2008 Medi-Cal Birth Statistics

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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.

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EXECUTIVE SUMMARY

In 2008, nearly 12% of all hospitalizations in the U.S. were for maternity care, and an additional 11.0% were for care of newborns. [1] 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. [2]

During calendar year 2008, 8.5 million Californians were eligible for Medi-Cal for at least one month. [3] Of these beneficiaries, 22.8%, or 1.9 million, were women between the ages of 15 and 44.

From 2002 to 2007, the U.S. general fertility rate (GFR) increased 7.3%, with a mean increase of 1.5% per year. Following this peak in 2007, however, the GFR began to fall, resulting in a decline of 1.3% by 2008.[4] 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.[5]

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.[6,7,8]

The 2008 Medi-Cal Birth Statistics Report presents the descriptive statistics for 2008 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 more common among those participating in managed care than FFS. 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 2007 through 2008, the number of hospital deliveries to Medi-Cal mothers declined by over 3,000 deliveries, or 1.1%.

Health Delivery System Participation

- In 2008, the Medi-Cal program financed 48.6% of all births to resident Californians occurring in a hospital setting (Figure 1). Of the 265,261 births financed by Medi-Cal, 70.1% were to mothers participating in the FFS delivery system and 29.9% were to mothers participating in the managed care delivery system.

Maternal Demographics

- **Age**: The mean maternal age for Medi-Cal financed births was 25.8 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.3 years (median = 30 years). Medi-Cal financed 77.4% 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 (71.0%). The proportion of African-American mothers participating in Medi-Cal managed care was roughly four times higher than non-Medi-Cal funding sources and Medi-Cal's FFS program. African-American mothers constituted 14.8% of Medi-Cal's managed care participants, but only 3.7% 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, 44.8% had less than a high school education, 33.7% had a high school diploma, 18.1% had some college, and 3.5% had a college degree. Conversely, only 9.7% of non-Medi-Cal mothers had less than a high school education, 20.9% had a high school diploma, 26.9% had some college, and 42.5% attained a college degree.
- **Nativity**: Among Medi-Cal financed births, 47.7% were to U.S.-born mothers and 52.3% were to foreign-born mothers. Among non-Medi-Cal financed births, 62.3% were to U.S.-born mothers, and 37.7% to foreign-born mothers. Foreign-born mothers made up 65.9% of mothers who participated in Medi-Cal FFS program, but only 20.4% of the 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, 35.9% were first time mothers, 28.3% had one previous birth, and 35.7% had two or more previous births. Among non-Medi-Cal mothers, 42.2% were first-time mothers, 33.7% had one previous birth, and 24.1% 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 76.4%. In

contrast, 90.9% of mothers with private insurance initiated prenatal care in the first trimester of pregnancy. Among Medi-Cal mothers, 75.6% of those participating in managed care, and 76.7% 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 Medi-Cal financed births, the overall percent of deliveries via the cesarean section method was 31.7%, and highest among privately insured births at 34.1%. The primary cesarean section rate was lower among Medi-Cal births (16.6%) than non-Medi-Cal births (20.4%).

Maternal Comorbidities and Health Behaviors

- **Hypertension**: The prevalence of hypertension was similar among Medi-Cal mothers (6.6%) and non-Medi-Cal mothers (6.9%). 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 8.0%, slightly higher than the prevalence among Medi-Cal mothers (7.1%).
- **Smoking**: Among Medi-Cal managed care mothers, 5.5% smoked during pregnancy, compared to 2.9% among mothers who participated in the FFS delivery system. Mothers with births not financed by Medi-Cal had a smoking prevalence of 1.2%, while the overall frequency of smoking among Medi-Cal mothers was 3.7%. Mothers who smoked were more likely to have a low birthweight outcome than those who did not smoke.
- **Substance Use**: Substance use was over three times higher among Medi-Cal mothers than non-Medi-Cal mothers (1.6% vs. 0.5%), and more common among mothers who participated in Medi-Cal managed care (2.6%). There was a substantial increase in the percentage of low-birthweight births among mothers who engaged in substance abuse during their pregnancy.
- **Pre-Pregnancy Weight**: Among Medi-Cal mothers, 51.7% had a pre-pregnancy weight considered overweight or obese, compared to only 39.7% of non-Medi-Cal mothers. Medi-Cal mothers enrolled in Blind/Disabled aid codes had pre-pregnancy overweight/obesity rates of 57.2%, whereas 52.6% 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 7.0% 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 very low birthweight births was equal to or 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 11.2%, while the percent among non-Medi-Cal births was 10.2%. 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 (10.2%) than singleton non-Medi-Cal births (8.2%).
- **Very Preterm Births (<32 weeks of gestation)**: The percent of very preterm births among Medi-Cal births was 1.6%, while the percent among non-Medi-Cal births 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 very preterm birth to 1.8%. Very preterm delivery percentages were slightly similar among births financed by Medi-Cal's FFS delivery system (1.6%) and its managed care delivery system (1.7%).

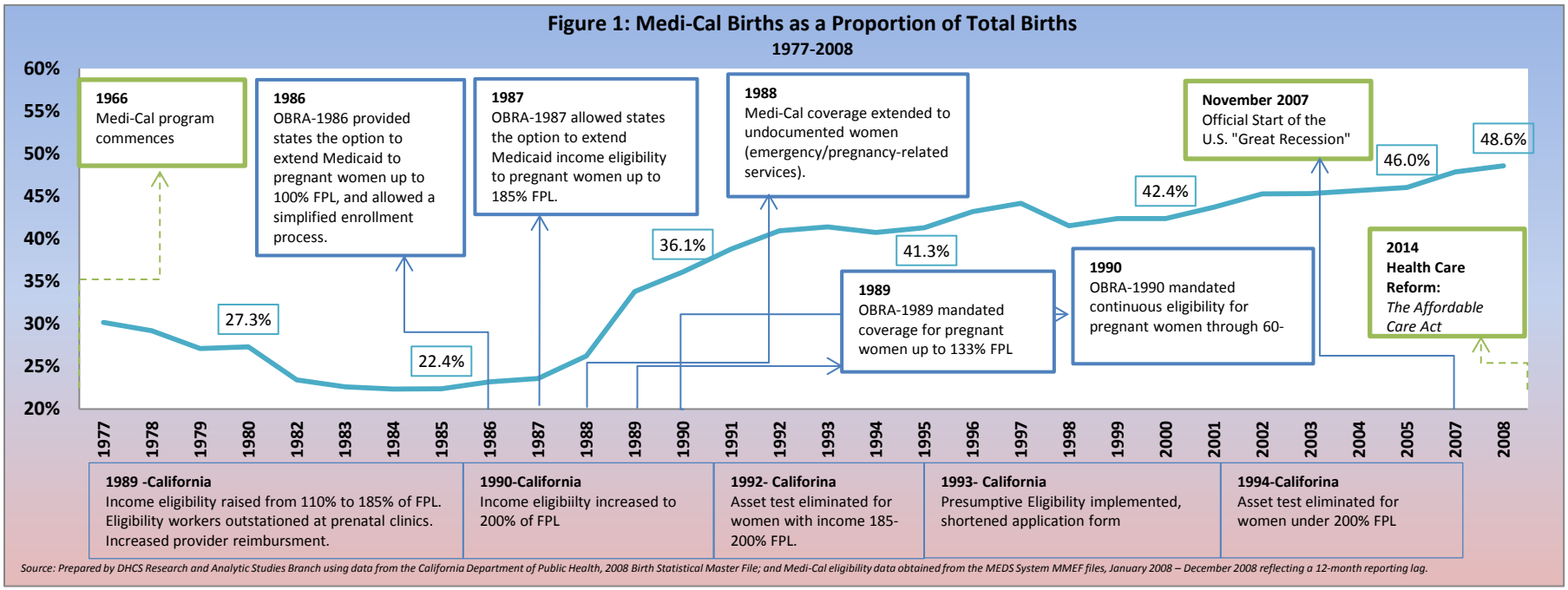
MEDI-CAL PROGRAM BACKGROUND

Medi-Cal provides comprehensive health care services at no cost or low cost for low-income individuals.[9] 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, and 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 financer of maternal and child health care services nationwide. Nationally, the Medicaid program financed approximately 1.7 million births, or 40.5% of births, in 2008.[10] In the same year, Medi-Cal financed 48.6% of all resident births 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),[11]
- 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 nursing home services.

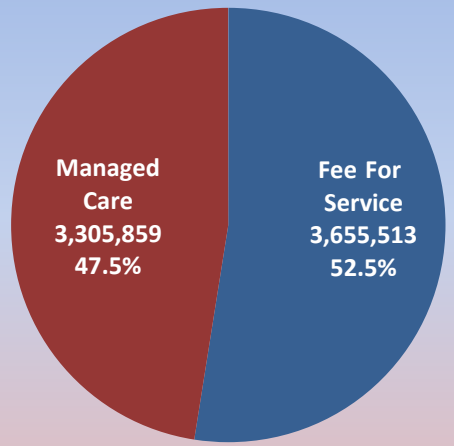
An "eligibility pathway" is the method by which a beneficiary qualifies for Medi-Cal. The state frequently determines a beneficiary's eligibility pathway by income relative to the federal poverty level (FPL), but resources, health, age, and disability status are also factors in eligibility determinations. 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,[12] or those enrolled in special programs like the Tuberculosis Program[13] 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.[14,15]

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.

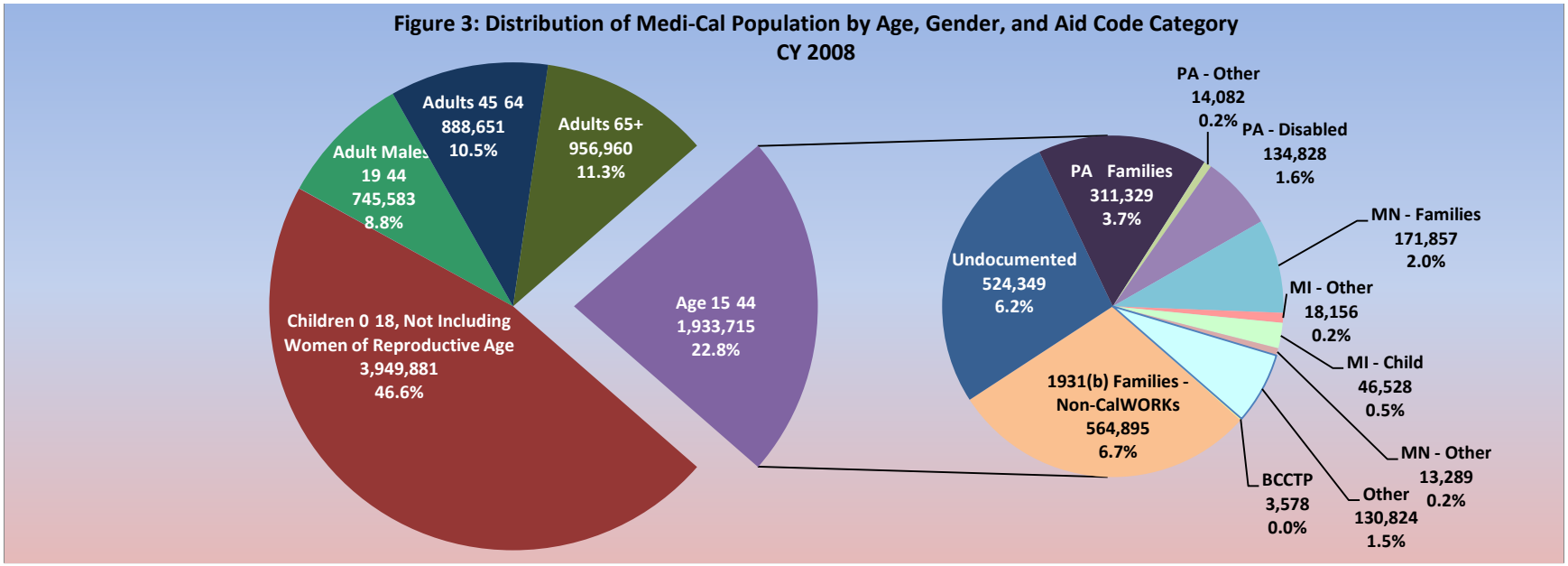
Figure 2: Distribution of Medi-Cal Certified Eligibles by Service Delivery System
July 2008



Source: Prepared by DHCS Research and Analytic Studies Division using data from the California Department of Public Health, 2008 Birth Statistical Master File; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

The second delivery system is Medi-Cal managed care. In 2008, roughly 50% 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, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2011 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Medi-Cal's Population

During calendar year 2008, 8.5 million Californians were eligible for Medi-Cal for at least one month. Women between the ages of 15 and 44 made up 22.8% 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 an 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.[16] 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 the 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 response to a few income and residency questions.[17] 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.[18] Women who apply for Medi-Cal coverage or CalWORKs during the PE period will receive another 60 days of PE coverage.[19] The PE program covers all ambulatory prenatal care services,[20] but does not cover the costs of delivery, family planning, or induced abortion procedures.[21]

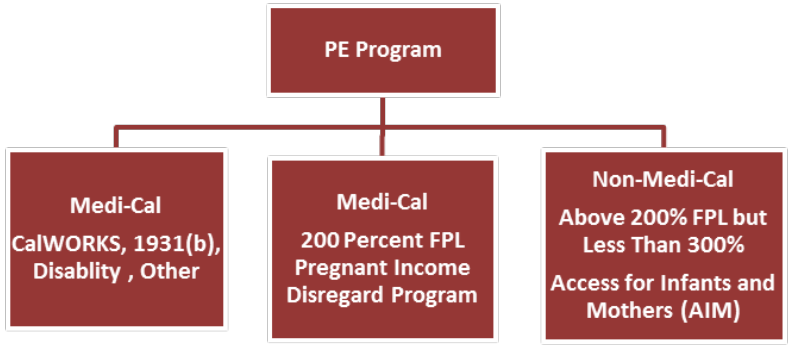
When Medi-Cal deems a pregnant woman with PE coverage eligible, she transfers into the Medi-Cal pathway that best reflects her eligibility

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.[22] 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):[23] 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.[24,25] 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.[26] 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.[27,28,29,30]

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.[31] By transferring from a restricted-scope program to a full-scope program, an eligible woman can receive all services contained within the State Plan, which includes 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.[32] 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.[33]

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.[34] 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. 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 a MN or MI program when they were pregnant may enroll in this program to receive postpartum care without an SOC obligation.[35]

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).[36] 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 can be provided by 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.[37] 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.[38] 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.[39] 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.[40]

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 programs 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 2008 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 that 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 2008 Birth Statistical Master File maintained by the California Department of Public Health (CDPH), 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, 2008 through December 31, 2008, and containing a delivery diagnosis code were used to confirm birth certificate records for women giving birth in 2008 financed by 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 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 546,250 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 546,250 records 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 Payment Source. Medi-Cal FFS and Medi-Cal managed care births account for 34.0% and 14.5%, 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 account for 42.6%. 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 23,340 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 the hospital delivery were identified using the Clinical Classification Software (CCS) available from the Agency for Healthcare Research and Quality (AHRQ).[41] 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.[42]

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 abuse, 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 financers 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.[43] 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.[44]

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 also 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 from 6.7% to 6.8%, the very low birthweight percent would rise from 1.1% to 1.2%, the preterm birth percent would increase from 11.2% to 11.4%, and the very preterm birth percent would rise from 1.6% to 1.7%. 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 13.9%. Similarly, 12.4% of mothers age 17 and younger had a preterm birth outcome, but this age group represented only 4.7% 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,
- Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge.[45]

FINDINGS

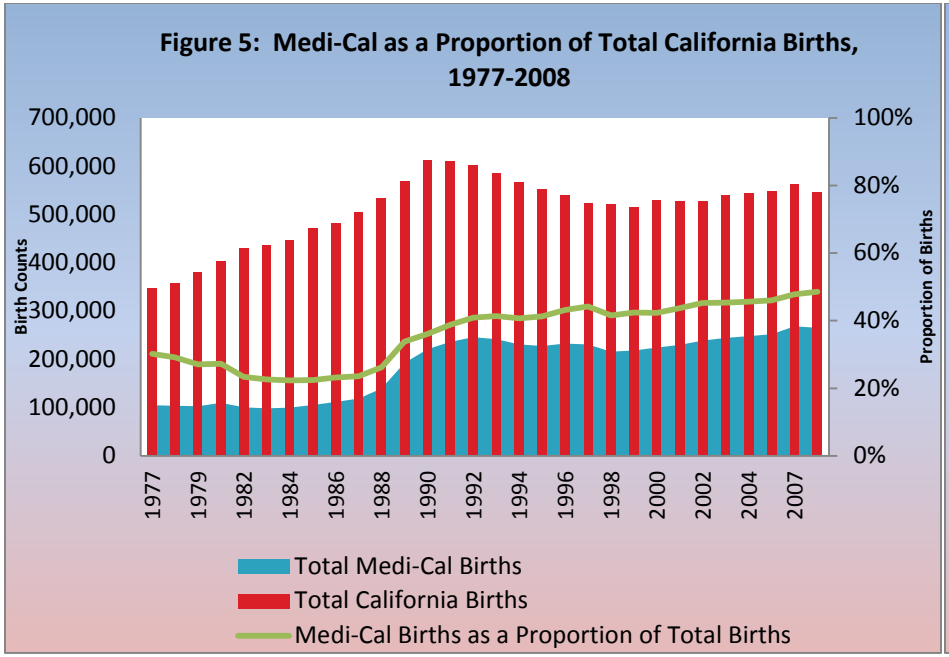
National and California Fertility Trends

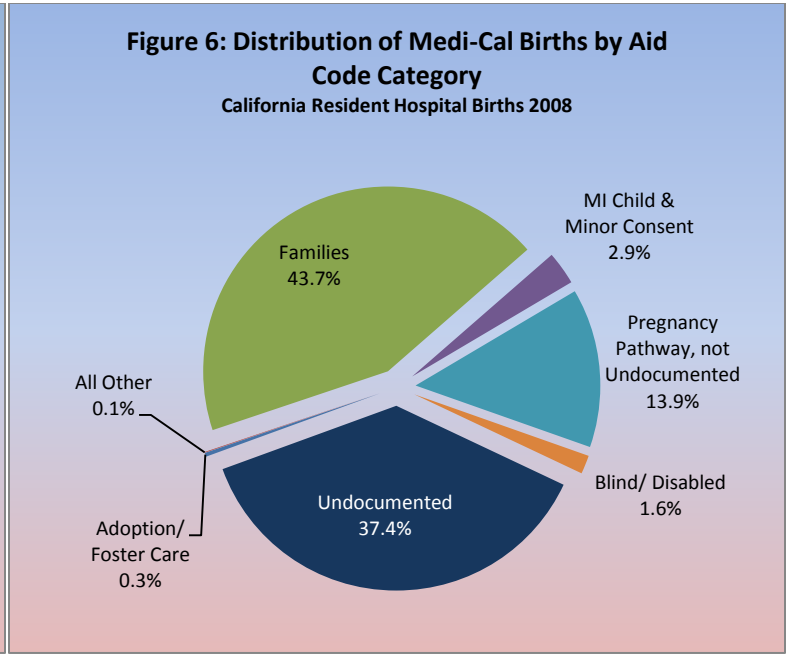
The U.S. general fertility rate (GFR) in 2008 was 68.6 births per 1,000 women of childbearing age (age 15-44), a 1.3% decline from 2007 (69.5 births per 1,000 women of childbearing age).[46] In California, fertility rates decreased from 71.3 in 2007 to 69.0 in 2008.[47] Although slightly higher than the national rate, the California GFR represented a 2.1% decline from 2007.[48]

Medi-Cal Population Statistics

Medi-Cal as Percent of Total California Births: In 2008, Medi-Cal financed 48.6% of hospital births to California residents (Figure 5). Medi-Cal represented 265,261 of the total 546,250 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 Medi-Cal financed births were to mothers without SIS (37.4%) and mothers enrolled in Families aid codes (43.7%) (Figure 6).

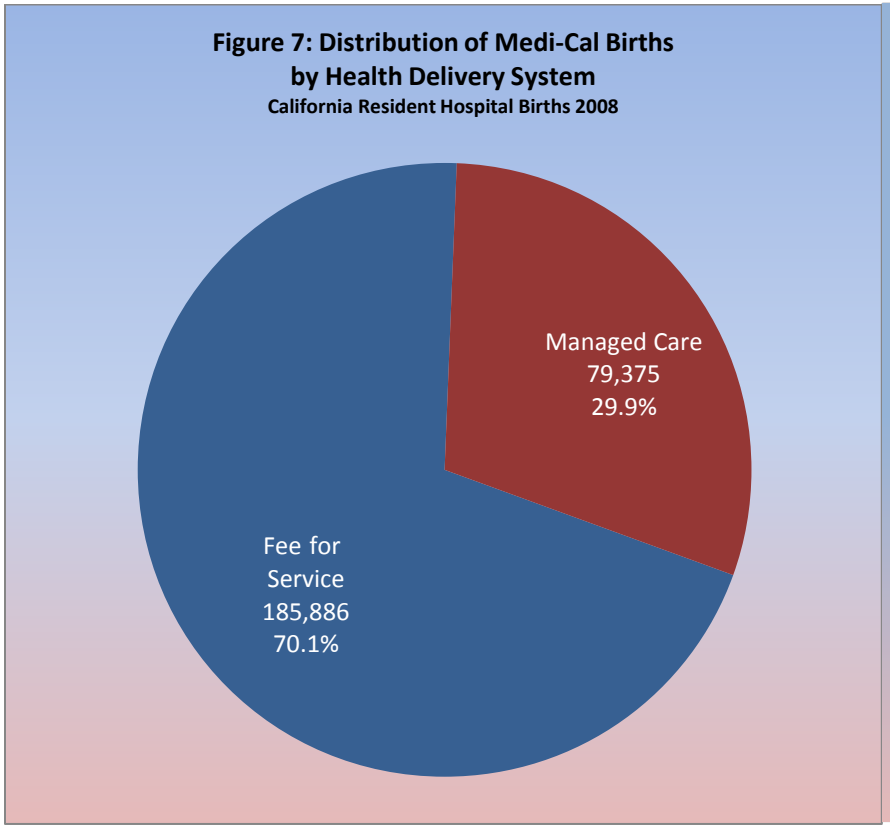


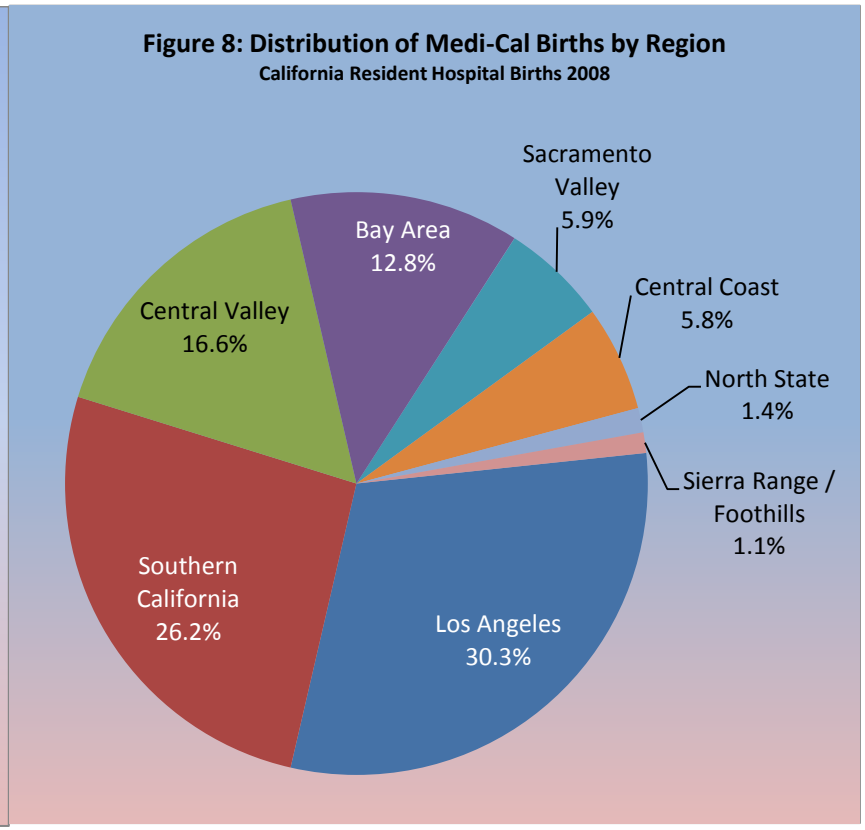


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Medi-Cal Births by Medi-Cal Health Delivery System: Of the 265,261 Medi-Cal financed births, 70.1% were to mothers participating in the FFS program, and 29.9% were to mothers participating in the managed care delivery system (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).



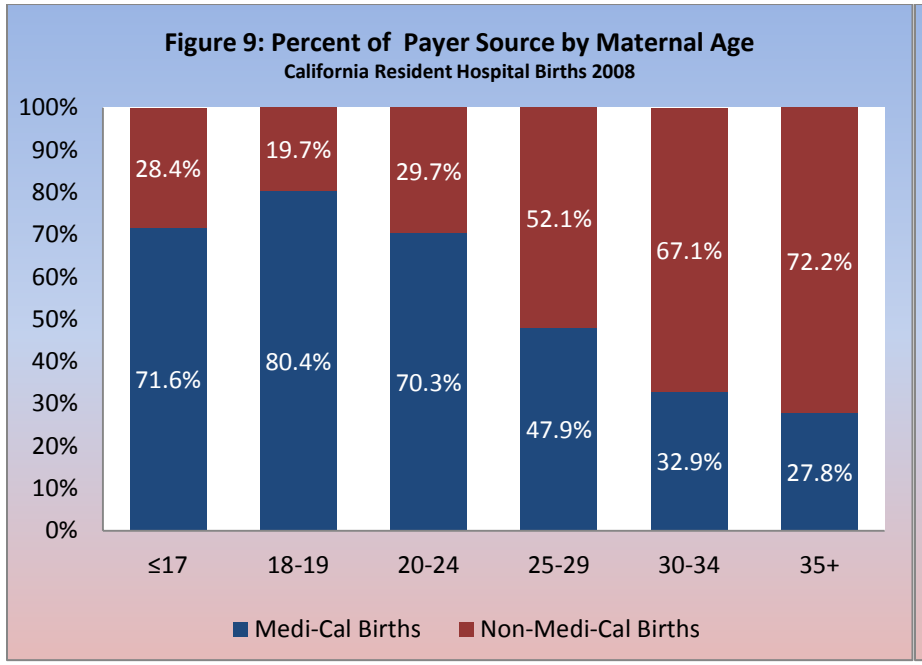


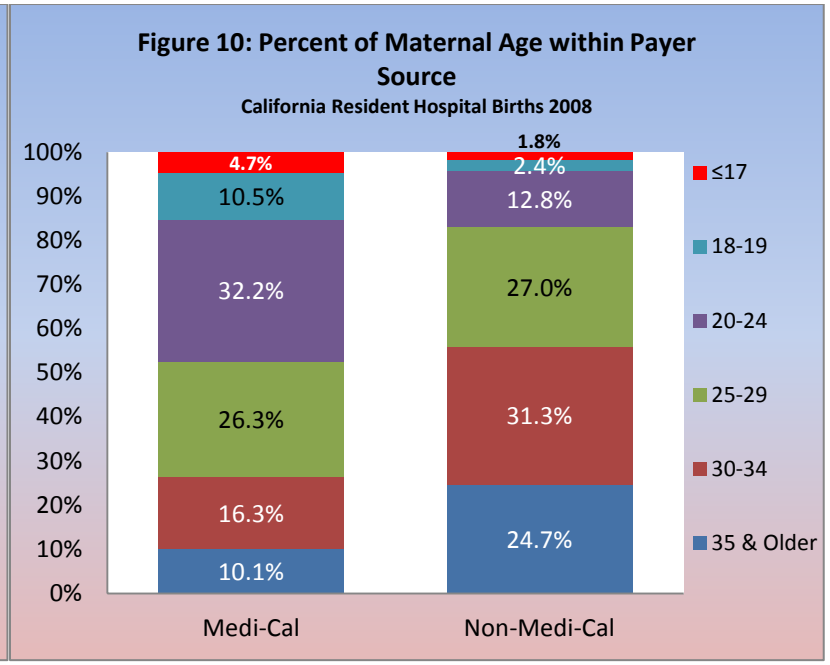
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Maternal Demographic Characteristics

Age: Births to teen mothers are of particular concern because 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. [49,50,51]

Mothers whose births were financed by Medi-Cal were, on average, younger than mothers whose births were financed by other non-Medi-Cal sources. Among Medi-Cal financed births, the mean maternal age was 25.8 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.3 years (median = 30 years). Medi-Cal financed a significant percentage of California's births for younger women. Medi-Cal financed 71.6% of the births to women age 17 and younger, 80.4% of the births to women between 18 and 19 years of age, and 70.3% 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 47.4% of total Medi-Cal births, while among non-Medi-Cal mothers, only 17.0% were 24 years of age or younger. Among non-Medi-Cal mothers, 56.0% were to mothers 30 years of age or older (Figure 10).





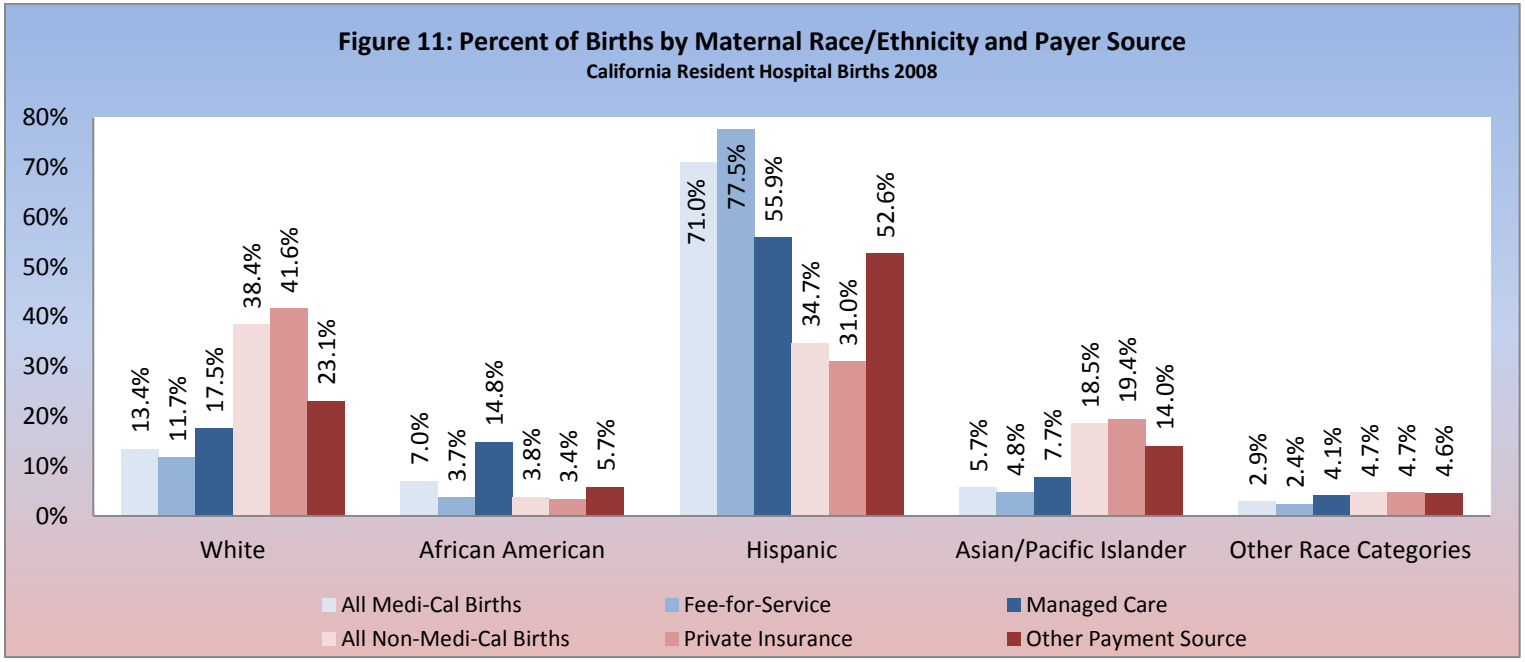
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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, 71.0% of births financed by Medi-Cal were to Hispanic mothers, while only 34.7% of non-Medi-Cal financed births were to mothers of Hispanic ethnicity (Figure 11). Additionally, 13.4% of Medi-Cal financed births were to white mothers compared to 38.4% of non-Medi-Cal mothers (Figure 11).

The remaining Medi-Cal births were attributed to the following groups: 7.0% to African-American mothers, 5.7% to Asian or Pacific Islander mothers, and 2.9% to mothers of other race/ethnic backgrounds (Figure 11). Non-Medi-Cal births displayed significantly different proportions: Asian or Pacific Islander mothers composed 18.5%, African-American mothers were 3.8%, and mothers of other race/ethnic backgrounds made up 4.7% 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 7.0% 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 more than twice that, or 14.8% (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 or preterm.[52,53,54,55]

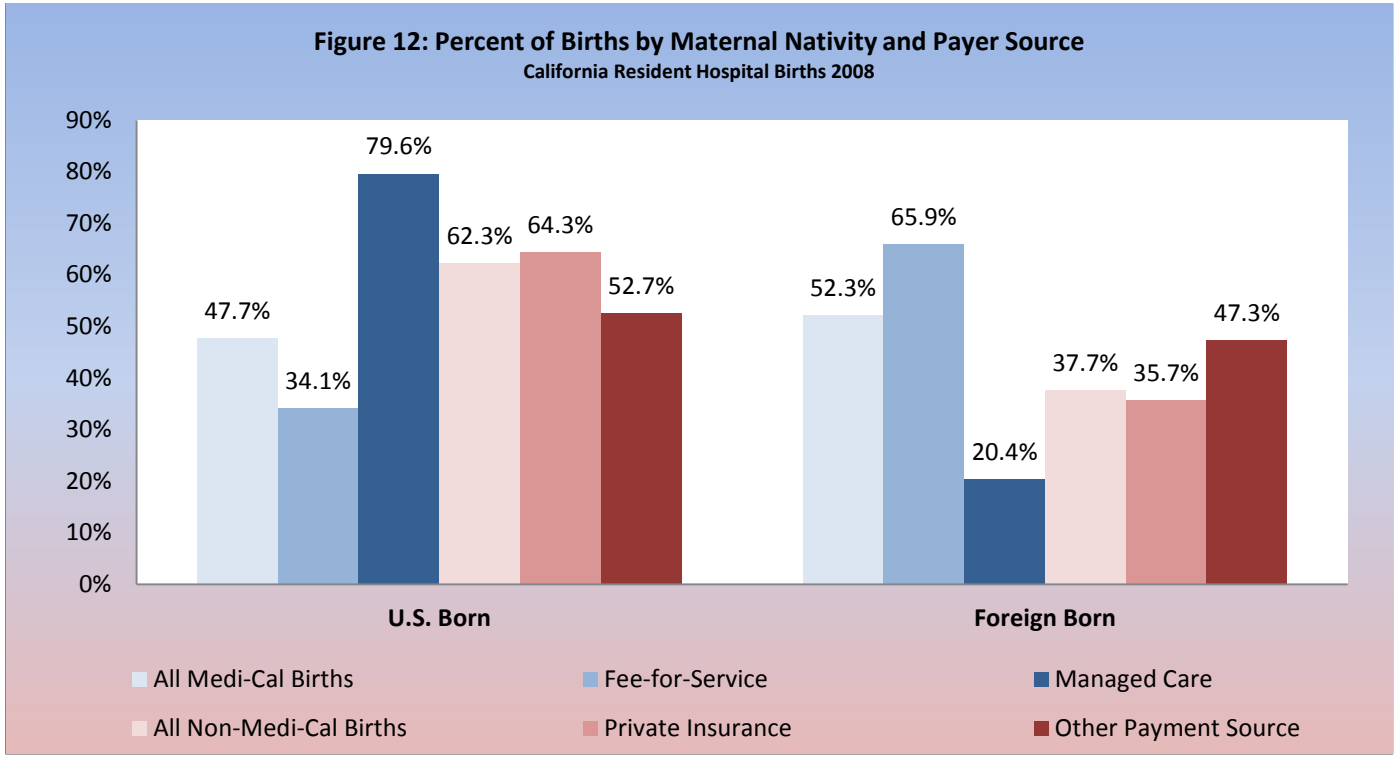


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[56,57]

Among Medi-Cal financed births, 47.7% were to U.S.-born mothers and 52.3% were to foreign-born mothers. A larger segment of non-Medi-Cal financed births was to U.S.-born mothers (62.3%), and a smaller segment (37.7%) was to foreign-born mothers (Figure 12). Among Medi-Cal mothers who participated in managed care, 20.4% were foreign-born, whereas 65.9% of mothers who participated in Medi-Cal's FFS program were foreign-born (Figure 12).

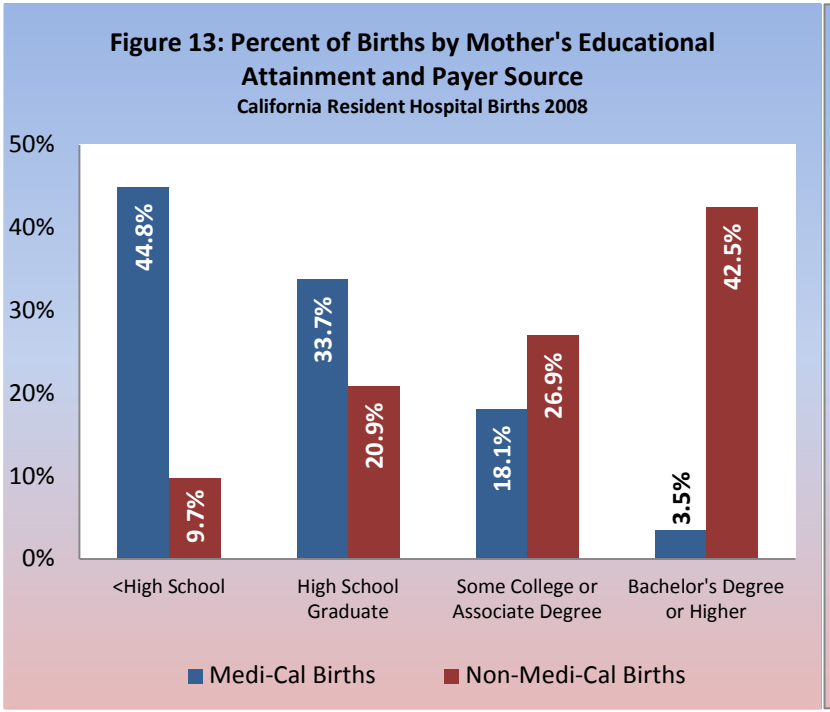


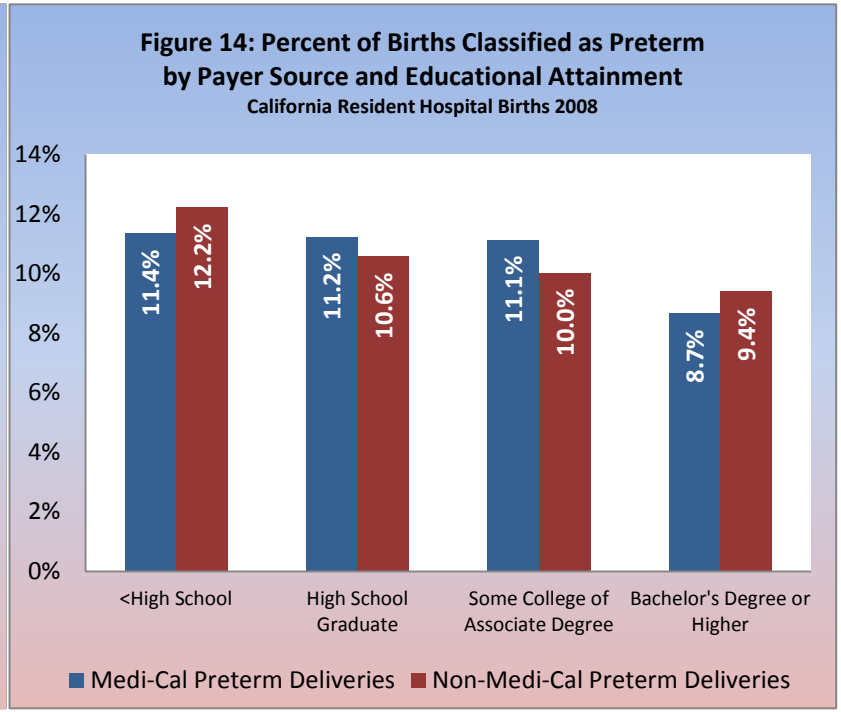
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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 strongly related to adverse birth outcomes such as preterm and low birthweight births, and an increased risk of stillbirth as well as neonatal and post-neonatal deaths.[58,59]

Med-Cal mothers had lower educational attainment than non-Medi-Cal mothers did. Overall, 44.8% of mothers enrolled in Medi-Cal had less than a high school education, 33.7% had a high school diploma, 18.1% had some college, and 3.5% had a college degree (Figure 13). Conversely, only 9.7% of non-Medi-Cal mothers had less than a high school education, 20.9% had a high school diploma, 26.9% had some college, and 42.5% attained a college degree. Between both Medi-Cal and non-Medi-Cal financed births, mothers with the highest educational attainment had the lowest rates of low birthweight and preterm births (Figure 14).





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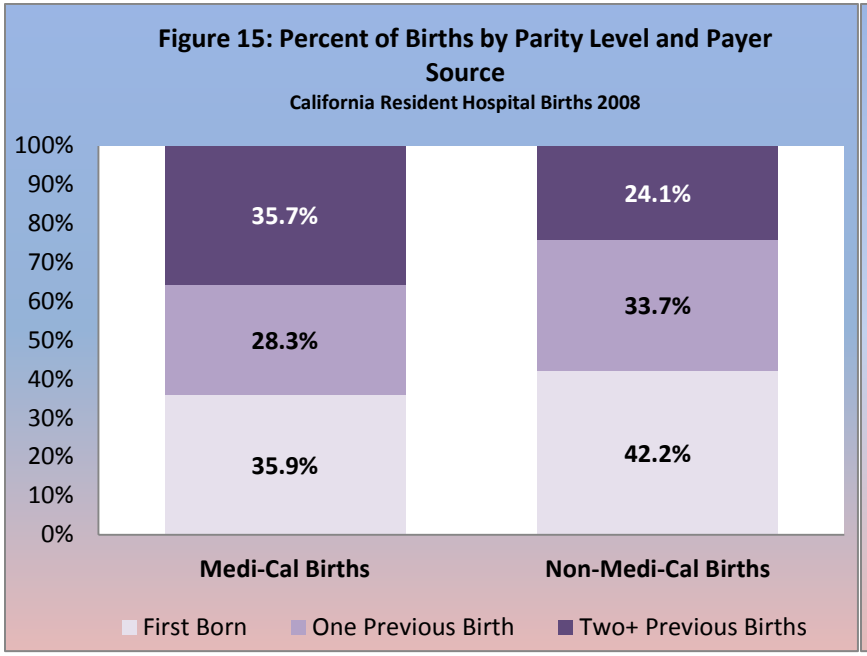
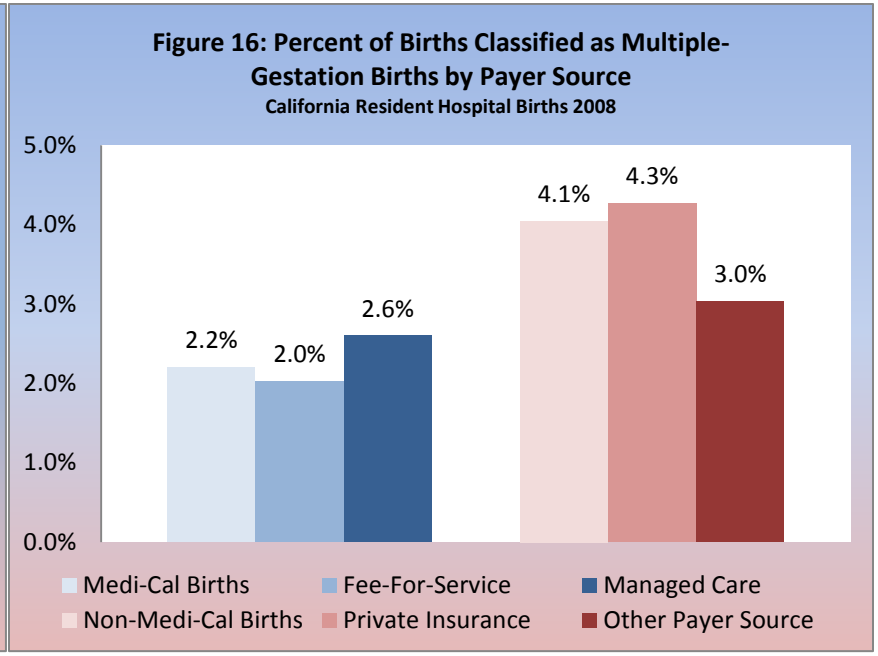
Parity: Parity refers to the number of live births a woman has during her reproductive years. High parity can increase the risk for adverse birth outcomes such as low birthweight, premature birth, stillbirth, and neonatal death.[60,61]

Among Medi-Cal mothers in 2008, 35.9% were first time mothers, 28.3% had one previous birth, and 35.7% had two or more previous births (Figure 15). Medi-Cal managed care mothers had the highest parity with 38.6% 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, 42.2% were first-time mothers, 33.7% had one previous birth, and 24.1% 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.[62] Multiple-gestation births are more common among older mothers or mothers using artificial reproductive technology.[63,64] These babies are also more likely to be delivered via cesarean section.

Among mothers who participated in Medi-Cal's FFS delivery system, 2.0% experienced multiple-gestation births, while among mothers who participated in Medi-Cal's managed care, 2.6% 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).





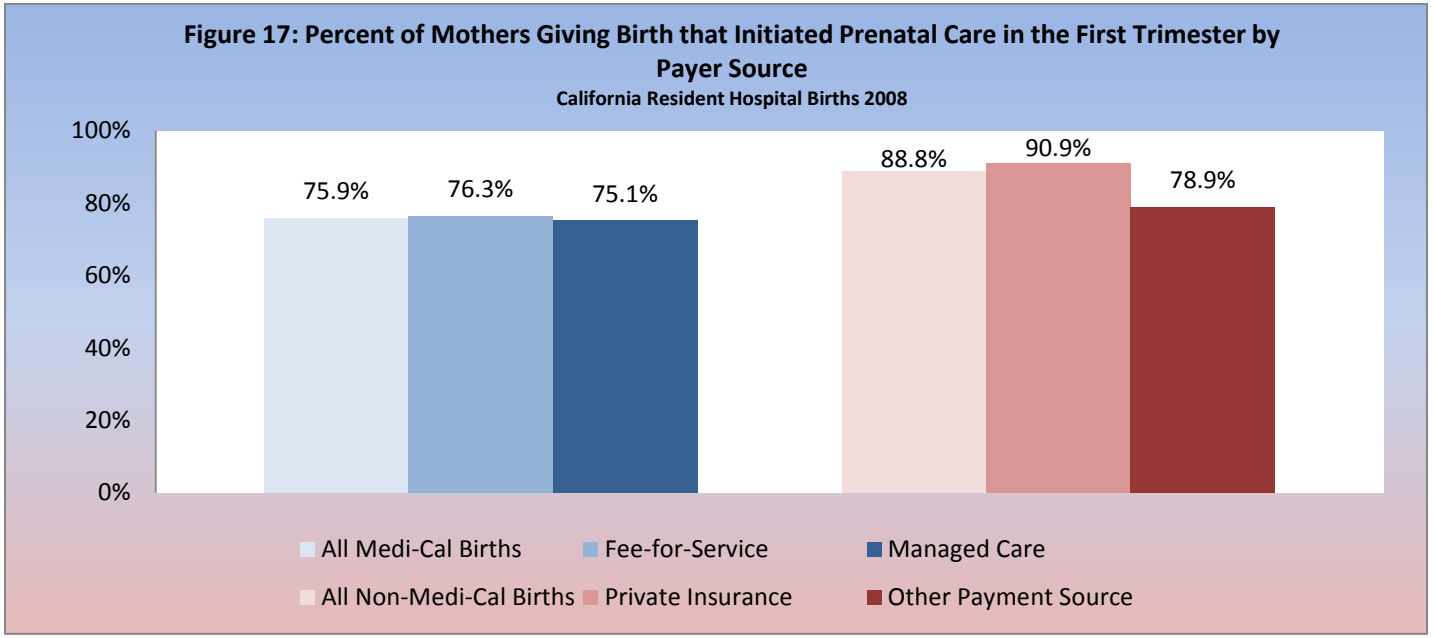
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[65] 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.[66]

Among all Medi-Cal mothers, 75.9% initiated prenatal care during their first trimester of pregnancy, 19.5% initiated prenatal care in their second trimester, and 4.0% began care in their third trimester of pregnancy (Figure 17 and Appendix H). In contrast, 90.9% of privately insured mothers initiated prenatal care in their first trimester, while only 9.1% 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 75.1% of the time, and 76.3% of FFS mothers also initiated early prenatal care (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 (79.5% and 77.5%, respectively) (Appendix H).



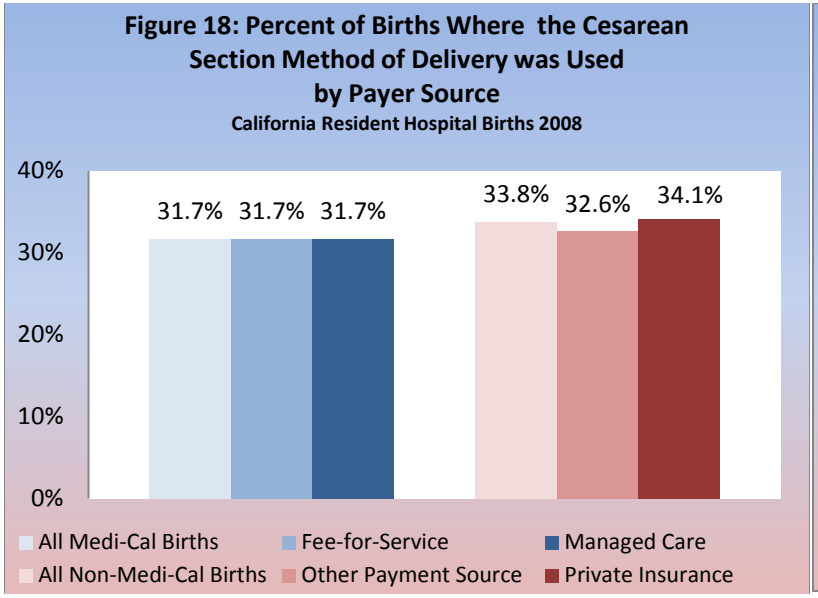
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

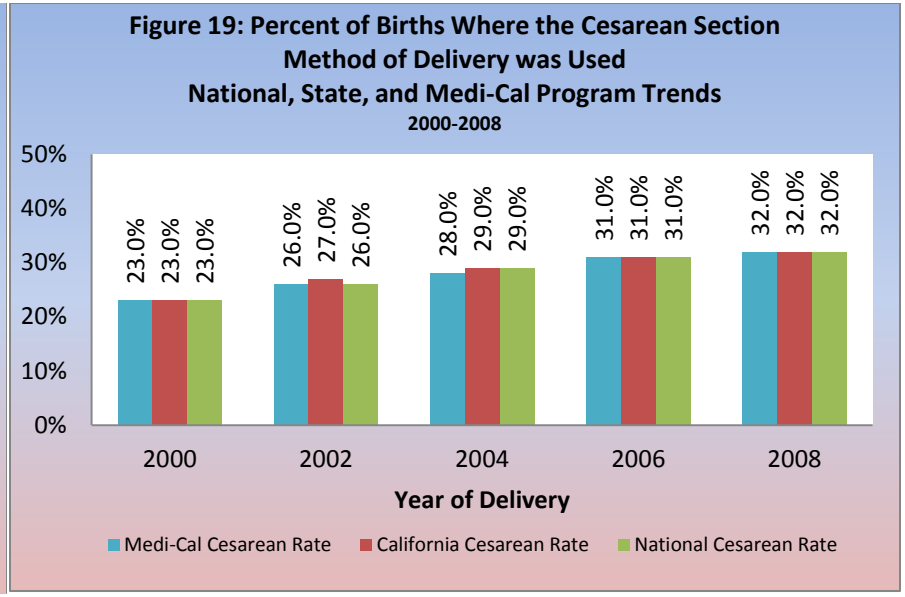
Delivery Method: From 1996 to 2008, the national cesarean rate increased annually, culminating in a 60% overall increase in cesarean sections.[67] Compared with vaginal birth, cesarean section is costly and poses additional health risks for both mother and child.[68] Clear clinical indications exist 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.[69] 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.[70] 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 2008, cesarean section deliveries comprised 32.0% of all births in the U.S.[71] Among all California births occurring in a hospital, cesarean section deliveries made up 33.0% of births, slightly above the national average (Figure 19). California's overall cesarean rates have increased by 39.1% in the last several years, from 23.0% in 2000 to 32.0% in 2008 (Figure 19).

The cesarean section rate was slightly lower than the state average among Medi-Cal births (31.7%). Among non-Medi-Cal financed births, the percentage of cesarean deliveries was highest among privately insured births at 34.1% (Figure 18).

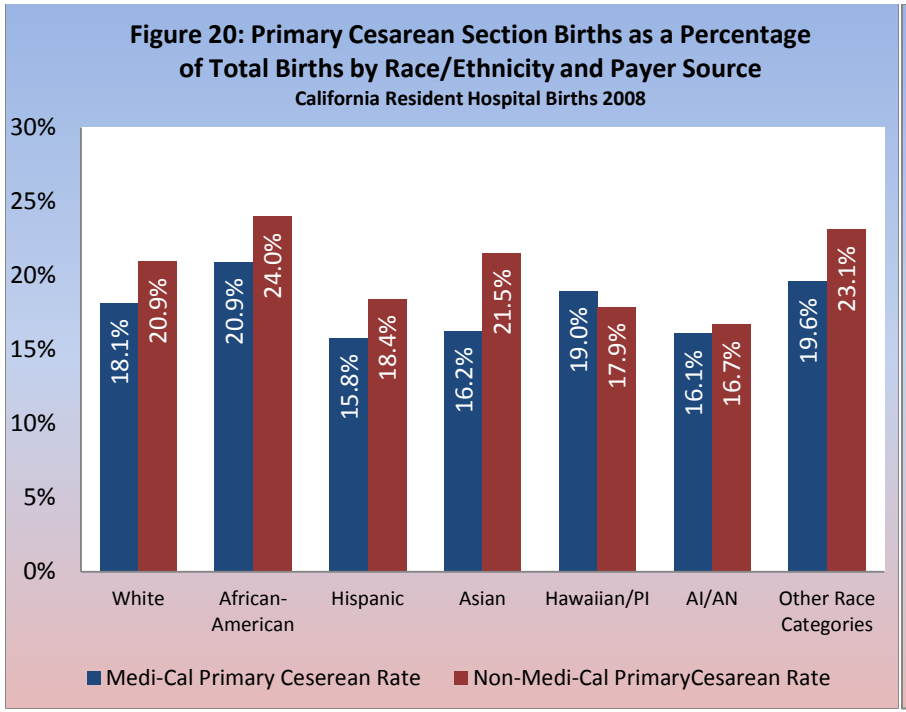


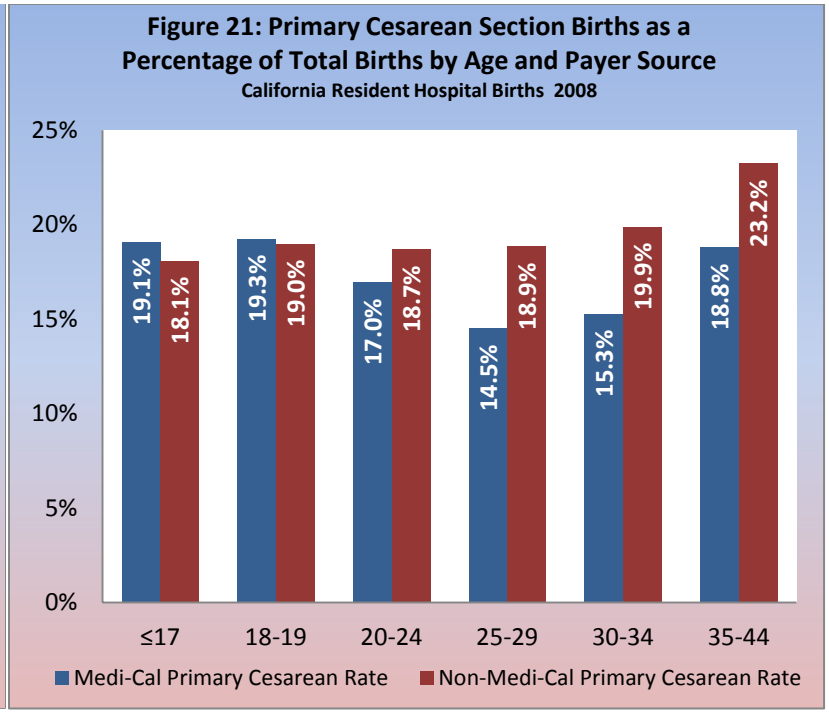


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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%.[72] The percentage of primary cesarean section births was lower among Medi-Cal (16.6%) than non-Medi-Cal births (20.4%) (Appendix H). Among Medi-Cal mothers, the primary cesarean section percentage was highest among mothers ages 18 to 19 (19.3%), women age 17 or younger (19.1%), women ages 35-44 (18.8%), African-American women (20.9%), white women (18.1%), and other race categories (19.6%) (Figure 20 and Figure 21). Medi-Cal mothers with a college degree also delivered via primary cesarean section at percentages higher than the program average (20.6% vs. 16.6%, 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 (23.2%) and African-American women (24.0%) experienced the highest percentages of primary cesarean section delivery (Figures 20 and 21).

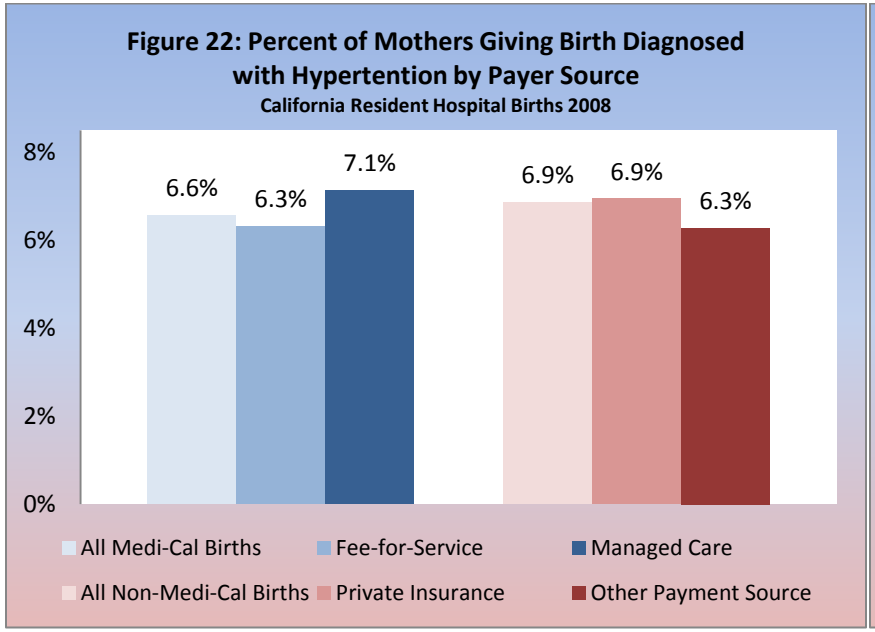


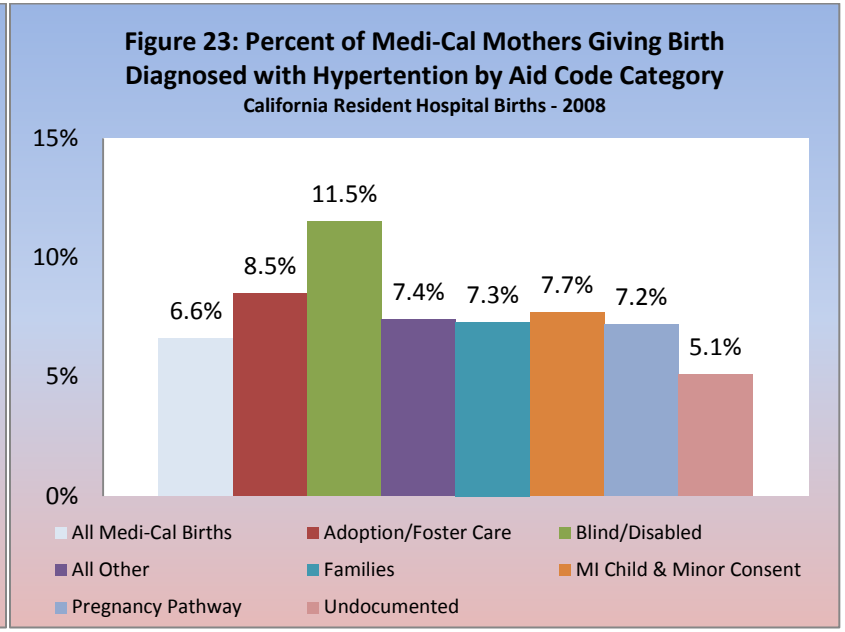


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2011 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2011 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2011 – December 2011 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.[73] 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.[74] 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.[75]

In 2008, 6.6% of Medi-Cal mothers had a hypertension diagnosis (either gestational or chronic hypertension), compared to 6.9% of non-Medi-Cal mothers (Figure 22). Hypertension was most prevalent among mothers participating in Medi-Cal managed care (7.1%) and least prevalent among women whose births were financed by Medi-Cal FFS (6.3%) and other funding sources (6.3%) (Figure 22). Hypertension was most prevalent among mothers enrolled in the Blind/Disabled aid codes (11.5%) and those enrolled in Adoption/Foster Care aid codes (8.5%) (Figure 23).

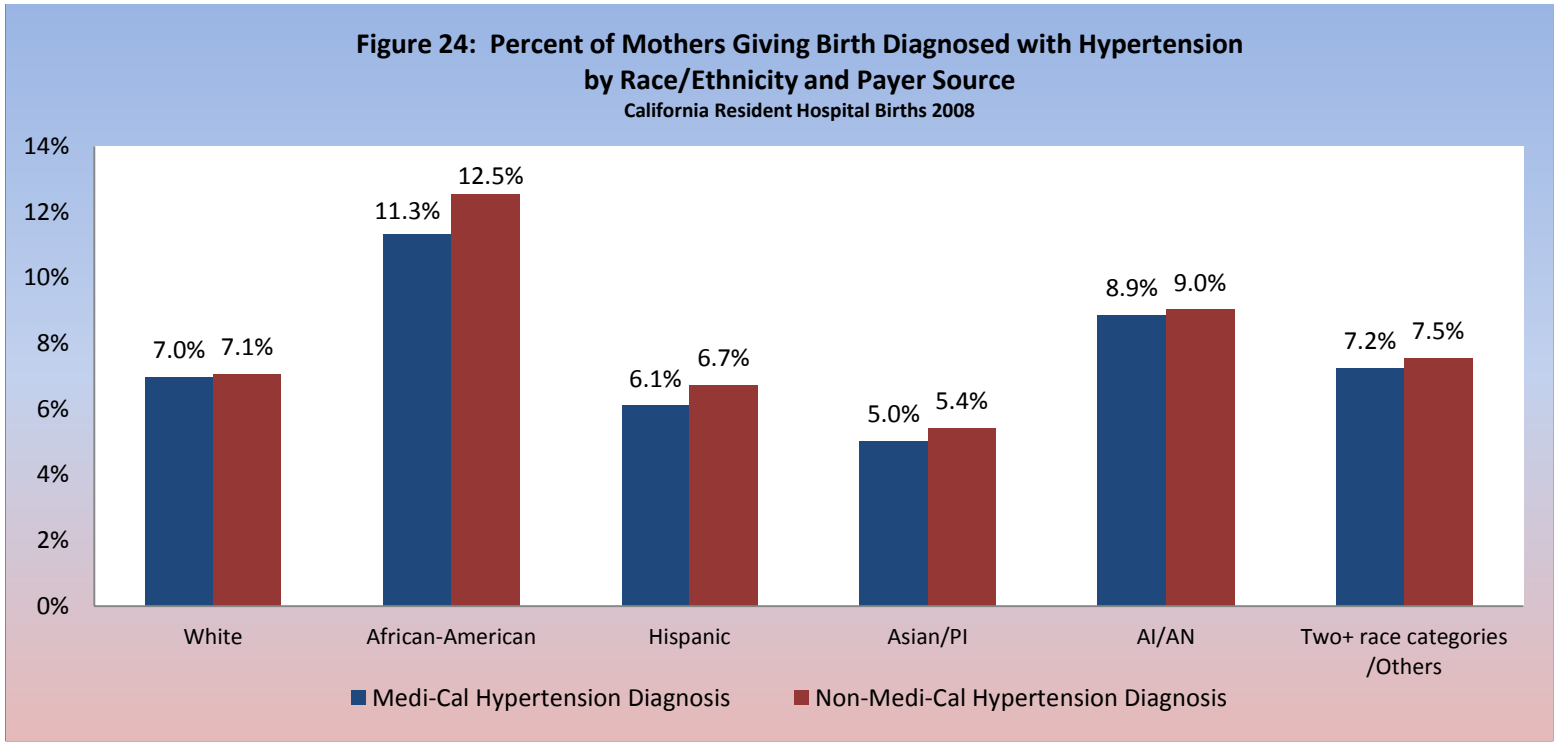




Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

In 2008, hypertension diagnoses in the study population fluctuated between a low of 6.3% (Medi-Cal FFS and other funding source) and a high of 7.1% (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.[76]

Similar to the national population, the Medi-Cal (11.3%) 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 (5.0%) and non-Medi-Cal (5.4%) groups (Figure 24).

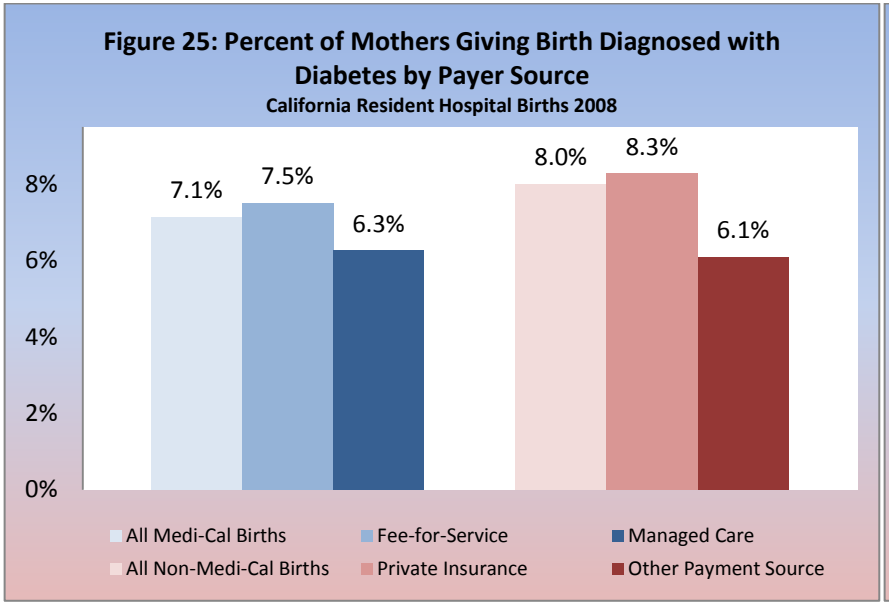


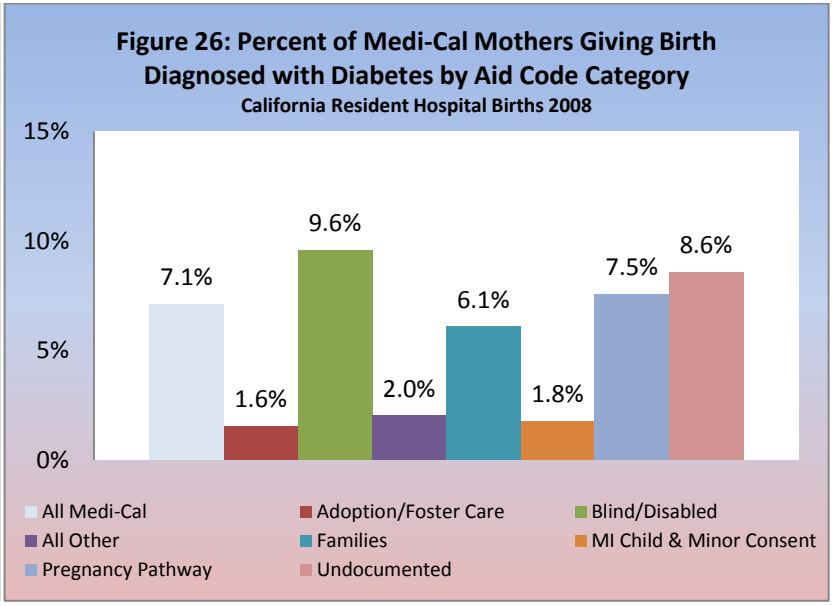
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[77] Because of their larger size, newborns born to mothers with diabetes are more likely to be born via cesarean section or to be injured during vaginal delivery.[78] 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.[79]

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.[80] These factors may result in studies underreporting diabetes, especially in vulnerable populations.

The incidence of gestational or pre-pregnancy diabetes was 7.1% among mothers enrolled in the Medi-Cal program and 8.0% 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 greater percentages of any diabetes diagnosis (8.3% and 7.5%, respectively), than mothers with other coverage (6.1%) and mothers participating in Medi-Cal managed care (6.3%) (Figure 25). Diabetes was most prevalent among mothers in the Blind/Disabled aid codes (9.6%), among mothers without SIS (8.6%), and in Pregnancy Pathway aid codes (7.5%) (Figure 26).



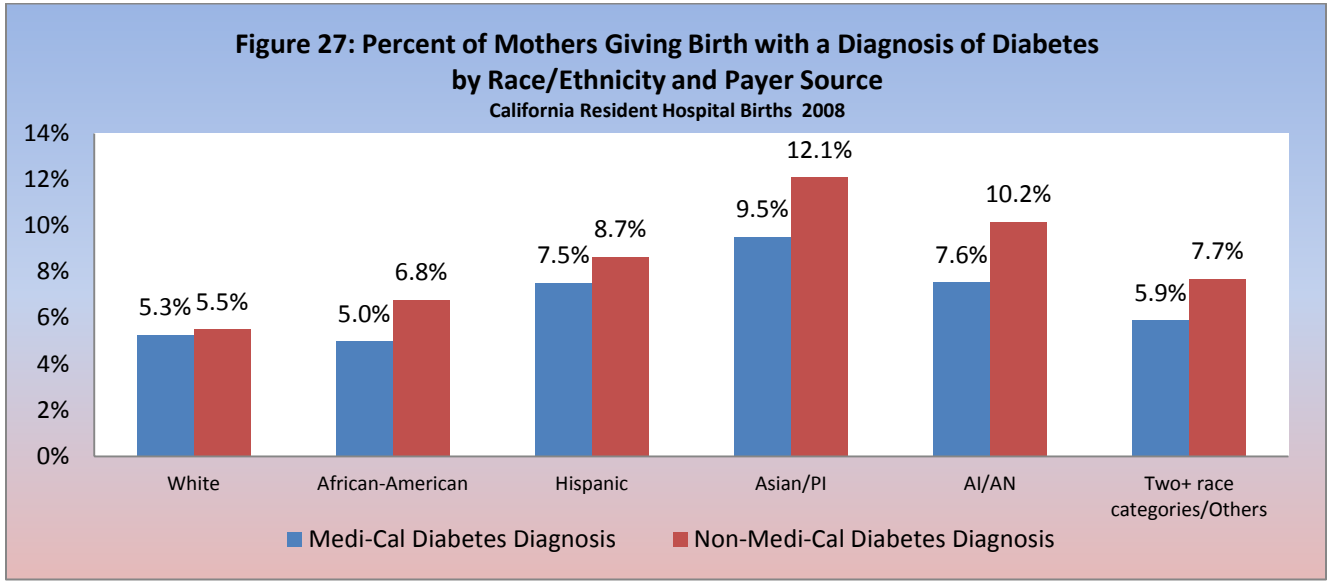


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Race is the greatest risk indicator for both gestational and non-gestational diabetes.[81] The CDC considers non-white mothers to be at high risk for developing gestational diabetes.[82] 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.[83]

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 (12.1%) and Asian/Pacific Islander mothers enrolled in Medi-Cal (9.5%). 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.[84] American Indian/Alaskan Natives were also among the highest percentages, as 7.6% of Medi-Cal mothers and 10.2% of non-Medi-Cal mothers had a diabetes diagnosis. White mothers (5.5%) had the lowest percentage of diabetes diagnoses among non-Medi-Cal mothers.

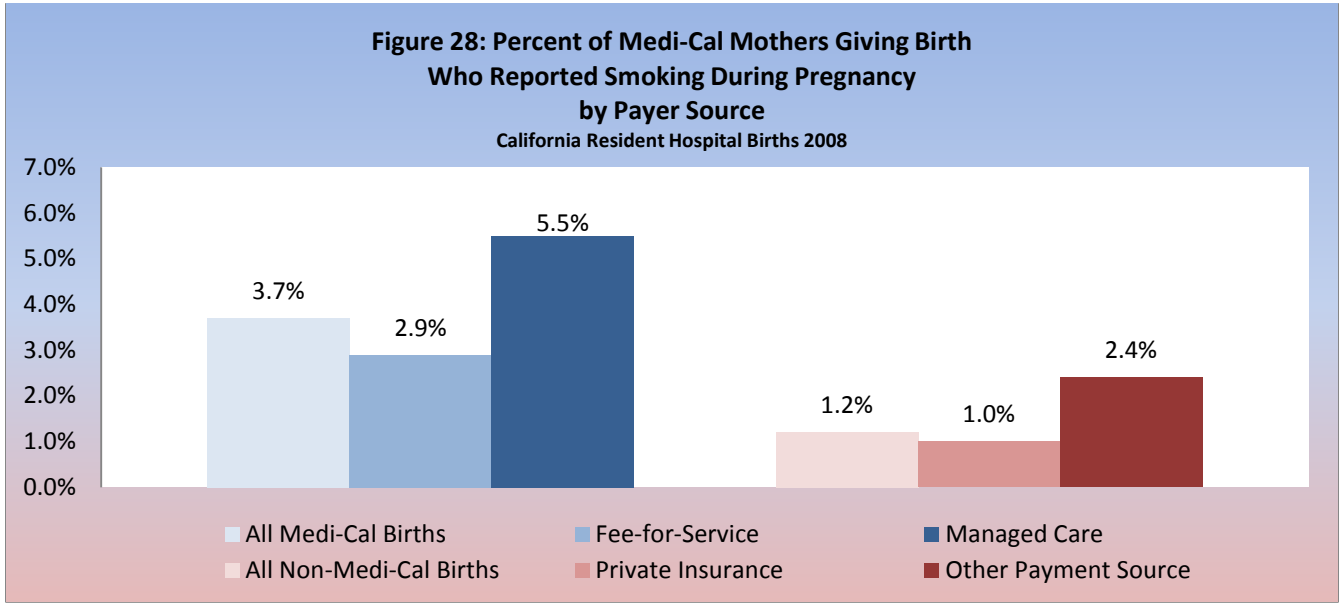


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[85]

According to the CDC, 15.6% of U.S. mothers smoked during their last three months of pregnancy in 2010.[86,87] 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).[88] 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.[89]

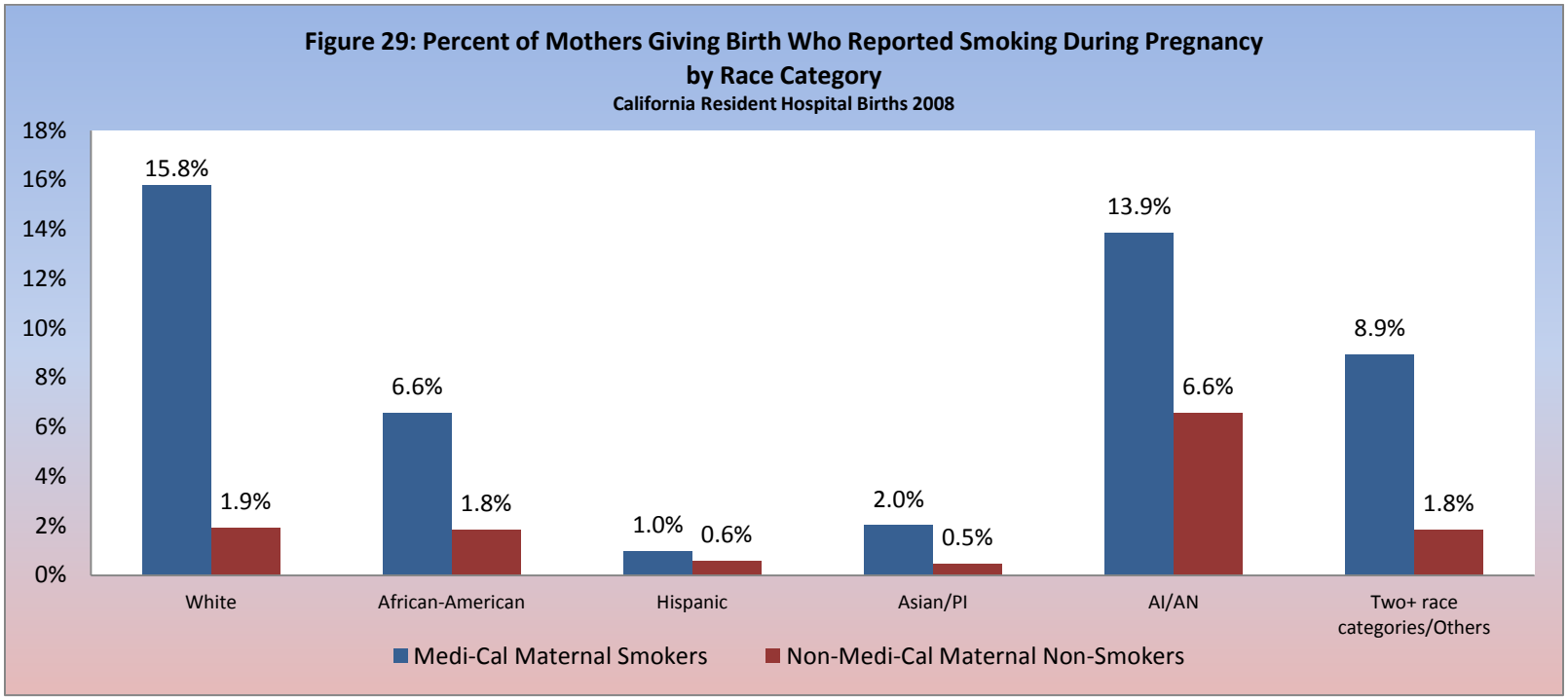
A higher percentage of Medi-Cal mothers reported smoking (3.7%) than non-Medi-Cal mothers (1.2%). Among Medi-Cal managed care mothers, 5.5% smoked during pregnancy, compared to 2.9% among mothers who participated in Medi-Cal's FFS delivery system (Figure 28). Mothers with private insurance had the lowest percentage of smoking during pregnancy (1.0%). 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, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[90] 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.[91] The literature identifies similar trends among mothers in California, with Hispanic and Asian/Pacific Islander mothers displaying the lowest percentages of maternal smoking. [92]

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 (15.8% and 13.9%, respectively); and American Indian/Alaskan Native mothers were more likely to report smoking among non-Medi-Cal mothers (6.6%). Hispanic and Asian mothers were the least likely to report smoking between both categories. (Figure 29).



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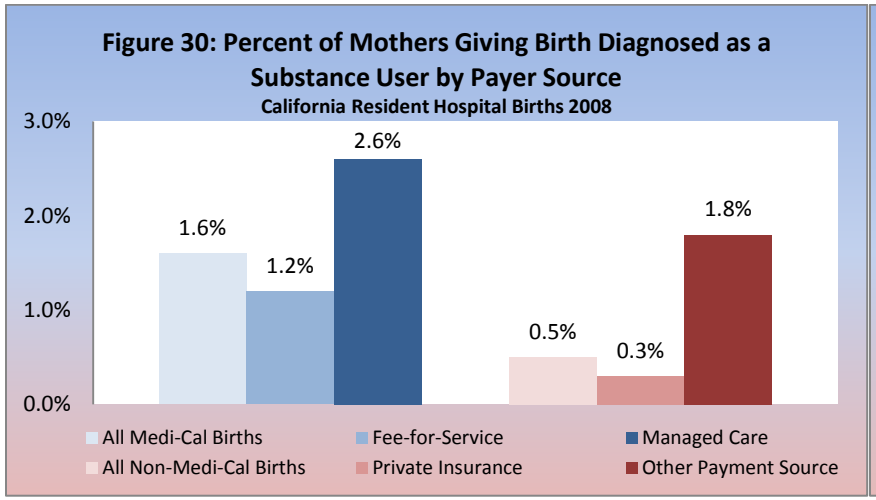
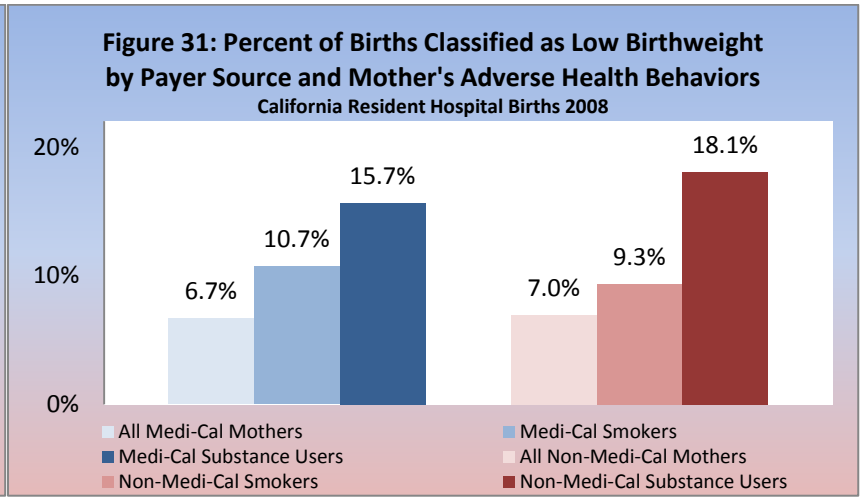
Substance Use: An estimated 5% of pregnant women in the U.S. are substance users.[93] The birth outcomes and developmental problems commonly associated with substance abuse during pregnancy include spontaneous miscarriage, low birthweight, preterm birth, stillbirth, fetal withdrawal symptoms, small head size, abnormal facial features, learning disabilities, speech/language delays, and vision/hearing problems.[94,95]

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 over three times higher among Medi-Cal mothers than non-Medi-Cal mothers (1.6% and 0.5%, respectively), and more than twice as common among mothers who participated in Medi-Cal managed care than in Medi-Cal's FFS delivery system (2.6% and 1.2%, respectively) (Figure 30). Mothers with private insurance had the lowest prevalence of smoking (1.0%) and substance use (0.3%).

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 60% in Medi-Cal mothers who smoked. Medi-Cal mothers who used substances during their pregnancy showed an increase of 134% in low birthweight births (Figure 31).





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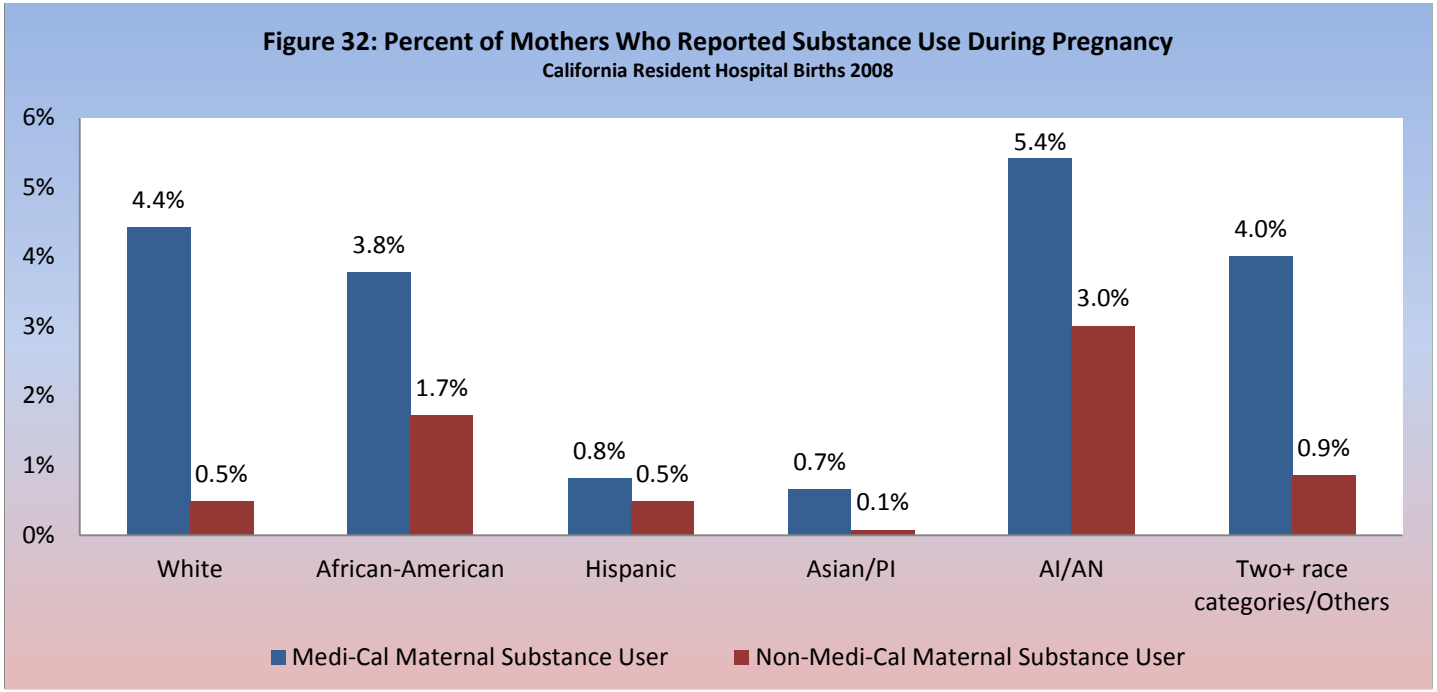
The CDC reports a wide disparity in maternal substance use among age groups and race cohorts. A study of pregnant women from 2002 to 2010 found that 7.7% of African-American respondents had used illicit drugs in the last month, compared to 4.4% of white respondents.[96] Nationally, Hispanic mothers have the lowest percentage of both alcohol and illicit drug use.[97] 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.[98]

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 (5.4%) and white mothers (4.4%). Non-Medi-Cal mothers reported high percentages of substance users in American Indian/Alaskan Native (3.0%) and African-American (1.7%) mothers. Similar to national trends, Hispanic and Asian/Pacific Islander mothers had the lowest percentages reported in both categories.



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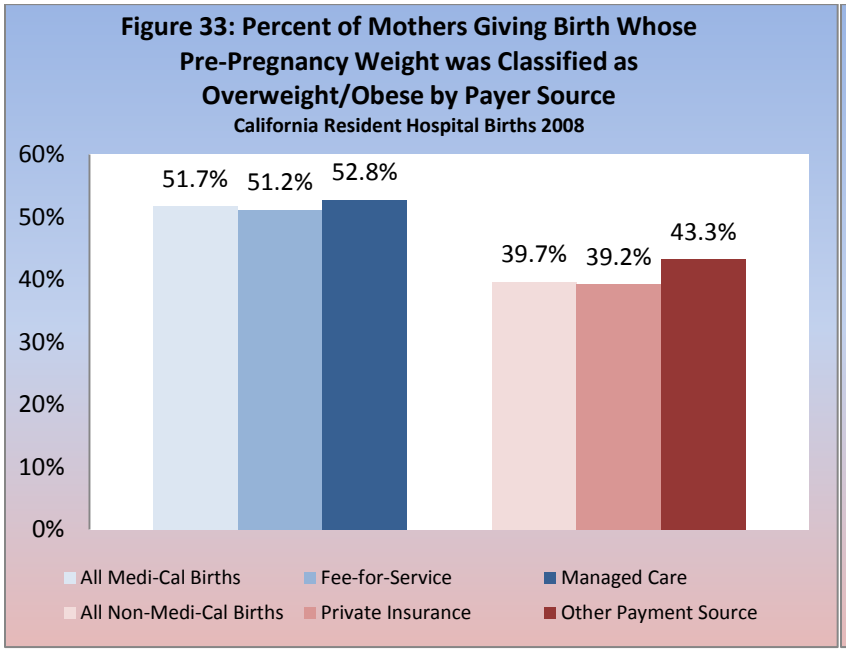
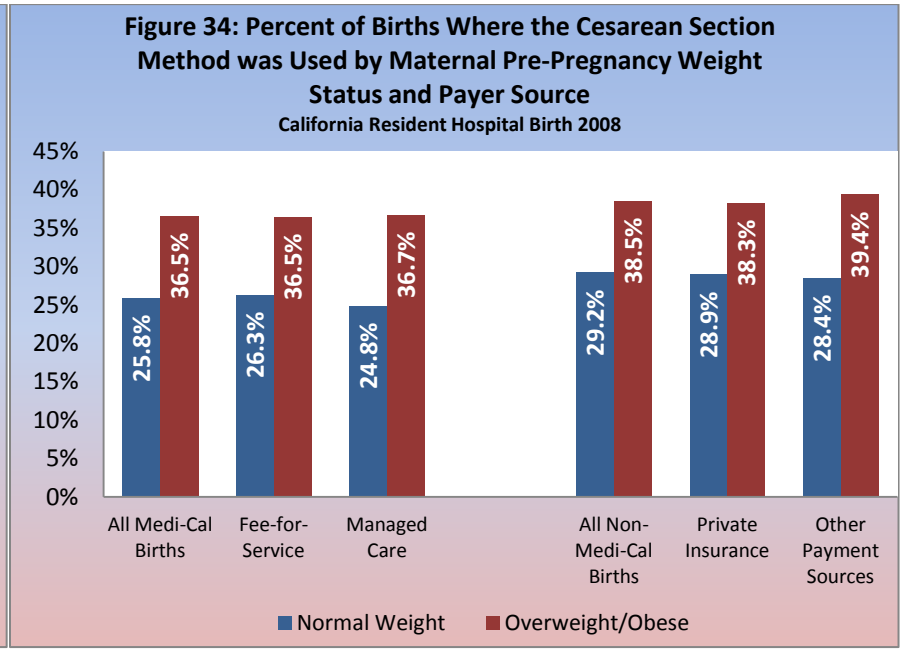
Pre-Pregnancy Weight: Maternal pre-pregnancy weight ranging outside of normal is associated with many adverse birth outcomes such as large-for-gestational-age, macrosomia, neural tube defects, stillbirth, neonatal death, and congenital heart defects (the leading cause of infant death when attributed to birth defects).[99] Newborns who are born large-for-gestational-age or affected by macrosomia also have an increased risk of future obesity and diabetes.[100,101] Women within 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.[102]

The California birth certificate captured 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=83,707 or 15% of all observations).

The association between pre-pregnancy weight and the incidence of cesarean section delivery was consistent among payer sources. Both Medi-Cal and non-Medi-Cal mothers who had a pre-pregnancy weight that was considered overweight or obese were more likely to have a cesarean section delivery than those with pre-pregnancy weight considered normal (36.5% and 38.5%, respectively) (Figure 34).





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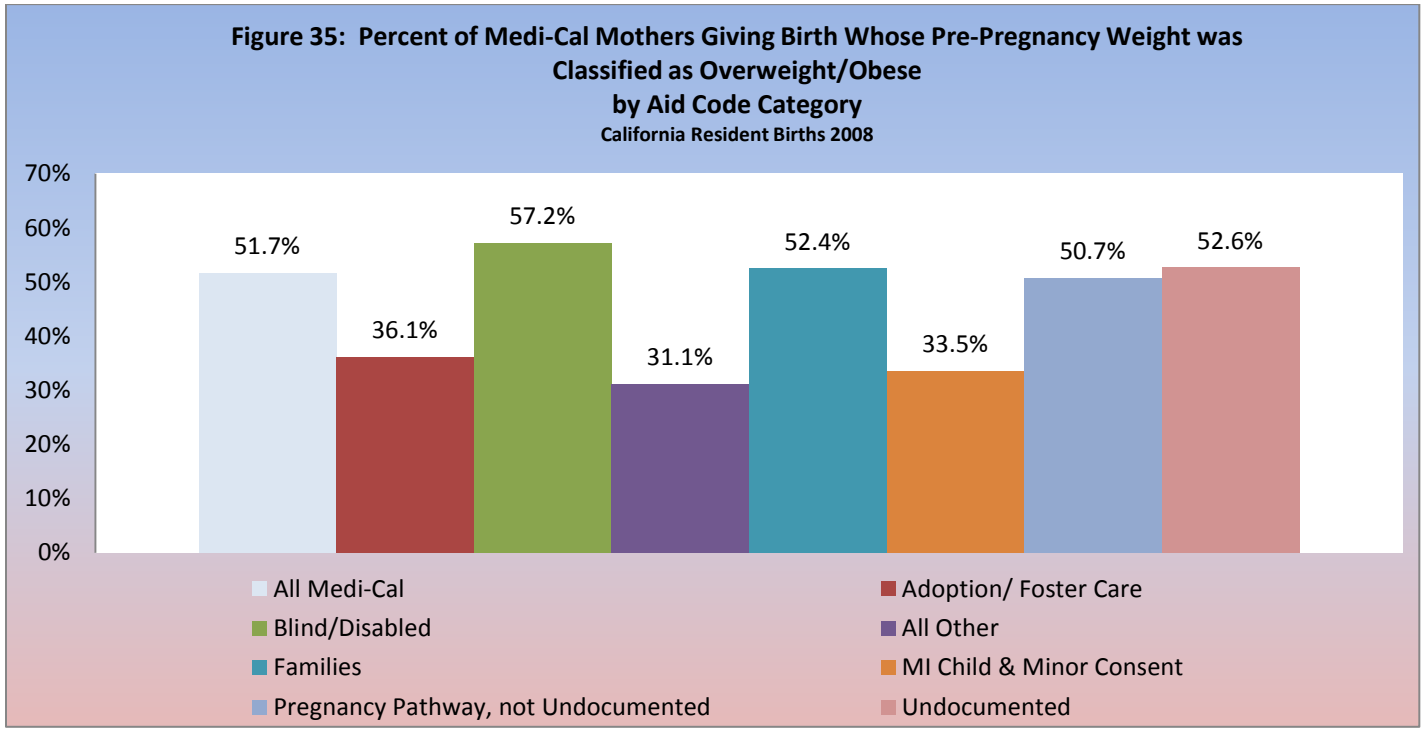
The National Heart, Lung, and Blood Institute (NHLBI) define BMI as a measurement for gauging weight and obesity. Calculated from height and weight, BMI is an estimate of body fat that helps measure risk of certain diseases and overall health. For this analysis, BMI was grouped according to criterion 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, 51.7% entered their pregnancy as overweight/obese, compared to 39.7% 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 a pre-pregnancy overweight/obesity prevalence as high as 57.2%, and 52.6% of mothers enrolled in Undocumented aid codes had a pre-pregnancy weight considered overweight or obese (Figure 35).



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Birth Outcomes

The birth outcomes presented in this report 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 understanding groups at risk for poor birth outcomes and to develop information for guiding health policy development, assessment, and evaluation.

California's birth statistics disclose 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 where 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 Resident Hospital Births	Medi-Cal	Non-Medi-Cal	Healthy People 2020 Goal
Low Birthweight	8.3%	6.8%	6.7%	7.0%	7.8%
Very Low Birthweight	1.5%	1.1%	1.1%	1.2%	1.4%
Preterm Delivery	12.3%	10.7%	11.2%	10.2%	11.4%
Very Preterm Delivery	2.0%	1.5%	1.6%	1.4%	1.8%

Populations shaded in green represent those that met the Healthy People 2020 goal in 2008. Populations in red did not meet the Healthy People 2020 Goal in 2008.

***Source**: Prepared by DHCS Research and Analytic Studies Division using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; Centers for Disease Control and Prevention, National Vital Statistics Reports for 2008; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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.[103] 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).[104] 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 2008 was 8.2%,[105] 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 county.[106] These mothers, regardless of other factors (income, insurance coverage, race, etc.) tend to experience better birth outcomes than U.S.-born mothers.[107,108]

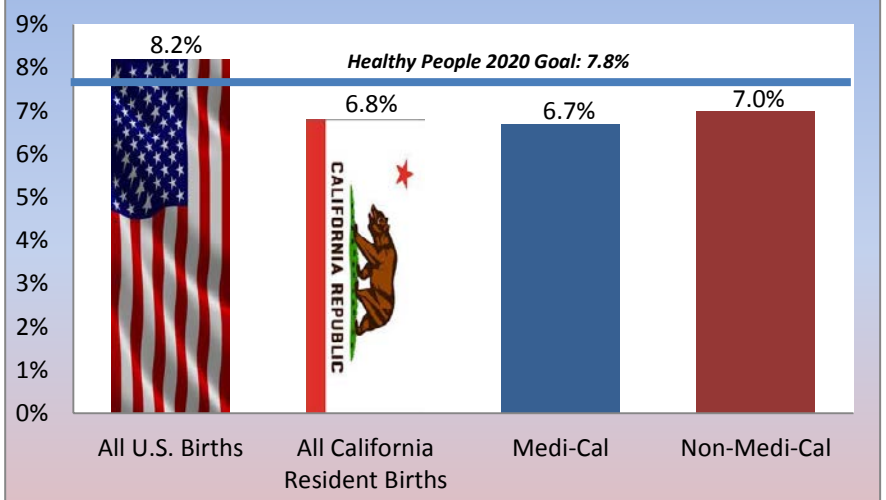
RASD found that the following factors were associated with higher percentages of low birthweight among Medi-Cal mothers:

- Multiple Gestation Births
- Hypertension
- Substance Use
- Blind/Disabled Aid Category
- Age 45 or Older
- African-American Mothers
- Smoking During Pregnancy
- Mother Underweight Before Pregnancy

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

- Mothers Without SIS
- Singleton Birth
- Foreign-Born Mothers
- Hispanic Mothers
- One Previous Birth
- Age 20-24, or 25-29

Figure 37: Percent of Births Classified as Low Birthweight Deliveries by Population - 2008

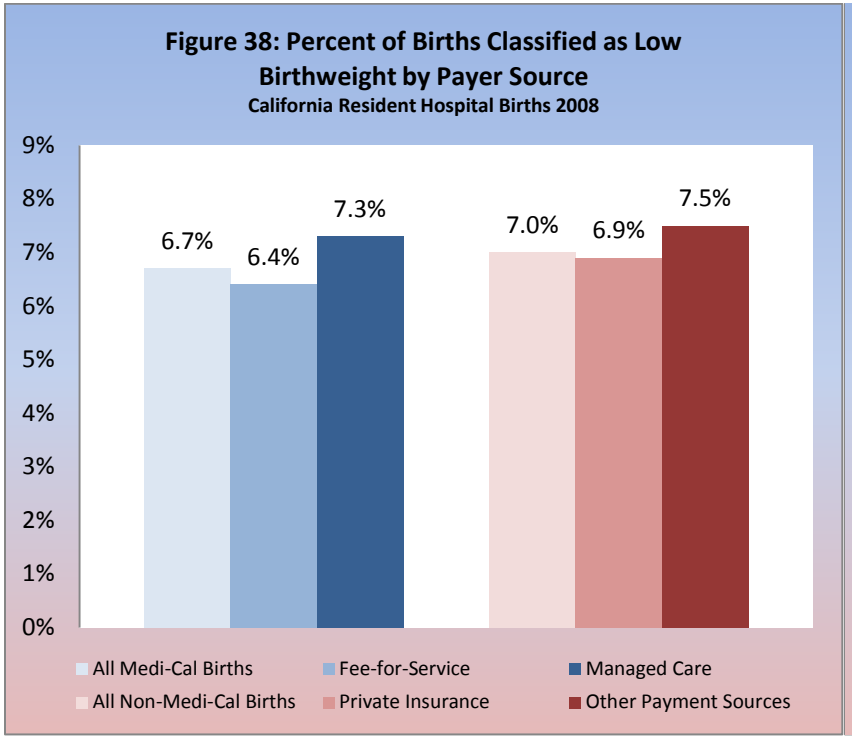


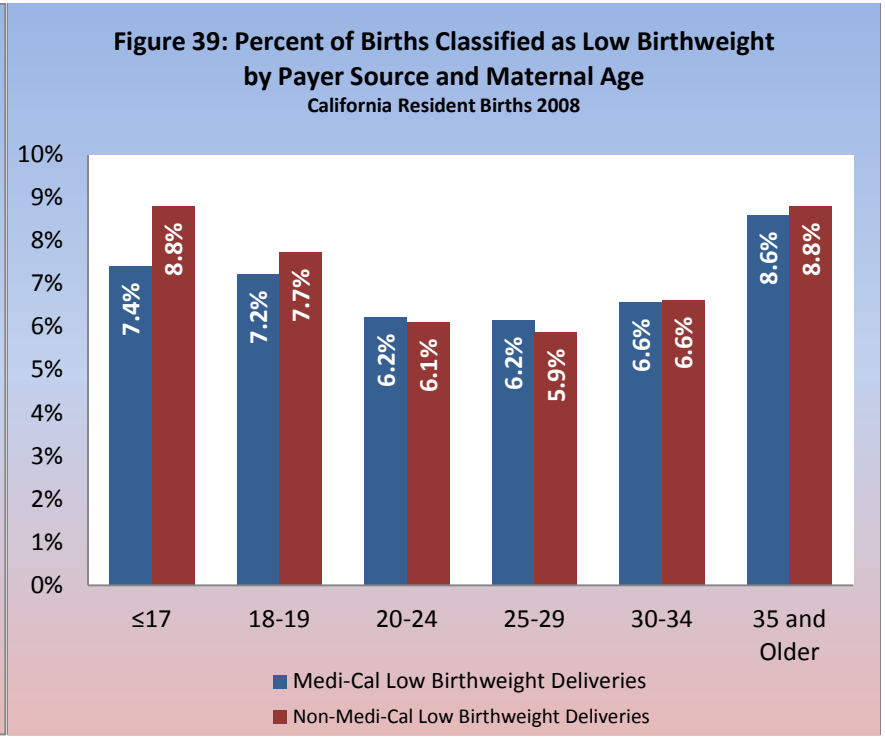
Martin, J.A., Hamilton, B.E., Sutton, P.D., Ventura, S.J., Mathews, T.J., Osterman, M.J.K. (2010, December 8). Births: Final Data for 2008. *Centers for Disease Control and Prevention, National Vital Statistics Report, 59*(1). Retrieved from http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_01.pdf

Low birthweight percentages were slightly higher among births to mothers that participated in Medi-Cal managed care (7.3%) than those who participated in Medi-Cal's traditional FFS system (6.4%). Mothers with births financed by other funding sources had the highest rate of low-birthweight outcomes (7.5%).

The 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.[109,110] For Medi-Cal mothers age 35 and older, the percent of low-birthweight deliveries was 8.6%. Among non-Medi-Cal mothers age 35 and older, the percent was slightly higher at 8.8%.

Younger mothers also displayed higher rates of low birthweight births. For Medi-Cal mothers age 17 and younger, the percent of low-birthweight deliveries was 7.4%, and 8.8% for non-Medi-Cal mothers age 17 and younger (Figure 39).

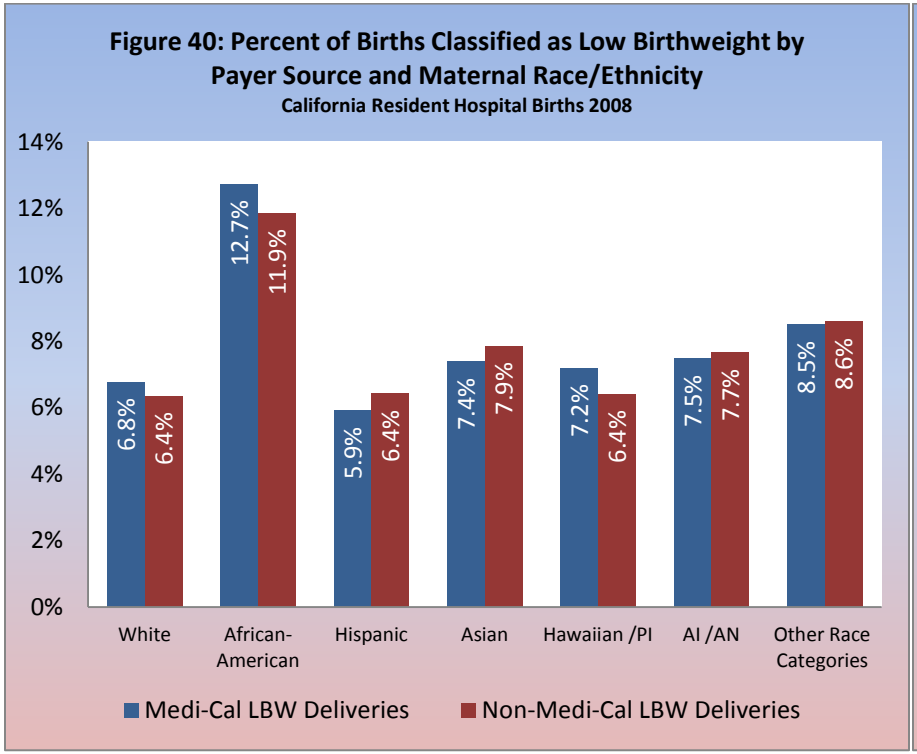


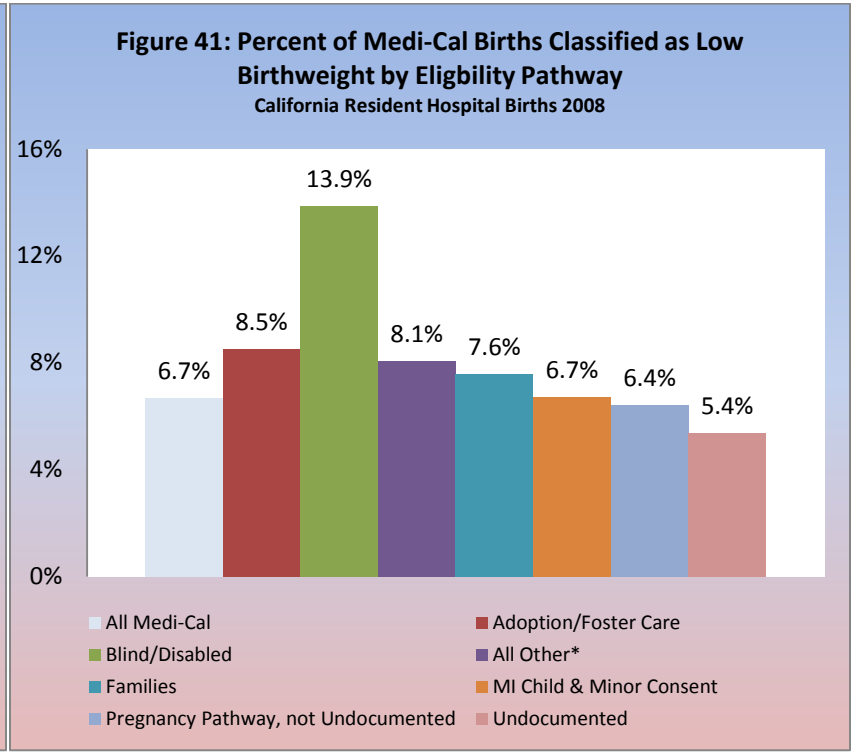


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Although the percentage of low birthweight births 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 (12.7%) and non-Medi-Cal births (11.9%). 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, Hispanic mothers, and Hawaiian/Pacific Islander mothers had the lowest percentage of low birthweight (6.4%) (Figure 40).

Among Medi-Cal mothers, the highest percentage of low birthweight was found among mothers enrolled in Blind/Disabled aid codes (13.9%) and the lowest percentage of low birthweight were found among mothers without SIS (Undocumented, 5.4%) (Figure 41).

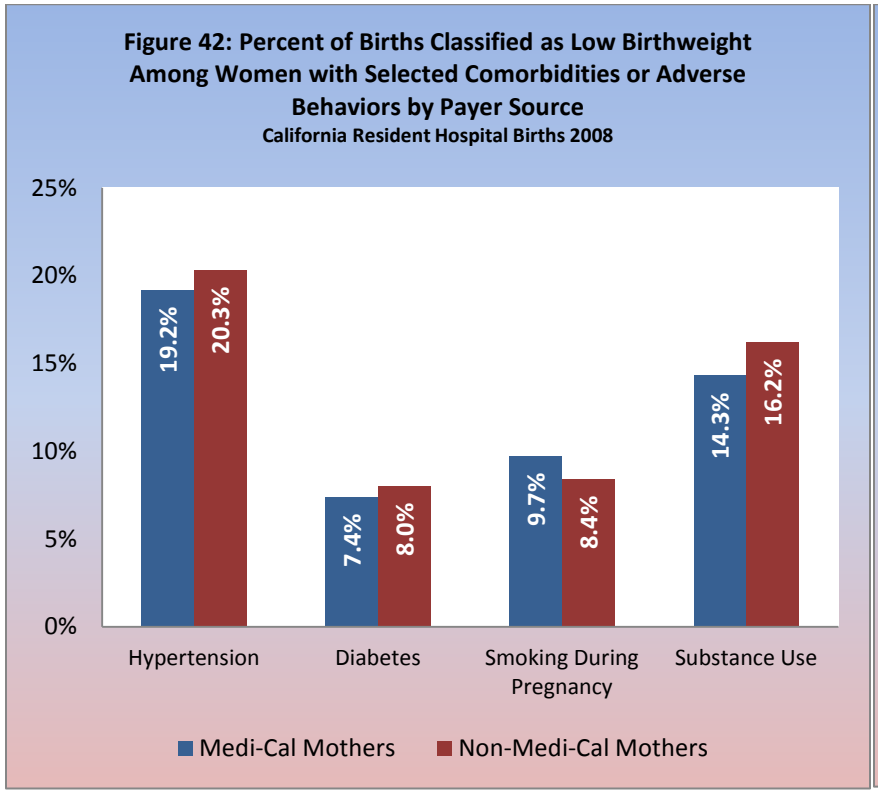


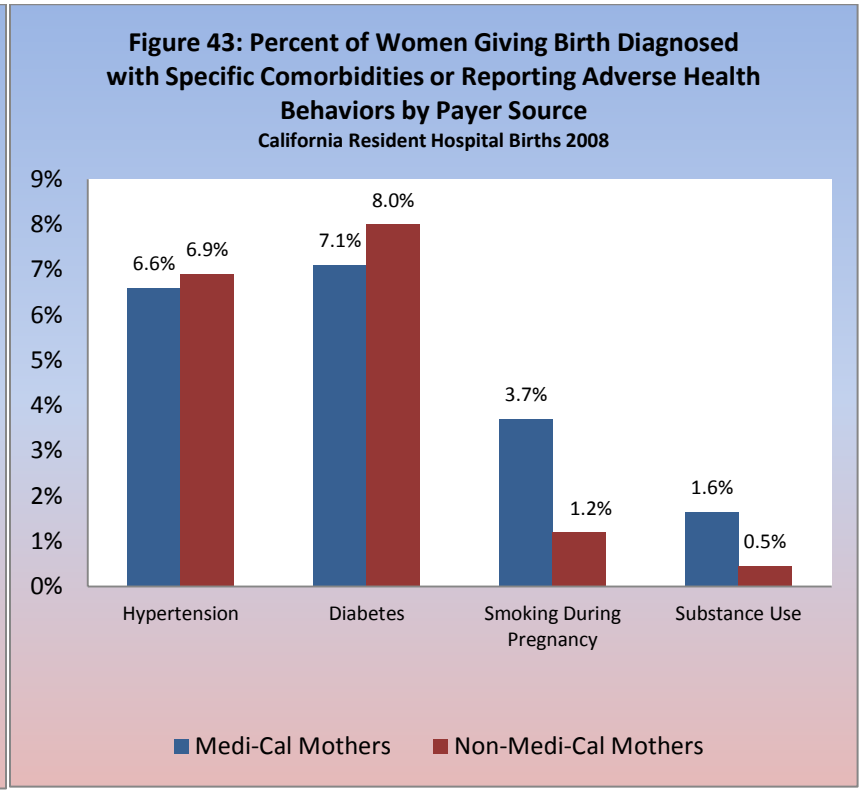


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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 mothers was 6.7%, low birthweight was substantially higher among mothers with hypertension (19.2%), mothers diagnosed with substance use at the time of delivery (14.3%), and smokers (9.7%). Among non-Medi-Cal mothers, the prevalence of low birthweight was also elevated for those with hypertension (20.3%), mothers diagnosed with substance use (16.2%), those diagnosed with diabetes (8.0%), and smokers (8.4%) (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 (51.7%) (not shown), smoking during pregnancy (3.7%), and substance use (1.6%).





Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Very Low Birthweight: Newborns delivered at a very low birthweight (<1,500 grams) account for over half (54.6%) of all infant deaths in the U.S.[111] 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 rate of very low birthweight births to 1.4% or below.

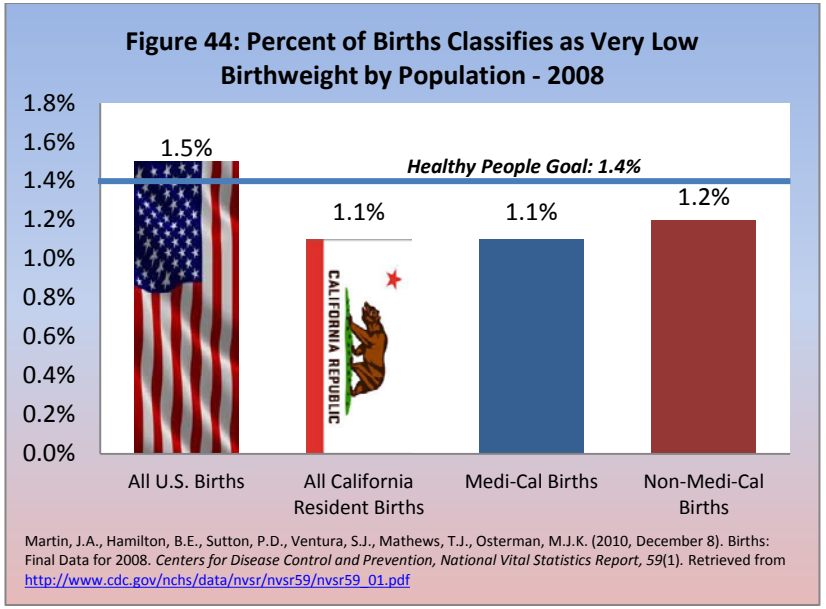
The percentages for very low birthweight were similar for births to Medi-Cal managed care beneficiaries (1.1%), Medi-Cal FFS beneficiaries (1.1%), and mothers with private insurance (1.1%).

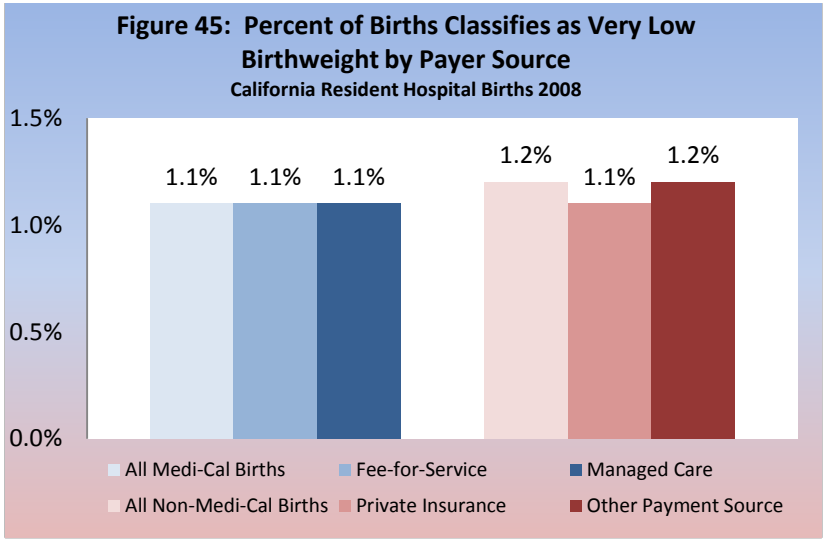
RASD found that these factors led to higher percentages of very low birthweight deliveries among Medi-Cal mothers:

- Multiple gestation births
- Hypertension
- Substance use
- Blind/Disabled aid category
- African-American mothers
- Age 45 or older

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

- Singleton births
- Mothers without SIS
- Asian or Hispanic mothers
- Age 20-24, or 25-29
- One previous birth

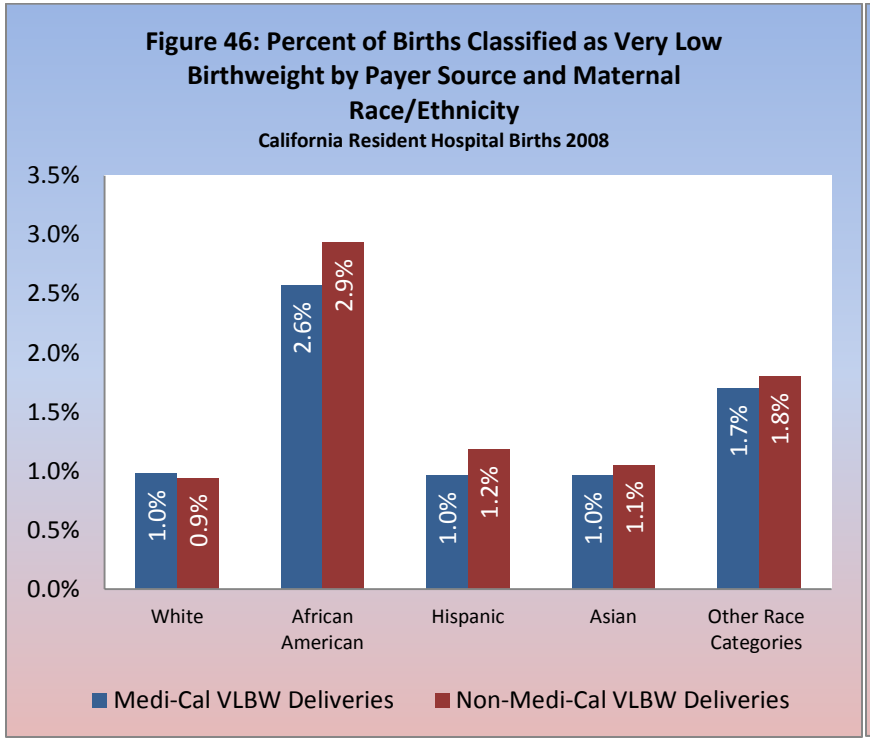


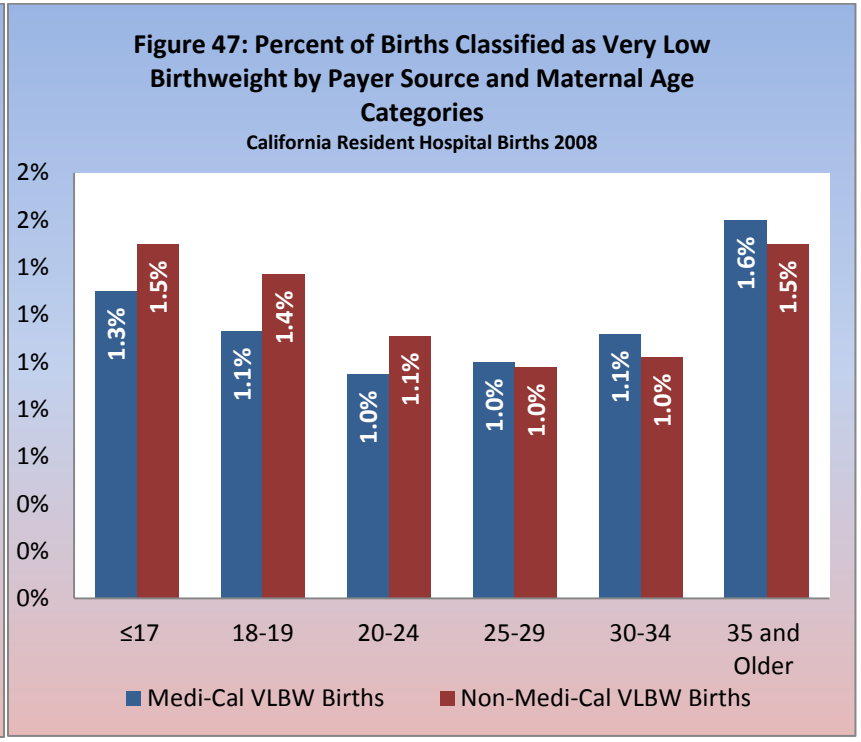


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Among maternal racial cohorts, African-American mothers had the highest percentages of very low birthweight at 2.6% for Medi-Cal births and 2.9% for non-Medi-Cal births. The lowest percentages of very low birthweight births occurred among Hispanic, Asian, and white mothers (Figure 46).

Very low birthweight was lowest among Medi-Cal and non-Medi-Cal mothers ages 20-34, ranging from 1.0% to 1.1%. Percentages of very low birthweight within Medi-Cal were somewhat higher among women age 17 or younger at 1.3%. Among Medi-Cal mothers, the very low birthweight percent was highest among mothers age 35 or older at 1.6%. For non-Medi-Cal mothers, the highest percentages were exhibited among mothers age 17 and younger (1.5%) and 35 and older at 1.5% (Figure 47).

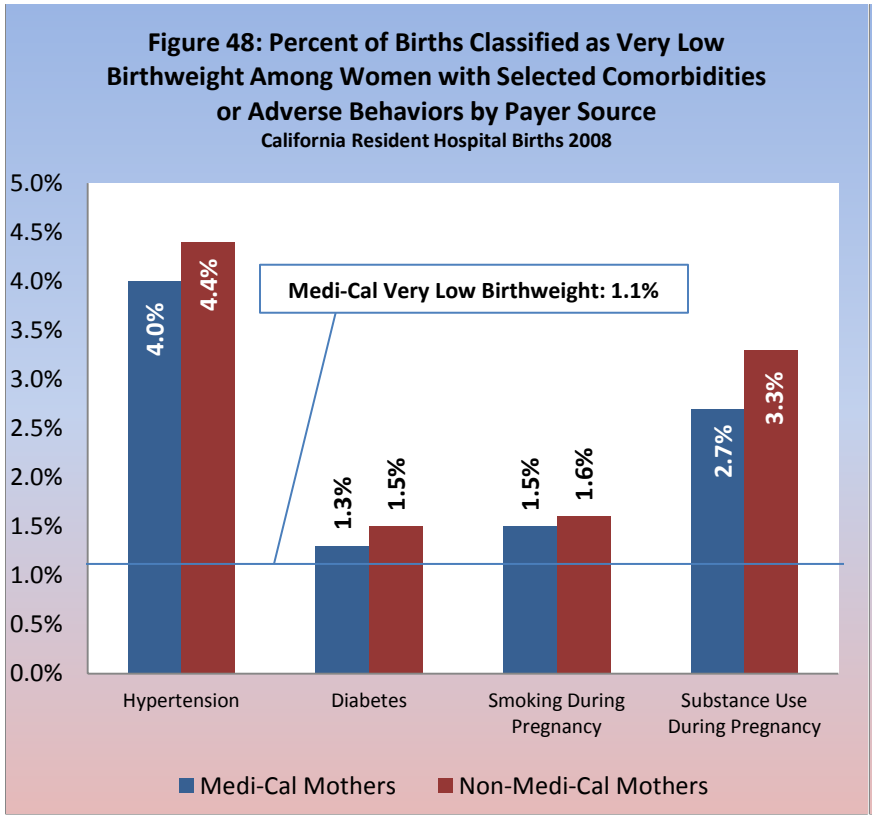


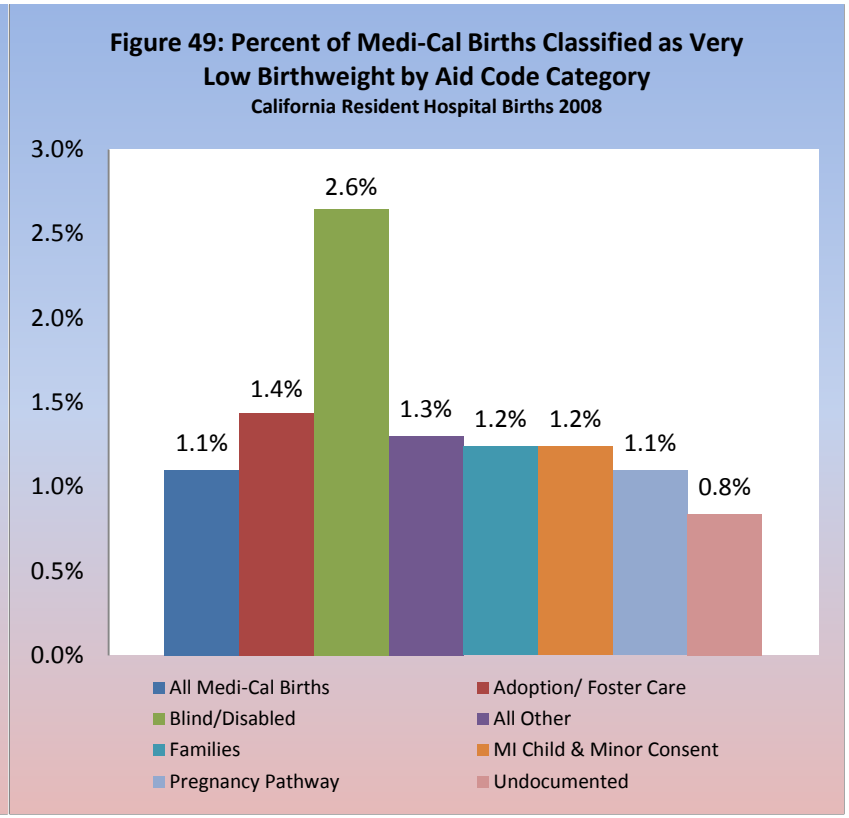


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

The prevalence of very low birthweight was highest among mothers with negative health behaviors and for those diagnosed with select comorbidities. For example, very low birthweight was four times higher for mothers diagnosed with hypertension and roughly three times higher 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 was found among mothers without SIS (Undocumented, 0.8%) (Figure 49).





Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Preterm Births: The percentage of preterm births is almost twice as high in the U.S. compared to other developed countries.[112] 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.[113] The Healthy People 2020 goal is to reduce the percent of preterm births to 11.4%.

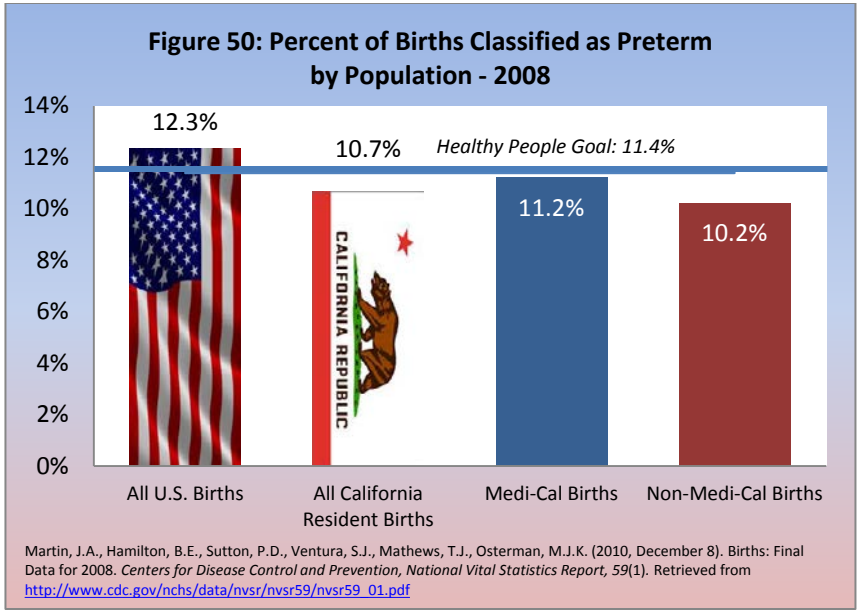
In 2008, 10.7% of hospital births to all California resident mothers were premature. Preterm births were more common among Medi-Cal financed births (11.2%) than non-Medi-Cal financed births (10.2%) (Figure 50). Preterm percentages were slightly higher among Medi-Cal FFS beneficiaries (10.8%) than births financed by private insurance (9.9%), and more prevalent among Medi-Cal managed care beneficiaries (12.2%) and births financed by other funding sources (11.5%) (Figure 51).

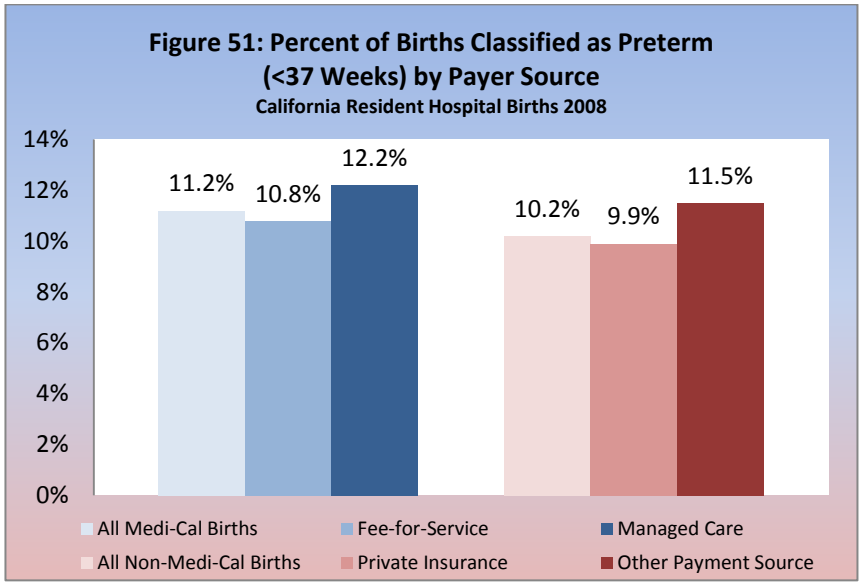
Medi-Cal categories with higher percentages of preterm birth:

- Multiple Gestation Births
- Hypertension
- Age 45 and Older
- Substance Use
- Blind/Disabled Aid Category
- Diabetes
- African-American Mothers

Medi-Cal categories with lower percentages of preterm birth:

- Bachelor's Degree or Higher
- Singleton Birth
- Age 20-24
- White Mothers
- Pregnancy-Related Aid Category

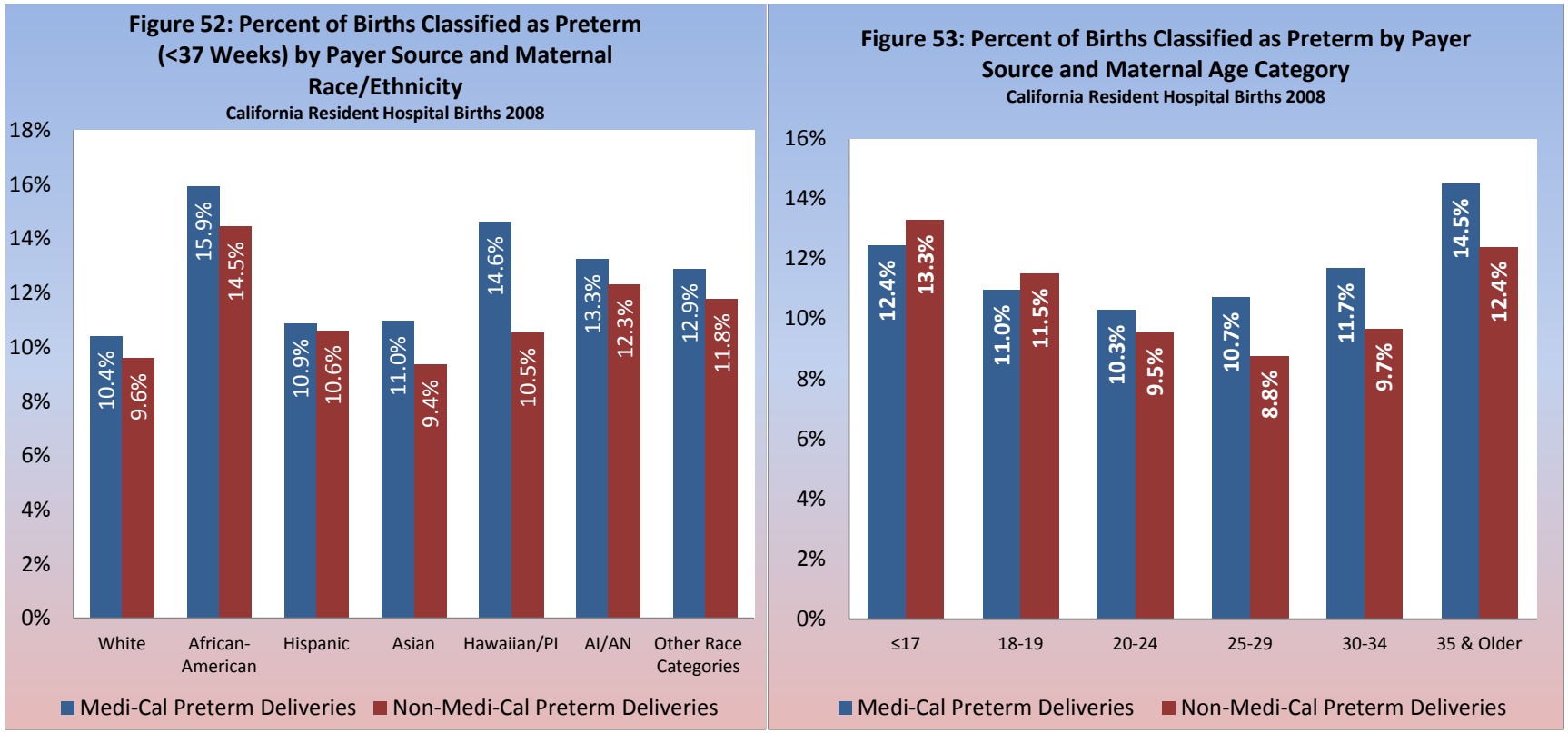




Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Similar to low-birthweight deliveries, African-American mothers had the highest percentages of preterm deliveries among racial cohorts (15.9% for Medi-Cal financed births and 14.5% for non-Medi-Cal financed births). Among Medi-Cal financed births, white mothers had the lowest percent of preterm delivery (10.4%), and Asian mothers had the lowest percent of preterm births among non-Medi-Cal births (9.4%) (Figure 52).

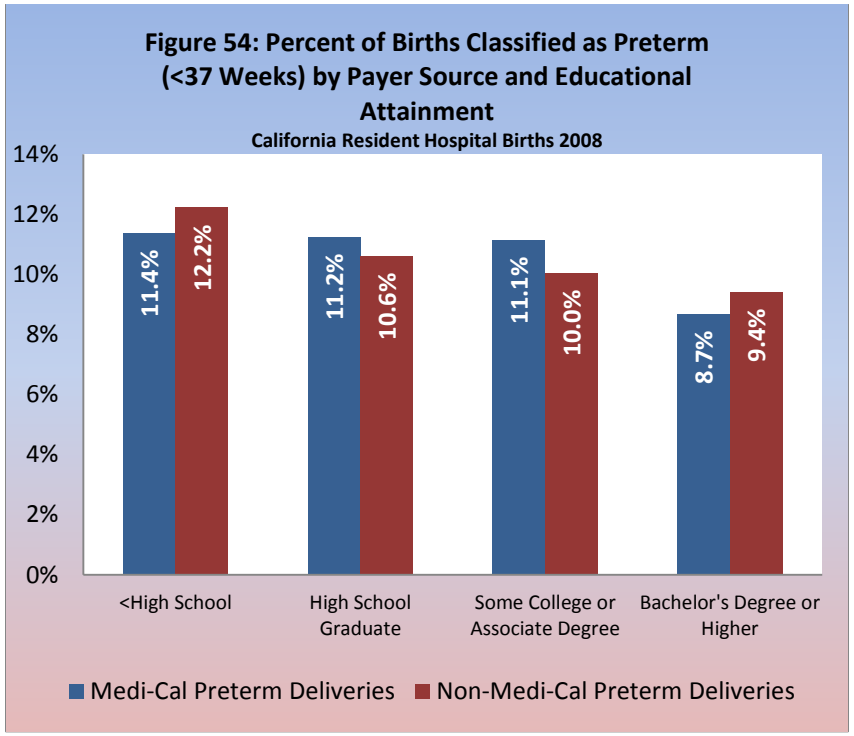
The incidence of preterm births was lowest among mothers 20-34 years of age, whereas the youngest and oldest age cohorts had the highest percentages of preterm births. Percentages for mothers age 17 and younger and over 34 years of age were above the Healthy People 2020 goal of 11.4% (Figure 53).

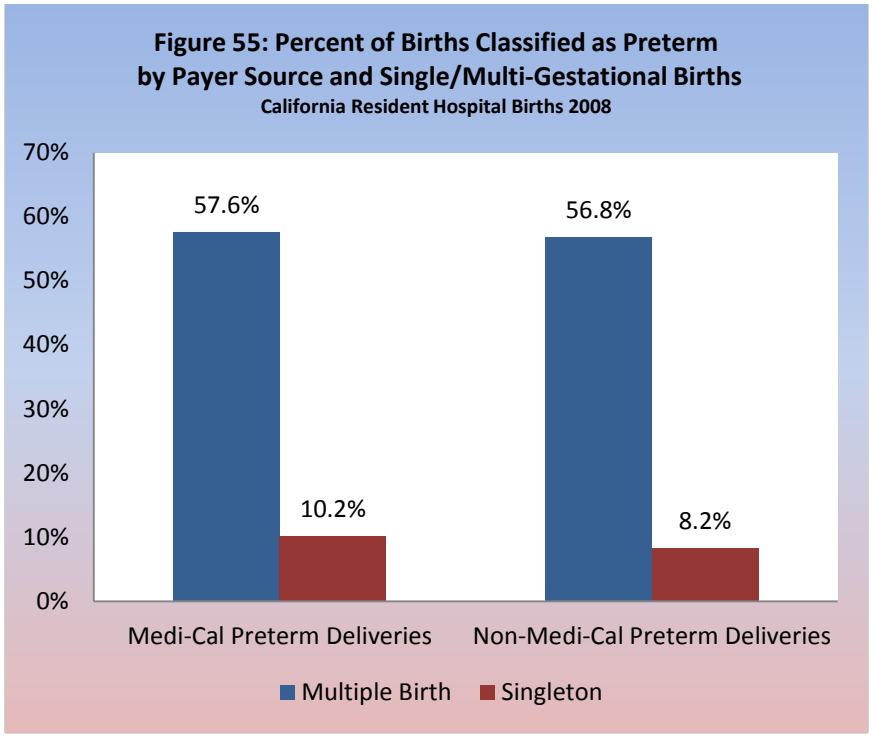


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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 percentages of preterm birth (11.4% for Medi-Cal financed births and 12.2% for non-Medi-Cal financed births), and those with a bachelor's degree or higher experienced the lowest percentages of preterm births (8.7% for Medi-Cal financed births and 9.4% for non-Medi-Cal financed births) (Figure 54). Non-Medi-Cal mothers were particularly illustrative of this trend.

The highest percentages of preterm birth were 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).

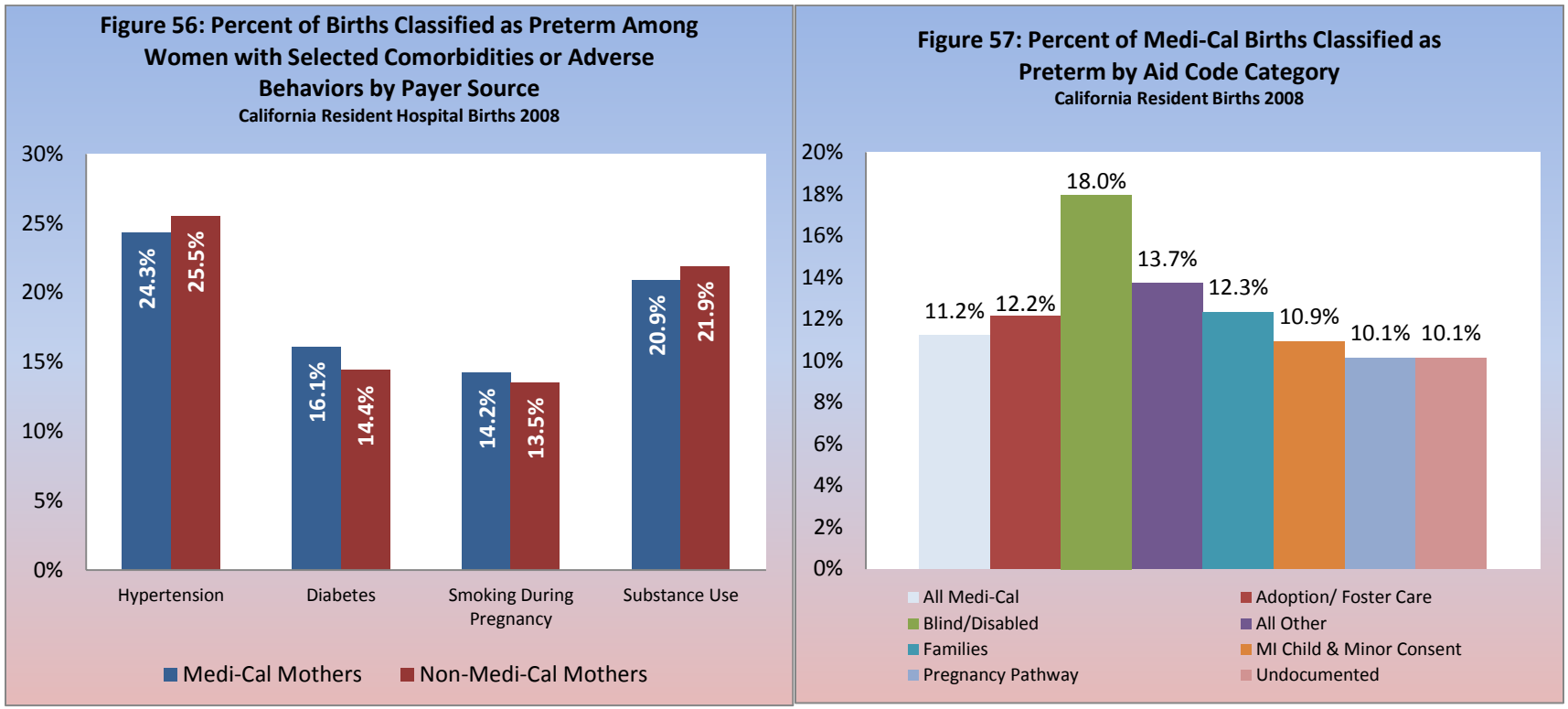




Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Medi-Cal and non-Medi-Cal mothers with hypertension experienced a percentage of preterm birth more than twice the Healthy People 2020 goal of 11.4%. The percentages for mothers with hypertension were 24.3% for Medi-Cal financed births and 25.5% for non-Medi-Cal financed births. Mothers with diabetes also exhibited elevated incidence of preterm delivery, with percentages of 16.1% and 14.4% for Medi-Cal and non-Medi-Cal financed births, respectively. Significantly higher percentages of preterm delivery were also found among mothers with a diagnosis for substance abuse, 20.9% for Medi-Cal financed births and 21.9% for non-Medi-Cal financed births (Figure 56).

Medi-Cal mothers enrolled in the Blind/Disabled aid category experienced a much higher percentage of preterm delivery (18.0%) compared to Medi-Cal mothers enrolled in other aid codes. Women without SIS (Undocumented, 10.1%) and women enrolled in Pregnancy aid codes (10.1%) 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, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Very Preterm Births: Very preterm births are those that occur at less than 32 weeks of pregnancy. Nationally, the CDC, 12.3% of infants were born preterm in 2008. Of those, 8.8% of babies were born at 34 to 36 weeks gestation, 1.6% of babies were born at 32-33 weeks, and 2.0% were "very preterm" (less than 32 weeks). [114]

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 (1.6%) and births to mothers participating in Medi-Cal managed care (1.7%).

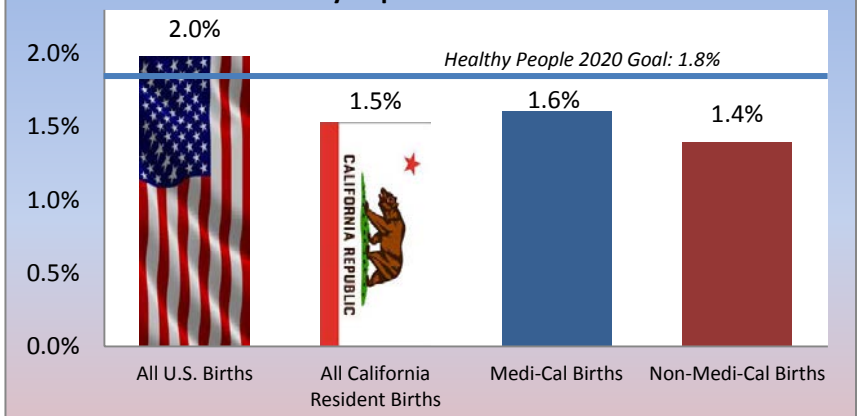
Medi-Cal categories with higher percentages of very preterm births:

- Multiple Gestation Births
- Substance Use
- Hypertension
- Blind/Disabled Aid Category
- African-American Mothers
- Age 17 or Younger
- Smoking During Pregnancy

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

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

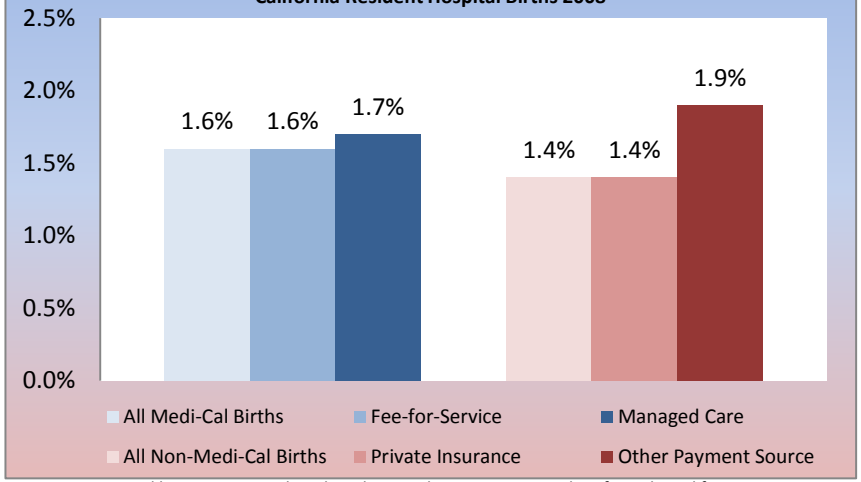
Figure 58: Percent of Births Classified as Very Preterm by Population - 2008



Martin, J.A., Hamilton, B.E., Sutton, P.D., Ventura, S.J., Mathews, T.J., Osterman, M.J.K. (2010, December 8). Births: Final Data for 2008. *Centers for Disease Control and Prevention, National Vital Statistics Report, 59*(1). Retrieved from http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_01.pdf

Figure 59: Very Preterm Births (<32 Weeks) by Payer Source

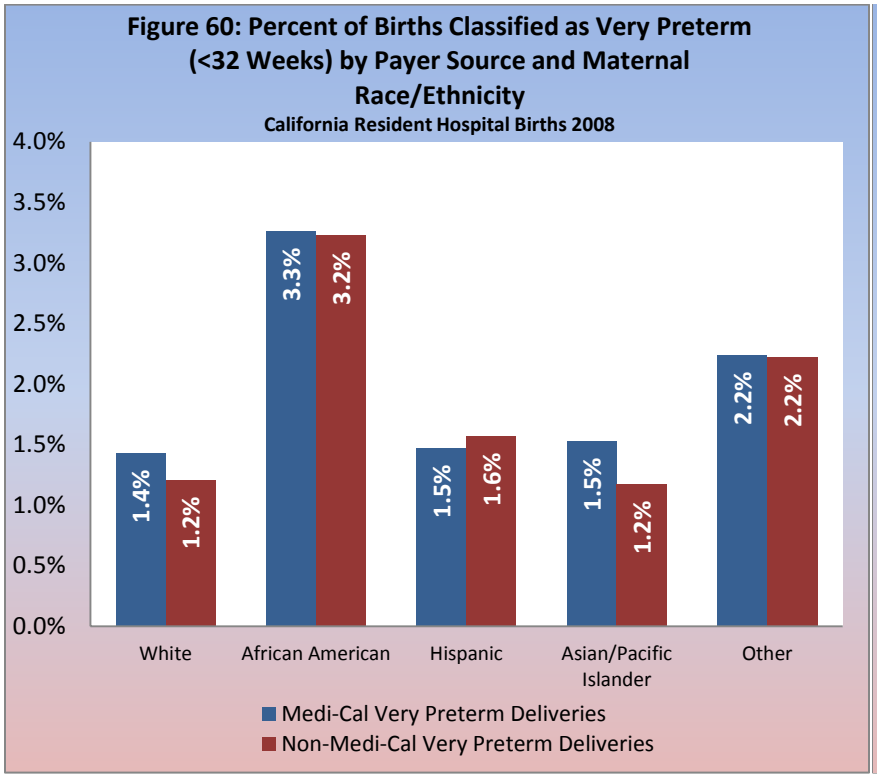
California Resident Hospital Births 2008

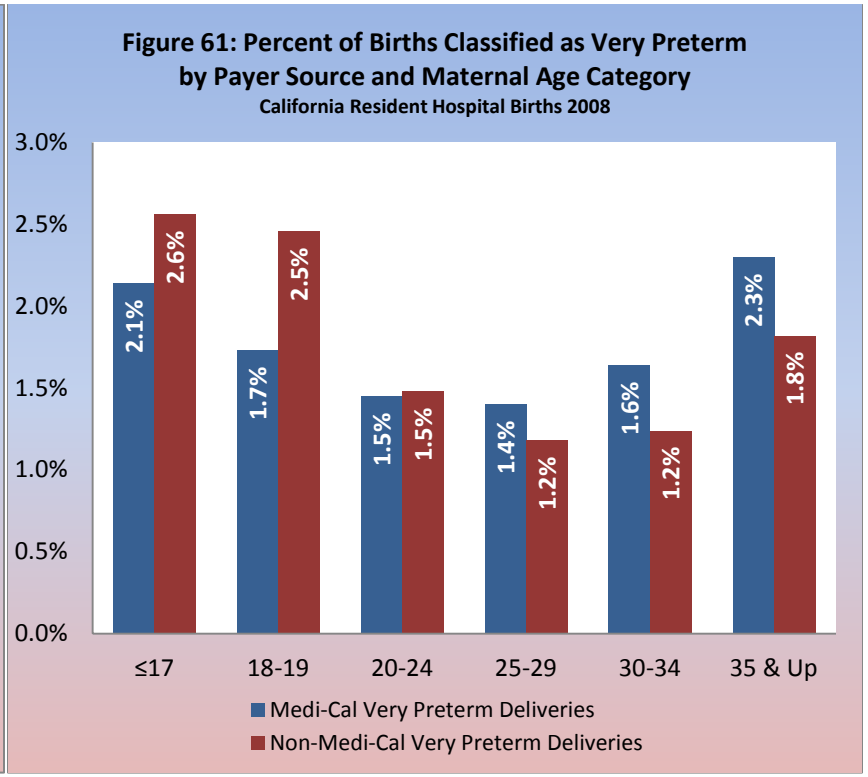


Source: Prepared by DHCS Research and Analytic Studies Division using data from the California Department of Public Health, 2011 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2011 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2011 – December 2011 reflecting a 12-month reporting lag.

The incidence of very preterm births was elevated among African-American mothers regardless of payer source. Mothers who self-identified in the "other" racial cohort had similarly heightened percentages.

When considering only Medi-Cal mothers, very preterm birth outcomes were most common among mothers age 17 and younger (2.1%), and mothers age 35 and older (2.3%) (Figure 61). Among the youngest age groups, non-Medi-Cal mothers displayed the highest incidence of very preterm births. Non-Medi-Cal mothers age 17 and younger had a very preterm percent of 2.6%, and non-Medi-Cal mothers ages 18-19 had a percent of 2.5% (Figure 61).

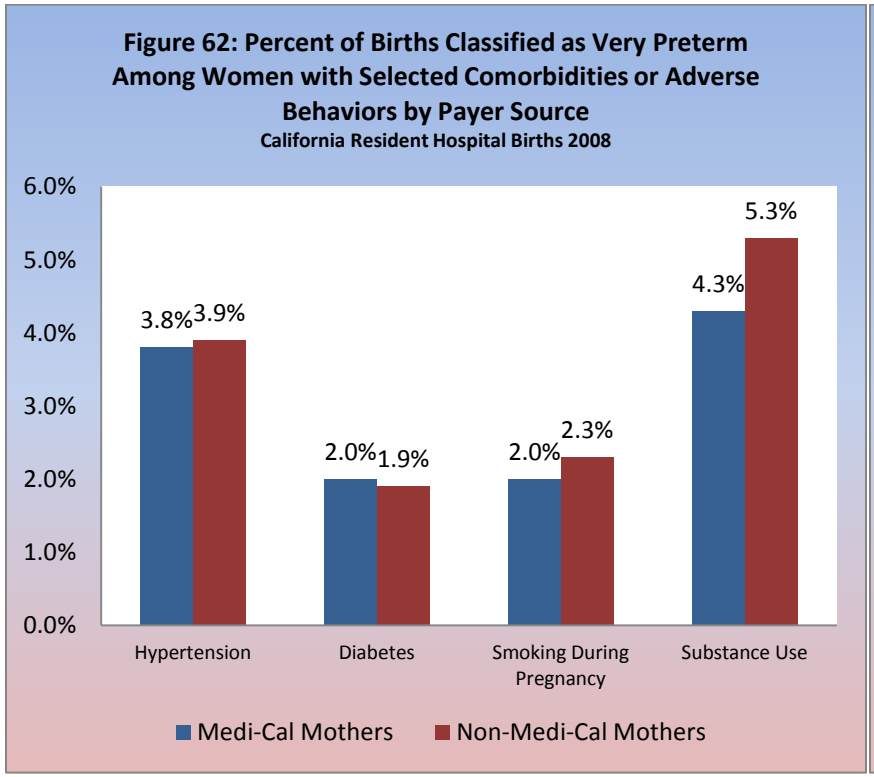


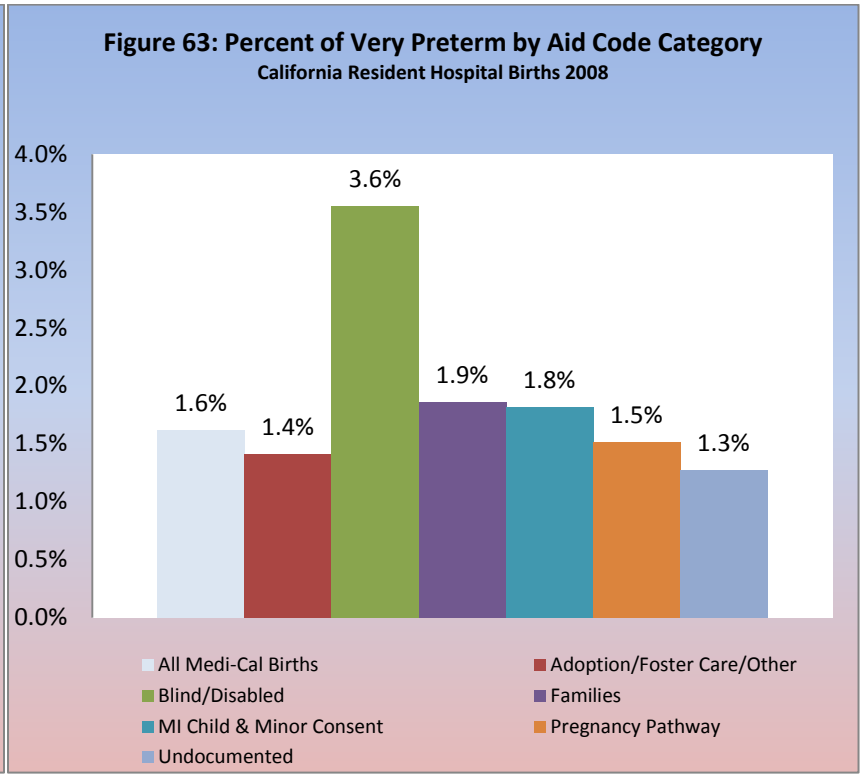


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 reflecting a 12-month reporting lag.

Very preterm birth among Medi-Cal mothers with hypertension (3.8%) and substance use (4.3%) diagnoses were more than twice the Healthy People 2020 goal of 1.8% or less. Medi-Cal mothers who smoked during pregnancy (2.0%) 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 widely across Medi-Cal aid code categories. Very preterm births were more prevalent among mothers enrolled in Blind/Disabled aid codes (3.6%), while mothers enrolled in Adoption/Foster care (1.4%) and Undocumented (1.3%) 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, 2008 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2008 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2008 – December 2008 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 roughly 50% of resident hospital births in 2008. 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, 13.9% 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 abuse, 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 abuse, 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 2008 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	
AHRQ	Agency for Healthcare Research Quality
AI	American Indian
AIM	Access for Infants and Mothers
AN	Alaskan Native
BIH	Black Infant Health
BMI	Body Mass Index
CalWORKS	California Work Opportunity and Responsibility to Kids
CCS	Clinical Classification Software
CDC	Centers for Disease Control and Prevention
CDPH	California Department of Public Health
COHS	County Organized Health System
CPSP	Comprehensive Perinatal Services Program
DHCS	Department of Health Care Services
FFS	Fee-for-Service
FPL	Federal Poverty Level
GFR	General Fertility Rate
GMC	Geographic Managed Care
LGA	Large for gestational age
MEDS	Medi-Cal Eligibility Data System
MI	Medically Indigent
MN	Medically Needy
NHLBI	National Heart, Lung, and Blood Institute
OSHPD	Office of Statewide Health and Planning and Development
PA	Public Assistance
PCG	Prenatal Care Guidance
PE	Presumptive Eligibility
PI	Pacific Islander
PRAMS	Pregnancy Risk Assessment Monitoring Systems
RASD	Research and Analytic Studies Division
SIDS	Sudden Infant Death Syndrome
SIS	Satisfactory Immigration Status
SOC	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

Aid Category	Budget Aid Category	Delivery Aid Code
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
Reduce the Rate of Low Birthweight	
Low Birthweight(<2500g)	
7.8%	8.2% (2007)
	5% Improvement
Very Low Birthweight (1500g)	
1.4%	1.5% (2007)
	5% Improvement
Reduce the Rate of Preterm Births	
Preterm Births(<36 weeks)	
11.4%	12.7% (2007)
	10% Improvement
Very Preterm Births (32 weeks)	
1.8%	2.0% (2007)
	10% Improvement
Increase the Rate of Prenatal Care	
First Trimester Initiation	
77.9%	70.8% (2007)
	10% Improvement
Increase the Rate of Abstaining From Cigarette Use During Pregnancy	
98.6%	89.6% (2007)*
	10% Improvement
Increase the Rate of Abstaining From Illicit Drug Use During Pregnancy (women ages 15-44 in the last 30 days)	
100%	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

Totals	Subtractions		Vital Statistics
Birth Records on File			553,449
	Out-of State Resident	(1,882)	
California Resident Births			551,567
	Non-Hospital Birth or Birth in Transit	(3,408)	
	Out-of-State Hospital	(831)	
	Location Not Classifiable	(831)	
	Maternity Hospital Code Could Not be Confirmed	(1,078)	
California Resident In-Hospital Births			546,250

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APPENDIX G – ENDNOTES AND REFERENCES

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[11] Being linked as used here means that you meet the nonfinancial eligibility criteria of these programs; it does not mean that you are receiving cash assistance from SSI or CalWORKs.

[12] W&I CODE § 14007.5 : California Code - Section 14007.5

[13] Medi-Cal Eligibility Procedures Manual, 5N-F

[14] Medi-Cal Eligibility Procedures Manual, 5N-F

[15] W&I CODE § 14007.5 : California Code - Section 14007.5

[16] 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 133% of FPL. OBRA-1989 mandated coverage for pregnant women up to 185% of FPL. OBRA-1990 mandated continuous eligibility for pregnant women through 60-days postpartum.

[17] 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.

[18] 42 U.S.C. Section 1396r-1(b)(1)(B).

[19] Medi-Cal Eligibility Procedures Manual, 5M-4, 5M-6

[20] 42 U.S.C. Section 1396r-1 (a)

[21] 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.

[22] Medi-Cal Eligibility Procedures Manual 5M-4

[23] 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 35 (SB 35) provided an income deduction for eligible pregnant women, based on family 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.

[24] 42 U.S.C. Sections 1396a(a)(10)(A)(i)(IV), (VI), 1396a(I(1)(A); Cal. Welf. & Inst. Code Section 14148(f); Medi-Cal Eligibility Procedures Manual, Article 5F.

[25] 42 U.S.C. Section 1396o(a)(2)(B); 42 C.F.R. Section 447.53(b)(2).

[26] Medi-Cal Medical Services Provider Manual at 100-31-2

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[29] 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,

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Appendix H

Table 1. Medi-Cal Births and Non-Medi-Cal Births by Select Maternal Characteristics
California Resident Hospital Births, 2008

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
AGE OF MOTHER						
Age ≤17	12,534	7,646	4,888	4,964	2,593	2,371
18-19	27,721	17,027	10,694	6,778	3,214	3,564
20-24	85,329	57,697	27,632	35,984	11,219	24,765
25-29	69,763	50,207	19,556	75,875	12,677	63,198
30-34	43,215	33,200	10,015	87,961	10,886	77,075
35 and Older	26,699	20,109	6,590	69,389	7,759	61,630
Invalid	*0*	*0*	*0*	*38*	*22*	*16*
RACE/ETHNICITY OF MOTHER						
White	35,610	21,702	13,908	107,813	11,150	96,663
African American	18,558	6,812	11,746	10,620	2,771	7,849
Hispanic	188,413	144,085	44,328	97,542	25,461	72,081
Asian	13,793	8,226	5,567	50,710	6,503	44,207
Hawaiian/Pacific Islanders	1,266	686	580	1,199	277	922
American Indian/Alaskan Native	1,163	756	407	821	245	576
Two or more Race Categories	3,755	1,902	1,853	5,935	868	5,067
Others/Unknown	*2,703*	*1,717*	*986*	*6,349*	*1,095*	*5,254*
MOTHER'S NATIVITY						
Foreign Born	138,582	122,425	16,157	105,837	22,869	82,968
U.S. Born	126,579	63,403	63,176	174,985	25,439	149,546
Unknown	*100*	*58*	*42*	*167*	*62*	*105*
MOTHER'S EDUCATION STATUS						
<High School	115,453	89,449	26,004	26,391	13,196	13,195
High School Graduate	86,750	55,326	31,424	56,562	13,356	43,206
Some College or Associate Degree	46,546	28,903	17,643	73,062	10,467	62,595
Bachelor's Degree or Higher	8,887	6,797	2,090	115,247	9,319	105,928
Unknown	*7,625*	*5,411*	*2,214*	*9,727*	*2,032*	*7,695*
TOTAL BIRTHS[1]	**265,261**	**185,886**	**79,375**	**280,989**	**48,370**	**232,619**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 2. Medi-Cal and Non-MediCal Births by Select Birth Characteristics
California Resident Hospital Births, 2008

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
PARITY STATUS						
First Born	95,231	69,508	25,723	118,404	19,666	98,738
One Previous Birth	75,063	52,087	22,976	94,485	14,118	80,367
Two+ Previous Births	94,703	64,119	30,584	67,676	14,499	53,177
Unknown or Unreported	*264*	*172*	*92*	*424*	*87*	*337*
SINGLE/MULTIPLE BIRTH						
Multiple Birth	5,835	3,772	2,063	11,390	1,468	9,922
Singleton	259,426	182,114	77,312	269,599	46,902	222,697
PRENATAL CARE INITIATION						
No Prenatal Care	1,559	1,019	540	999	806	193
First Trimester	196,697	138,918	57,779	244,917	37,077	207,840
Second Trimester	50,417	34,591	15,826	25,939	7,319	18,620
Third Trimester	10,454	7,650	2,804	3,867	1,774	2,093
Unknown or Unreported	6,134	3,708	2,426	5,267	1,394	3,873
METHOD OF DELIVERY						
Cesarean-Primary	43,991	31,351	12,640	57,192	9,015	48,177
Cesarean-Repeat	40,079	27,581	12,498	37,781	6,739	31,042
Vaginal	179,638	125,850	53,788	184,090	32,367	151,723
Vaginal After Previous Cesarean	1,553	1,104	449	1,926	249	1,677
TOTAL BIRTHS[1]	**265,261**	**185,886**	**79,375**	**280,989**	**48,370**	**232,619**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 3a. **Medi-Cal** Delivery Methods by Select Maternal Characteristics
California Resident Hospital Births, 2008

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
AGE OF MOTHER					
Age ≤17	12,534	2,398	185	9,947	4
18-19	27,721	5,340	1,127	21,218	36
20-24	85,329	14,468	9,691	60,801	369
25-29	69,763	10,132	12,579	46,556	496
30-34	43,215	6,610	9,746	26,467	392
35 and Older	26,699	5,043	6,751	14,649	256
RACE/ETHNICITY OF MOTHER					
White	35,610	6,459	4,623	24,329	199
African American	18,558	3,876	2,930	11,613	139
Hispanic	188,413	29,727	29,730	127,886	1,070
Asian	13,793	2,239	1,557	9,891	106
Hawaiian/Pacific Islanders	1,266	240	175	839	12
American Indian/Alaskan Native	1,163	187	212	758	6
Two or more Race Categories	3,755	718	470	2,550	17
Others/Unknown	*2,703*	*545*	*382*	*1,772*	*4*
MOTHER'S NATIVITY					
Foreign Born	138,582	21,213	23,320	93,075	974
U.S. Born	126,579	22,758	16,750	86,492	579
Unknown	*100*	*20*	*9*	*71*	*0*
MOTHER'S EDUCATION STATUS					
<High School	115,453	17,070	19,055	78,566	762
High School Graduate	86,750	14,947	12,050	59,312	441
Some College or Associate Degree	46,546	8,791	6,625	30,862	268
Bachelor's Degree or Higher	8,887	1,830	1,301	5,704	52
Unknown	*7,625*	*1,353*	*1,048*	*5,194*	*30*
TOTAL BIRTHS[1]	**265,261**	**43,991**	**40,079**	**179,638**	**1,553**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 3b. **Non Medi-Cal** Births by Select Maternal Characteristics
California Resident Hospital Births, 2008

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
AGE OF MOTHER					
Age ≤ 17	4,964	899	35	4,028	2
18-19	6,778	1,288	182	5,298	10
20-24	35,984	6,737	2,541	26,569	137
25-29	75,875	14,306	7,900	53,249	420
30-34	87,961	17,504	13,035	56,739	683
35 and Older	69,389	16,448	14,082	38,185	674
Invalid	*38*	*10*	*6*	*22*	*0*
RACE/ETHNICITY OF MOTHER					
White	107,813	22,577	13,877	70,567	792
African American	10,620	2,548	1,582	6,420	70
Hispanic	97,542	17,973	14,260	64,669	640
Asian	50,710	10,902	6,261	33,228	319
Hawaiian/Pacific Islanders	1,199	214	174	800	11
American Indian/Alaskan Native	821	137	115	564	5
Two or more Race Categories	5,935	1,235	678	3,982	40
Others/Unknown	*6,349*	*1,606*	*834*	*3,860*	*49*
MOTHER'S NATIVITY					
Foreign Born	105,837	21,288	15,547	68,219	783
U.S. Born	174,985	35,870	22,221	115,753	1,141
Unknown	*167*	*34*	*13*	*118*	*2*
MOTHER'S EDUCATION STATUS					
<High School	26,391	4,111	3,983	18,100	197
High School Graduate	56,562	10,151	7,706	38,346	359
Some College or Associate Degree	73,062	14,804	9,892	47,900	466
Bachelor's Degree or Higher	115,247	25,839	14,957	73,609	842
Unknown	*9,727*	*2,287*	*1,243*	*6,135*	*62*
TOTAL BIRTHS[1]	**280,989**	**57,192**	**37,781**	**184,090**	**1,926**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 4. Medi-Cal Births and Non-Medi-Cal Births by Select Maternal Comorbidities
California Resident Hospital Births, 2008

COMORBIDITIES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
HYPERTENSION*						
Hypertension	17,409	11,743	5,666	17,756	2,107	15,649
No Hypertension Diagnosis	247,852	174,143	73,709	241,299	31,446	209,853
Unknown	*0*	*0*	*0*	*21,934*	*14,817*	*7,117*
DIABETES*						
Diabetes	18,912	13,946	4,966	20,696	2,040	18,656
No Diabetes Diagnosis	246,349	171,940	74,409	238,359	31,513	206,846
Unknown	*0*	*0*	*0*	*21,934*	*14,817*	*7,117*
SMOKING DURING PREGNANCY[2]						
Maternal Smoker	9,466	5,235	4,231	3,051	788	2,263
Maternal Non-Smoker	247,996	175,038	72,958	253,527	31,912	221,615
Unknown	*7,799*	*5,613*	*2,186*	*24,411*	*15,670*	*8,741*
SUBSTANCE USE*						
Maternal Substance User	4,234	2,187	2,047	1,230	587	643
Maternal Non-Substance User	261,027	183,699	77,328	257,825	32,966	224,859
Unknown	*0*	*0*	*0*	*21,934*	*14,817*	*7,117*
PRE-PREGNANCY WEIGHT**						
Underweight	9,279	6,117	3,162	10,068	1,411	8,657
Normal Weight	101,619	71,919	29,700	130,366	14,792	115,574
Overweight	64,880	46,865	18,015	54,351	7,315	47,036
Obese/Extremely Obese	53,818	35,067	18,751	38,162	5,080	33,082
Out of Range/Unknown	*35,665*	*25,918*	*9,747*	*48,042*	*19,772*	*28,270*
TOTAL BIRTHS[1]	**265,261**	**185,886**	**79,375**	**280,989**	**48,370**	**232,619**

*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 Healthcare Research & Quality (AHRQ).

**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.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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, 2008

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
BIRTHWEIGHT						
Low Birthweight	17,677	11,893	5,784	19,554	3,614	15,940
Normal Birthweight	247,549	173,968	73,581	261,386	44,741	216,645
Out of Range	*35*	*25*	*10*	*49*	*15*	*34*
VERY LOW BIRTHWEIGHT STATUS						
Birthweight >=1500g	262,331	183,874	78,457	277,693	47,681	230,012
Very Low Birthweight (<1500g)	2,895	1,987	908	3,247	674	2,573
Out of Range	*35*	*25*	*10*	*49*	*15*	*34*
GESTATION*						
Preterm Delivery (<37 Weeks)	28,635	19,414	9,221	27,642	5,324	22,318
Normal Gestation (>=37 Weeks)	226,356	160,110	66,246	243,667	41,069	202,598
Out of Range/Missing	*10,270*	*6,362*	*3,908*	*9,680*	*1,977*	*7,703*
VERY PRETERM STATUS*						
Very Preterm Delivery (<32 Weeks)	4,117	2,800	1,317	3,932	877	3,055
Gestation >=32 Weeks	250,874	176,724	74,150	267,377	45,516	221,861
Out of Range/Missing	*10,270*	*6,362*	*3,908*	*9,680*	*1,977*	*7,703*
TOTAL BIRTHS[1]	**265,261**	**185,886**	**79,375**	**280,989**	**48,370**	**232,619**

*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=19,950) are missing this data element.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 5b. Medi-Cal and Non-Medi-Cal **SINGLETON** Births by Select Birth Outcomes
California Resident Hospital Births, 2008

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
BIRTHWEIGHT						
Low Birthweight	*14,295*	9,724	4,571	*13,309*	2,835	10,474
Normal Birthweight	*245,101*	172,368	72,733	*256,255*	44,057	212,198
Out of Range	*30*	*22*	*8*	*35*	*10*	*25*
VERY LOW BIRTHWEIGHT STATUS						
Birthweight >=1500g	257,041	180,446	76,595	267,352	46,344	221,008
Very Low Birthweight (<1500g)	2,355	1,646	709	2,212	548	1,664
Out of Range	*30*	*22*	*8*	*35*	*10*	*25*
GESTATION*						
Preterm Delivery (<37 Weeks)	25,391	17,349	8,042	21,471	4,537	16,934
Normal Gestation (>=37 Weeks)	223,968	158,526	65,442	238,974	40,459	198,515
Out of Range/Missing	*10,067*	*6,239*	*3,828*	*9,154*	*1,906*	*7,248*
VERY PRETERM STATUS*						
Very Preterm Delivery (<32 Weeks)	3,521	2,426	1,095	2,790	733	2,057
Gestation >=32 Weeks	245,838	173,449	72,389	257,655	44,263	213,392
Out of Range/Missing	*10,067*	*6,239*	*3,828*	*9,154*	*1,906*	*7,248*
TOTAL SINGLETON BIRTHS[1]	**259,426**	**182,114**	**77,312**	**269,599**	**46,902**	**222,697**

*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=19,221) are missing this data element.

[1]Total Singleton Births = Births in Hospital Only. DHCS identified a total of 529,025 singleton births to California mothers in 2008 occurring in a hospital setting.

Table 6a. Birthweight Among **Medi-Cal** Births, by Select Maternal and Birth Characteristics
California Resident Hospital Births, 2008

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
AGE OF MOTHER							
Age ≤ 17	12,534	*2*	12,532	928	11,604	12,375	157
18-19	27,721	*3*	27,718	2,003	25,715	27,406	312
20-24	85,329	*10*	85,319	5,319	80,000	84,506	813
25-29	69,763	*7*	69,756	4,300	65,456	69,057	699
30-34	43,215	*8*	43,207	2,844	40,363	42,725	482
35 and Older	26,699	*5*	26,694	2,283	24,411	26,262	432
RACE/ETHNICITY OF MOTHER							
White	35,610	*1*	35,609	2,411	33,198	35,259	350
African American	18,558	*7*	18,551	2,361	16,190	18,075	476
Hispanic	188,413	*22*	188,391	11,162	177,229	186,590	1,801
Asian	13,793	*2*	13,791	1,019	12,772	13,659	132
Hawaiian/Pacific Islanders	1,266	*0*	1,266	91	1,175	1,254	12
American Indian/Alaskan Native	1,163	*0*	1,163	87	1,076	1,148	15
Two or more Race Categories	3,755	*0*	3,755	287	3,468	3,699	56
Others/Unknown	2,703	*3*	*2,700*	*259*	*2,441*	*2,647*	*53*
MOTHER'S NATIVITY							
Foreign Born	138,582	*15*	138,567	7,801	130,766	137,350	1,217
U.S. Born	126,579	*20*	126,559	9,871	116,688	124,885	1,674
Unknown	100	*0*	*100*	*5*	*95*	*96*	*4*
MOTHER'S EDUCATION STATUS							
<High School	115,453	*17*	115,436	7,161	108,275	114,254	1,182
High School Graduate	86,750	*9*	86,741	6,018	80,723	85,773	968
Some College or Associate Degree	46,546	*6*	46,540	3,328	43,212	46,002	538
Bachelor's Degree or Higher	8,887	*0*	8,887	551	8,336	8,807	80
Unknown	7,625	*3*	*7,622*	*619*	*7,003*	*7,495*	*127*
PARITY STATUS							
First Born	95,231	*11*	95,220	6,637	88,583	94,104	1,116
One Previous Birth	75,063	*11*	75,052	4,412	70,640	74,346	706
Two+ Previous Births	94,703	*12*	94,691	6,600	88,091	93,627	1,064
Unknown or Unreported	264	*1*	*263*	*28*	*235*	*254*	*9*
SINGLE/MULTI BIRTH							
Multiple Birth	5,835	*5*	5,830	3,382	2,448	5,290	540
Singleton	259,426	*30*	259,396	14,295	245,101	257,041	2,355
TOTAL BIRTHS[1]	**265,261**	***35***	**265,226**	**17,677**	**247,549**	**262,331**	**2,895**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 6b. Birthweight Among Medi-Cal Births, by Select Comorbidities
California Resident Hospital Births, 2008

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
HYPERTENSION*							
Hypertension	17,409	*0*	17,409	3,675	13,734	16,717	692
No Hypertension Diagnosis	247,852	*35*	247,817	14,002	233,815	245,614	2,203
DIABETES*							
Diabetes	18,912	*3*	18,909	1,551	17,358	18,660	249
No Diabetes Diagnosis	246,349	*32*	246,317	16,126	230,191	243,671	2,646
SUBSTANCE USE*							
Maternal Substance User	4,234	*3*	4,231	663	3,568	4,115	116
Maternal Non-Substance User	261,027	*32*	260,995	17,014	243,981	258,216	2,779
SMOKING DURING PREGNANCY[2]							
Maternal Smoker	9,466	*1*	9,465	1,013	8,452	9,324	141
Maternal Non-Smoker	247,996	*32*	247,964	16,121	231,843	245,301	2,663
Unknown	7,799	*2*	*7,797*	*543*	*7,254*	*7,706*	*91*
PRE-PREGNANCY WEIGHT**							
Underweight	9,279	*3*	9,276	890	8,386	9,179	97
Normal Weight	101,619	*11*	101,608	6,334	95,274	100,701	907
Overweight	64,880	*5*	64,875	3,481	61,394	64,301	574
Obese/Extremely Obese	53,818	*8*	53,810	3,005	50,805	53,197	613
Out of Range/Unknown	35,665	*8*	*35,657*	*3,967*	*31,690*	*34,953*	*704*
TOTAL BIRTHS[1]	**265,261**	***35***	**265,226**	**17,677**	**247,549**	**262,331**	**2,895**

*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 Healthcare Research & Quality (AHRQ).

**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.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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 Comorbidities
California Resident Hospital Births, 2008

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
AGE OF MOTHER							
Age ≤ 17	4,964	*1*	4,963	438	4,525	4,888	75
18-19	6,778	*0*	6,778	524	6,254	6,685	93
20-24	35,984	*7*	35,977	2,194	33,783	35,579	398
25-29	75,875	*15*	75,860	4,454	71,406	75,113	747
30-34	87,961	*13*	87,948	5,834	82,114	87,055	893
35 and Older	69,389	*13*	69,376	6,101	63,275	68,336	1,040
Invalid/Out-of-Range	38	*0*	38	9	29	37	1
RACE/ETHNICITY OF MOTHER							
White	107,813	*21*	107,792	6,842	100,950	106,779	1,013
African American	10,620	*5*	10,615	1,259	9,356	10,304	311
Hispanic	97,542	*15*	97,527	6,273	91,254	96,377	1,150
Asian	50,710	*4*	50,706	3,988	46,718	50,181	525
Hawaiian/Pacific Islanders	1,199	*0*	1,199	77	1,122	1,179	20
American Indian/Alaskan Native	821	*0*	821	63	758	809	12
Two or more Race Categories	5,935	*1*	5,934	398	5,536	5,871	63
Others/Unknown	6,349	*3*	*6,346*	*654*	*5,692*	*6,193*	*153*
MOTHER'S NATIVITY							
Foreign Born	105,837	*15*	105,822	7,453	98,369	104,643	1,178
U.S. Born	174,985	*32*	174,953	12,069	162,884	172,900	2,053
Unknown	167	*2*	*165*	*32*	*133*	*150*	*15*
MOTHER'S EDUCATION STATUS							
<High School	26,391	*4*	26,387	1,975	24,412	26,034	353
High School Graduate	56,562	*15*	56,547	3,665	52,882	55,899	648
Some College or Associate Degree	73,062	*11*	73,051	4,898	68,153	72,226	825
Bachelor's Degree or Higher	115,247	*13*	115,234	8,079	107,155	114,041	1,193
Unknown	9,727	*6*	*9,721*	*937*	*8,784*	*9,493*	*228*
PARITY STATUS							
First Born	118,404	*18*	118,386	8,599	109,787	116,969	1,417
One Previous Birth	94,485	*15*	94,470	5,982	88,488	93,515	955
Two+ Previous Births	67,676	*14*	67,662	4,923	62,739	66,803	859
Unknown or Unreported	424	*2*	*422*	*50*	*372*	*406*	*16*
SINGLE/MULTI BIRTH							
Multiple Birth	11,390	*14*	11,376	6,245	5,131	10,341	1,035
Singleton	269,599	*35*	269,564	13,309	256,255	267,352	2,212
TOTAL BIRTHS[1]	**280,989**	***49***	**280,940**	**19,554**	**261,386**	**277,693**	**3,247**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 6d. Birthweight Among **Non-Medi-Cal** Births, by Select Comorbidities
California Resident Hospital Births, 2008

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
HYPERTENSION*							
Hypertension	17,756	*2*	17,754	4,082	13,672	16,973	781
No Hypertension Diagnosis	241,299	*20*	241,279	13,211	228,068	239,365	1,914
Unknown	21,934	*27*	*21,907*	*2,261*	*19,646*	*21,355*	*552*
DIABETES*							
Diabetes	20,696	*0*	20,696	1,965	18,731	20,379	317
No Diabetes Diagnosis	238,359	*22*	238,337	15,328	223,009	235,959	2,378
Unknown	21,934	*27*	*21,907*	*2,261*	*19,646*	*21,355*	*552*
SUBSTANCE USE*							
Maternal Substance User	1,230	*1*	1,229	2,261	1,007	1,189	40
Maternal Non-Substance User	257,825	*21*	257,804	17,071	240,733	255,149	2,655
Unknown	21,934	*27*	*21,907*	*222*	*19,646*	*21,355*	*552*
SMOKING DURING PREGNANCY[2]							
Maternal Smoker	3,051	*1*	3,050	285	2,765	3,000	50
Maternal Non-Smoker	253,527	*20*	253,507	16,823	236,684	250,896	2,611
Unknown	24,411	*28*	*24,383*	*2,446*	*21,937*	*23,797*	*586*
PRE-PREGNANCY WEIGHT**							
Underweight	10,068	*0*	10,068	784	9,284	9,988	80
Normal Weight	130,366	*6*	130,360	7,174	123,186	129,433	927
Overweight	54,351	*6*	54,345	2,884	51,461	53,846	499
Obese/Extremely Obese	38,162	*5*	38,157	2,194	35,963	37,688	469
Out of Range/Unknown	48,042	*32*	*48,010*	*6,518*	*41,492*	*46,738*	*1,272*
TOTAL BIRTHS[1]	**280,989**	***49***	**280,940**	**19,554**	**261,386**	**277,693**	**3,247**

*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 Healthcare Research & Quality (AHRQ).

**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.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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, 2008

MATERNAL AND BIRTH CHARACTERISTICS	Total	*Out of Range /Missing*	Total (Excluding Out of Range)	Gestation* (Excluding Out of Range)		Very Preterm Status (<32 wks gestation)* (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
AGE OF MOTHER							
Age ≤ 17	12,534	*541*	11,993	1,491	10,502	251	11,736
18-19	27,721	*1,161*	26,560	2,908	23,652	459	26,101
20-24	85,329	*3,524*	81,805	8,424	73,381	1,184	80,621
25-29	69,763	*2,645*	67,118	7,193	59,925	941	66,177
30-34	43,215	*1,495*	41,720	4,872	36,848	683	41,037
35 and Older	26,699	*904*	25,795	3,747	22,048	593	25,202
RACE/ETHNICITY OF MOTHER							
White	35,610	*1,757*	33,853	3,524	30,329	483	33,370
African American	18,558	*987*	17,571	2,798	14,773	573	16,998
Hispanic	188,413	*6,631*	181,782	19,738	162,044	2,676	179,106
Asian	13,793	*407*	13,386	1,467	11,919	201	13,185
Hawaiian/Pacific Islanders	1,266	*43*	1,223	179	1,044	23	1,200
American Indian/Alaskan Native	1,163	*76*	1,087	144	943	28	1,059
Two or more Race Categories	3,755	*182*	3,573	433	3,140	68	3,505
Others/Unknown	2,703	*187*	*2,516*	*352*	*2,164*	*65*	*2,451*
MOTHER'S NATIVITY							
Foreign Born	138,582	*4,050*	134,532	13,966	120,566	1,761	132,771
U.S. Born	126,579	*6,206*	120,373	14,655	105,718	2,353	118,020
Unknown	100	*14*	*86*	*14*	*72*	*3*	*83*
MOTHER'S EDUCATION STATUS							
<High School	115,453	*4,060*	111,393	12,664	98,729	1,738	109,655
High School Graduate	86,750	*3,520*	83,230	9,358	73,872	1,377	81,853
Some College or Associate Degree	46,546	*1,799*	44,747	4,984	39,763	748	43,999
Bachelor's Degree or Higher	8,887	*249*	8,638	750	7,888	96	8,542
Unknown	7,625	*642*	*6,983*	*879*	*6,104*	*158*	*6,825*
PARITY STATUS							
First Born	95,231	*3,243*	91,988	8,952	83,036	1,445	90,543
One Previous Birth	75,063	*2,929*	72,134	7,617	64,517	1,025	71,109
Two+ Previous Births	94,703	*3,990*	90,713	12,038	78,675	1,640	89,073
Unknown or Unreported	264	*108*	*156*	*28*	*128*	*7*	*149*
SINGLE/MULTI BIRTH							
Multiple Birth	5,835	*203*	5,632	3,244	2,388	596	5,036
Singleton	259,426	*10,067*	249,359	25,391	223,968	3,521	245,838
TOTAL BIRTHS[1]	**265,261**	***10,270***	**254,991**	**28,635**	**226,356**	**4,117**	**250,874**

*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=10,270) are missing this data element.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 7b. Gestational Age Among **Medi-Cal** Births, by Select Comorbidities
California Resident Hospital Births, 2008

MATERNAL AND BIRTH CHARACTERISTICS	Total	*Out of Range /Missing*	Total (Excluding Out of Range)	Gestation* (Excluding Out of Range)		Very Preterm Status (<32 wks gestation)* (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
HYPERTENSION**							
Hypertension	17,409	*740*	16,669	4,050	12,619	639	16,030
No Hypertension Diagnosis	247,852	*9,530*	238,322	24,585	213,737	3,478	234,844
DIABETES**							
Diabetes	18,912	*623*	18,289	2,943	15,346	371	17,918
No Diabetes Diagnosis	246,349	*9,647*	236,702	25,692	211,010	3,746	232,956
SUBSTANCE USE**							
Maternal Substance User	4,234	*385*	3,849	803	3,046	165	3,684
Maternal Non-Substance User	261,027	*9,885*	251,142	27,832	223,310	3,952	247,190
SMOKING DURING PREGNANCY[2]							
Maternal Smoker	9,466	*550*	8,916	1,265	7,651	182	8,734
Maternal Non-Smoker	247,996	*9,125*	238,871	26,388	212,483	3,805	235,066
Unknown	7,799	*595*	7,204	*982*	*6,222*	*130*	*7,074*
PRE-PREGNANCY WEIGHT***							
Underweight	9,279	*278*	9,001	1,077	7,924	154	8,847
Normal Weight	101,619	*3,037*	98,582	10,202	88,380	1,400	97,182
Overweight	64,880	*1,837*	63,043	6,320	56,723	860	62,183
Obese/Extremely Obese	53,818	*1,852*	51,966	5,742	46,224	863	51,103
Out of Range/Unknown	35,665	*3,266*	*32,399*	*5,294*	*27,105*	*840*	*31,559*
TOTAL BIRTHS[1]	**265,261**	***10,270***	**254,991**	**28,635**	**226,356**	**4,117**	**250,874**

*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=10,270) are missing this data element.

**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 Healthcare Research & Quality (AHRQ).

***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

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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 Hospital Births, 2008

MATERNAL AND BIRTH CHARACTERISTICS	Total	*Out of Range /Missing*	Total (Excluding Out of Range)	Gestation* (Excluding Out of Range)		Very Preterm Status (<32 wks gestation)* (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
AGE OF MOTHER							
Age ≤ 17	4,964	*320*	4,644	617	4,027	119	4,525
18-19	6,778	*367*	6,411	737	5,674	158	6,253
20-24	35,984	*1,578*	34,406	3,280	31,126	508	33,898
25-29	75,875	*2,701*	73,174	6,421	66,753	866	72,308
30-34	87,961	*2,524*	85,437	8,269	77,168	1,059	84,378
35 and Older	69,389	*2,171*	67,218	8,314	58,904	1,222	65,996
Invalid/Out-of-Range	38	*19*	*19*	*4*	*15*	*0*	*19*
RACE/ETHNICITY OF MOTHER							
White	107,813	*3,399*	104,414	10,020	94,394	1,261	103,153
African American	10,620	*465*	10,155	1,467	8,688	328	9,827
Hispanic	97,542	*3,959*	93,583	9,931	83,652	1,472	92,111
Asian	50,710	*1,125*	49,585	4,637	44,948	575	49,010
Hawaiian/Pacific Islanders	1,199	*40*	1,159	122	1,037	21	1,138
American Indian/Alaskan Native	821	*42*	779	96	683	17	762
Two or more Race Categories	5,935	*191*	5,744	557	5,187	96	5,648
Others/Unknown	6,349	*459*	*5,890*	*812*	*5,078*	*162*	*5,728*
MOTHER'S NATIVITY							
Foreign Born	105,837	*3,117*	102,720	10,133	92,587	1,382	101,338
US Born	174,985	*6,516*	168,469	17,484	150,985	2,542	165,927
Unknown	167	*47*	*120*	*25*	*95*	*8*	*112*
MOTHER'S EDUCATION STATUS							
<High School	26,391	*1,189*	25,202	3,081	22,121	500	24,702
High School Graduate	56,562	*2,479*	54,083	5,734	48,349	843	53,240
Some College or Associate Degree	73,062	*2,422*	70,640	7,094	63,546	978	69,662
Bachelor's Degree or Higher	115,247	*2,769*	112,478	10,595	101,883	1,379	111,099
Unknown	9,727	*821*	*8,906*	*1,138*	*7,768*	*232*	*8,674*
PARITY STATUS							
First Born	118,404	*3,437*	114,967	10,694	104,273	1,644	113,323
One Previous Birth	94,485	*3,012*	91,473	8,862	82,611	1,169	90,304
Two+ Previous Births	67,676	*2,962*	64,714	8,062	56,652	1,114	63,600
Unknown or Unreported	424	*269*	*155*	*24*	*131*	*5*	*150*
SINGLE/MULTI BIRTH							
Multiple Birth	11,390	*526*	10,864	6,171	4,693	1,142	9,722
Singleton	269,599	*9,154*	260,445	21,471	238,974	2,790	257,655
TOTAL BIRTHS [1]	**280,989**	***9,680***	**271,309**	**27,642**	**243,667**	**3,932**	**267,377**

*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=9,680) are missing this data element.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 7d. Gestational Age Among **Non-Medi-Cal** Births, by Select Comorbidities
California Resident Hospital Births, 2008

MATERNAL AND BIRTH CHARACTERISTICS	Total	*Out of Range /Missing*	Total (Excluding Out of Range)	Gestation* (Excluding Out of Range)		Very Preterm Status (<32 wks gestation)* (Excluding Out of Range)	
				Preterm Delivery (<37 Weeks)	Normal Range	Very Preterm Delivery (<32 Weeks)	Gestation >=32 Weeks
HYPERTENSION**							
Hypertension	17,756	*670*	17,086	4,359	12,727	663	16,423
No Hypertension Diagnosis	241,299	*8,085*	233,214	20,173	213,041	2,622	230,592
Unknown	21,934	*925*	*21,009*	*3,110*	*17,899*	*647*	*20,362*
DIABETES**							
Diabetes	20,696	*704*	19,992	2,887	17,105	384	19,608
No Diabetes Diagnosis	238,359	*8,051*	230,308	21,645	208,663	2,901	227,407
Unknown	21,934	*925*	*21,009*	*3,110*	*17,899*	*647*	*20,362*
SUBSTANCE USE**							
Maternal Substance User	1,230	*144*	1,086	238	848	57	1,029
Maternal Non-Substance User	257,825	*8,611*	249,214	24,294	224,920	3,228	245,986
Unknown	21,934	*925*	*21,009*	*3,110*	*17,899*	*647*	*20,362*
SMOKING DURING PREGNANCY[2]							
Maternal Smoker	3,051	*178*	2,873	389	2,484	66	2,807
Maternal Non-Smoker	253,527	*8,235*	245,292	23,918	221,374	3,185	242,107
Unknown	24,411	*1,267*	*23,144*	*3,335*	*19,809*	*681*	*22,463*
PRE-PREGNANCY WEIGHT***							
Underweight	10,068	*266*	9,802	925	8,877	112	9,690
Normal Weight	130,366	*3,237*	127,129	10,516	116,613	1,225	125,904
Overweight	54,351	*1,488*	52,863	4,744	48,119	631	52,232
Obese/Extremely Obese	38,162	*1,234*	36,928	3,709	33,219	542	36,386
Out of Range/Unknown	48,042	*3,455*	*44,587*	*7,748*	*36,839*	*1,422*	*43,165*
TOTAL BIRTHS[1]	**280,989**	***9,680***	**271,309**	**27,642**	**243,667**	**3,932**	**267,377**

*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=9,680) are missing this data element.

**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 Healthcare Research & Quality (AHRQ).

***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.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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 Hospital Births, 2008

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/Foster Care	Aged/Blind/ Disabled	All Other*	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
METHOD OF DELIVERY								
Cesarean-Primary	43,991	226	948	25	19,427	1,551	6,946	14,868
Cesarean-Repeat	40,079	18	814	5	17,460	126	4,460	17,196
Vaginal	179,638	660	2,471	118	78,543	5,986	25,318	66,542
Vaginal After Previous Cesarean	*1,553*	*0*	*38*	*1*	*618*	*4*	*196*	*696*
PRENATAL CARE INITIATION								
No Prenatal Care	1,559	6	62	0	994	49	119	329
First Trimester	196,697	629	3,006	99	82,095	5,175	27,992	77,701
Second Trimester	50,417	179	804	35	24,489	1,894	6,862	16,154
Third Trimester	10,454	56	196	12	5,138	380	1,157	3,515
Unknown or Unreported	*6,134*	*34*	*203*	*3*	*3,332*	*169*	*790*	*1,603*
BIRTHWEIGHT								
Low Birthweight	17,676	77	592	12	8,780	515	2,369	5,331
Normal Birthweight	247,549	827	3,676	137	107,252	7,150	34,546	93,961
Out of Range	*36*	*0*	*3*	*0*	*16*	*2*	*5*	*10*
VERY LOW BIRTHWEIGHT STATUS								
Birthweight >=1500g	262,331	891	4,155	147	114,596	7,570	36,510	98,462
Very Low Birthweight (<1500g)	2,895	13	113	2	1,437	95	405	830
Out of Range	*35*	*0*	*3*	*0*	*15*	*2*	*5*	*10*
GESTATION**								
Preterm Delivery (<37 Weeks)	28,635	103	713	20	13,630	804	3,602	9,763
Normal Gestation (>=37 Weeks)	226,356	745	3,258	126	96,928	6,575	31,998	86,726
Out of Range/Missing	*10,270*	*56*	*300*	*3*	*5,490*	*288*	*1,320*	*2,813*
VERY PRETERM STATUS**								
Very Preterm Delivery (<32 Weeks)	4,117	12	141	2	2,060	134	538	1,230
Gestation >=32 Weeks	250,874	836	3,830	144	108,498	7,245	35,062	95,259
Out of Range/Missing	10,270	56	300	3	5,490	288	1,320	2,813
TOTAL BIRTHS[1]	**265,261**	**904**	**4,271**	**149**	**116,048**	**7,667**	**36,920**	**99,302**

*Of the 149 births contained in the "All Other" category, 47 had multiple Client Identification Numbers (CINs) and could not be definitively linked to an aid code grouping.

**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=10,270) are missing this data element.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Table 8b. **Medi-Cal** Births by Aid Category and Select Comorbidities
California Resident Hospital Births, 2008

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/ Foster Care	Aged/Blind/ Disabled	All Other*	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
HYPERTENSION**								
Hypertension	17,409	77	493	11	8,472	593	2,661	5,102
No Hypertension Diagnosis	247,852	827	3,778	138	107,576	7,074	34,259	94,200
DIABETES**								
Diabetes	18,912	14	409	3	7,057	136	2,787	8,506
No Diabetes Diagnosis	246,349	890	3,862	146	108,991	7,531	34,133	90,796
SUBSTANCE USE**								
Maternal Substance User	4,234	29	281	3	3,302	67	322	230
Maternal Non-Substance User	261,027	875	3,990	146	112,746	7,600	36,598	99,072
SMOKING DURING PREGNANCY[2]								
Maternal Smoker	9,466	54	550	6	7,277	153	1,112	314
Maternal Non-Smoker	247,996	797	3,566	138	105,654	7,309	34,899	95,633
Unknown	*7,799*	*53*	*155*	*5*	*3,117*	*205*	*909*	*3,355*
PRE-PREGNANCY WEIGHT***								
Underweight	9,279	43	166	7	4,555	499	1,423	2,586
Normal Weight	101,619	449	1,390	84	43,866	4,048	14,829	36,953
Overweight	64,880	181	911	28	26,454	1,497	8,842	26,967
Obese/Extremely Obese	53,818	97	1,170	13	26,930	794	7,846	16,968
Out of Range/Unknown	*35,665*	*134*	*634*	*17*	*14,243*	*829*	*3,980*	*15,828*
TOTAL BIRTHS[1]	**265,261**	**904**	**4,271**	**149**	**116,048**	**7,667**	**36,920**	**99,302**

*Of the 149 births contained in the "All Other" category, 47 had multiple Client Identification Numbers (CINs) and could not be definitively linked to an aid code grouping.

**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 Healthcare Research & Quality (AHRQ).

***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.

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

[2]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, 2008

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	7,469	766	1,571	3,828	903	118	23	170	90
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	139	93	Suppressed	35	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Butte	1,487	869	29	369	110	Suppressed	24	78	Suppressed
Calaveras	178	143	Suppressed	25	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Colusa	234	32	Suppressed	190	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Contra Costa	4,534	656	688	2,760	225	43	13	121	28
Del Norte	220	119	Suppressed	47	21	Suppressed	20	12	Suppressed
El Dorado	652	362	Suppressed	252	Suppressed	Suppressed	Suppressed	17	Suppressed
Fresno	10,931	1,356	705	7,578	1,027	15	99	100	51
Glenn	330	95	Suppressed	212	11	Suppressed	Suppressed	Suppressed	Suppressed
Humboldt	850	524	12	126	27	Suppressed	96	56	Suppressed
Imperial	1,888	99	19	1,749	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,439	1,760	596	6,700	164	14	51	77	77
Kings	1,439	210	58	1,116	19	Suppressed	Suppressed	26	Suppressed
Lake	463	250	Suppressed	159	Suppressed	Suppressed	13	27	Suppressed
Lassen	164	117	Suppressed	26	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Los Angeles	80,332	4,475	7,044	64,023	3,543	257	87	580	323
Madera	1,704	237	21	1,403	Suppressed	Suppressed	13	18	Suppressed
Marin	736	101	28	570	20	Suppressed	Suppressed	Suppressed	Suppressed
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	796	329	Suppressed	369	Suppressed	Suppressed	61	13	13
Merced	3,062	493	109	2,203	222	Suppressed	Suppressed	22	Suppressed
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,419	290	49	3,939	74	19	Suppressed	37	Suppressed
Napa	639	122	Suppressed	496	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Nevada	363	265	Suppressed	87	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Orange	17,893	1,683	173	14,461	1,250	76	17	135	98
Placer	1,052	549	16	413	23	Suppressed	Suppressed	42	Suppressed
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,492	2,440	928	12,368	294	47	62	231	122
Sacramento	10,138	2,638	1,487	4,010	1,276	137	68	498	24
San Benito	444	48	Suppressed	390	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
San Bernardino	17,409	2,903	1,733	12,082	311	70	71	223	16
San Diego	15,703	2,062	1,039	10,382	580	89	54	324	1,173
San Francisco	2,845	259	401	1,272	791	41	Suppressed	62	Suppressed
San Joaquin	6,197	948	586	3,706	733	Suppressed	25	169	Suppressed
San Luis Obispo	1,212	429	13	716	15	Suppressed	Suppressed	28	Suppressed
San Mateo	2,783	210	89	1,842	199	106	Suppressed	Suppressed	309
Santa Barbara	3,579	341	36	3,086	50	Suppressed	Suppressed	44	12
Santa Clara	8,185	598	256	6,066	950	65	13	74	163
Santa Cruz	1,861	267	Suppressed	1,525	26	Suppressed	Suppressed	11	17
Shasta	1,219	909	15	167	41	Suppressed	55	21	Suppressed
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	264	171	Suppressed	35	Suppressed	Suppressed	30	13	Suppressed
Solano	2,266	458	459	1,045	143	26	Suppressed	113	Suppressed
Sonoma	2,491	552	36	1,721	46	16	37	53	30
Stanislaus	4,946	1,153	113	3,321	172	24	11	114	38
Sutter	655	276	20	258	83	Suppressed	Suppressed	11	Suppressed
Tehama	569	317	Suppressed	222	Suppressed	Suppressed	16	Suppressed	Suppressed
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,160	912	77	4,907	163	Suppressed	43	42	Suppressed
Tuolumne	255	183	Suppressed	44	Suppressed	Suppressed	Suppressed	14	Suppressed
Ventura	5,829	589	42	5,038	92	Suppressed	Suppressed	35	12
Yolo	1,096	309	30	642	68	Suppressed	17	16	Suppressed
Yuba	574	310	11	166	53	Suppressed	Suppressed	20	Suppressed
Invalid County Code	172	34	22	108	3	1	0	4	0
TOTAL BIRTHS[1]	**265,261**	**35,610**	**18,558**	**188,413**	**13,793**	**1,266**	**1,163**	**3,755**	**2,703**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

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

Table 9b - **Medi-Cal** Births by Beneficiary County and Maternal Age
California Resident Hospital Births, 2008

BENEFICIARY COUNTY	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Alameda	7,469	293	680	2,337	1,982	1,365	812
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	139	Suppressed	16	64	34	17	
Butte	1,487	70	190	555	390	181	101
Calaveras	178	Suppressed	19	80	46	22	
Colusa	234	Suppressed	26	76	68	34	
Contra Costa	4,534	169	443	1,499	1,241	767	415
Del Norte	220	Suppressed	26	80	68	25	
El Dorado	652	17	74	221	178	106	56
Fresno	10,931	645	1,263	3,776	2,791	1,555	901
Glenn	330	14	38	127	77	40	34
Humboldt	850	28	94	309	233	118	68
Imperial	1,888	125	267	620	499	240	137
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,439	592	1,246	3,238	2,270	1,296	797
Kings	1,439	111	176	539	320	195	98
Lake	463	36	57	161	127	57	25
Lassen	164	Suppressed	21	70	40	17	Suppressed
Los Angeles	80,332	3,533	7,696	24,199	21,305	14,323	9,276
Madera	1,704	117	198	582	424	242	141
Marin	736	26	56	204	227	147	76
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	796	32	80	266	223	119	76
Merced	3,062	159	371	1,056	789	437	250
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,419	288	481	1,431	1,141	698	380
Napa	639	33	47	182	184	119	74
Nevada	363	Suppressed	46	124	102	52	Suppressed
Orange	17,893	708	1,542	5,365	4,796	3,314	2,168
Placer	1,052	43	90	352	302	162	103
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,492	840	1,903	5,559	4,275	2,449	1,466
Sacramento	10,138	419	1,131	3,479	2,737	1,502	870
San Benito	444	15	52	138	121	79	39
San Bernardino	17,409	900	2,168	6,065	4,322	2,469	1,485
San Diego	15,703	810	1,731	5,057	4,124	2,422	1,559
San Francisco	2,845	81	168	727	817	623	429
San Joaquin	6,197	323	686	2,133	1,629	897	529
San Luis Obispo	1,212	40	125	422	321	195	109
San Mateo	2,783	102	215	863	788	495	320
Santa Barbara	3,579	194	386	1,139	954	569	337
Santa Clara	8,185	323	690	2,477	2,214	1,542	939
Santa Cruz	1,861	76	174	551	547	306	207
Shasta	1,219	44	155	490	330	142	58
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	264	Suppressed	28	103	78	35	Suppressed
Solano	2,266	84	246	791	607	348	190
Sonoma	2,491	107	250	805	678	416	235
Stanislaus	4,946	235	576	1,741	1,258	733	403
Sutter	655	26	63	243	185	82	56
Tehama	569	36	79	222	132	61	39
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,160	365	728	2,086	1,553	875	553
Tuolumne	255	Suppressed	35	88	73	31	Suppressed
Ventura	5,829	331	618	1,842	1,523	956	559
Yolo	1,096	44	110	332	316	182	112
Yuba	574	20	66	226	143	69	50
Invalid County Code	172	9	48	55	31	18	11
TOTAL BIRTHS[1]	**265,261**	**12,534**	**27,721**	**85,329**	**69,763**	**43,215**	**26,699**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

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

Table 9c - Medi-Cal Births by Beneficiary County and Aid Category
California Resident Hospital Births, 2008

BENEFICIARY COUNTY	Total	Medi-Cal Aid Category					
		All Others	Blind/Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Alameda	7,469	39	195	3,593	166	746	2,730
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	139	Suppressed	Suppressed	86	Suppressed	36	13
Butte	1,487	14	78	917	14	311	93
Calaveras	178	Suppressed	Suppressed	106	Suppressed	53	Suppressed
Colusa	234	Suppressed	Suppressed	99	Suppressed	52	74
Contra Costa	4,534	Suppressed	124	1,852	Suppressed	598	1,854
Del Norte	220	Suppressed	Suppressed	152	Suppressed	28	21
El Dorado	652	Suppressed	Suppressed	298	32	139	164
Fresno	10,931	40	195	6,545	218	1,268	2,665
Glenn	330	Suppressed	Suppressed	122	11	91	105
Humboldt	850	Suppressed	46	510	Suppressed	212	53
Imperial	1,888	Suppressed	Suppressed	1,334	46	286	203
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,439	49	254	4,860	389	1,360	2,527
Kings	1,439	Suppressed	Suppressed	808	64	210	334
Lake	463	Suppressed	Suppressed	255	14	109	68
Lassen	164	Suppressed	Suppressed	114	Suppressed	25	Suppressed
Los Angeles	80,332	368	1,011	33,228	1,988	7,691	36,046
Madera	1,704	Suppressed	Suppressed	656	79	224	726
Marin	736	Suppressed	Suppressed	141	Suppressed	48	528
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	796	Suppressed	Suppressed	409	22	159	187
Merced	3,062	Suppressed	Suppressed	1,557	74	530	832
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,419	Suppressed	Suppressed	1,239	203	609	2,324
Napa	639	Suppressed	Suppressed	167	31	133	301
Nevada	363	Suppressed	Suppressed	166	16	119	55
Orange	17,893	42	90	4,716	723	2,502	9,820
Placer	1,052	Suppressed	Suppressed	521	32	222	253
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,492	49	227	6,424	622	3,581	5,589
Sacramento	10,138	53	329	6,354	130	1,235	2,037
San Benito	444	Suppressed	Suppressed	161	30	85	163
San Bernardino	17,409	73	329	9,001	624	2,566	4,816
San Diego	15,703	67	228	6,027	586	3,636	5,159
San Francisco	2,845	23	64	1,228	19	518	993
San Joaquin	6,197	14	166	3,327	162	960	1,568
San Luis Obispo	1,212	Suppressed	Suppressed	509	27	259	400
San Mateo	2,783	Suppressed	Suppressed	738	106	316	1,601
Santa Barbara	3,579	Suppressed	Suppressed	1,067	98	518	1,835
Santa Clara	8,185	22	83	3,096	132	933	3,919
Santa Cruz	1,861	Suppressed	Suppressed	659	74	305	798
Shasta	1,219	Suppressed	58	790	Suppressed	291	55
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	264	Suppressed	Suppressed	174	Suppressed	62	Suppressed
Solano	2,266	Suppressed	68	1,371	Suppressed	212	577
Sonoma	2,491	Suppressed	Suppressed	736	81	443	1,197
Stanislaus	4,946	14	100	2,594	110	816	1,312
Sutter	655	Suppressed	17	408	Suppressed	188	28
Tehama	569	Suppressed	Suppressed	288	33	115	109
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,160	15	85	3,259	152	769	1,880
Tuolumne	255	Suppressed	Suppressed	149	12	75	14
Ventura	5,829	Suppressed	Suppressed	1,953	180	832	2,816
Yolo	1,096	Suppressed	Suppressed	543	26	208	298
Yuba	574	Suppressed	28	389	Suppressed	113	25
Invalid County Code	172	46	2	103	8	5	8
TOTAL BIRTHS[1]	**265,261**	**1,053**	**4,271**	**116,048**	**7,667**	**36,920**	**99,302**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

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

Table 9d - Medi-Cal Births by Beneficiary Region and Maternal Race/Ethnicity
California Resident Hospital Births, 2008

BENEFICIARY REGION	Total	Race/Ethnicity of Mother							
		1-White	2-African American	3-Hispanic	4-Asian	5-Hawaiian/Pacific Islanders	6-American Indian/Alaskan Native	7-Two or More Race Categories	8-Others/Unknown
Bay Area	31,948	3,722	3,537	19,600	3,282	421	103	633	650
Central Coast	17,344	1,964	149	14,694	257	41	31	156	52
Central Valley	43,878	7,069	2,265	30,934	2,509	91	251	568	191
Far North	1,600	1,176	20	215	51	Suppressed	88	37	Suppressed
Los Angeles	80,332	4,475	7,044	64,023	3,543	257	87	580	323
North Coast	2,329	1,222	24	701	59	Suppressed	190	108	Suppressed
Sacramento Valley	15,083	4,846	1,583	6,069	1,605	154	151	637	38
Sierra Range/ Foothills	3,190	1,915	22	1,027	44	Suppressed	57	112	Suppressed
Southern California	69,385	9,187	3,892	51,042	2,440	283	205	920	1,416
invalid Code	172	34	22	108	3	1	0	4	0
TOTAL BIRTHS[1]	265,261	35,610	18,558	188,413	13,793	1,266	1,163	3,755	2,703

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaires 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 Joaqjuin, 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, 2008

BENEFICIARY REGION	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Bay Area	31,948	1,218	2,795	9,885	8,738	5,822	3,490
Central Coast	17,344	944	1,836	5,523	4,607	2,803	1,631
Central Valley	43,878	2,547	5,244	15,151	11,034	6,230	3,672
Far North	1,600	59	195	634	441	192	79
Los Angeles	80,332	3,533	7,696	24,199	21,305	14,323	9,276
North Coast	2,329	110	257	816	651	319	176
Sacramento Valley	15,083	638	1,703	5,260	4,048	2,151	1,283
Sierra Range/ Foothills	3,190	93	336	1,140	892	463	266
Southern California	69,385	3,383	7,611	22,666	18,016	10,894	6,815
invalid Code	172	9	48	55	31	18	11
TOTAL BIRTHS[1]	265,261	12,534	27,721	85,329	69,763	43,215	26,699

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 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 Joaqjuin, 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, 2008

BENEFICIARY REGION	Total	Medi-Cal Aid Category					
		All Others	Blind/Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Bay Area	31,948	114	590	12,922	675	3,947	13,700
Central Coast	17,344	26	174	5,588	612	2,608	8,336
Central Valley	43,878	145	898	23,606	1,248	6,137	11,844
Far North	1,600	Suppressed	72	1,040	Suppressed	382	66
Los Angeles	80,332	368	1,011	33,228	1,988	7,691	36,046
North Coast	2,329	16	79	1,326	Suppressed	508	329
Sacramento Valley	15,083	79	494	9,120	308	2,313	2,769
Sierra Range/ Foothills	3,190	Suppressed	62	1,613	126	758	617
Southern California	69,385	235	889	27,502	2,601	12,571	25,587
Invalid Code	172	46	2	103	8	5	8
TOTAL BIRTHS[1]	**265,261**	**1,053**	**4,271**	**116,048**	**7,667**	**36,920**	**99,302**

[1]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

Suppressed cells reflect: 1) counties with fewer than 20,000 residents; or 2) cells with fewer than 11 beneficiaires 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 Joaqjuin, 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 Hospital Births, 2008

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
HYPERTENSION[1]														
Hypertension	17,409	2,482	2,103	11,499	755	103	467	17,756	7,148	1,153	5,911	2,685	63	796
No Hypertension Diagnosis	247,852	33,128	16,455	176,914	14,304	1,060	5,991	241,299	94,147	8,044	81,879	46,829	635	9,765
Unknown	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*21,934*	*6,518*	*1,423*	*9,752*	*2,395*	*123*	*1,723*
DIABETES[1]														
Diabetes	18,912	1,879	926	14,203	1,434	88	382	20,696	5,586	626	7,601	5,998	71	814
No Diabetes Diagnosis	246,349	33,731	17,632	174,210	13,625	1,075	6,076	238,359	95,709	8,571	80,189	43,516	627	9,747
Unknown	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*21,934*	*6,518*	*1,423*	*9,752*	*2,395*	*123*	*1,723*
SUBSTANCE USE[1]														
Maternal Substance User	4,234	1,578	701	1,534	99	63	259	1,230	489	158	432	39	21	91
Maternal Non-Substance User	261,027	34,032	17,857	186,879	14,960	1,100	6,199	257,825	100,806	9,039	87,358	49,475	677	10,470
Unknown	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*21,934*	*6,518*	*1,423*	*9,752*	*2,395*	*123*	*1,723*
SMOKING DURING PREGNANCY[3]														
Maternal Smoker	9,466	5,476	1,170	1,802	298	157	563	3,051	1,929	165	499	223	45	190
Maternal Non-Smoker	247,996	29,183	16,623	180,976	14,493	976	5,745	253,527	98,489	8,894	86,291	48,982	639	10,232
Unknown	*7,799*	*951*	*765*	*5,635*	*268*	*30*	*150*	*24,411*	*7,395*	*1,561*	*10,752*	*2,704*	*137*	*1,862*
TOTAL BIRTHS[2]	**265,261**	**35,610**	**18,558**	**188,413**	**15,059**	**1,163**	**6,458**	**280,989**	**107,813**	**10,620**	**97,542**	**51,909**	**821**	**12,284**

[1]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).

[2]Total Births = Births in Hospital Only. DHCS identified a total of 546,250 births to California mothers in 2008 occurring in a hospital setting.

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