5,616	4,705	3,373	1,759	1,614
18-19	24,856	13,386	11,470	4,853	2,589	2,264
20-24	79,806	49,137	30,669	27,201	9,771	17,430
25-29	68,772	47,453	21,319	66,760	10,951	55,809
30-34	44,359	32,495	11,864	83,003	9,202	73,801
35 and Older	28,258	20,746	7,512	63,662	6,419	57,243
<i>Invalid</i>	0	0	0	35	18	17
<b>RACE/ETHNICITY OF MOTHER</b>						
White	37,370	21,937	15,433	100,351	10,964	89,387
African American	18,719	6,721	11,998	8,804	2,359	6,445
Hispanic	176,629	126,522	50,107	79,759	19,611	60,148
Asian	13,946	8,135	5,811	46,482	5,409	41,073
Hawaiian/Pacific Islanders	1,214	615	599	1,015	232	783
American Indian/Alaskan Native	1,159	746	413	696	195	501
Two or more Race Categories	4,228	2,160	2,068	5,881	813	5,068
<i>Others/Unknown</i>	3,107	1,997	1,110	5,899	1,126	4,773
<b>MOTHER'S NATIVITY</b>						
Foreign Born	121,468	104,160	17,308	87,518	17,556	69,962
US Born	134,811	64,623	70,188	161,218	23,089	138,129
<i>Unknown</i>	93	50	43	151	64	87
<b>MOTHER'S EDUCATION STATUS</b>						
<High School	98,560	72,264	26,296	17,546	9,093	8,453
High School Graduate	84,114	50,658	33,456	43,565	11,009	32,556
Some College or Associate Degree	54,620	32,283	22,337	64,746	10,017	54,729
Bachelor's Degree or Higher	10,682	8,057	2,625	113,739	8,547	105,192
<i>Unknown</i>	8,396	5,571	2,825	9,291	2,043	7,248
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>168,833</b>	<b>87,539</b>	<b>248,887</b>	<b>40,709</b>	<b>208,178</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 2. Medi-Cal and Non-Medi-Cal Births by Select Birth Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Birth		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
<b>PARITY STATUS</b>						
First Born	90,835	61,711	29,124	107,299	17,248	90,051
One Previous Birth	72,833	47,239	25,594	84,973	12,104	72,869
Two+ Previous Births	92,490	59,762	32,728	56,292	11,294	44,998
<i>Unknown or Unreported</i>	214	121	93	323	63	260
<b>SINGLE/MULTIPLE BIRTH</b>						
Multiple Birth	5,576	3,469	2,107	10,273	1,328	8,945
Singleton	250,796	165,364	85,432	238,614	39,381	199,233
<b>PRENATAL CARE INITIATION</b>						
No Prenatal Care	1,532	918	614	835	675	160
First Trimester	193,429	128,996	64,433	220,202	31,498	188,704
Second Trimester	45,618	28,837	16,781	19,891	5,745	14,146
Third Trimester	9,878	6,571	3,307	3,389	1,565	1,824
<i>Unknown or Unreported</i>	5,915	3,511	2,404	4,570	1,226	3,344
<b>METHOD OF DELIVERY</b>						
Cesarean-Primary	42,285	28,599	13,686	51,113	7,522	43,591
Cesarean-Repeat	40,564	26,380	14,184	34,113	5,621	28,492
Vaginal	171,974	112,802	59,172	161,566	27,330	134,236
Vaginal After Previous Cesarean	1,549	1,052	497	2,095	236	1,859
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>168,833</b>	<b>87,539</b>	<b>248,887</b>	<b>40,709</b>	<b>208,178</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

This table contains corrections for *PRENATAL CARE INITIATION*. Persons who began prenatal care in the 9th month were erroneously included in "Unknown or Unreported". Revision as of 09/18/2014.

Table 3a. **Medi-Cal** Delivery Methods by Select Maternal Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
<b>AGE OF MOTHER</b>					
Age ≤17	10,321	1,942	141	8,234	4
18-19	24,856	4,819	1,006	18,998	33
20-24	79,806	13,358	9,215	56,930	303
25-29	68,772	10,186	12,705	45,394	487
30-34	44,359	6,725	10,120	27,092	422
35 and Older	28,258	5,255	7,377	15,326	300
<b>RACE/ETHNICITY OF MOTHER</b>					
White	37,370	6,752	5,155	25,263	200
African American	18,719	3,889	3,064	11,635	131
Hispanic	176,629	27,537	29,333	118,753	1,006
Asian	13,946	2,316	1,605	9,893	132
Hawaiian/Pacific Islanders	1,214	199	217	778	20
American Indian/Alaskan Native	1,159	214	190	747	8
Two or more Race Categories	4,228	815	579	2,799	35
<i>Others/Unknown</i>	3,107	563	421	2,106	17
<b>MOTHER'S NATIVITY</b>					
Foreign Born	121,468	18,144	21,947	80,443	934
US Born	134,811	24,125	18,605	91,467	614
<i>Unknown</i>	93	16	12	64	1
<b>MOTHER'S EDUCATION STATUS</b>					
<High School	98,560	14,141	17,566	66,229	624
High School Graduate	84,114	14,292	12,507	56,878	437
Some College or Associate Degree	54,620	10,181	7,858	36,234	347
Bachelor's Degree or Higher	10,682	2,247	1,478	6,871	86
<i>Unknown</i>	8,396	1,424	1,155	5,762	55
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>42,285</b>	<b>40,564</b>	<b>171,974</b>	<b>1,549</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 3b. **Non-Medi-Cal** Delivery Methods by Select Maternal Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
<b>AGE OF MOTHER</b>					
Age ≤17	3,373	607	23	2,740	3
18-19	4,853	904	106	3,835	8
20-24	27,201	5,040	1,854	20,196	111
25-29	66,760	12,912	6,954	46,409	485
30-34	83,003	16,551	12,100	53,598	754
35 and Older	63,662	15,092	13,072	34,765	733
<i>Invalid</i>	35	7	4	23	1
<b>RACE/ETHNICITY OF MOTHER</b>					
White	100,351	20,971	13,027	65,479	874
African American	8,804	2,144	1,312	5,257	91
Hispanic	79,759	15,000	11,947	52,193	619
Asian	46,482	9,922	6,102	30,075	383
Hawaiian/Pacific Islanders	1,015	194	164	645	12
American Indian/Alaskan Native	696	126	112	454	4
Two or more Race Categories	5,881	1,239	677	3,913	52
<i>Others/Unknown</i>	5,899	1,517	772	3,550	60
<b>MOTHER'S NATIVITY</b>					
Foreign Born	87,518	18,222	13,110	55,423	763
US Born	161,218	32,858	20,989	106,041	1,330
<i>Unknown</i>	151	33	14	102	2
<b>MOTHER'S EDUCATION STATUS</b>					
<High School	17,546	2,796	2,547	12,058	145
High School Graduate	43,565	7,806	6,025	29,430	304
Some College or Associate Degree	64,746	12,927	9,242	42,034	543
Bachelor's Degree or Higher	113,739	25,343	15,109	72,264	1,023
<i>Unknown</i>	9,291	2,241	1,190	5,780	80
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>248,887</b>	<b>51,113</b>	<b>34,113</b>	<b>161,566</b>	<b>2,095</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 4. Medi-Cal and Non-Medi-Cal Births by Select Maternal Comorbidities  
California Resident Hospital Births, 2010

COMORBIDITIES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
<b>HYPERTENSION<sup>1</sup></b>						
Hypertension	18,386	11,672	6,714	16,492	1,815	14,677
No Hypertension Diagnosis	237,427	157,160	80,267	210,346	24,872	185,474
<i>Unknown</i>	559	1	558	22,049	14,022	8,027
<b>DIABETES<sup>1</sup></b>						
Diabetes	19,841	14,192	5,649	19,716	1,667	18,049
No Diabetes Diagnosis	235,972	154,640	81,332	207,122	25,020	182,102
<i>Unknown</i>	559	1	558	22,049	14,022	8,027
<b>SMOKING DURING PREGNANCY<sup>4</sup></b>						
Maternal Smoker	8,842	4,744	4,098	2,258	634	1,624
Maternal Non-Smoker	244,315	162,566	81,749	223,032	25,779	197,253
<i>Unknown</i>	3,215	1,523	1,692	23,597	14,296	9,301
<b>SUBSTANCE USE<sup>1</sup></b>						
Maternal Substance User	4,498	2,130	2,368	1,071	438	633
Maternal Non-Substance User	251,315	166,702	84,613	225,767	26,249	199,518
<i>Unknown</i>	559	1	558	22,049	14,022	8,027
<b>PRE-PREGNANCY WEIGHT<sup>2</sup></b>						
Underweight	8,904	5,607	3,297	8,717	1,157	7,560
Normal Weight	101,798	68,400	33,398	117,814	12,279	105,535
Overweight	66,111	45,342	20,769	49,274	6,137	43,137
Obese/Extremely Obese	59,080	36,869	22,211	34,504	4,194	30,310
<i>Out of Range/Unknown</i>	20,479	12,615	7,864	38,578	16,942	21,636
<b>TOTAL BIRTHS<sup>3</sup></b>	<b>256,372</b>	<b>168,833</b>	<b>87,539</b>	<b>248,887</b>	<b>40,709</b>	<b>208,178</b>

<sup>1</sup>Comorbidities such as hypertension, diabetes, and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>2</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>3</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>4</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 5a. Medi-Cal and Non-Medi-Cal **TOTAL** Births by Select Birth Outcomes  
California Resident Hospital Births, 2010

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
<b>BIRTHWEIGHT</b>						
Low Birthweight	17,096	10,659	6,437	17,262	3,113	14,149
Normal Birth Weight	239,256	158,163	81,093	231,579	37,585	193,994
<i>Out-of-Range</i>	20	11	9	46	11	35
<b>VERY LOW BIRTHWEIGHT STATUS</b>						
Birthweight >= 1500g	253,514	166,992	86,522	245,941	40,052	205,889
Very Low Birthweight (<1500g)	2,838	1,830	1,008	2,900	646	2,254
<i>Out-of-Range</i>	20	11	9	46	11	35
<b>GESTATION<sup>1</sup></b>						
Preterm Delivery (<37 Weeks)	25,818	16,442	9,376	23,316	4,261	19,055
Normal Gestation (>= 37 weeks)	222,402	147,622	74,780	218,713	35,136	183,577
<i>Out-of-Range/Missing</i>	8,152	4,769	3,383	6,858	1,312	5,546
<b>VERY PRETERM STATUS<sup>1</sup></b>						
Very Preterm Delivery (<32 Weeks)	3,866	2,475	1,391	3,405	769	2,636
Gestation >= 32 weeks	244,354	161,589	82,765	238,624	38,628	199,996
<i>Out-of-Range/Missing</i>	8,152	4,769	3,383	6,858	1,312	5,546
<b>TOTAL BIRTHS<sup>2</sup></b>	<b>256,372</b>	<b>168,833</b>	<b>87,539</b>	<b>248,887</b>	<b>40,709</b>	<b>208,178</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=15,010) are missing this data element.

<sup>2</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 5b. Medi-Cal and Non-Medi-Cal **SINGLETON** Births by Select Birth Outcomes  
California Resident Hospital Births, 2010

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
<b>BIRTHWEIGHT</b>						
Low Birthweight	13,923	8,703	5,220	11,798	2,403	9,395
Normal Birth Weight	236,853	156,650	80,203	226,787	36,969	189,818
<i>Out-of-Range</i>	20	11	9	29	9	20
<b>VERY LOW BIRTHWEIGHT STATUS</b>						
Birthweight >= 1500g	248,512	163,893	84,619	236,614	38,863	197,751
Very Low Birthweight (<1500g)	2,264	1,460	804	1,971	509	1,462
<i>Out-of-Range</i>	20	11	9	29	9	20
<b>GESTATION<sup>1</sup></b>						
Preterm Delivery (<37 Weeks)	22,716	14,539	8,177	17,812	3,579	14,233
Normal Gestation (>= 37 weeks)	220,092	146,147	73,945	214,295	34,539	179,756
<i>Out-of-Range/Missing</i>	7,988	4,678	3,310	6,507	1,263	5,244
<b>VERY PRETERM STATUS<sup>1</sup></b>						
Very Preterm Delivery (<32 Weeks)	3,225	2,045	1,180	2,394	626	1,768
Gestation >= 32 weeks	239,583	158,641	80,942	229,713	37,492	192,221
<i>Out-of-Range/Missing</i>	7,988	4,678	3,310	6,507	1,263	5,244
<b>TOTAL SINGLETON BIRTHS<sup>2</sup></b>	<b>250,796</b>	<b>165,364</b>	<b>85,432</b>	<b>238,614</b>	<b>39,381</b>	<b>199,233</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=14,495) are missing this data element.

<sup>2</sup>Total Singleton Births = Births in Hospital Only. DHCS identified a total of 489,410 singleton births to California mothers in 2010 occurring in a hospital setting.

Table 6a. Birthweight Among **Medi-Cal** Births, by Select Maternal and Birth Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Out of Range	Total (Excluding Out of Range)	Birthweight (Excluding Out of Range)		Very Low Birthweight (Excluding Out of Range)	
				Low Birthweight	Normal Birthweight	Birthweight >=1500g	Very Low Birthweight <1500g
<b>AGE OF MOTHER</b>							
Age ≤ 17	10,321	0	10,321	790	9,531	10,188	133
18-19	24,856	2	24,854	1,770	23,084	24,563	291
20-24	79,806	5	79,801	4,870	74,931	79,061	740
25-29	68,772	7	68,765	4,276	64,489	68,076	689
30-34	44,359	3	44,356	3,092	41,264	43,801	555
35 and Older	28,258	3	28,255	2,298	25,957	27,825	430
<b>RACE/ETHNICITY OF MOTHER</b>							
White	37,370	2	37,368	2,382	34,986	36,991	377
African American	18,719	3	18,716	2,333	16,383	18,244	472
Hispanic	176,629	13	176,616	10,494	166,122	174,916	1,700
Asian	13,946	0	13,946	1,109	12,837	13,805	141
Hawaiian/Pacific Islanders	1,214	0	1,214	88	1,126	1,192	22
American Indian/Alaskan Native	1,159	0	1,159	80	1,079	1,146	13
Two or more Race Categories	4,228	1	4,227	349	3,878	4,169	58
<i>Others/Unknown</i>	3,107	1	3,106	261	2,845	3,051	55
<b>MOTHER'S NATIVITY</b>							
Foreign Born	121,468	8	121,460	6,947	114,513	120,399	1,061
US Born	134,811	12	134,799	10,136	124,663	133,029	1,770
<i>Unknown</i>	93	0	93	13	80	86	7
<b>MOTHER'S EDUCATION STATUS</b>							
<High School	98,560	8	98,552	6,331	92,221	97,561	991
High School Graduate	84,114	8	84,106	5,586	78,520	83,192	914
Some College or Associate Degree	54,620	3	54,617	3,899	50,718	53,931	686
Bachelor's Degree or Higher	10,682	0	10,682	673	10,009	10,572	110
<i>Unknown</i>	8,396	1	8,395	607	7,788	8,258	137
<b>PARITY STATUS</b>							
First Born	90,835	8	90,827	6,390	84,437	89,761	1,066
One Previous Birth	72,833	5	72,828	4,321	68,507	72,120	708
Two+ Previous Births	92,490	7	92,483	6,362	86,121	91,428	1,055
<i>Unknown or Unreported</i>	214	0	214	23	191	205	9
<b>SINGLE/MULTI BIRTH</b>							
Multiple Birth	5,576	0	5,576	3,173	2,403	5,002	574
Singleton	250,796	20	250,776	13,923	236,853	248,512	2,264
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>20</b>	<b>256,352</b>	<b>17,096</b>	<b>239,256</b>	<b>253,514</b>	<b>2,838</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 6b. Birthweight Among **Medi-Cal** Births, by Select Comorbidities  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Out of Range	Total (Excluding Out of Range)	Birthweight (Excluding Out of Range)		Very Low Birthweight (Excluding Out of Range)	
				Low Birthweight	Normal Birthweight	Birthweight >=1500g	Very Low Birthweight <1500g
<b>HYPERTENSION<sup>1</sup></b>							
Hypertension	18,386	4	18,382	3,883	14,499	17,604	778
No Hypertension Diagnosis	237,427	15	237,412	13,147	224,265	235,360	2,052
Unknown	559	1	558	66	492	550	8
<b>DIABETES<sup>1</sup></b>							
Diabetes	19,841	0	19,841	1,628	18,213	19,579	262
No Diabetes Diagnosis	235,972	19	235,953	15,402	220,551	233,385	2,568
Unknown	559	1	558	66	492	550	8
<b>SUBSTANCE USE<sup>1</sup></b>							
Maternal Substance User	4,498	1	4,497	673	3,824	4,354	143
Maternal Non-Substance User	251,315	18	251,297	16,357	234,940	248,610	2,687
Unknown	559	1	558	66	492	550	8
<b>SMOKING DURING PREGNANCY<sup>4</sup></b>							
Maternal Smoker	8,842	1	8,841	924	7,917	8,713	128
Maternal Non-Smoker	244,315	17	244,298	15,889	228,409	241,659	2,639
Unknown	3,215	2	3,213	283	2,930	3,142	71
<b>PRE-PREGNANCY WEIGHT<sup>2</sup></b>							
Underweight	8,904	0	8,904	868	8,036	8,821	83
Normal Weight	101,798	6	101,792	6,262	95,530	100,951	841
Overweight	66,111	5	66,106	3,613	62,493	65,487	619
Obese/Extremely Obese	59,080	6	59,074	3,415	55,659	58,355	719
Out of Range/Unknown	20,479	3	20,476	2,938	17,538	19,900	576
<b>TOTAL BIRTHS<sup>3</sup></b>	<b>256,372</b>	<b>20</b>	<b>256,352</b>	<b>17,096</b>	<b>239,256</b>	<b>253,514</b>	<b>2,838</b>

<sup>1</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>2</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>3</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>4</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 6c. Birthweight Among Non-Medi-Cal Births, by Select Characteristics  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Out of Range	Total (Excluding Out of Range)	Birthweight (Excluding Out of Range)		Very Low Birthweight (Excluding Out of Range)	
				Low Birthweight	Normal Birthweight	Birthweight >=1500g	Very Low Birthweight <1500g
<b>AGE OF MOTHER</b>							
Age ≤17	3,373	2	3,371	289	3,082	3,318	53
18-19	4,853	3	4,850	378	4,472	4,772	78
20-24	27,201	10	27,191	1,775	25,416	26,847	344
25-29	66,760	7	66,753	3,877	62,876	66,067	686
30-34	83,003	8	82,995	5,377	77,618	82,112	883
35 and Older	63,662	16	63,646	5,558	58,088	62,790	856
<i>Invalid</i>	35	0	35	8	27	35	0
<b>RACE/ETHNICITY OF MOTHER</b>							
White	100,351	15	100,336	6,131	94,206	99,343	994
African American	8,804	3	8,801	1,029	7,772	8,567	234
Hispanic	79,759	21	79,738	5,262	74,476	78,722	1,016
Asian	46,482	5	46,477	3,644	42,833	46,034	443
Hawaiian/Pacific Islanders	1,015	0	1,015	69	946	1,000	15
American Indian/Alaskan Native	696	0	696	46	650	686	10
Two or more Race Categories	5,881	0	5,881	429	5,452	5,817	64
<i>Others/Unknown</i>	5,899	3	5,896	652	5,244	5,772	124
<b>MOTHER'S NATIVITY</b>							
Foreign Born	87,518	15	87,503	6,290	81,213	86,505	998
US Born	161,218	31	161,187	10,951	150,236	159,293	1,894
<i>Unknown</i>	151	0	151	21	130	143	8
<b>MOTHER'S EDUCATION STATUS</b>							
<High School	17,546	10	17,536	1,380	16,156	17,263	273
High School Graduate	43,565	10	43,555	2,855	40,700	43,002	553
Some College or Associate Degree	64,746	8	64,738	4,368	60,370	63,949	789
Bachelor's Degree or Higher	113,739	15	113,724	7,736	105,988	112,633	1,091
<i>Unknown</i>	9,291	3	9,288	923	8,365	9,094	194
<b>PARITY STATUS</b>							
First Born	107,299	16	107,283	7,745	99,538	105,960	1,323
One Previous Birth	84,973	14	84,959	5,277	79,682	84,106	853
Two+ Previous Births	56,292	16	56,276	4,207	52,069	55,560	716
<i>Unknown or Unreported</i>	323	0	323	33	290	315	8
<b>SINGLE/MULTI BIRTH</b>							
Multiple Birth	10,273	17	10,256	5,464	4,792	9,327	929
Singleton	238,614	29	238,585	11,798	226,787	236,614	1,971
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>248,887</b>	<b>46</b>	<b>248,841</b>	<b>17,262</b>	<b>231,579</b>	<b>245,941</b>	<b>2,900</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 6d. Birthweight Among **Non-Medi-Cal** Births by Select Comorbidities  
California Resident Hospital Births, 2010

MATERNAL CHARACTERISTICS	Total	Out of Range	Total (Excluding Out of Range)	Birthweight (Excluding Out of Range)		Very Low Birthweight (Excluding Out of Range)	
				Low Birthweight	Normal Birthweight	Birthweight ≥1500g	Very Low Birthweight <1500g
<b>HYPERTENSION<sup>1</sup></b>							
Hypertension	16,492	0	16,492	3,722	12,770	15,780	712
No Hypertension Diagnosis	210,346	23	210,323	11,373	198,950	208,652	1,671
<i>Unknown</i>	22,049	23	22,026	2,167	19,859	21,509	517
<b>DIABETES<sup>1</sup></b>							
Diabetes	19,716	0	19,716	2,001	17,715	19,410	306
No Diabetes Diagnosis	207,122	23	207,099	13,094	194,005	205,022	2,077
<i>Unknown</i>	22,049	23	22,026	2,167	19,859	21,509	517
<b>SUBSTANCE USE<sup>1</sup></b>							
Maternal Substance User	1,071	0	1,071	175	896	1,045	26
Maternal Non-Substance User	225,767	23	225,744	14,920	210,824	223,387	2,357
<i>Unknown</i>	22,049	23	22,026	2,167	19,859	21,509	517
<b>SMOKING DURING PREGNANCY<sup>4</sup></b>							
Maternal Smoker	2,258	1	2,257	227	2,030	2,213	44
Maternal Non-Smoker	223,032	22	223,010	14,762	208,248	220,692	2,318
<i>Unknown</i>	23,597	23	23,574	2,273	21,301	23,036	538
<b>PRE-PREGNANCY WEIGHT<sup>2</sup></b>							
Underweight	8,717	0	8,717	660	8,057	8,648	69
Normal Weight	117,814	10	117,804	6,354	111,450	116,996	808
Overweight	49,274	7	49,267	2,613	46,654	48,842	425
Obese/Extremely Obese	34,504	3	34,501	2,092	32,409	34,033	468
<i>Out of Range/Unknown</i>	38,578	26	38,552	5,543	33,009	37,422	1,130
<b>TOTAL BIRTHS<sup>3</sup></b>	<b>248,887</b>	<b>46</b>	<b>248,841</b>	<b>17,262</b>	<b>231,579</b>	<b>245,941</b>	<b>2,900</b>

<sup>1</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>2</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>3</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>4</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 7a. Gestational Age Among **Medi-Cal** Births, by Select Maternal and Birth Characteristics  
California Resident Hospital Births, 2010

MATERNAL AND BIRTH CHARACTERISTICS	Total	Out of Range /Missing	Total (Excluding Out of Range)	Gestation <sup>1</sup> (Excluding Out of Range)		Very Preterm Status (<32 wks gestation) <sup>1</sup> (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
<b>AGE OF MOTHER</b>							
Age ≤17	10,321	397	9,924	1,169	8,755	209	9,715
18-19	24,856	849	24,007	2,398	21,609	369	23,638
20-24	79,806	2,688	77,118	7,240	69,878	1,047	76,071
25-29	68,772	2,120	66,652	6,495	60,157	928	65,724
30-34	44,359	1,332	43,027	4,859	38,168	750	42,277
35 and Older	28,258	766	27,492	3,657	23,835	563	26,929
<b>RACE/ETHNICITY OF MOTHER</b>							
White	37,370	1,310	36,060	3,441	32,619	515	35,545
African American	18,719	776	17,943	2,639	15,304	557	17,386
Hispanic	176,629	5,311	171,318	17,288	154,030	2,448	168,870
Asian	13,946	387	13,559	1,335	12,224	158	13,401
Hawaiian/Pacific Islanders	1,214	42	1,172	158	1,014	31	1,141
American Indian/Alaskan Native	1,159	59	1,100	153	947	14	1,086
Two or more Race Categories	4,228	139	4,089	466	3,623	83	4,006
<i>Others/Unknown</i>	3,107	128	2,979	338	2,641	60	2,919
<b>MOTHER'S NATIVITY</b>							
Foreign Born	121,468	3,024	118,444	11,433	107,011	1,464	116,980
US Born	134,811	5,109	129,702	14,375	115,327	2,397	127,305
<i>Unknown</i>	93	19	74	10	64	5	69
<b>MOTHER'S EDUCATION STATUS</b>							
<High School	98,560	3,053	95,507	10,300	85,207	1,458	94,049
High School Graduate	84,114	2,767	81,347	8,363	72,984	1,219	80,128
Some College or Associate Degree	54,620	1,644	52,976	5,440	47,536	910	52,066
Bachelor's Degree or Higher	10,682	262	10,420	867	9,553	133	10,287
<i>Unknown</i>	8,396	426	7,970	848	7,122	146	7,824
<b>PARITY STATUS</b>							
First Born	90,835	2,485	88,350	7,977	80,373	1,321	87,029
One Previous Birth	72,833	2,381	70,452	6,916	63,536	963	69,489
Two+ Previous Births	92,490	3,179	89,311	10,907	78,404	1,577	87,734
<i>Unknown or Unreported</i>	214	107	107	18	89	5	102
<b>SINGLE/MULTI BIRTH</b>							
Multiple Birth	5,576	164	5,412	3,102	2,310	641	4,771
Singleton	250,796	7,988	242,808	22,716	220,092	3,225	239,583
<b>TOTAL BIRTHS<sup>2</sup></b>	<b>256,372</b>	<b>8,152</b>	<b>248,220</b>	<b>25,818</b>	<b>222,402</b>	<b>3,866</b>	<b>244,354</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,152) are missing this data element.

<sup>2</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 7b. Gestational Age Among **Medi-Cal** Births, by Select Comorbidities  
California Resident Hospital Births, 2010

MATERNAL AND BIRTH CHARACTERISTICS	Total	Out of Range /Missing	Total (Excluding Out of Range)	Gestation <sup>1</sup> (Excluding Out of Range)		Very Preterm Status (<32 wks gestation) <sup>1</sup> (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
<b>HYPERTENSION<sup>2</sup></b>							
Hypertension	18,386	659	17,727	4,153	13,574	752	16,975
No Hypertension Diagnosis	237,427	7,463	229,964	21,587	208,377	3,100	226,864
Unknown	559	30	529	78	451	14	515
<b>DIABETES<sup>2</sup></b>							
Diabetes	19,841	590	19,251	2,813	16,438	378	18,873
No Diabetes Diagnosis	235,972	7,532	228,440	22,927	205,513	3,474	224,966
Unknown	559	30	529	78	451	14	515
<b>SUBSTANCE USE<sup>2</sup></b>							
Maternal Substance User	4,498	308	4,190	784	3,406	170	4,020
Maternal Non-Substance User	251,315	7,814	243,501	24,956	218,545	3,682	239,819
Unknown	559	30	529	78	451	14	515
<b>SMOKING DURING PREGNANCY<sup>5</sup></b>							
Maternal Smoker	8,842	417	8,425	1,123	7,302	195	8,230
Maternal Non-Smoker	244,315	7,309	237,006	24,317	212,689	3,597	233,409
Unknown	3,215	426	2,789	378	2,411	74	2,715
<b>PRE-PREGNANCY WEIGHT<sup>3</sup></b>							
Underweight	8,904	275	8,629	942	7,687	133	8,496
Normal Weight	101,798	2,529	99,269	9,232	90,037	1,223	98,046
Overweight	66,111	1,714	64,397	6,210	58,187	870	63,527
Obese/Extremely Obese	59,080	1,828	57,252	5,940	51,312	959	56,293
Out of Range/Unknown	20,479	1,806	18,673	3,494	15,179	681	17,992
<b>TOTAL BIRTHS<sup>4</sup></b>	<b>256,372</b>	<b>8,152</b>	<b>248,220</b>	<b>25,818</b>	<b>222,402</b>	<b>3,866</b>	<b>244,354</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,152) are missing this data element.

<sup>2</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>3</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>4</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>5</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 7c. Gestational Age Among **Non-Medi-Cal** Births, by Select Maternal and Birth Characteristics  
California Resident Births, 2010

MATERNAL AND BIRTH CHARACTERISTICS	Total	Out of Range /Missing	Total (Excluding Out of Range)	Gestation <sup>1</sup> (Excluding Out of Range)		Very Preterm Status (<32 wks gestation) <sup>1</sup> (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
<b>AGE OF MOTHER</b>							
Age ≤17	3,373	176	3,197	403	2,794	82	3,115
18-19	4,853	190	4,663	506	4,157	116	4,547
20-24	27,201	909	26,292	2,476	23,816	403	25,889
25-29	66,760	2,004	64,756	5,291	59,465	785	63,971
30-34	83,003	2,027	80,976	7,174	73,802	1,021	79,955
35 and Older	63,662	1,537	62,125	7,456	54,669	996	61,129
Invalid	35	15	20	10	10	2	18
<b>RACE/ETHNICITY OF MOTHER</b>							
White	100,351	2,394	97,957	8,763	89,194	1,175	96,782
African American	8,804	276	8,528	1,159	7,369	239	8,289
Hispanic	79,759	2,717	77,042	7,828	69,214	1,239	75,803
Asian	46,482	910	45,572	4,044	41,528	495	45,077
Hawaiian/Pacific Islanders	1,015	23	992	106	886	18	974
American Indian/Alaskan Native	696	16	680	79	601	17	663
Two or more Race Categories	5,881	133	5,748	538	5,210	80	5,668
Others/Unknown	5,899	389	5,510	799	4,711	142	5,368
<b>MOTHER'S NATIVITY</b>							
Foreign Born	87,518	2,194	85,324	8,079	77,245	1,133	84,191
US Born	161,218	4,631	156,587	15,216	141,371	2,266	154,321
Unknown	151	33	118	21	97	6	112
<b>MOTHER'S EDUCATION STATUS</b>							
<High School	17,546	723	16,823	2,082	14,741	374	16,449
High School Graduate	43,565	1,462	42,103	4,210	37,893	666	41,437
Some College or Associate Degree	64,746	1,861	62,885	6,175	56,710	950	61,935
Bachelor's Degree or Higher	113,739	2,258	111,481	9,709	101,772	1,203	110,278
Unknown	9,291	554	8,737	1,140	7,597	212	8,525
<b>PARITY STATUS</b>							
First Born	107,299	2,405	104,894	9,278	95,616	1,475	103,419
One Previous Birth	84,973	2,238	82,735	7,503	75,232	989	81,746
Two+ Previous Births	56,292	1,981	54,311	6,524	47,787	940	53,371
Unknown or Unreported	323	234	89	11	78	1	88
<b>SINGLE/MULTI BIRTH</b>							
Multiple Birth	10,273	351	9,922	5,504	4,418	1,011	8,911
Singleton	238,614	6,507	232,107	17,812	214,295	2,394	229,713
<b>TOTAL BIRTHS<sup>2</sup></b>	<b>248,887</b>	<b>6,858</b>	<b>242,029</b>	<b>23,316</b>	<b>218,713</b>	<b>3,405</b>	<b>238,624</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=6,858) are missing this data element.

<sup>2</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Table 7d. Gestational Age Among **Non-Medi-Cal** Births, by Select Comorbidities  
California Resident Births, 2010

MATERNAL AND BIRTH CHARACTERISTICS	Total	Out of Range /Missing	Total (Excluding Out of Range)	Gestation <sup>1</sup> (Excluding Out of Range)		Very Preterm Status (<32 wks gestation) <sup>1</sup> (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
<b>HYPERTENSION<sup>2</sup></b>							
Hypertension	16,492	500	15,992	4,054	11,938	610	15,382
No Hypertension Diagnosis	210,346	5,720	204,626	16,487	188,139	2,200	202,426
Unknown	22,049	638	21,411	2,775	18,636	595	20,816
<b>DIABETES<sup>2</sup></b>							
Diabetes	19,716	605	19,111	2,684	16,427	361	18,750
No Diabetes Diagnosis	207,122	5,615	201,507	17,857	183,650	2,449	199,058
Unknown	22,049	638	21,411	2,775	18,636	595	20,816
<b>SUBSTANCE USE<sup>2</sup></b>							
Maternal Substance User	1,071	80	991	183	808	35	956
Maternal Non-Substance User	225,767	6,140	219,627	20,358	199,269	2,775	216,852
Unknown	22,049	638	21,411	2,775	18,636	595	20,816
<b>SMOKING DURING PREGNANCY<sup>5</sup></b>							
Maternal Smoker	2,258	107	2,151	289	1,862	63	2,088
Maternal Non-Smoker	223,032	5,727	217,305	20,115	197,190	2,733	214,572
Unknown	23,597	1,024	22,573	2,912	19,661	609	21,964
<b>PRE-PREGNANCY WEIGHT<sup>3</sup></b>							
Underweight	8,717	190	8,527	757	7,770	80	8,447
Normal Weight	117,814	2,376	115,438	8,886	106,552	1,059	114,379
Overweight	49,274	1,212	48,062	4,090	43,972	509	47,553
Obese/Extremely Obese	34,504	1,026	33,478	3,218	30,260	526	32,952
Out of Range/Unknown	38,578	2,054	36,524	6,365	30,159	1,231	35,293
<b>TOTAL BIRTHS<sup>4</sup></b>	<b>248,887</b>	<b>6,858</b>	<b>242,029</b>	<b>23,316</b>	<b>218,713</b>	<b>3,405</b>	<b>238,624</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=6,858) are missing this data element.

<sup>2</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>3</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>4</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>5</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 8a. **Medi-Cal** Births by Aid Category and Select Birth Characteristics  
California Resident Births, 2010

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/ Foster Care	Blind/Disabled	All Others	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
<b>METHOD OF DELIVERY</b>								
Cesarean-Primary	42,285	161	924	41	21,073	1,144	7,210	11,732
Cesarean-Repeat	40,564	19	825	23	19,447	75	4,744	15,431
Vaginal	171,974	566	2,423	140	84,533	4,387	25,288	54,637
Vaginal After Previous Cesarean	1,549	1	22	1	691	4	215	615
<b>PRENATAL CARE INITIATION</b>								
No Prenatal Care	1,532	8	58	5	1,096	23	89	253
First Trimester	193,429	507	3,008	145	91,053	3,849	29,269	65,598
Second Trimester	45,618	151	776	36	24,633	1,309	6,377	12,336
Third Trimester	9,878	40	158	15	5,563	313	1,084	2,705
Unknown or Unreported	5,915	41	194	4	3,399	116	638	1,523
<b>BIRTHWEIGHT</b>								
Low Birthweight	17,095	48	555	16	9,417	388	2,295	4,376
Normal Birth Weight	239,256	699	3,638	189	116,316	5,221	35,159	78,034
Out-of-Range	21	0	1	0	11	1	3	5
<b>VERY LOW BIRTHWEIGHT STATUS</b>								
Very Low Birthweight-NO	253,514	737	4,082	204	124,163	5,539	37,048	81,741
Very Low Birthweight-YES	2,838	10	111	1	1,571	70	406	669
Out-of-Range	20	0	1	0	10	1	3	5
<b>GESTATION<sup>1</sup></b>								
Preterm Delivery (<37 Weeks)	25,818	65	673	29	13,590	541	3,333	7,587
Normal Range	222,402	638	3,260	169	107,450	4,896	33,171	72,818
Out-of-Range/Missing	8,152	44	261	7	4,704	173	953	2,010
<b>VERY PRETERM STATUS<sup>1</sup></b>								
Very Preterm Delivery-Yes (<32 Weeks)	3,866	11	128	5	2,168	85	509	960
Very Preterm Delivery-No	244,354	692	3,805	193	118,872	5,352	35,995	79,445
Out-of-Range/Missing	8,152	44	261	7	4,704	173	953	2,010
<b>TOTAL BIRTHS<sup>2</sup></b>	<b>256,372</b>	<b>747</b>	<b>4,194</b>	<b>205</b>	<b>125,744</b>	<b>5,610</b>	<b>37,457</b>	<b>82,415</b>

<sup>1</sup>Gestational age of infant and preterm status are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,152) are missing this data element.

<sup>2</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

This table contains corrections for *PRENATAL CARE INITIATION*. Persons who began prenatal care in the 9th month were erroneously included in "Unknown or Unreported". Revision as of 09/18/2014.

Table 8b. **Medi-Cal** Births by Aid Category and Select Comorbidities  
California Resident Hospital Births, 2010

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/Foster Care	Blind/Disabled	All Others	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
<b>HYPERTENSION<sup>1</sup></b>								
Hypertension	18,386	58	527	17	9,856	467	2,819	4,642
No Hypertension Diagnosis	237,427	688	3,659	187	115,357	5,130	34,633	77,773
<i>Unknown</i>	559	1	8	1	531	13	5	0
<b>DIABETES<sup>1</sup></b>								
Diabetes	19,841	14	404	6	8,070	120	2,935	8,292
No Diabetes Diagnosis	235,972	732	3,782	198	117,143	5,477	34,517	74,123
<i>Unknown</i>	559	1	8	1	531	13	5	0
<b>SUBSTANCE USE<sup>1</sup></b>								
Maternal Substance User	4,498	33	279	2	3,624	41	329	190
Maternal Non-Substance User	251,315	713	3,907	202	121,589	5,556	37,123	82,225
<i>Unknown</i>	559	1	8	1	531	13	5	0
<b>SMOKING DURING PREGNANCY<sup>4</sup></b>								
Maternal Smoker	8,842	34	498	9	7,057	90	885	269
Maternal Non-Smoker	244,315	700	3,615	193	116,678	5,476	36,273	81,380
<i>Unknown</i>	3,215	13	81	3	2,009	44	299	766
<b>PRE-PREGNANCY WEIGHT<sup>2</sup></b>								
Underweight	8,904	40	163	11	4,919	378	1,407	1,986
Normal Weight	101,798	402	1,387	98	48,870	3,044	15,842	32,155
Overweight	66,111	155	955	38	29,956	1,165	9,227	24,615
Obese/Extremely Obese	59,080	92	1,229	38	31,712	700	8,600	16,709
<i>Out of Range/Unknown</i>	20,479	58	460	20	10,287	323	2,381	6,950
<b>TOTAL BIRTHS<sup>3</sup></b>	<b>256,372</b>	<b>747</b>	<b>4,194</b>	<b>205</b>	<b>125,744</b>	<b>5,610</b>	<b>37,457</b>	<b>82,415</b>

<sup>1</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>2</sup>Pre-pregnancy weight as reported on the birth certificate has been categorized into 4 weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

<sup>3</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>4</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 9a. Medi-Cal Births by Beneficiary County and Maternal Race/Ethnicity  
California Resident Hospital Births, 2010

BENEFICIARY COUNTY	Total	Race/Ethnicity of Mother							
		White	African American	Hispanic	Asian	Hawaiian/Pacific Islanders	American Indian/Alaskan Native	Two or More Race Categories	Others/Unknown
Alameda	7,374	848	1,587	3,592	945	109	23	157	113
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	127	85	Suppressed	34	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Butte	1,501	860	21	356	133	Suppressed	30	92	Suppressed
Calaveras	200	147	Suppressed	40	Suppressed	Suppressed	Suppressed	11	Suppressed
Colusa	214	31	Suppressed	174	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Contra Costa	4,559	721	688	2,608	286	Suppressed	Suppressed	145	58
Del Norte	286	153	Suppressed	63	13	Suppressed	27	30	Suppressed
El Dorado	669	396	Suppressed	234	15	Suppressed	Suppressed	Suppressed	Suppressed
Fresno	11,498	1,417	695	7,971	1,109	Suppressed	92	118	Suppressed
Glenn	300	99	Suppressed	179	11	Suppressed	Suppressed	Suppressed	Suppressed
Humboldt	880	547	Suppressed	120	21	Suppressed	88	84	12
Imperial	1,910	83	17	1,789	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,362	1,843	646	6,519	140	Suppressed	Suppressed	84	73
Kings	1,347	207	49	1,031	22	Suppressed	Suppressed	25	Suppressed
Lake	490	284	Suppressed	147	Suppressed	Suppressed	20	23	Suppressed
Lassen	175	118	Suppressed	26	Suppressed	Suppressed	Suppressed	13	Suppressed
Los Angeles	74,862	4,657	7,136	58,408	3,285	230	103	651	392
Madera	1,759	247	27	1,425	12	Suppressed	21	18	Suppressed
Marin	702	119	27	504	33	Suppressed	Suppressed	Suppressed	Suppressed
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	767	311	Suppressed	348	Suppressed	Suppressed	63	20	12
Merced	2,980	524	91	2,123	192	Suppressed	Suppressed	31	Suppressed
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,207	232	50	3,784	74	Suppressed	Suppressed	51	Suppressed
Napa	653	119	Suppressed	500	11	Suppressed	Suppressed	Suppressed	Suppressed
Nevada	352	226	Suppressed	94	Suppressed	Suppressed	Suppressed	19	Suppressed
Orange	16,301	1,856	178	12,748	1,180	73	17	136	113
Placer	1,002	591	13	320	27	Suppressed	Suppressed	37	Suppressed
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,389	2,669	956	11,893	340	53	55	304	119
Sacramento	10,029	2,772	1,565	3,667	1,276	168	62	479	40
San Benito	411	39	Suppressed	358	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
San Bernardino	17,457	3,021	1,921	11,709	352	75	56	288	35
San Diego	15,729	2,433	997	10,152	711	103	51	380	902
San Francisco	2,758	292	339	1,227	782	38	Suppressed	57	Suppressed
San Joaquin	6,282	997	558	3,734	775	Suppressed	26	165	Suppressed
San Luis Obispo	1,281	490	Suppressed	714	17	Suppressed	Suppressed	30	22
San Mateo	2,520	204	70	1,293	255	85	Suppressed	Suppressed	576
Santa Barbara	3,309	318	27	2,866	31	Suppressed	Suppressed	50	Suppressed
Santa Clara	7,798	634	246	5,447	960	51	23	100	337
Santa Cruz	1,692	275	Suppressed	1,357	23	Suppressed	Suppressed	13	Suppressed
Shasta	1,285	962	20	145	43	Suppressed	73	33	Suppressed
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	237	164	Suppressed	36	Suppressed	Suppressed	21	11	Suppressed
Solano	2,059	424	395	908	145	30	Suppressed	124	Suppressed
Sonoma	2,376	631	39	1,521	51	Suppressed	Suppressed	63	34
Stanislaus	4,743	1,202	119	3,056	178	29	12	119	28
Sutter	699	219	12	367	85	Suppressed	Suppressed	Suppressed	Suppressed
Tehama	608	334	Suppressed	232	Suppressed	Suppressed	14	15	Suppressed
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,138	877	67	4,923	156	Suppressed	47	51	Suppressed
Tuolumne	269	202	Suppressed	46	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Ventura	5,590	616	55	4,782	72	Suppressed	Suppressed	48	Suppressed
Yolo	1,050	306	26	613	73	Suppressed	Suppressed	11	12
Yuba	584	258	Suppressed	230	55	Suppressed	Suppressed	25	Suppressed
Invalid County Code	119	11	10	92	3	1	1	0	1
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>37,370</b>	<b>18,719</b>	<b>176,629</b>	<b>13,946</b>	<b>1,214</b>	<b>1,159</b>	<b>4,228</b>	<b>3,107</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaries and a complementary cell within that row.

Table 9b. **Medi-Cal Births by Beneficiary County and Maternal Age**  
California Resident Hospital Births, 2010

BENEFICIARY COUNTY	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Alameda	7,374	215	632	2,100	2,073	1,430	924
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	127	Suppressed	Suppressed	59	26	20	11
Butte	1,501	43	148	552	436	220	102
Calaveras	200	Suppressed	24	70	59	29	Suppressed
Colusa	214	Suppressed	19	59	61	49	Suppressed
Contra Costa	4,559	168	413	1,384	1,273	811	510
Del Norte	286	16	42	93	87	35	13
El Dorado	669	17	65	213	196	113	65
Fresno	11,498	575	1,256	3,749	3,051	1,781	1,086
Glenn	300	13	29	93	82	57	26
Humboldt	880	19	86	293	247	161	74
Imperial	1,910	92	231	698	481	268	140
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,362	503	1,214	3,251	2,276	1,315	803
Kings	1,347	74	153	469	352	208	91
Lake	490	20	58	172	140	72	28
Lassen	175	Suppressed	21	74	36	20	Suppressed
Los Angeles	74,862	2,944	6,854	22,193	19,805	13,902	9,164
Madera	1,759	93	195	565	452	293	161
Marin	702	26	43	183	196	159	95
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	767	20	78	246	234	123	66
Merced	2,980	131	311	972	821	475	270
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,207	228	437	1,280	1,128	702	432
Napa	653	23	50	165	198	126	91
Nevada	352	12	26	124	88	67	35
Orange	16,301	594	1,336	4,632	4,417	3,112	2,210
Placer	1,002	26	73	325	313	166	99
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,389	652	1,651	5,349	4,325	2,721	1,691
Sacramento	10,029	304	970	3,359	2,833	1,596	967
San Benito	411	Suppressed	Suppressed	145	122	65	46
San Bernardino	17,457	748	1,977	6,068	4,459	2,624	1,581
San Diego	15,729	678	1,525	4,805	4,272	2,747	1,702
San Francisco	2,758	48	164	641	800	619	486
San Joaquin	6,282	239	650	2,102	1,696	1,006	589
San Luis Obispo	1,281	49	123	389	338	239	143
San Mateo	2,520	73	165	710	717	504	351
Santa Barbara	3,309	166	364	1,005	887	539	348
Santa Clara	7,798	303	624	2,151	2,167	1,518	1,035
Santa Cruz	1,692	68	133	501	495	301	194
Shasta	1,285	43	124	496	366	177	79
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	237	Suppressed	29	100	58	Suppressed	21
Solano	2,059	80	191	650	573	369	196
Sonoma	2,376	75	200	679	682	450	290
Stanislaus	4,743	192	506	1,622	1,245	724	454
Sutter	699	27	45	231	214	114	68
Tehama	608	24	74	245	152	81	32
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,138	321	695	2,017	1,627	887	591
Tuolumne	269	Suppressed	Suppressed	109	80	34	22
Ventura	5,590	236	574	1,662	1,546	955	617
Yolo	1,050	42	84	335	266	196	127
Yuba	584	29	74	206	152	84	39
Invalid County Code	119	12	17	48	27	8	7
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>10,321</b>	<b>24,856</b>	<b>79,806</b>	<b>68,772</b>	<b>44,359</b>	<b>28,258</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaries and a complementary cell within that row.

Table 9c - Medi-Cal Births by Beneficiary County and Aid Category  
California Resident Hospital Births, 2010

BENEFICIARY COUNTY	Total	Medi-Cal Aid Category					
		All Others	Blind/ Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Alameda	7,374	25	194	3,848	150	906	2,251
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	127	Suppressed	Suppressed	79	Suppressed	28	15
Butte	1,501	Suppressed	74	988	Suppressed	284	106
Calaveras	200	Suppressed	Suppressed	117	Suppressed	51	16
Colusa	214	Suppressed	Suppressed	73	Suppressed	72	61
Contra Costa	4,559	14	141	2,164	97	658	1,485
Del Norte	286	Suppressed	12	184	Suppressed	51	28
El Dorado	669	Suppressed	Suppressed	364	25	151	121
Fresno	11,498	40	170	7,302	156	1,274	2,556
Glenn	300	Suppressed	Suppressed	138	Suppressed	62	86
Humboldt	880	Suppressed	37	518	Suppressed	259	43
Imperial	1,910	Suppressed	Suppressed	1,425	33	280	141
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,362	28	254	5,658	171	944	2,307
Kings	1,347	Suppressed	Suppressed	836	36	163	287
Lake	490	Suppressed	18	316	Suppressed	83	57
Lassen	175	Suppressed	Suppressed	119	Suppressed	37	Suppressed
Los Angeles	74,862	295	1,030	35,196	1,473	8,031	28,837
Madera	1,759	Suppressed	Suppressed	812	36	207	677
Marin	702	Suppressed	Suppressed	165	11	64	456
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	767	Suppressed	Suppressed	439	Suppressed	135	172
Merced	2,980	Suppressed	66	1,605	Suppressed	480	784
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,207	Suppressed	Suppressed	1,466	112	451	2,136
Napa	653	Suppressed	Suppressed	214	18	125	290
Nevada	352	Suppressed	Suppressed	184	Suppressed	100	51
Orange	16,301	35	77	5,225	633	2,567	7,764
Placer	1,002	Suppressed	Suppressed	524	25	290	148
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,389	47	228	7,438	421	3,852	4,403
Sacramento	10,029	44	371	6,578	79	1,320	1,637
San Benito	411	Suppressed	Suppressed	206	11	44	145
San Bernardino	17,457	65	318	10,144	451	2,529	3,950
San Diego	15,729	59	186	6,859	443	3,944	4,238
San Francisco	2,758	17	54	1,238	34	517	898
San Joaquin	6,282	13	144	3,690	98	808	1,529
San Luis Obispo	1,281	Suppressed	Suppressed	566	33	297	364
San Mateo	2,520	Suppressed	Suppressed	612	106	450	1,331
Santa Barbara	3,309	Suppressed	Suppressed	1,075	89	482	1,620
Santa Clara	7,798	29	86	3,306	136	1,022	3,219
Santa Cruz	1,692	Suppressed	Suppressed	572	64	299	741
Shasta	1,285	Suppressed	57	891	Suppressed	266	56
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	237	Suppressed	Suppressed	171	Suppressed	44	Suppressed
Solano	2,059	Suppressed	66	1,273	Suppressed	232	469
Sonoma	2,376	Suppressed	Suppressed	813	45	430	1,041
Stanislaus	4,743	Suppressed	76	2,798	Suppressed	762	1,036
Sutter	699	Suppressed	13	389	Suppressed	150	135
Tehama	608	Suppressed	Suppressed	327	27	128	97
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,138	Suppressed	Suppressed	3,503	118	685	1,750
Tuolumne	269	Suppressed	Suppressed	175	Suppressed	75	Suppressed
Ventura	5,590	Suppressed	Suppressed	1,970	163	924	2,472
Yolo	1,050	Suppressed	20	507	Suppressed	254	248
Yuba	584	Suppressed	24	385	Suppressed	86	72
Invalid County Code	119	119	0	0	0	0	0
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>952</b>	<b>4,194</b>	<b>125,744</b>	<b>5,610</b>	<b>37,457</b>	<b>82,415</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaries and a complementary cell within that row.

Table 9d - **Medi-Cal** Births by Beneficiary Region and Maternal Race/Ethnicity  
California Resident Hospital Births, 2010

BENEFICIARY REGION	Total	Race/Ethnicity of Mother							
		White	African American	Hispanic	Asian	Hawaiian/Pacific Islanders	American Indian/Alaskan Native	Two or More Race Categories	Others/Unknown
Bay Area	30,799	3,992	3,398	17,600	3,468	372	107	698	1,164
Central Coast	16,490	1,970	147	13,861	218	18	25	198	53
Central Valley	44,109	7,314	2,252	30,782	2,584	82	254	611	230
Far North	1,635	1,214	Suppressed	192	46	Suppressed	103	49	Suppressed
Los Angeles	74,862	4,657	7,136	58,408	3,285	230	103	651	392
North Coast	2,423	1,295	Suppressed	678	47	Suppressed	198	157	25
Sacramento Valley	14,985	4,879	1,641	5,818	1,642	185	129	636	55
Sierra Range/ Foothills	3,164	1,976	24	907	60	Suppressed	57	118	Suppressed
Southern California	67,786	10,062	4,069	48,291	2,593	305	182	1,110	1,174
invalid Code	119	11	10	92	3	1	1	0	1
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>37,370</b>	<b>18,719</b>	<b>176,629</b>	<b>13,946</b>	<b>1,214</b>	<b>1,159</b>	<b>4,228</b>	<b>3,107</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaries and a complementary cell within that row.

Note: Regions are comprised of the following counties:

Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma

Central Coast: Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura

Central Valley: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

Sacramento Valley: Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, Yuba

Sierra Range/Foothills: Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Mono, Nevada, Placer, Plumas, Sierra, Tuolumne

Southern California: Imperial, Orange, Riverside, San Bernardino, San Diego

Table 9e - **Medi-Cal** Births by Beneficiary Region and Maternal Age  
California Resident Hospital Births, 2010

BENEFICIARY REGION	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Bay Area	30,799	1,011	2,482	8,663	8,679	5,986	3,978
Central Coast	16,490	756	1,655	4,982	4,516	2,801	1,780
Central Valley	44,109	2,128	4,980	14,747	11,520	6,689	4,045
Far North	1,635	58	169	642	455	206	105
Los Angeles	74,862	2,944	6,854	22,193	19,805	13,902	9,164
North Coast	2,423	75	264	804	708	391	181
Sacramento Valley	14,985	491	1,443	5,080	4,196	2,397	1,378
Sierra Range/ Foothills	3,164	82	272	1,095	912	507	296
Southern California	67,786	2,764	6,720	21,552	17,954	11,472	7,324
invalid Code	119	12	17	48	27	8	7
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>10,321</b>	<b>24,856</b>	<b>79,806</b>	<b>68,772</b>	<b>44,359</b>	<b>28,258</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Note: Regions are comprised of the following counties:

Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma

Central Coast: Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura

Central Valley: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

Sacramento Valley: Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, Yuba

Sierra Range/Foothills: Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Mono, Nevada, Placer, Plumas, Sierra, Tuolumne

Southern California: Imperial, Orange, Riverside, San Bernardino, San Diego

Table 9f - **Medi-Cal** Births by Beneficiary Region and Aid Category  
California Resident Hospital Births, 2010

BENEFICIARY REGION	Total	Medi-Cal Aid Category					
		All Others	Blind/Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Bay Area	30,799	105	606	13,633	611	4,404	11,440
Central Coast	16,490	32	156	5,855	472	2,497	7,478
Central Valley	44,109	100	834	26,204	722	5,323	10,926
Far North	1,635	Suppressed	Suppressed	1,154	Suppressed	326	64
Los Angeles	74,862	295	1,030	35,196	1,473	8,031	28,837
North Coast	2,423	17	76	1,457	Suppressed	528	300
Sacramento Valley	14,985	61	536	9,385	205	2,356	2,442
Sierra Range/ Foothills	3,164	Suppressed	Suppressed	1,769	84	820	432
Southern California	67,786	208	838	31,091	1,981	13,172	20,496
Invalid Code	119	119	0	0	0	0	0
<b>TOTAL BIRTHS<sup>1</sup></b>	<b>256,372</b>	<b>952</b>	<b>4,194</b>	<b>125,744</b>	<b>5,610</b>	<b>37,457</b>	<b>82,415</b>

<sup>1</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaries and a complementary cell within that row.

Note: Regions are comprised of the following counties:

Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma

Central Coast: Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura

Central Valley: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

Sacramento Valley: Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, Yuba

Sierra Range/Foothills: Alpine, Amador, Calaveras, El Dorado, Inyo, Lassen, Mariposa, Mono, Nevada, Placer, Plumas, Sierra, Tuolumne

Southern California: Imperial, Orange, Riverside, San Bernardino, San Diego

Table 10. Medi-Cal and Non-Medi-Cal Births by Select Comorbidities and Maternal Race/Ethnicity  
California Resident Births, 2010

COMORBIDITIES	Medi-Cal Births							Non-Medi-Cal Births						
	Total	White	African-American	Hispanic	Asian/Pacific Islander	American Indian/Alaskan Native	Two+ race categories/ Others	Total	White	African-American	Hispanic	Asian/Pacific Islander	American Indian/Alaskan Native	Two+ race categories/ Others
<b>HYPERTENSION<sup>1</sup></b>														
Hypertension	18,386	2,822	2,223	11,616	934	129	662	16,492	6,857	914	5,125	2,692	59	845
No Hypertension Diagnosis	237,427	34,482	16,421	164,667	14,184	1,027	6,646	210,346	86,083	6,396	65,932	42,430	497	9,008
Unknown	559	66	75	346	42	3	27	22,049	7,411	1,494	8,702	2,375	140	1,927
<b>DIABETES<sup>1</sup></b>														
Diabetes	19,841	2,158	983	14,434	1,654	124	488	19,716	5,535	529	6,600	6,175	58	819
No Diabetes Diagnosis	235,972	35,146	17,661	161,849	13,464	1,032	6,820	207,122	87,405	6,781	64,457	38,947	498	9,034
Unknown	559	66	75	346	42	3	27	22,049	7,411	1,494	8,702	2,375	140	1,927
<b>SUBSTANCE USE<sup>1</sup></b>														
Maternal Substance User	4,498	1,686	734	1,603	80	100	295	1,071	485	109	341	37	16	83
Maternal Non-Substance User	251,315	35,618	17,910	174,680	15,038	1,056	7,013	225,767	92,455	7,201	70,716	45,085	540	9,770
Unknown	559	66	75	346	42	3	27	22,049	7,411	1,494	8,702	2,375	140	1,927
<b>SMOKING DURING PREGNANCY<sup>3</sup></b>														
Maternal Smoker	8,842	5,068	1,045	1,748	236	165	580	2,258	1,446	125	328	173	30	156
Maternal Non-Smoker	244,315	31,868	17,226	172,866	14,798	972	6,585	223,032	90,945	7,124	70,173	44,809	520	9,461
Unknown	3,215	434	448	2,015	126	22	170	23,597	7,960	1,555	9,258	2,515	146	2,163
<b>TOTAL BIRTHS<sup>2</sup></b>	<b>256,372</b>	<b>37,370</b>	<b>18,719</b>	<b>176,629</b>	<b>15,160</b>	<b>1,159</b>	<b>7,335</b>	<b>248,887</b>	<b>100,351</b>	<b>8,804</b>	<b>79,759</b>	<b>47,497</b>	<b>696</b>	<b>11,780</b>

<sup>1</sup>Comorbidities such as hypertension, diabetes and substance use have been identified in the hospital discharge data using ICD-9 diagnostic codes in up to 25 separate fields. ICD-9 codes were further grouped into clinically relevant classifications using the Clinical Classification Software (CCS) made available by the Agency for Health Care Research & Quality (AHRQ).

<sup>2</sup>Total Births = Births in Hospital Only. DHCS identified a total of 505,259 births to California mothers in 2010 occurring in a hospital setting.

<sup>3</sup>Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.