

2009 Medi-Cal Birth Statistics



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Jim Watkins, Chief
Research and Analytic Studies Division
Homepage – http://www.dhcs.ca.gov/dataandstats/statistics/Pages/RASD_Default.aspx

Cris DeMorais, Chief
Research and Analytic Studies Section #1

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

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

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

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EXECUTIVE SUMMARY

In 2009, approximately 12% of all hospitalizations in the U.S. were for maternity care, and an additional 10% were for care of newborns. 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.¹

During calendar year 2009, 8.8 million Californians were eligible for Medi-Cal for at least one month. Of these beneficiaries, 24%, or 2.0 million, were women reproductive age, between ages of 15 and 44.

From 2007 to 2009, the U.S. general fertility rate (GFR) decreased 4.0%, while the California GFR declined 8.1%.^{2,3} 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.⁴

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.^{5,6,7}

The 2009 Medi-Cal Birth Statistics report presents the descriptive statistics for 2009 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 2009, the number of hospital deliveries to Medi-Cal mothers declined by over 11,000 deliveries, or 4.4% over 2 years.

Health Delivery System Participation

- In 2009, the Medi-Cal program financed 49.2% of all births to **resident Californians** occurring in hospital settings (Figure 1). Of the 256,663 births financed by Medi-Cal, 68.5% were to mothers participating in the FFS delivery system and 31.5% were to mothers participating in the managed care delivery system.

Maternal Demographics

- **Age:** The mean maternal age for Medi-Cal financed births was 26.0 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.4 years (median = 30 years). Medi-Cal financed 78.1% 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 (69.9%). The proportion of African-American mothers participating in Medi-Cal managed care was nearly four times higher than non-Medi-Cal funding sources and

Medi-Cal's FFS program. African-American mothers constituted 14.3% of Medi-Cal's managed care participants, but only 3.9% 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, 42.2% had less than a high school education, 34.0% had a high school diploma, 20.0% had some college, and 3.8% had a college degree. Conversely, only 8.9% of non-Medi-Cal mothers had less than a high school education, 19.6% had a high school diploma, 26.9% had some college, and 44.7% attained a college degree.
- **Nativity:** Among Medi-Cal financed births, 50.2% were to U.S.-born mothers and 49.8% were to foreign-born mothers. Among non-Medi-Cal financed births, 63.5% were to U.S. born mothers and 36.5% to foreign-born mothers. Foreign-born mothers made up 63.5% of mothers who participated in Medi-Cal's FFS program, but only 20.0% 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, 35.7% were first-time mothers, 28.5% had one previous birth, and 35.8% had two or more previous births. Among non-Medi-Cal mothers, 42.5% were first-time mothers, 34.0% had one previous birth, and 23.5% 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 76.6%. In contrast, 91.3% of mothers with private insurance initiated prenatal care in the first trimester of pregnancy. Among Medi-Cal mothers, 75.4% of those participating in managed care, and 77.1% 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.
- **Smoking:** Among Medi-Cal managed care mothers, 5.0% smoked during pregnancy, compared to 2.8% among mothers who participated in the FFS delivery system. Mothers with births not financed by Medi-Cal had a smoking prevalence of 1.1%, while the overall frequency of smoking among Medi-Cal mothers was 3.5%. Mothers who smoked were more likely to have a **low birthweight** outcome than those who did not smoke.
- **Substance Use:** Substance use was 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 (2.7%). There was a substantial increase in the percentage of low birthweight among mothers who engaged in substance use during their pregnancy.
- **Pre-Pregnancy Weight:** Among Medi-Cal mothers, 52.4% had a **pre-pregnancy weight** considered overweight or obese, compared to only 39.6% of non-Medi-Cal mothers. Medi-Cal mothers enrolled in Blind/Disabled **aid codes** had pre-pregnancy overweight/obesity rates of 56.9%, whereas 54.2% of Medi-Cal mothers without satisfactory immigration status (SIS), also referred to as “Undocumented,” had a pre-pregnancy weight considered overweight/obese.
- **Delivery Method:** The percentage of Medi-Cal births delivered using the cesarean section method was slightly lower than the statewide average. Among non-Medi-Cal financed births, the overall percent of deliveries via the cesarean section method was 34.2%, and highest among privately insured births at 34.5%. The primary cesarean section rate was lower among Medi-Cal births (16.5%) than non-Medi-Cal births (20.5%).

Maternal Comorbidities and Health Behaviors

- **Hypertension:** The prevalence of **hypertension** was similar among Medi-Cal mothers (6.8%) and privately insured mothers (7.2%). Hypertension was associated with **low birthweight** and **preterm** births for both Medi-Cal mothers and non-Medi-Cal sources.
- **Diabetes:** The prevalence of diabetes among Non-Medi-Cal mothers was 8.7%, slightly higher than the prevalence among Medi-Cal mothers (7.6%).
- **Low Birthweight (<2500 grams):** The overall low birthweight percent among Medi-Cal births was 6.6%, 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 births 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 10.8%, while the percent among non-Medi-Cal mothers was 10.0%. Both Medi-Cal and non-Medi-Cal percentages of preterm births met the Healthy People 2020 Goal of reducing the rate of preterm births to 11.4% nationwide. Preterm births were more common among [singleton](#) Medi-Cal births (9.7%)

than [singleton](#) non-Medi-Cal births (8.0%).

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

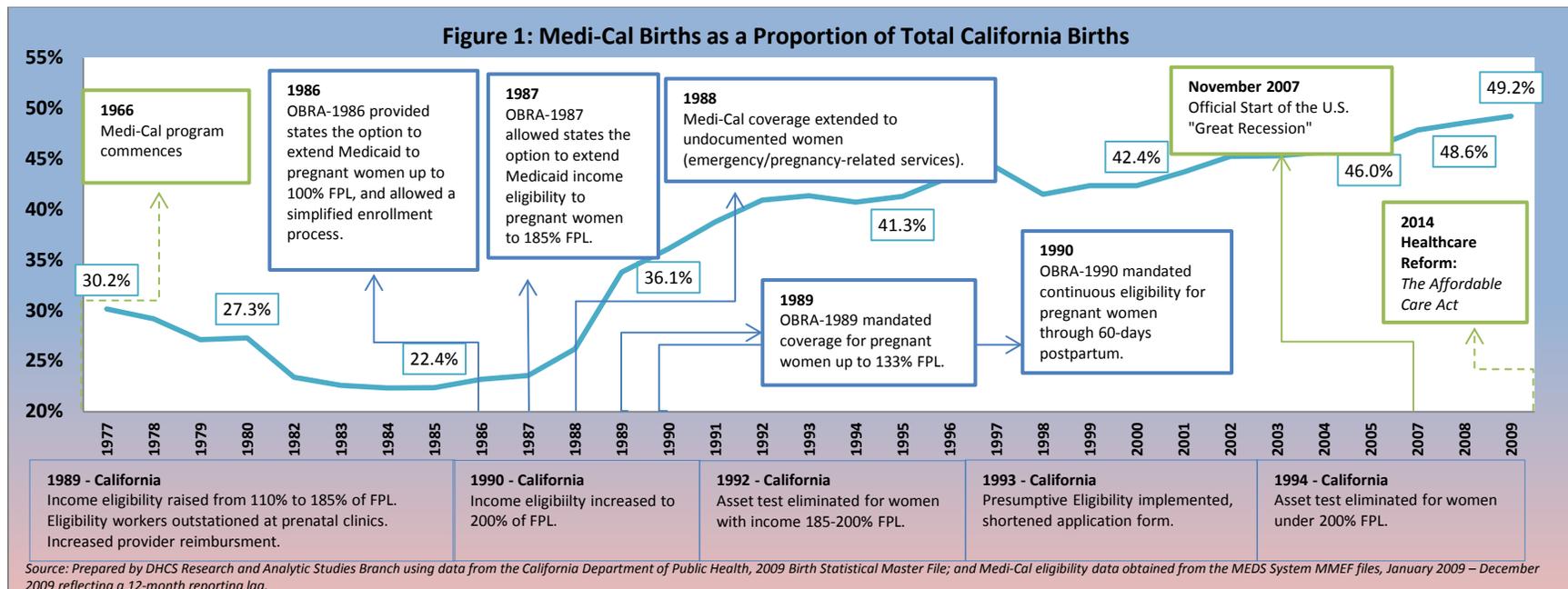
MEDI-CAL PROGRAM BACKGROUND

Medi-Cal provides comprehensive health care services at no cost or low cost for low-income individuals.⁸ 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 financier of maternal and child health care services nationwide. Nationally, the Medicaid program financed approximately 2.1 million births, or 45.0% of births, in 2009.⁹ In the same year, Medi-Cal financed 49.2% of all resident births occurring in California hospitals.

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

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



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

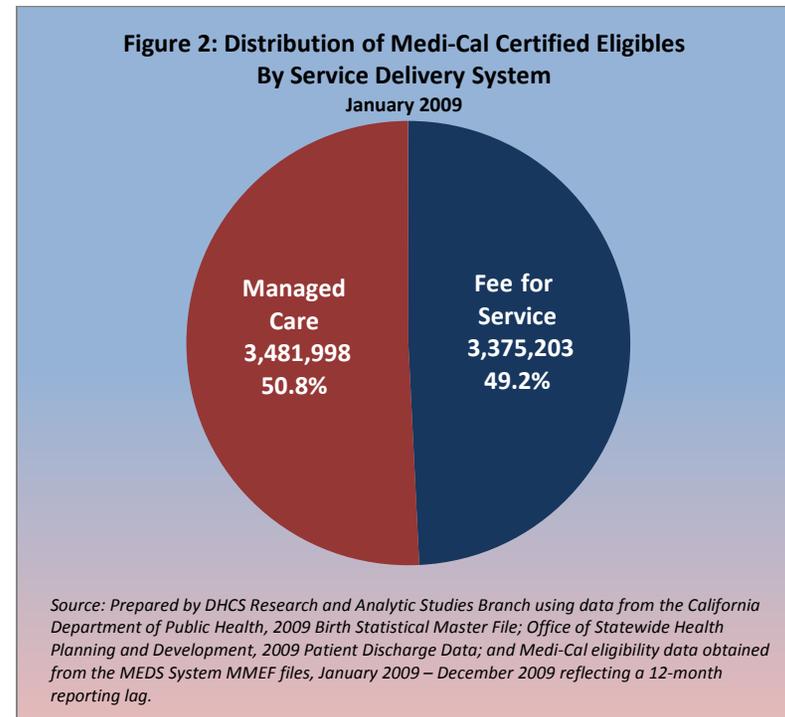
An “eligibility pathway” is the method by which a beneficiary qualifies for Medi-Cal. The state frequently determines a beneficiary’s eligibility pathway by income relative to the federal poverty level (FPL), but resources, health, age, and disability status are also factors in eligibility determinations. 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,¹⁰ or those enrolled in special programs like the Tuberculosis Program¹¹ 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.^{12,13}

A beneficiary’s aid code also represents whether the beneficiary will be required to meet a monthly share-of-cost (SOC) obligation to receive coverage. Beneficiaries enrolled in aid codes associated with Medi-Cal’s SOC program are individuals and families whose incomes are too

high to qualify for cash assistance, but insufficient to cover their medical expenses. Beneficiaries with a SOC obligation must contribute to their medical expenses up to a predetermined monthly threshold; it is only after beneficiaries meet their monthly obligation that they qualify for Medi-Cal covered benefits.

Medi-Cal Service Delivery Systems

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

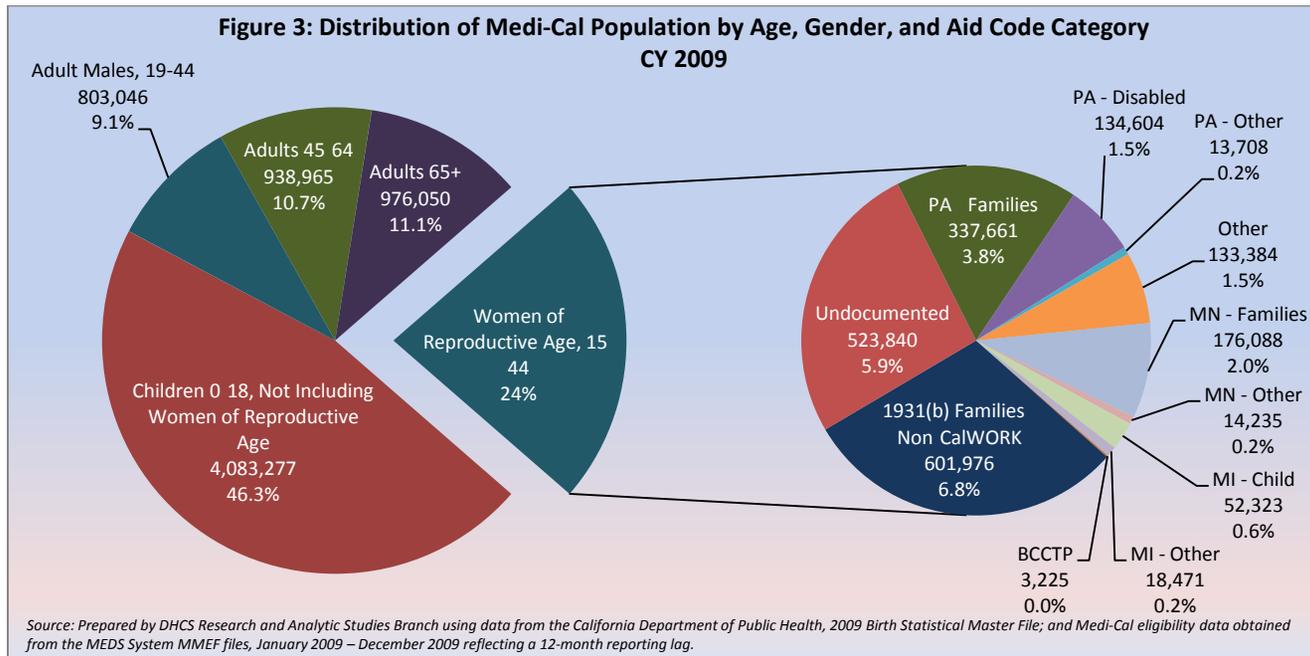


bills Medi-Cal for each service administered. Beneficiaries in FFS must locate providers willing to accept Medi-Cal as a payer source.

The second delivery system is Medi-Cal managed care. In 2009, roughly 51% 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.



Medi-Cal's Population

During calendar year 2009, 8.8 million Californians were eligible for Medi-Cal for at least one month. Women between the ages of 15 and 44 made up 24.0% of the Medi-Cal population. Among women of reproductive age, the most common eligibility pathways included: 1931(b) Families – Non-CalWORKs, Undocumented (lacking SIS), Public Assistance – Families, Medically Needy Families, Public Assistance Disabled, and 200 Percent FPL Pregnant Income Disregard Program (Figure 3).

As previously noted, a beneficiary's eligibility pathway represents whether they are entitled to full-scope Medi-Cal benefits without an SOC, full-scope benefits after meeting a monthly SOC obligation, or limited-scope services such as emergency and pregnancy-related services only. Some women enroll in an aid code that requires a monthly SOC obligation prior to pregnancy, but become eligible during pregnancy for special programs designed to ensure access to early prenatal, postpartum, and other services without 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.¹⁴ This provided states the opportunity to improve birth outcomes among vulnerable women by improving access to early prenatal care. States invested in outreach activities, enrollment simplification, and enhanced prenatal benefits. The passage of federal simplification legislation provided states with the flexibility to adopt:

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

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

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

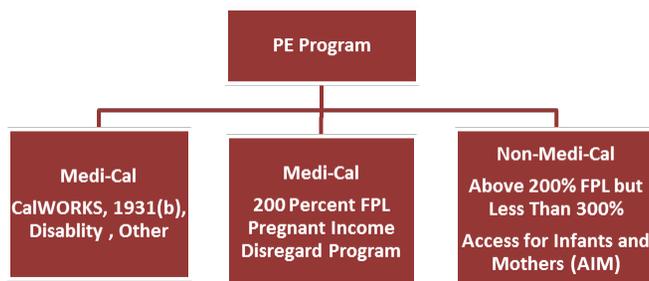
Presumptive Eligibility (PE) Program: Medi-Cal's PE program enables providers to bestow immediate, temporary prenatal Medi-Cal coverage to a pregnant woman based on her response to a few income and residency questions.¹⁵ Medi-Cal provides this coverage under the assumption that the pregnant woman will 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.¹⁶ Women who apply for Medi-Cal coverage or CalWORKs during the PE period will receive another 60 days of PE coverage.¹⁷ The PE program covers all ambulatory prenatal care services,¹⁸ but does not cover the costs of delivery, family planning, or induced abortion procedures.¹⁹

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.²⁰ 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:²¹ 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.^{22,23} 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.²⁴ 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.^{25,26,27,28}

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.²⁹ By transferring from a restricted-scope program to a full-scope program, an eligible woman can receive all services contained within the State Plan, including non-pregnancy related services.

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

no SOC, based on the deprivation of the child. If a family meets the income and property-limit requirements, and can prove that the child is deprived (Medi-Cal determines deprivation based on the absence of one parent in the family, or the underemployment or unemployment of the principal wage earner), they may receive full-scope 1931(b) coverage with no time limit.³⁰ 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.³¹

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.³² 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.³³ The FFS system's effectiveness, in this case, will inappropriately accrue to Medi-Cal managed care if not accounted for properly. Switches in health care delivery systems impact approximately 6% of all Medi-Cal identified births.

Postpartum Program: Because financial barriers may inhibit a woman's access to postpartum services, a special postpartum program is available. The postpartum program offers coverage with no SOC for up to 60 days after the pregnancy ends. Women who participated in an MN or MI program when they were pregnant may enroll in this program to receive postpartum care without a SOC obligation.³⁴

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).³⁵ AIM provides full-coverage private health insurance at low cost to pregnant women during pregnancy, as well as 60 days postnatal care.

Medi-Cal-Related Pregnancy Education Programs

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

Comprehensive Perinatal Services Program: Through the Comprehensive Perinatal Services Program (CPSP), qualified Medi-Cal providers can receive reimbursement for pregnancy-care-coordination services outside of the “traditional” maternity services. After becoming a recognized CPSP provider, participating providers can receive reimbursement for nutrition services, psychosocial services, health education services, and prenatal vitamin and mineral supplements provided to Medi-Cal beneficiaries. Participation in this program is voluntary for Medi-Cal mothers and is available from CPSP-qualified hospital outpatient departments, community clinics, county clinics, physician groups, and certified nurse midwives. Medi-Cal managed care plans are required to provide CPSP-equivalent services to managed care enrollees.³⁶ 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 or substance use, African-American mothers are more likely to experience negative birth outcomes.³⁷ 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.³⁸ 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.³⁹

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

REPORT INTRODUCTION

The Medi-Cal Birth Statistics Report presents detailed data for 2009 California resident births occurring in a hospital setting. The report covers data on maternal and birth characteristics and select outcomes for births financed by Medi-Cal's FFS and managed care programs, as well as births financed by private insurance and other non-Medi-Cal sources. These data are important in several ways: 1) they provide a profile of the Medi-Cal beneficiaries who seek care for delivery services; 2) they identify factors that may contribute to variations in birth outcomes; and 3) they provide useful comparisons between Medi-Cal birth outcomes and those financed by other sources in the state. It is important to note, however, that because this report does not take into account patients' risks, readers should be careful not to make inferences regarding differences in the effectiveness or quality of care between the health 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 2009 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, 2009 through December 31, 2009 and containing a delivery diagnosis code were used to confirm birth certificate records for women giving birth in 2009 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 Data System (MEDS).

Over 96% of birth certificate records indicating a hospital delivery were confirmed with data from the OSHPD hospital discharge file, totaling 521,459 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 521,459 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 33.7% and 15.5% 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 42.0%. 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 22,055 birth records with a payer source of “Medi-Cal” that could not be confirmed using the Medi-Cal eligibility data or data from FFS claims. RASD refers to the total of Private Insurance and Other Payment Source as “Non-Medi-Cal Births” or “All Non-Medi-Cal Births” in this report. The “Uninsured” group in our dataset represents an insignificant number of births compared to Medi-Cal and Private Insurance totals. Therefore, “Uninsured” was not analyzed as an independent category in this report.

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

Beginning in 2007, data pertaining to pre-pregnancy weight and smoking were collected on California birth certificates, and are included in this report. Data pertaining to maternal comorbidities such as hypertension, diabetes, and substance use were extracted from the OSHPD hospital discharge file. Comorbid conditions reported during hospital delivery were identified using the Clinical Classification Software (CCS) available from the Agency for Healthcare Research and Quality (AHRQ).⁴⁰ 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.⁴¹

Limitations

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

The comorbidity data in this report represents ICD-9 diagnostic codes reported in the OSHPD patient discharge data, and are dependent on the mother having a diagnosis at the time of delivery. Many factors influence the likelihood of receiving a comorbidity diagnosis prior to or at the time of delivery, including insurance status, language barriers, and continuity of care.⁴² 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.⁴³

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 6.6% to 6.8%, the very low birthweight percent would rise from 1.1% to 1.2%, the preterm birth percent would rise from 10.8% to 11.0%, 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 12.5%. Similarly, 12.4% of mothers age 17 and younger had a preterm

birth outcome, but this age group represented only 4.5% of Medi-Cal births. Readers should interpret the greater occurrence of negative health outcomes in these small groups in light of their population size.

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

Healthy People 2020 Objectives

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

Healthy People 2020 identified the following mission intentions:

- Identify nationwide health improvement priorities,
- Increase public awareness and understanding of the determinants of health, disease, and disability and the opportunities for progress,
- Provide measurable objectives and goals that are applicable at the national, state, and local levels, and
- Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge.⁴⁴

FINDINGS

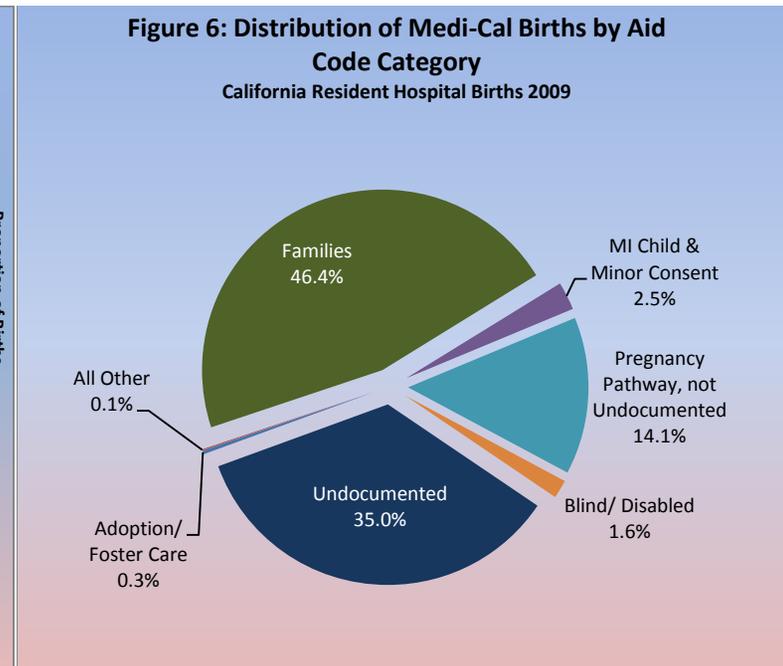
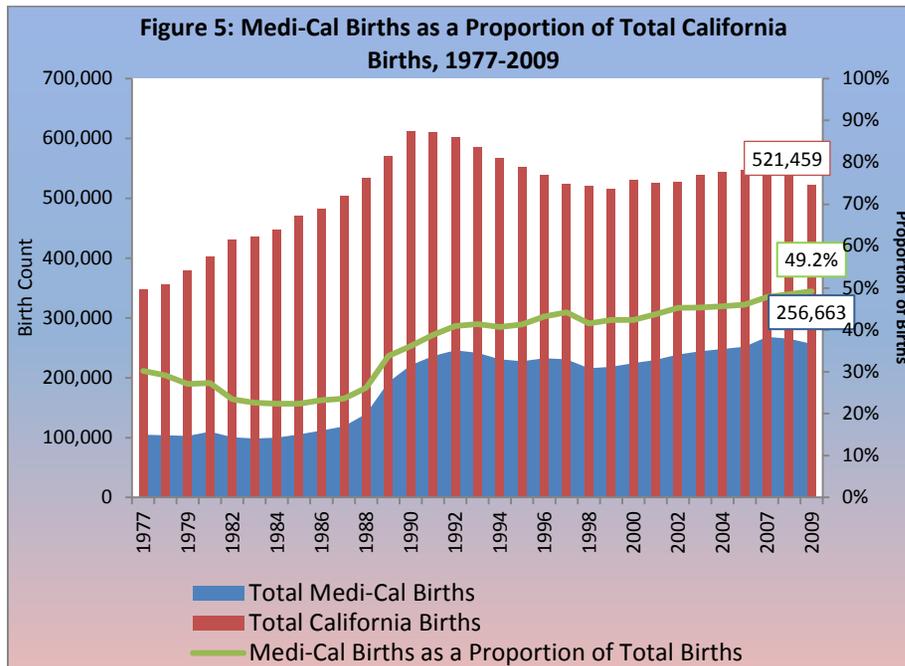
National and California Fertility Trends

The U.S. general fertility rate (GFR) in 2009 was 66.7 births per 1,000 women of childbearing age (age 15-44), a 3.0% decline from 2008 (68.6 births per 1,000 women of childbearing age).⁴⁵ In California, fertility rates decreased from 71.0 in 2008 to 68.5 in 2009.^{46,47} Although slightly higher than the national rate, the California GFR for 2009 represented a 3.5% decline from 2008.^{48,49}

Medi-Cal Population Statistics

Medi-Cal as Percent of Total California Births: In 2009, Medi-Cal financed 49.2% of hospital births to California residents (Figure 5). Medi-Cal births represented 256,663 of the total 521,459 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).

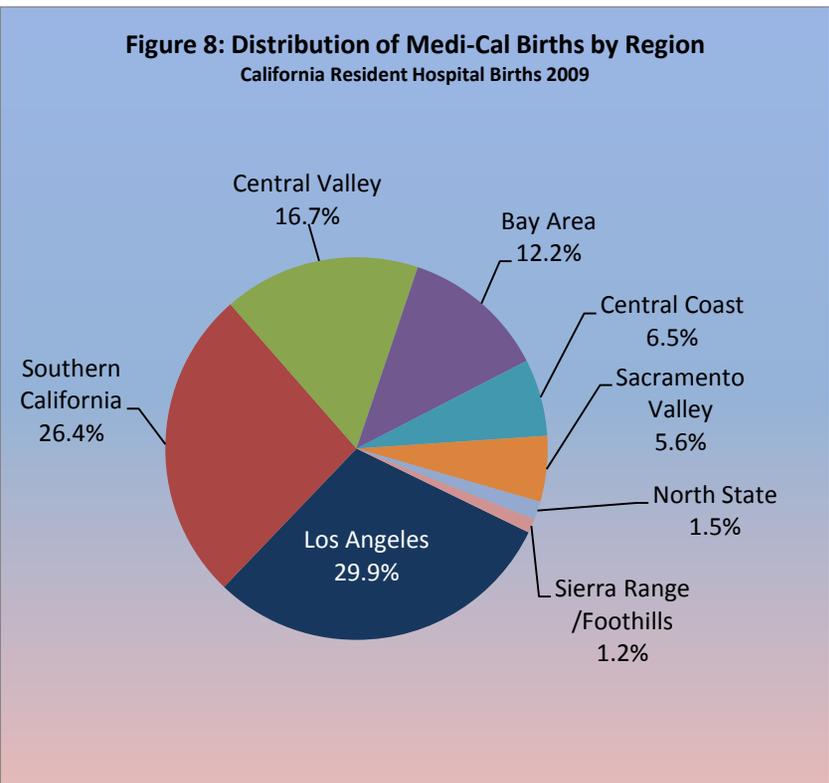
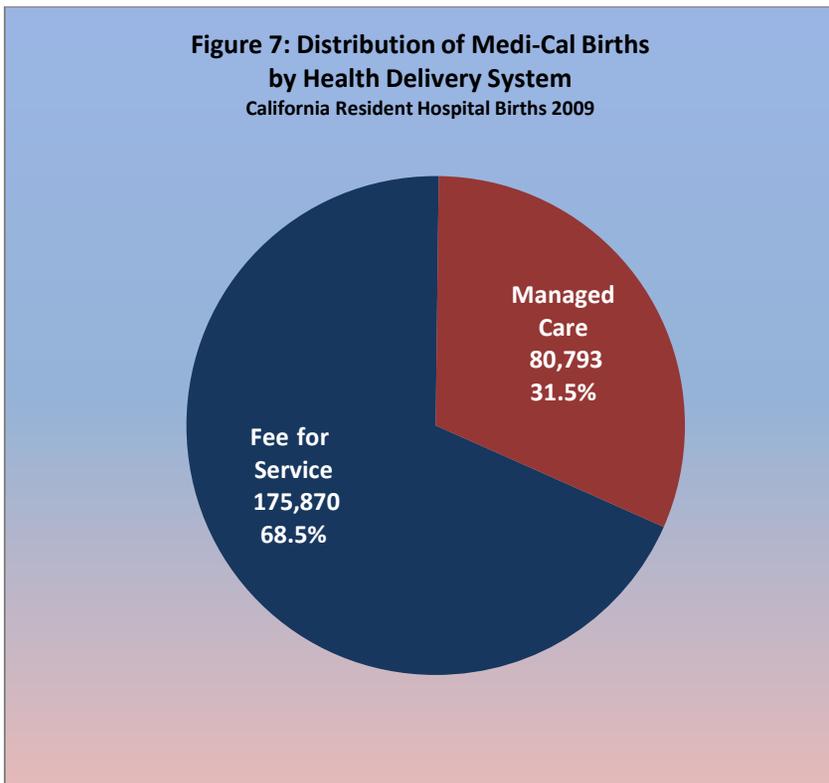
Medi-Cal Births by Eligibility Pathway: A large segment of Medi-Cal-financed births were to mothers without SIS (35.0%) and/or mothers enrolled in Families aid codes (46.4%) (Figure 6).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Medi-Cal Births by Medi-Cal Health Delivery System: Of the 256,663 Medi-Cal financed births, 68.5% were to mothers participating in the FFS program and 31.5% were to mothers participating in the managed care delivery system (Figure 7).

Medi-Cal Births by Geographic Region: More than half of 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).



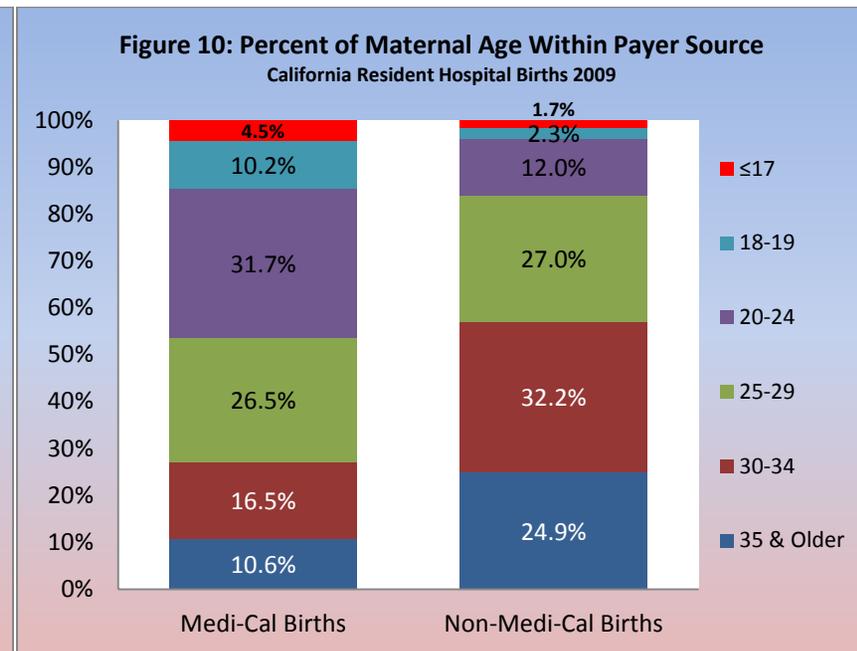
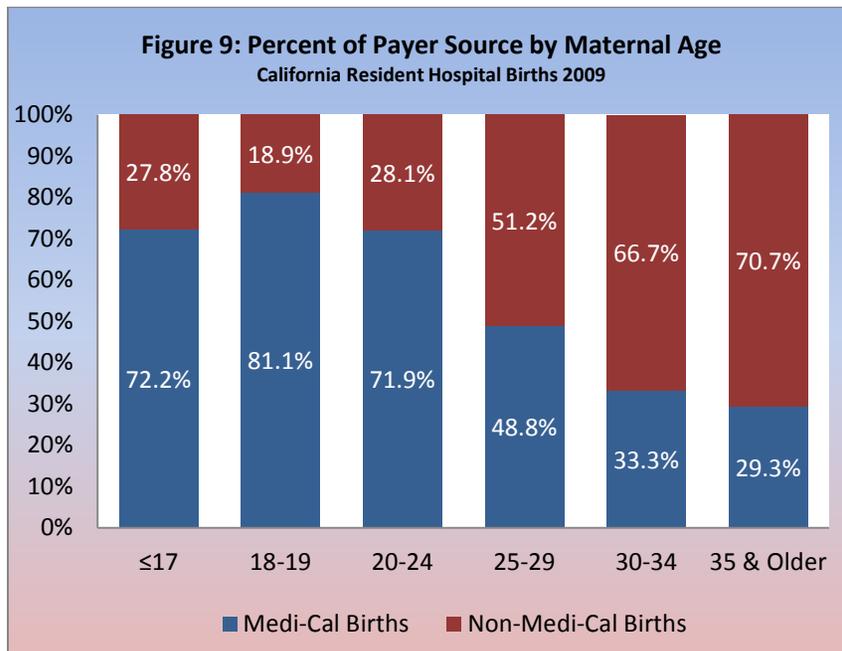
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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.^{50,51,52}

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 26.0 years (median = 25 years), while the mean maternal age among non-Medi-Cal births was 30.4 years (median = 30 years).

Medi-Cal financed a significant percentage of California’s births for younger women. Medi-Cal financed 72.2% of the births to women age 17 and younger, 81.1% of the births to women between 18 and 19 years of age, and 71.9% 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 46.3% of total Medi-Cal births, while among non-Medi-Cal mothers only 15.9% were 24 years of age or younger. Among non-Medi-Cal mothers, 57.1% 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, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

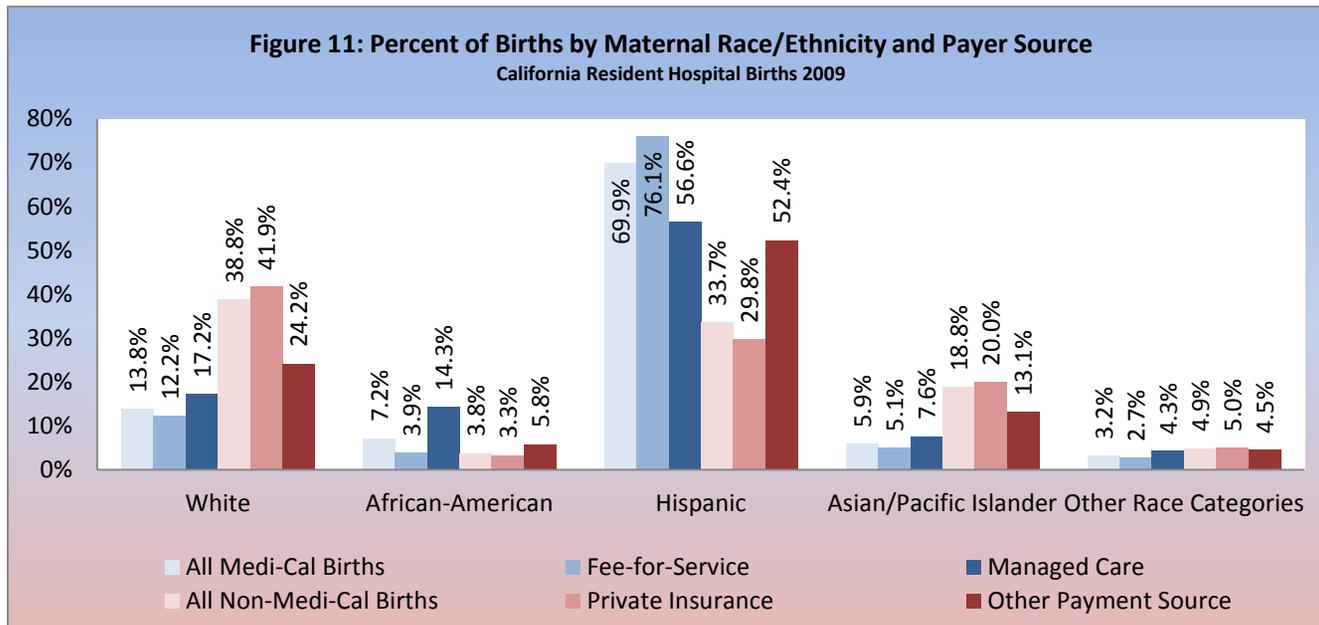
*Note: Values in figures may not add up to 100.0% due to rounding.

Race/Ethnicity: Hispanic mothers comprised the largest percentage of Medi-Cal financed births. Overall, 69.9% of births financed by Medi-Cal were to Hispanic mothers, while only 33.7% of non-Medi-Cal financed births were to mothers of Hispanic ethnicity (Figure 11). Additionally, 13.8% of Medi-Cal financed births were to white mothers compared to 38.8% of non-Medi-Cal mothers (Figure 11).

The remaining Medi-Cal births were attributed to the following groups: 7.2% to African-American mothers; 5.9% to Asian or Pacific Islander mothers; and 3.2% to mothers of other race/ethnic backgrounds (Figure 11). Non-Medi-Cal births displayed significantly different proportions: Asian or Pacific Islander mothers comprised 18.8%;

African-American mothers constituted 3.8%, and mothers of other race/ethnic backgrounds made up 4.9% of the total births (Figure 11).

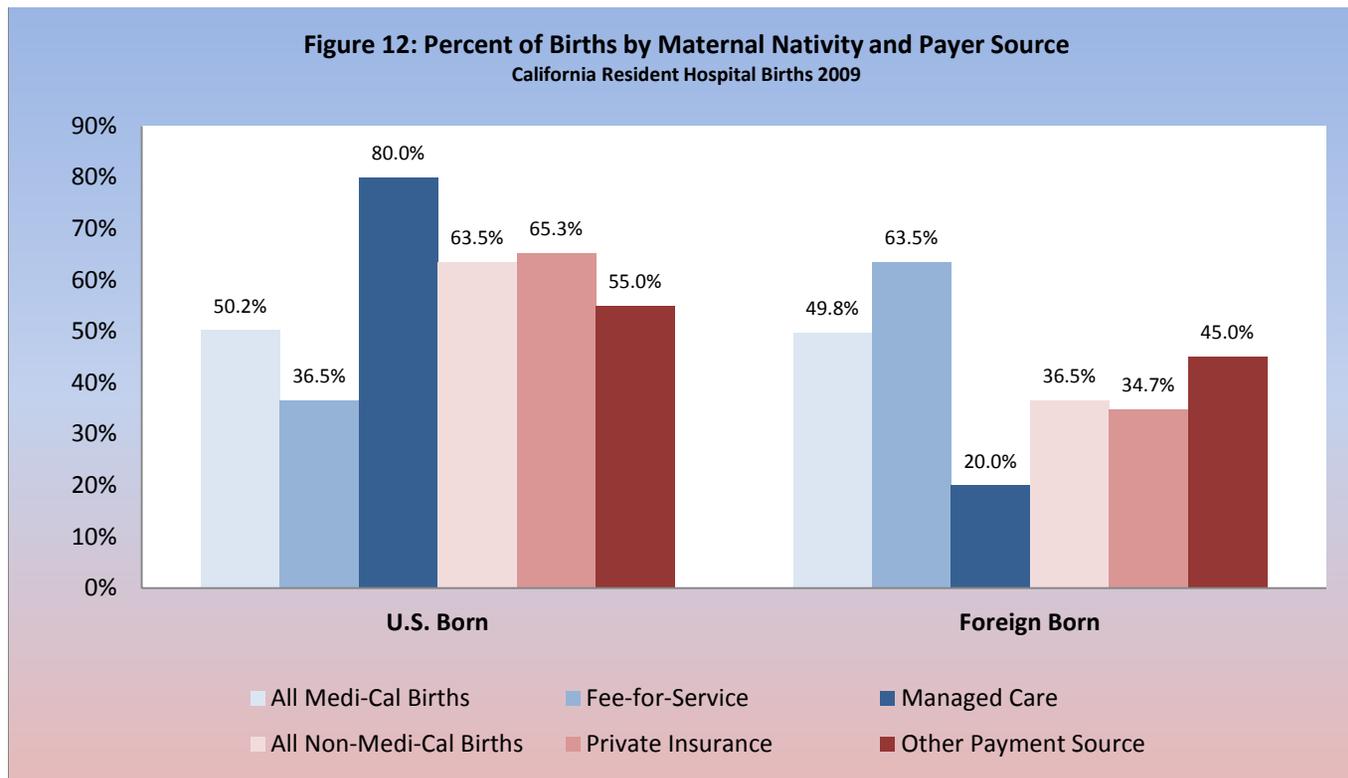
Differences in race/ethnic composition were noted between mothers who participated in the Medi-Cal FFS system and those who participated in the Medi-Cal managed care delivery system. While 7.2% of all Medi-Cal births were to African-American mothers, the percent of African-American births financed by the Medi-Cal managed care program was nearly twice that, or 14.3% (Figure 11). These differences are important to recognize because, compared to most other race/ethnic groups, deliveries to African-American mothers are more likely to be low birthweight and preterm.^{53,54,55,56}



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

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.^{57,58}

Among Medi-Cal financed births, 50.2% were to U.S.-born mothers and 49.8% were to foreign-born mothers. A larger segment of non-Medi-Cal financed births was to U.S.-born mothers (63.5%), and a smaller segment (36.5%) was to foreign-born mothers (Figure 12). Among Medi-Cal mothers who participated in managed care, 20.0% were foreign-born, whereas 63.5% of mothers who participated in Medi-Cal’s FFS delivery system were foreign-born (Figure 12).



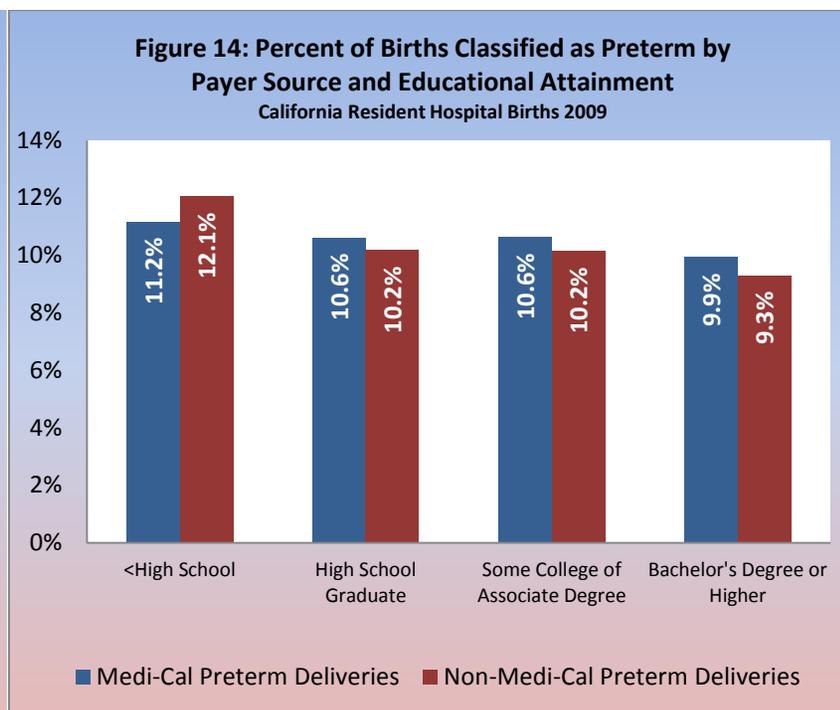
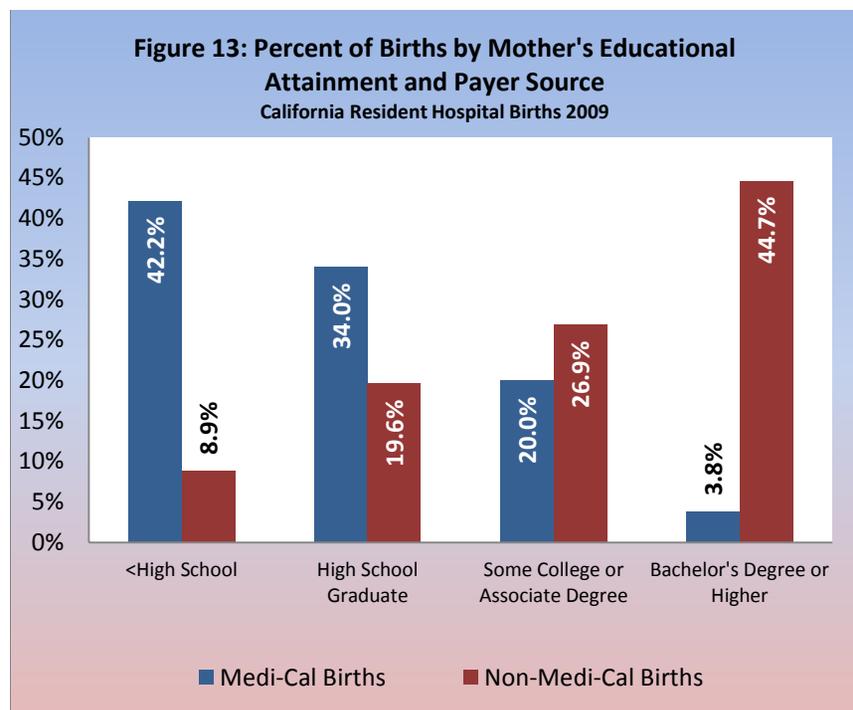
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

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

Education Status: Lower maternal educational attainment is associated with higher parity levels, closer birth spacing, having an unwanted pregnancy, and an increased prevalence of smoking during pregnancy. Lower educational attainment is also associated with adverse birth outcomes such as preterm and low birthweight births, and an increased risk of stillbirth as well as neonatal and post-neonatal deaths.^{59,60}

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

Cal mothers did. Overall, 42.2% of mothers enrolled in Medi-Cal had less than a high school education, 34.0% had a high school diploma, 20.0% had some college, and 3.8% had a college degree (Figure 13). Conversely, only 8.9% of non-Medi-Cal mothers had less than a high school education, 19.6% had a high school diploma, 26.9% had some college, and 44.7% attained a college degree. Between both Medi-Cal and non-Medi-Cal births, mothers with the highest educational attainment had the lowest percentages of low birthweight and preterm births (Figure 14).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

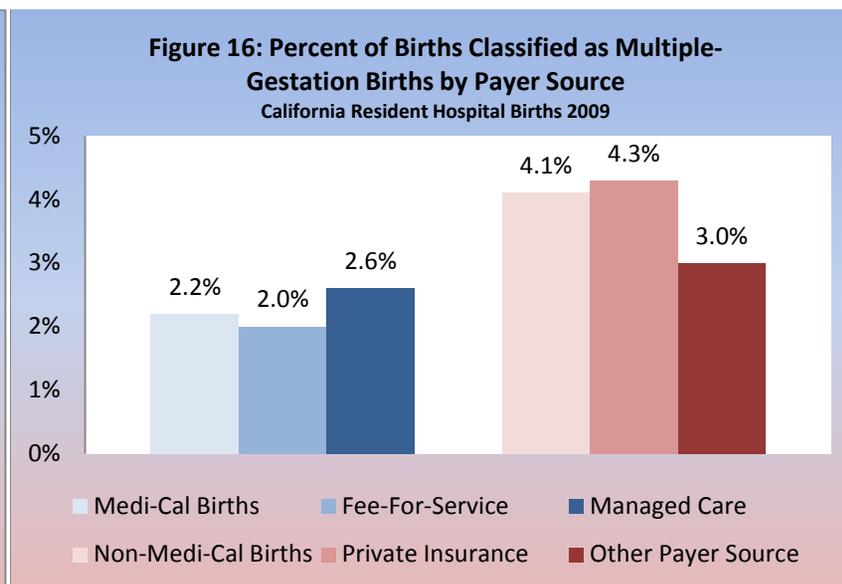
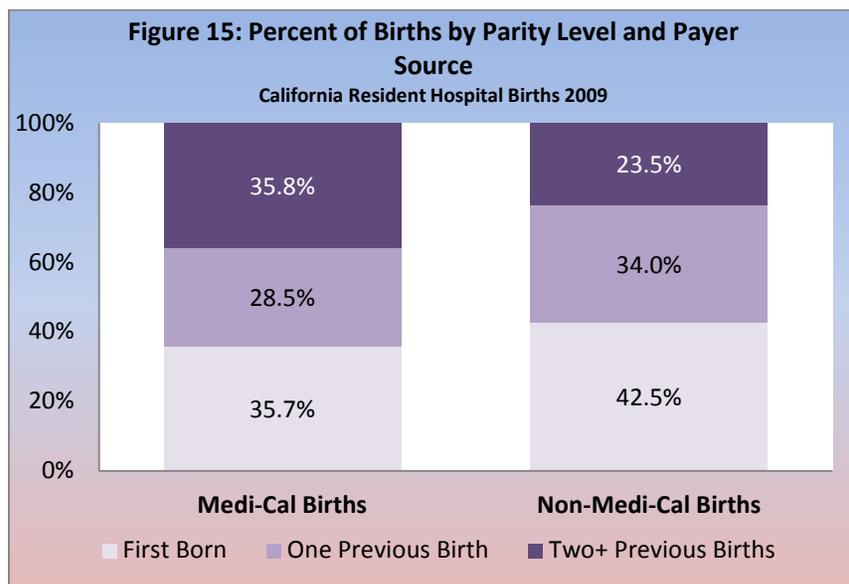
*Note: Values in figures may not add up to 100.0% due to rounding.

Parity: Parity refers to the number of live births a woman has during her reproductive years. High parity can increase the risk for adverse birth outcomes such as low birthweight, premature birth, stillbirth, and neonatal death.^{61,62}

Among Medi-Cal mothers in 2009, 35.7% were first-time mothers, 28.5% had one previous birth, and 35.8% had two or more previous births (Figure 15). Medi-Cal managed care mothers had the highest parity, with 37.7% 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, 42.5% were first-time mothers, 34.0% had one previous birth, and 23.5% 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.⁶³ Multiple-gestation births are more common among older mothers or mothers using artificial reproductive technology.^{64,65} These babies are also more likely to be delivered via cesarean section.

Among mothers that participated in Medi-Cal’s FFS delivery system, 2.0% experienced multiple-gestation births, while among mothers that 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, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

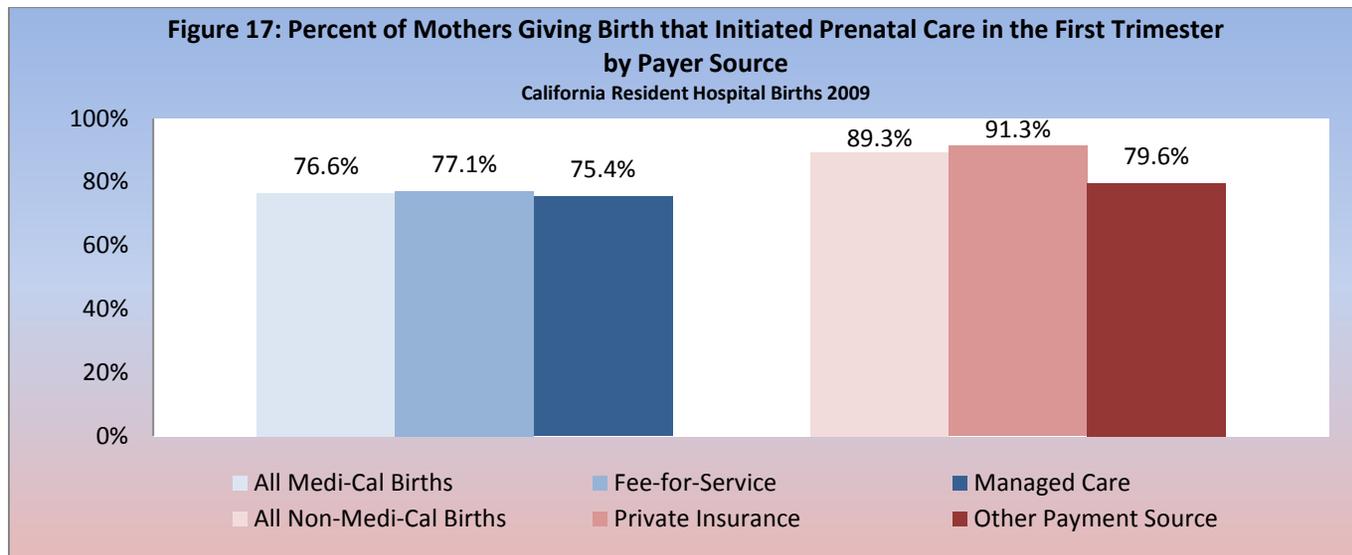
*Note: Values in figures may not add up to 100.0% due to rounding.

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.⁶⁶ 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.⁶⁷

Among all Medi-Cal mothers, 76.6% initiated prenatal care during their

first trimester of pregnancy, 18.8% 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, 91.3% of privately insured mothers initiated prenatal care in their first trimester, while only 8.6% 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 75.4% of the time, and 77.1% of FFS mothers also initiated prenatal care early (Figure 17). Among Medi-Cal mothers, the Undocumented and Pregnancy Pathway aid categories had the highest percentages of prenatal care during the first trimester of pregnancy (80.5% and 78.5%, respectively) (Appendix H).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

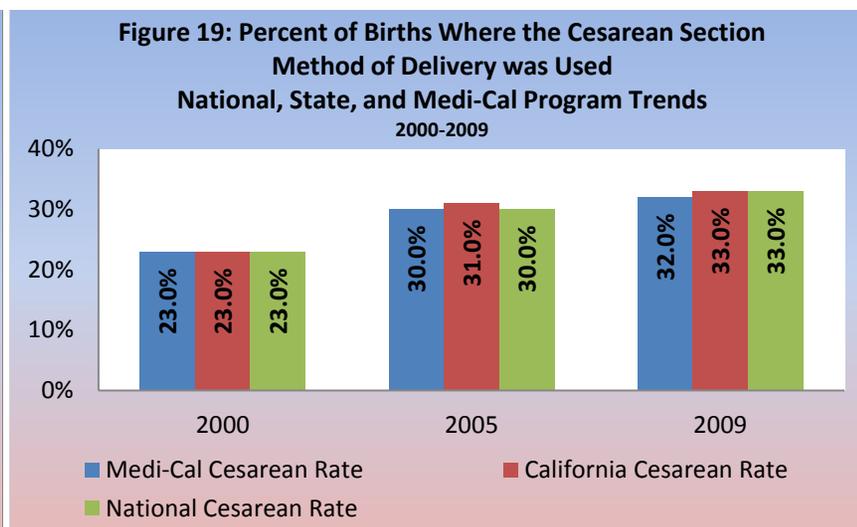
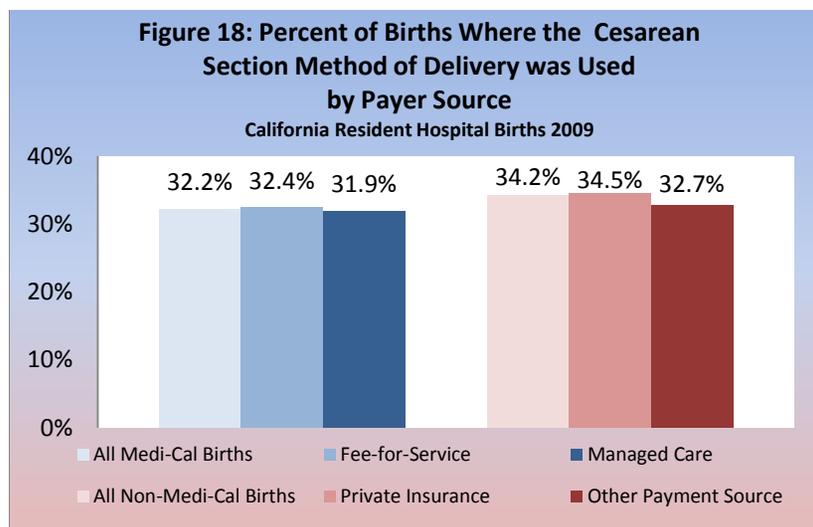
Delivery Method: From 1996 to 2009, the national cesarean rate increased annually, culminating in a 60% overall increase in cesarean sections. Compared with vaginal birth, cesarean section is costly and poses additional health risks for both mother and child.⁶⁸ Clear clinical indications exist for undergoing 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 2009, cesarean section deliveries comprised 33.0% of all births in the U.S.⁷¹ Among all resident California births occurring in a hospital, cesarean section deliveries made up 33.0% of births, slightly above the national average (Figure 19). California's cesarean rates have increased by 44.3% in the last several years, from 23.0% in 2000 to 33.0% in 2009 (Figure 19).

The cesarean section rate was slightly lower than the state average among Medi-Cal births (32.2%). Among non-Medi-Cal financed births, the percentage of cesarean deliveries was highest among privately insured births at 34.5% (Figure 18).

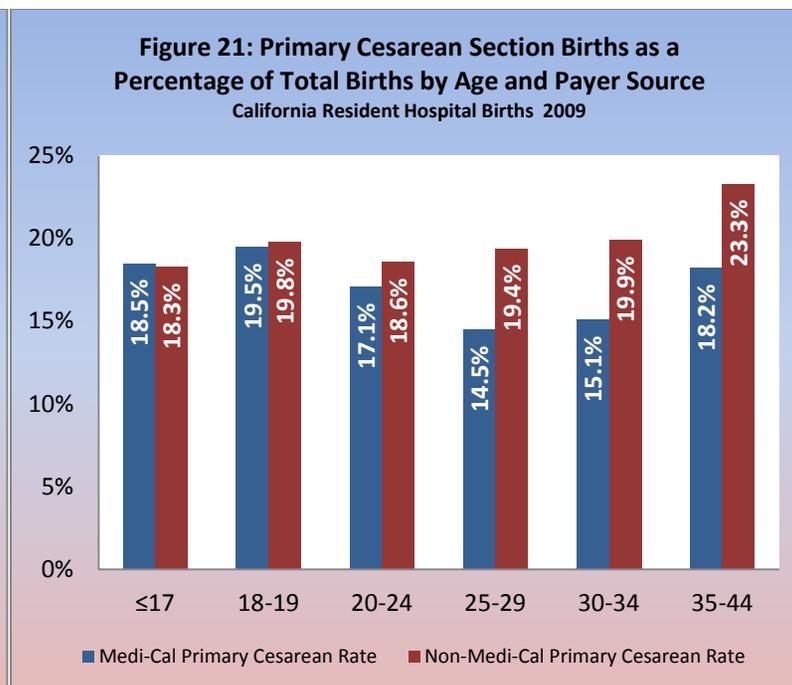
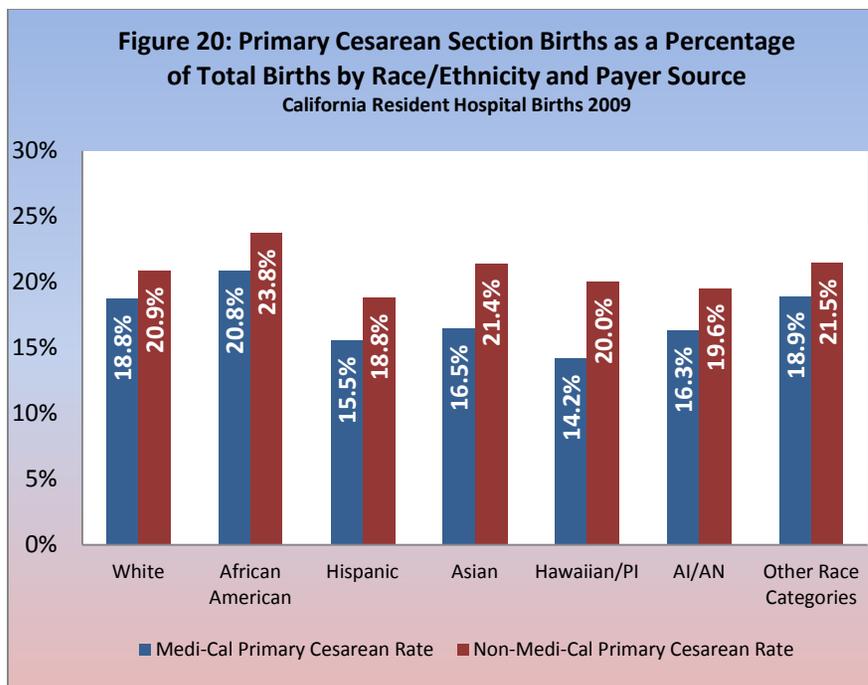


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 (16.5%) than non-Medi-Cal births (20.5%) (Appendix H). Among Medi-Cal mothers, the primary cesarean section percentage was highest among mothers ages 18 to 19 (19.5%), mothers age 17 and younger (18.5%), African-American women

(20.8%), white women (18.8%), and women who self-identified with two or more race categories (18.9%) (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% and 16.5%, respectively) (Appendix H).

In contrast, the percentage of non-Medi-Cal mothers who delivered via cesarean section increased with age. Non-Medi-Cal mothers ages 35 to 44 (23.3%) and African-American women (23.8%) experienced the highest rates of primary cesarean section delivery (Figure 20).

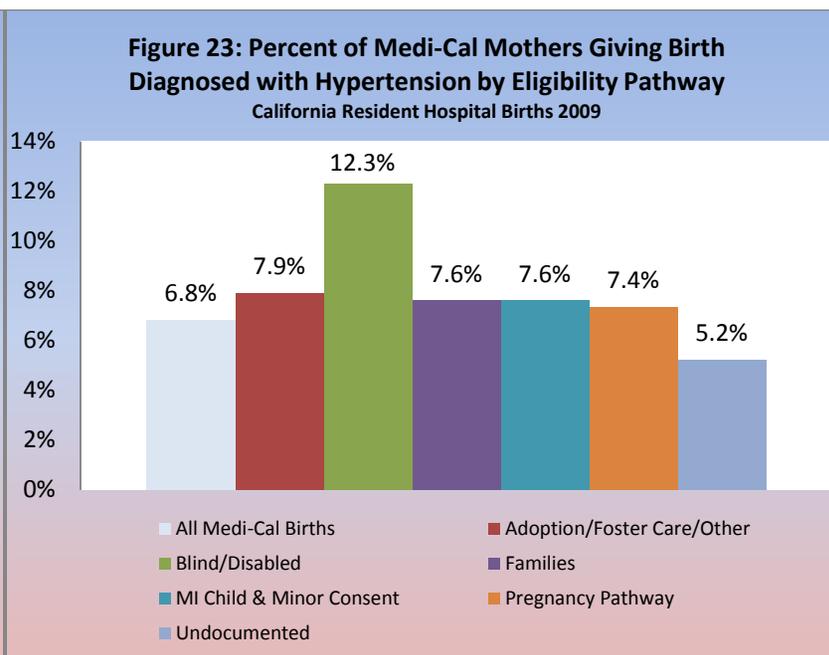
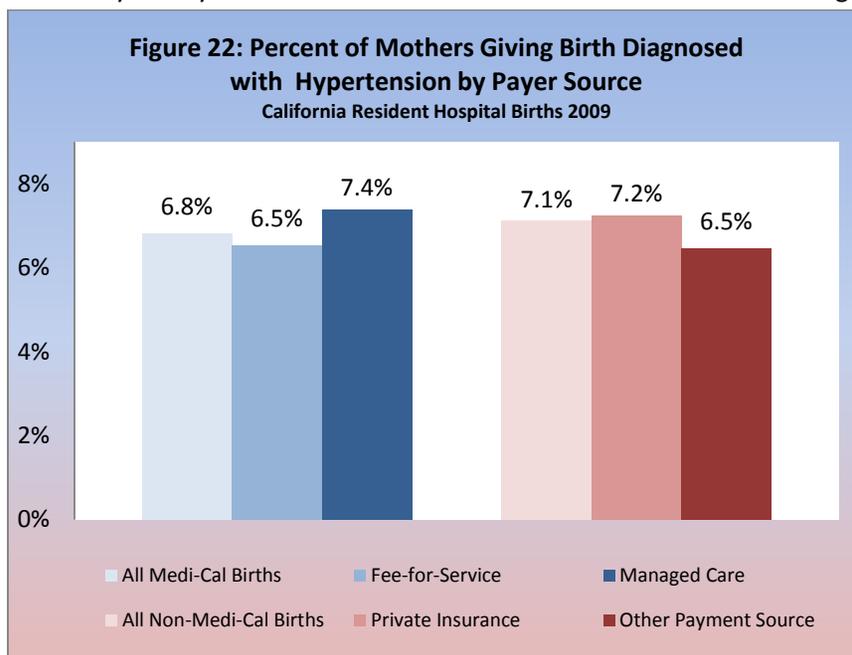


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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

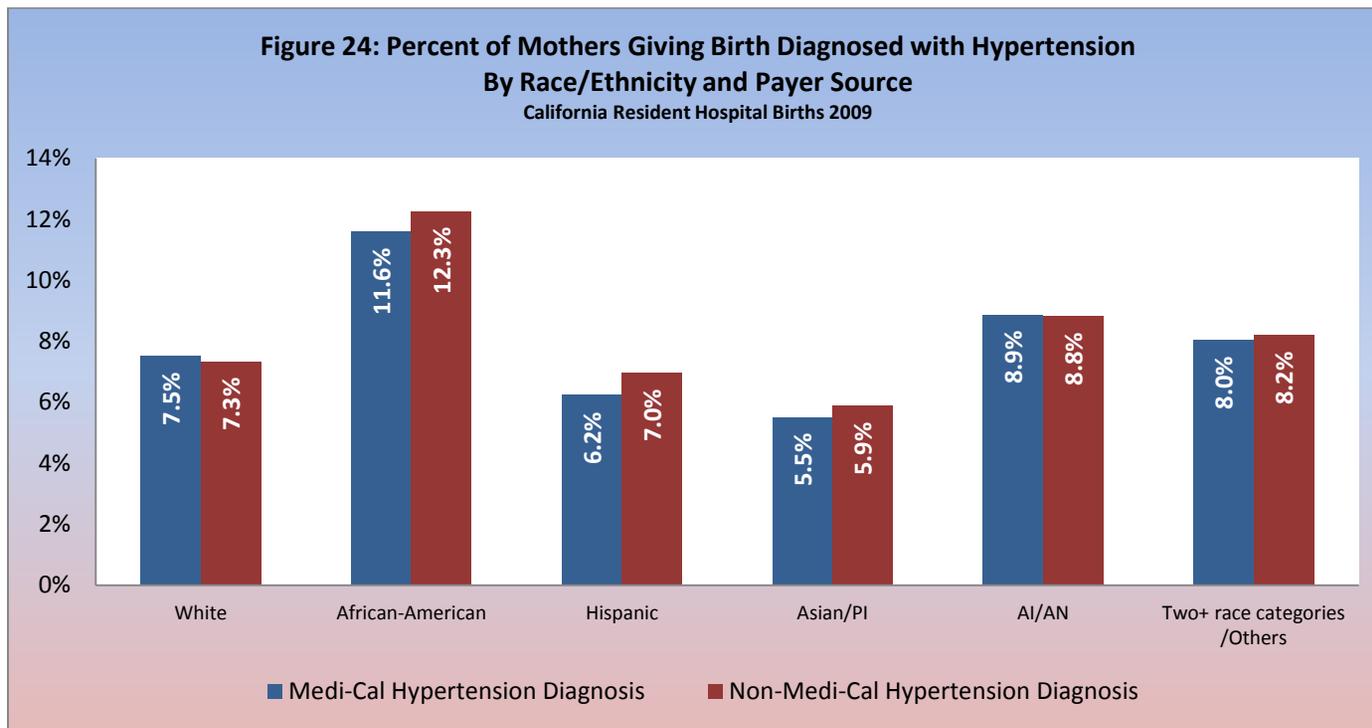
In 2009, 6.8% of Medi-Cal mothers had a hypertension diagnosis (either gestational or chronic hypertension), compared to 7.1% of non-Medi-Cal mothers (Figure 22). Hypertension was most prevalent among mothers participating in Medi-Cal managed care (7.4%) and least prevalent among women whose births were financed by Medi-Cal FFS (6.5%) or other funding sources (6.5%) (Figure 22). Hypertension was most prevalent among mothers enrolled in the Blind/Disabled aid codes (12.3%) (Figure 23).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

In 2009, hypertension diagnoses in the study population fluctuated between a low of 6.5% (other funding source) and a high of 7.4% (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 (11.6%) and non-Medi-Cal (12.3%) 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 (5.5%) and non-Medi-Cal (5.9%) groups (Figure 24).



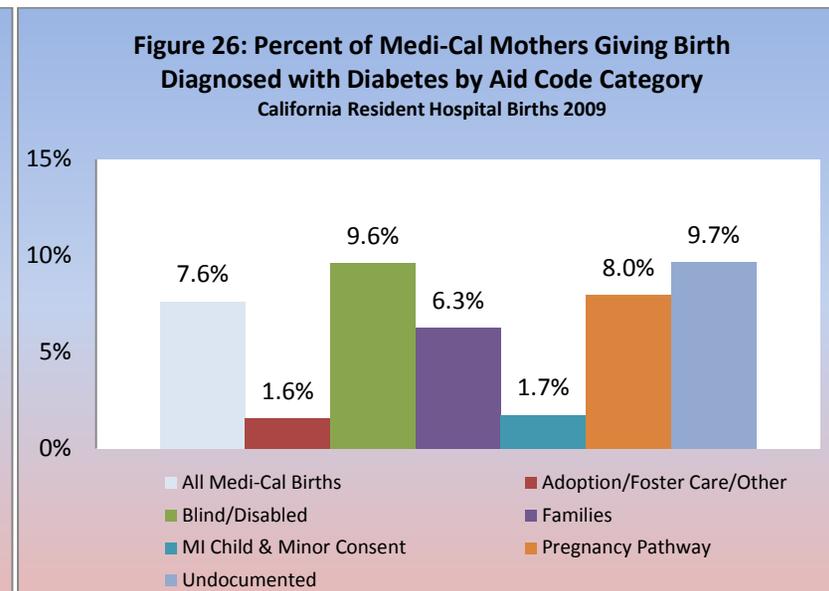
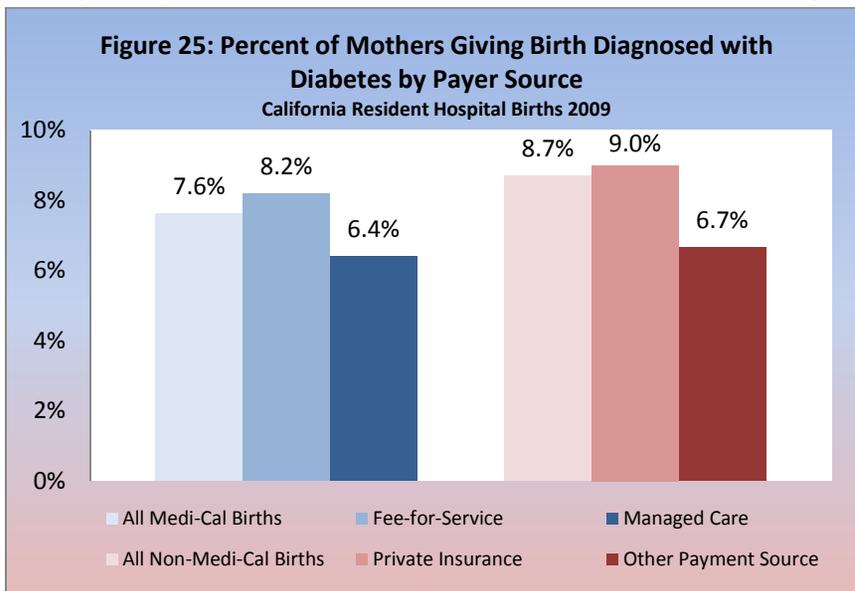
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 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 7.6% among mothers enrolled in the Medi-Cal program and 8.7% among all non-Medi-Cal mothers (Figure 25). Mothers who were privately insured and those who participated in the Medi-Cal FFS delivery system had higher percentages of any diabetes diagnosis (9.0% and 8.2%, respectively), than mothers with other coverage (6.7%) and mothers participating in Medi-Cal managed care (6.4%) (Figure 25). Diabetes was most prevalent among mothers without SIS (9.7%), in Blind/Disabled aid codes (9.6%), and in Pregnancy Pathway aid codes (8.0%) (Figure 26).



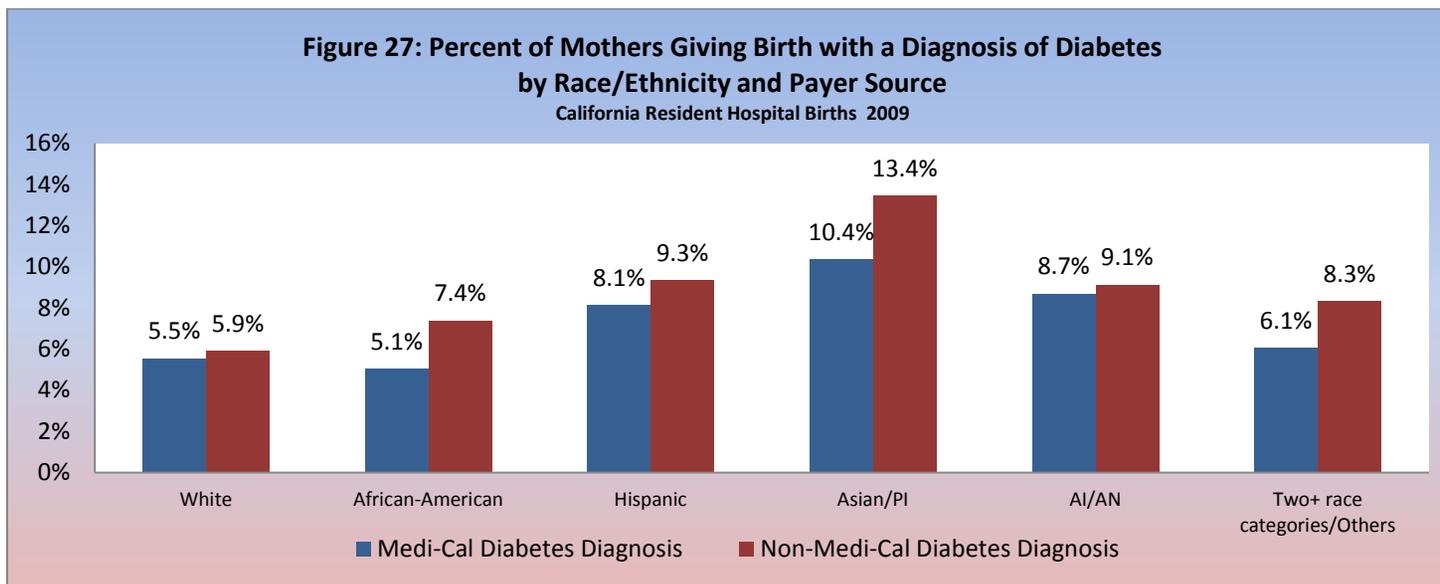
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 (13.4%) and Asian/Pacific Islander mothers enrolled in Medi-Cal (10.4%). 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 8.7% of Medi-Cal mothers and 9.1% of non-Medi-Cal mothers had a diabetes diagnosis. White mothers (5.9%) had the lowest percentage of diabetes diagnoses among non-Medi-Cal mothers.



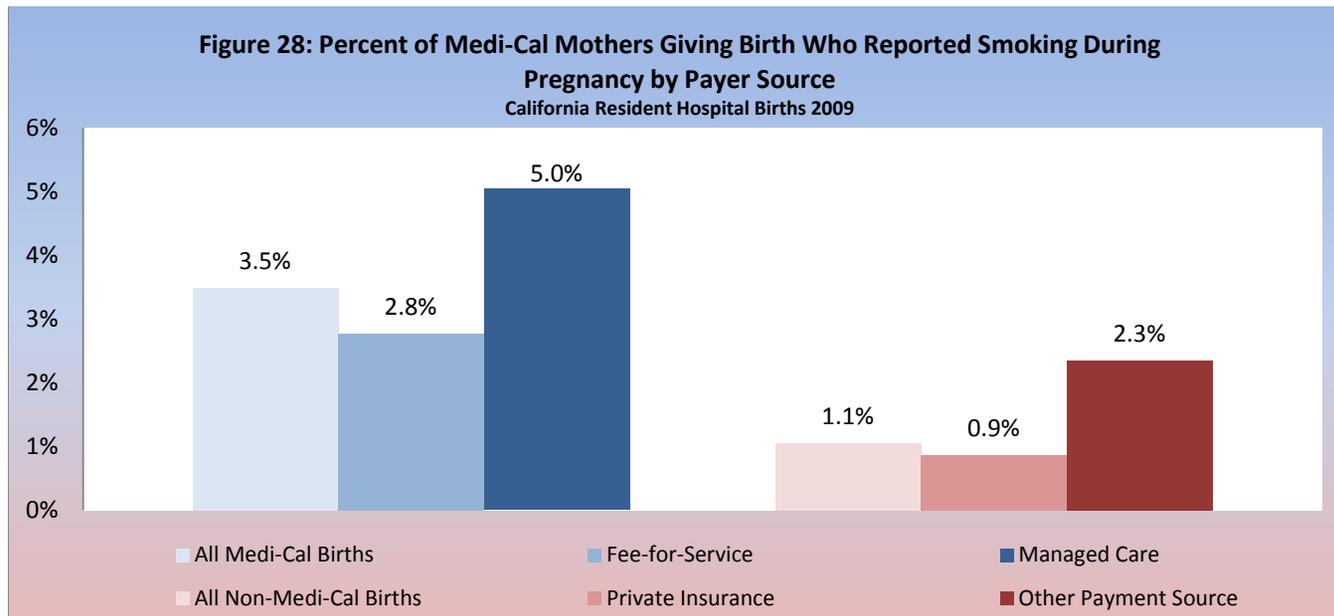
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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

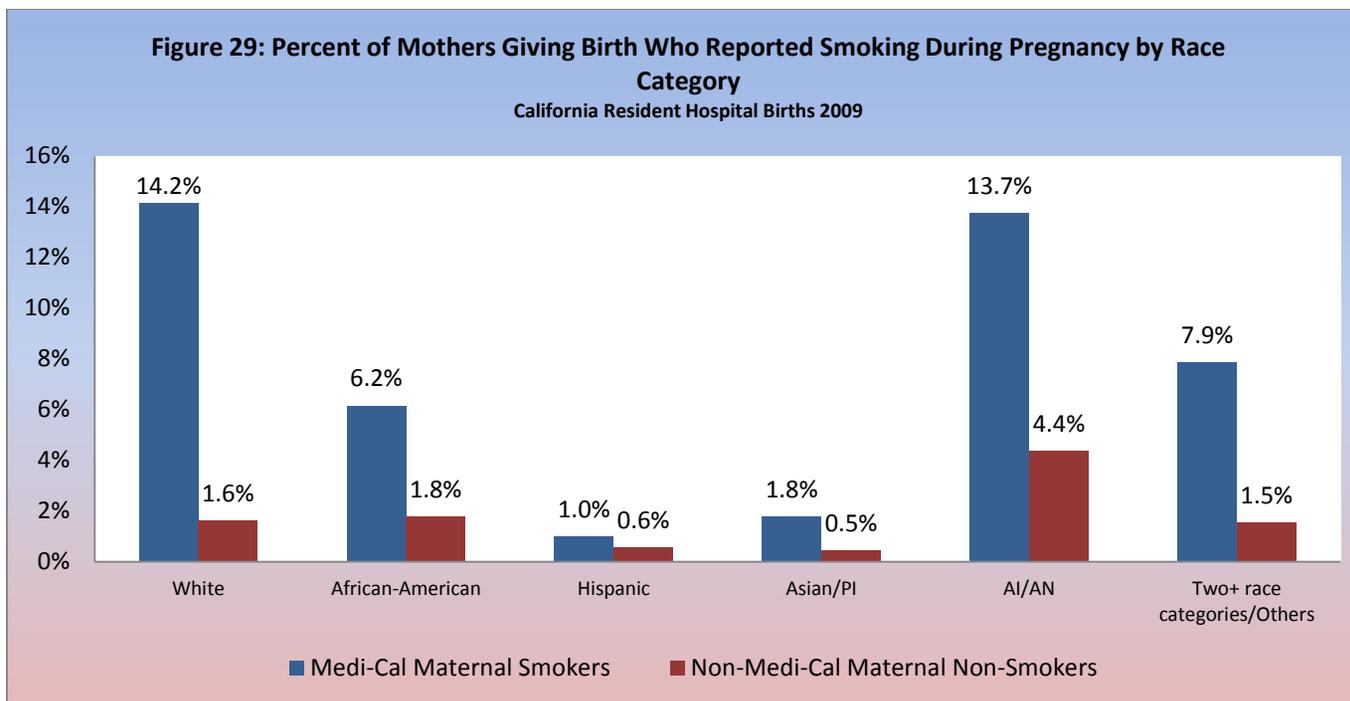
A higher percentage of Medi-Cal mothers reported smoking (3.5%) than non-Medi-Cal mothers (1.1%). Among Medi-Cal managed care mothers, 5.0% smoked during pregnancy, compared to 2.8% among mothers who participated in Medi-Cal’s FFS delivery system (Figure 28). Mothers with private insurance had the lowest percentage of smoking during pregnancy (0.9%). 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, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 (14.2% and 13.7% respectively); whereas American Indian/Alaskan Native mothers and African-American mothers were more likely to report smoking among non-Medi-Cal mothers. Hispanic and Asian mothers were the least likely to report smoking between both categories (Figure 29).



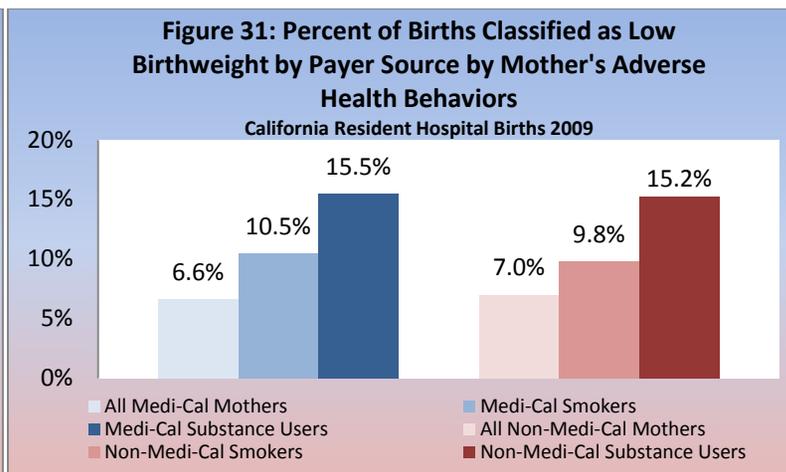
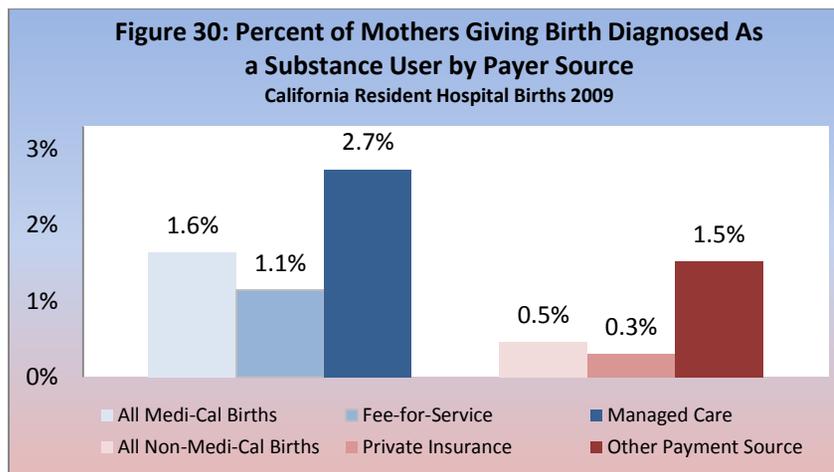
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Substance Use: An estimated 4% of pregnant women in the U.S. are substance users.⁹³ The birth outcomes and developmental problems commonly associated with substance use during pregnancy include spontaneous miscarriage, low birthweight, preterm birth, stillbirth, fetal withdrawal symptoms, small head size, abnormal facial features, learning disabilities, speech/language delays, and vision/hearing problems.^{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 three times higher among Medi-Cal mothers than non-Medi-Cal mothers (1.6% and 0.5%, respectively), and twice as common among mothers who participated in Medi-Cal managed care than in Medi-Cal's FFS delivery system (2.7% and 1.1%, respectively) (Figure 30). Mothers with private insurance had the lowest prevalence of negative health behaviors; just 0.9% smoked and 0.3% used substances during pregnancy.

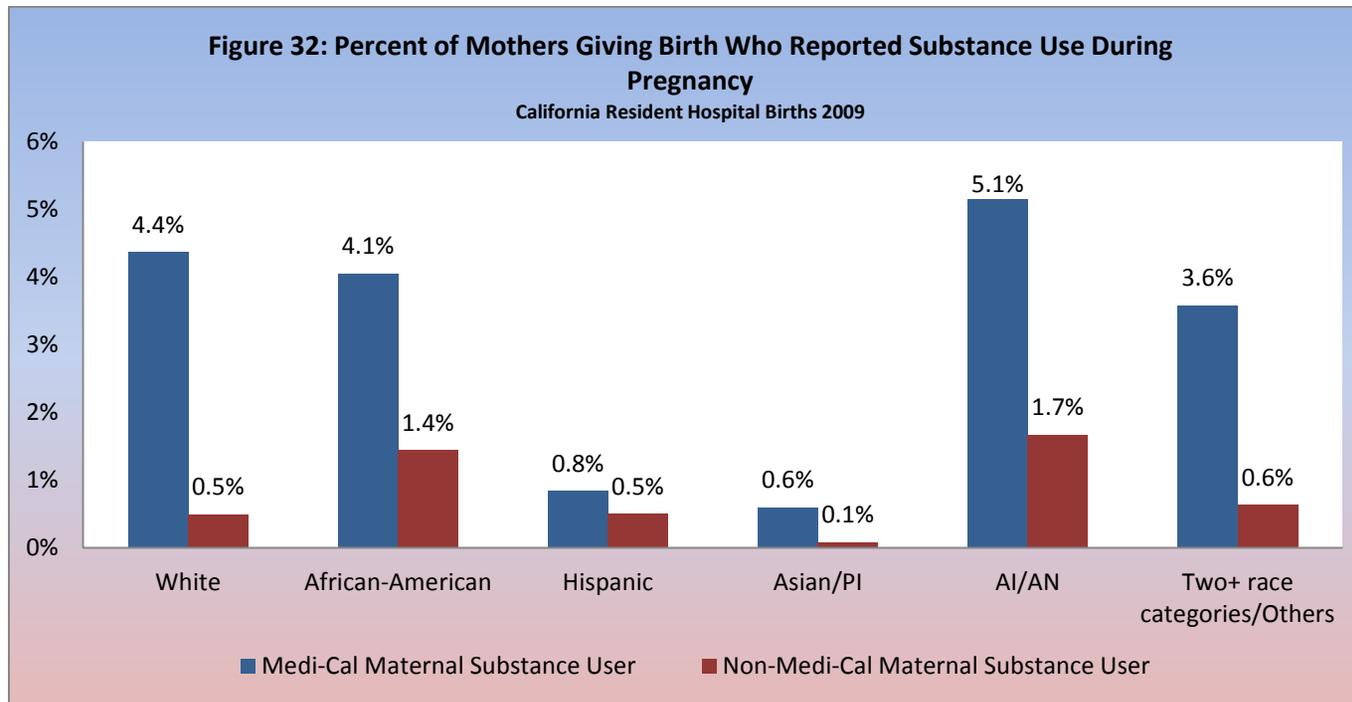
Adverse health behaviors such as smoking and substance use during pregnancy were significantly associated with an increased incidence of low birthweight. Regardless of payer source, the incidence of low birthweight increased for each of the adverse health behaviors. Substance use was associated with the greatest percentage of low birthweight between the two studied adverse behaviors. The incidence of low birthweight increased 59% in Medi-Cal mothers who smoked. Medi-Cal mothers who used substances during their pregnancy increased percentages of low birthweight by 135% (Figure 31).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

The CDC reports a wide disparity in maternal substance use among age groups and race cohorts. A study of pregnant women from 2002 to 2010 found that 7.7% of African-American respondents had used illicit drugs in the last month, compared to 4.4% of white respondents.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 (5.1%) and white mothers (4.4%). Non-Medi-Cal mothers reported high percentages of substance users in American Indian/Alaskan Native (1.7%) and African-American (1.4%) mothers. Similar to national trends, white, Hispanic, and Asian/Pacific Islander mothers had the lowest percentages reported in both categories.



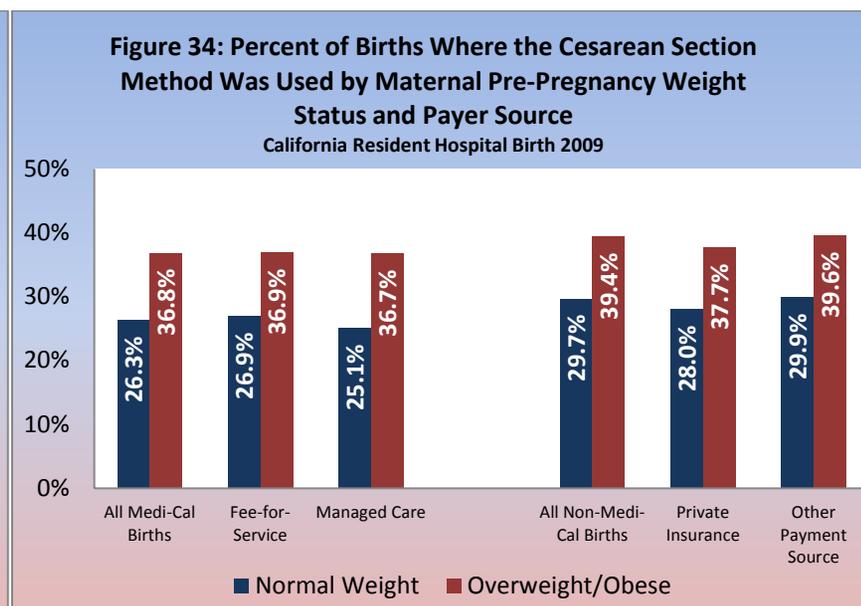
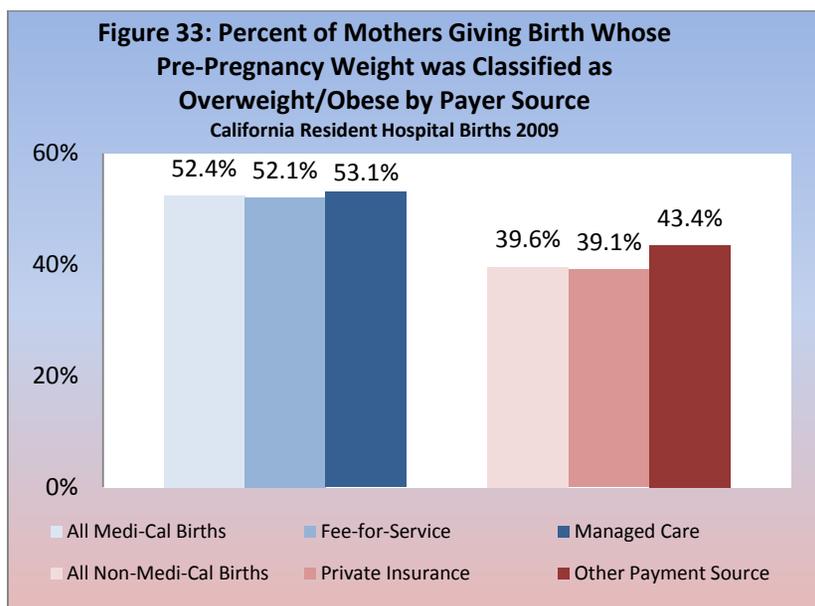
Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Pre-Pregnancy Weight: Maternal pre-pregnancy weight ranging outside of normal is associated with many adverse birth outcomes such as large-for-gestational-age, macrosomia, neural tube defects, stillbirth, neonatal death, and congenital heart defects (the leading cause of infant death when attributed to birth defects).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 a normal weight range are less likely to deliver preterm, develop gestational hypertension or diabetes, or require a cesarean section in comparison to women who are overweight or obese.¹⁰²

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

weight were used to calculate a mother’s Body Mass Index (BMI), though a large proportion of records contained missing or invalid height and/or weight information (N=71,497, or 13.7% of all observations).

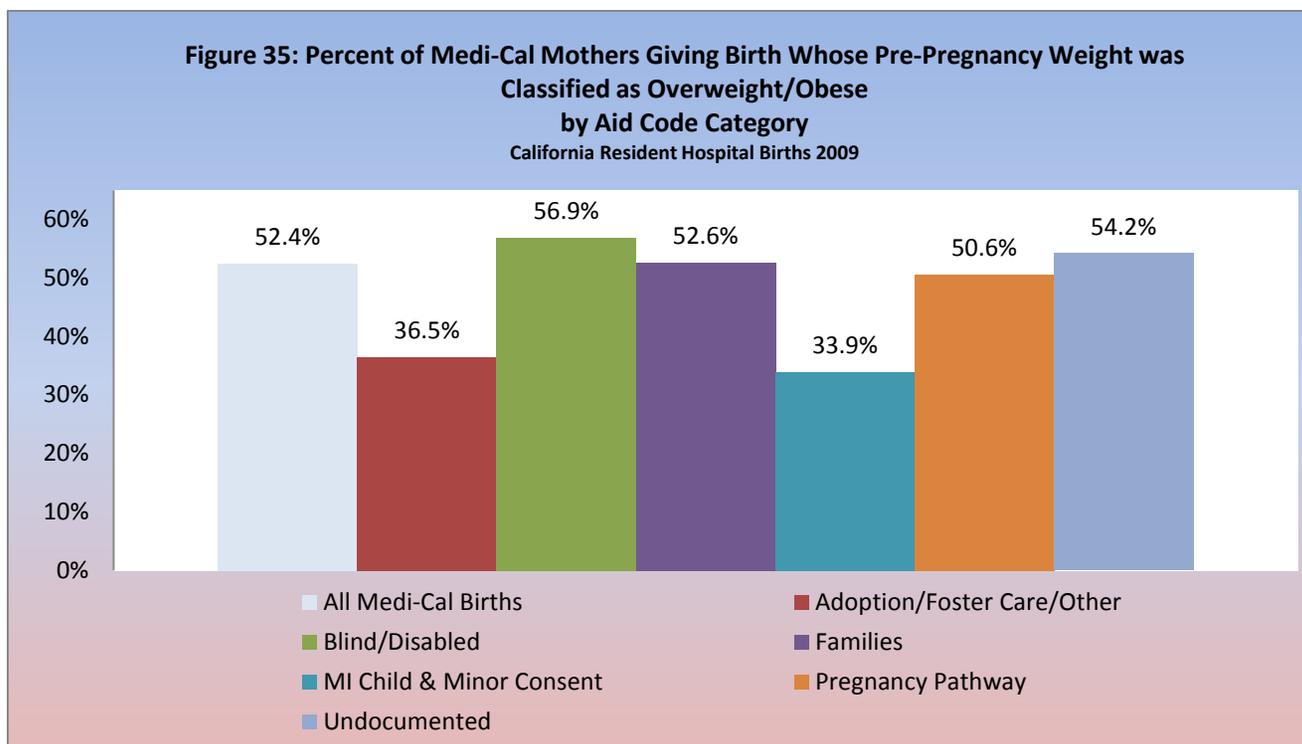
The association between pre-pregnancy weight and the incidence of cesarean section delivery was not consistent among payer sources. Among Medi-Cal and non-Medi-Cal births, the incidence of cesarean section delivery was higher among women with pre-pregnancy weights considered overweight or obese than those with pre-pregnancy weights considered normal (Figure 34). Non-Medi-Cal mothers with pre-pregnancy weights considered normal were less likely to have a cesarean section delivery (29.7%) than non-Medi-Cal mothers with pre-pregnancy weights considered overweight/obese (39.4%).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

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

Among Medi-Cal mothers, 52.4% entered their pregnancy as overweight/obese, compared to 39.6% 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 56.9%, and 54.2% of women enrolled in Undocumented aid codes had a pre-pregnancy weight considered overweight or obese (Figure 35).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

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 understand groups at risk for poor birth outcomes, and to develop information for guiding health policy development, assessment, and evaluation.

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

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

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

Outcome Measure	All U.S. Births	All California Hospital Resident Births	Medi-Cal Hospital Resident Births	Non-Medi-Cal Hospital Resident Births	Healthy People 2020 Goal
Low Birthweight	8.2%	6.8%	6.6%	7.0%	7.8%
Very Low Birthweight	1.5%	1.1%	1.1%	1.2%	1.4%
Preterm Delivery	12.3%	10.4%	10.8%	10.0%	11.4%
Very Preterm Delivery	2.0%	1.5%	1.6%	1.5%	1.8%
Populations shaded in green represent those that met the Healthy People 2020 goal in 2009. Populations in red didn't meet the Healthy People 2020 Goal in 2009.					

Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 2009 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 country.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}

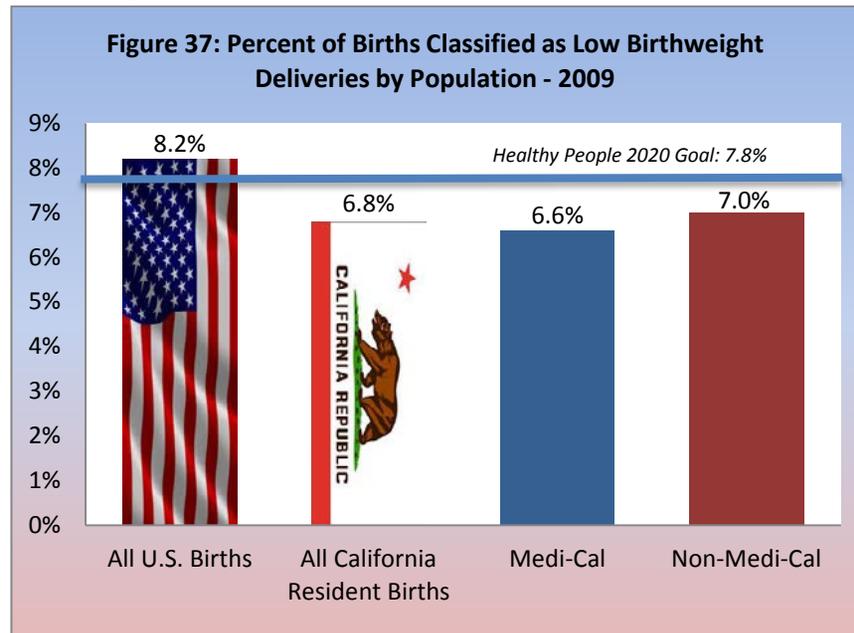
RASD found that the following factors were associated with higher percentages of low birthweight among Medi-Cal mothers:

- Multiple Gestation Births
- Hypertension
- Substance Use
- Blind/Disabled Aid Category

- African-American Mothers
- Age 45 or Older
- 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



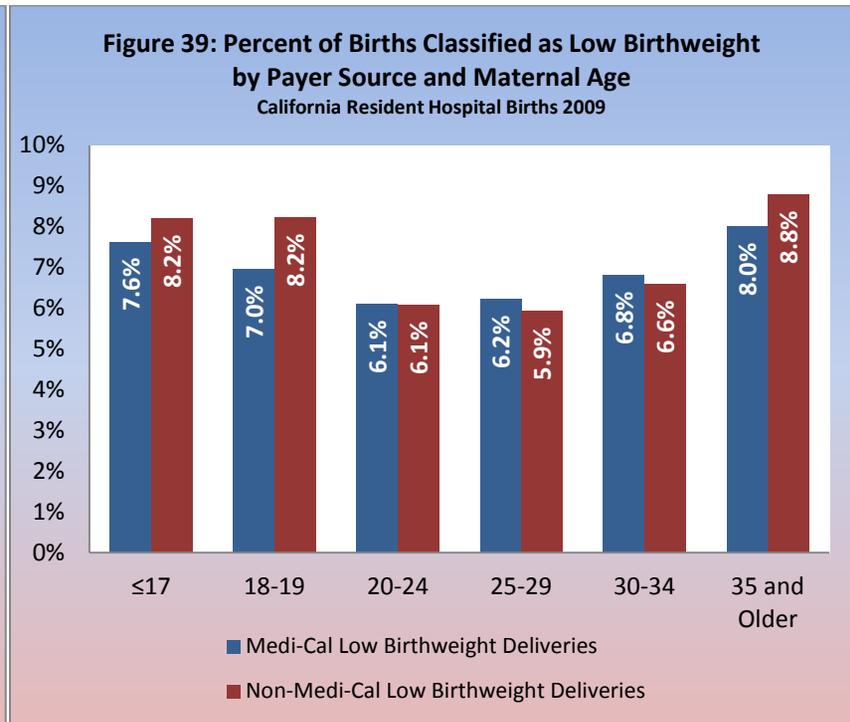
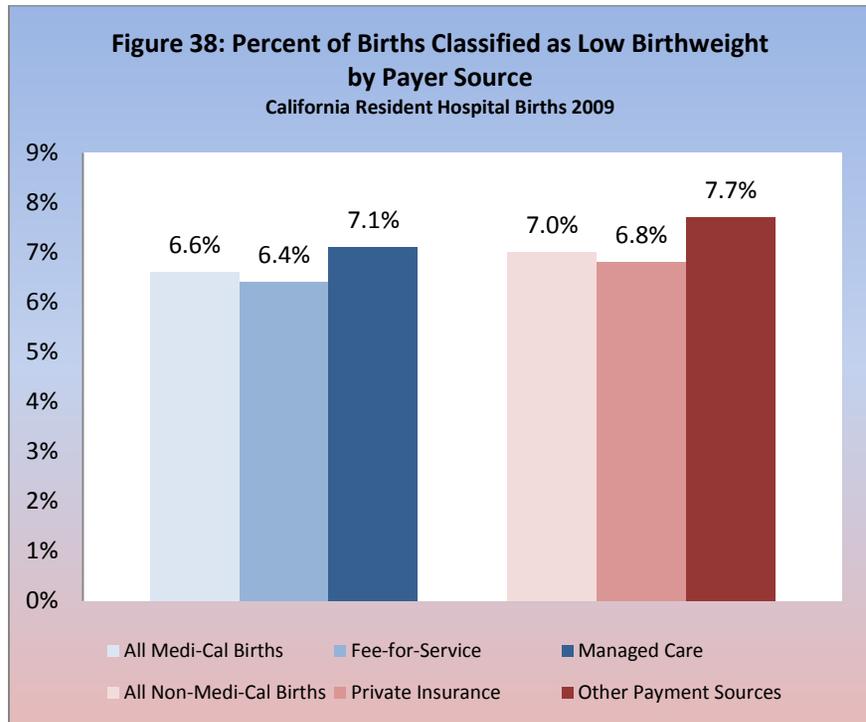
Martin, J.A., Hamilton, B.E., Ventura, S.J., Osterman, M.J.K., Kirmeyer, S., Mathews, T.J., Wilson, E.C. (2011, November 3). Births: Final Data for 2009. Centers for Disease Control and Prevention, National Vital Statistics Report, 60(1). Retrieved from http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_01.pdf

Low birthweight percentages were slightly higher among births to mothers who participated in Medi-Cal managed care (7.1%) 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 (7.7%).

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 8.0%. Among non-Medi-Cal mothers age 35 and older, the percent was slightly higher at 8.8%.

Younger mothers also displayed higher percentages of low birthweight. For Medi-Cal mothers age 17 and younger, the percent of low birthweight deliveries was 7.6%, and 8.2% for non-Medi-Cal mothers age 17 years and younger (Figure 39).

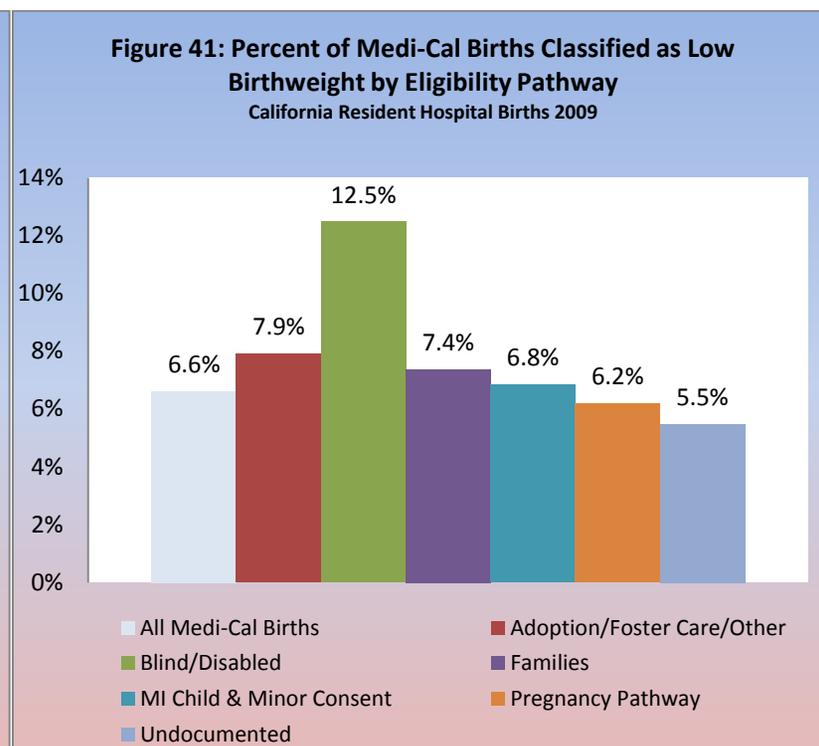
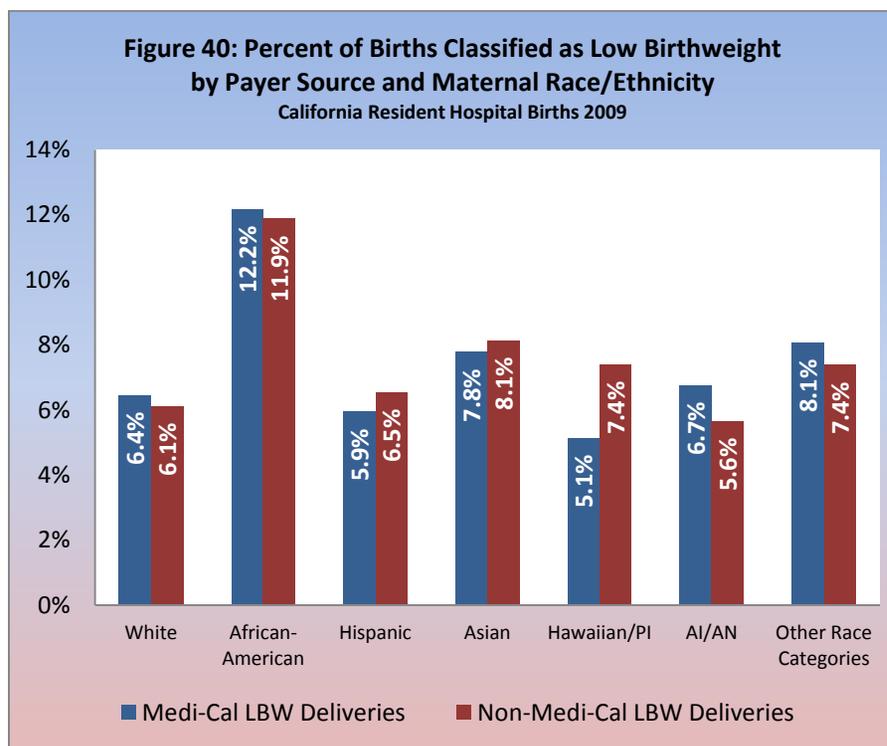


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Although the percentage of low birthweight deliveries varied among mothers of different racial cohorts, Medi-Cal and non-Medi-Cal mothers within the same racial cohort exhibited similar percentages. African-American mothers had the highest percentages of low birthweight for Medi-Cal (12.2%) and non-Medi-Cal births (11.9%) (Figure 40). Mothers in the Hawaiian/Pacific Islander cohort had the lowest percentage of low birthweight deliveries for Medi-Cal (5.1%).

Among non-Medi-Cal mothers, American Indian/Alaskan Native mothers had the lowest percentage of low birthweight (5.6%).

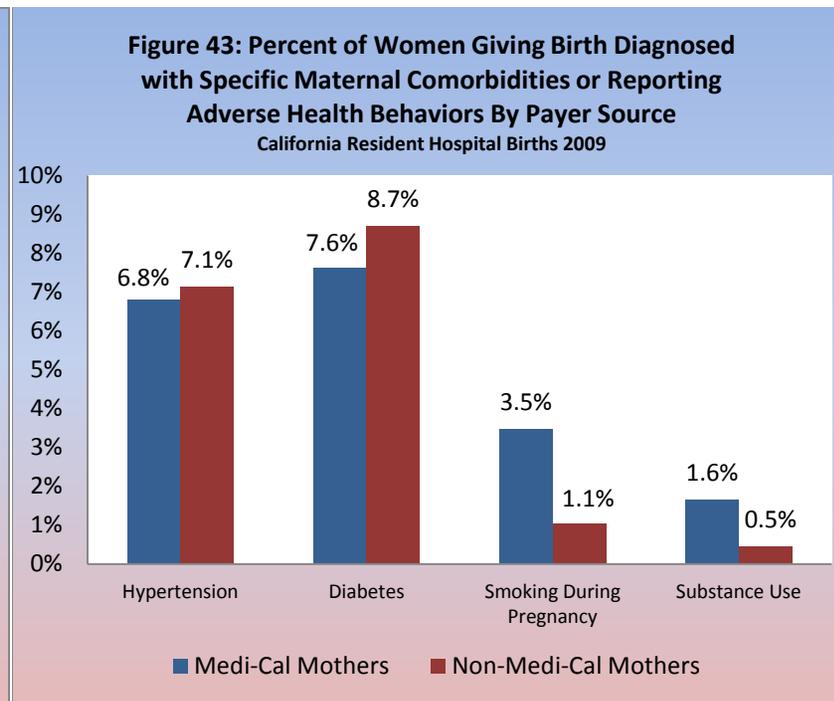
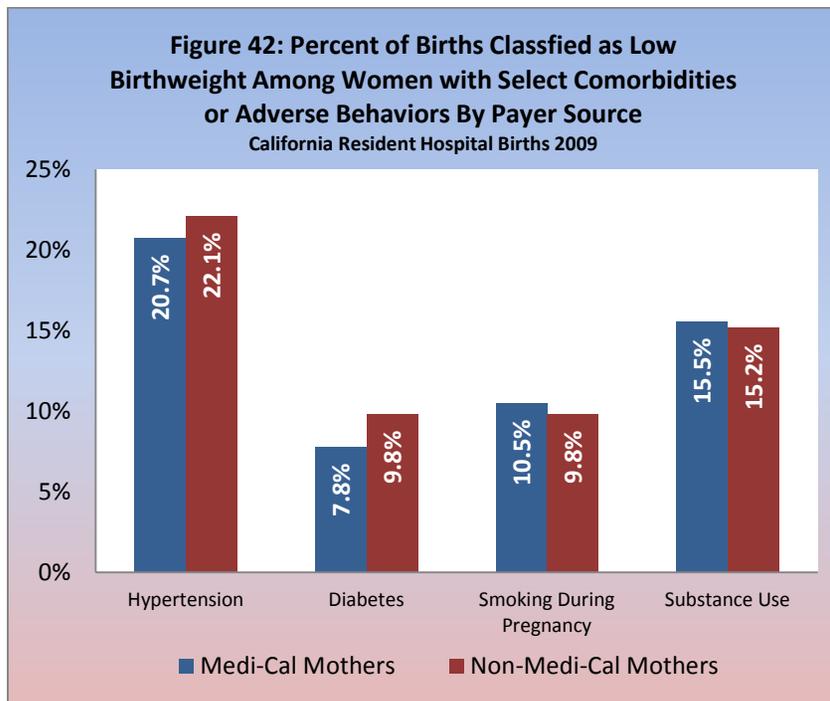
Among Medi-Cal mothers, the highest percentage of low birthweight was found among mothers enrolled in Blind/Disabled aid codes (12.5%) and the lowest percentage was found among mothers without SIS (Undocumented, 5.5%) (Figure 41).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Most clinical conditions studied in this report showed an association with births resulting in low birthweight. For example, while the prevalence of low birthweight among Medi-Cal births was 6.6%, low birthweight was substantially higher among mothers with hypertension (20.7%), smokers (10.5%), and mothers diagnosed with substance use at the time of delivery (15.5%). Among non-Medi-Cal mothers, the percentage of low birthweight was also elevated for those with hypertension (22.1%), smokers (9.8%), diabetes (9.8%), and mothers diagnosed with substance use (15.2%) (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 (52.4%) (not shown), smoking during pregnancy (3.5%), and substance use (1.6%).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Very Low Birthweight: Newborns delivered at a very low birthweight (<1,500 grams) account for over half (53.1%) of all infant deaths in the U.S.¹¹¹ Among all births financed by Medi-Cal, the percentages classified as very low birthweight was 1.1%. The Healthy People 2020 goal is to reduce the percent of very low birthweight births to 1.4% or below.

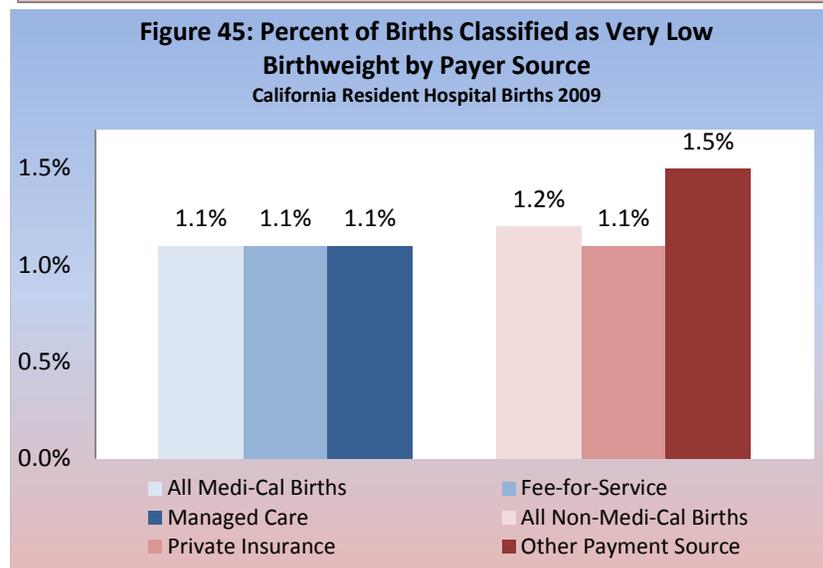
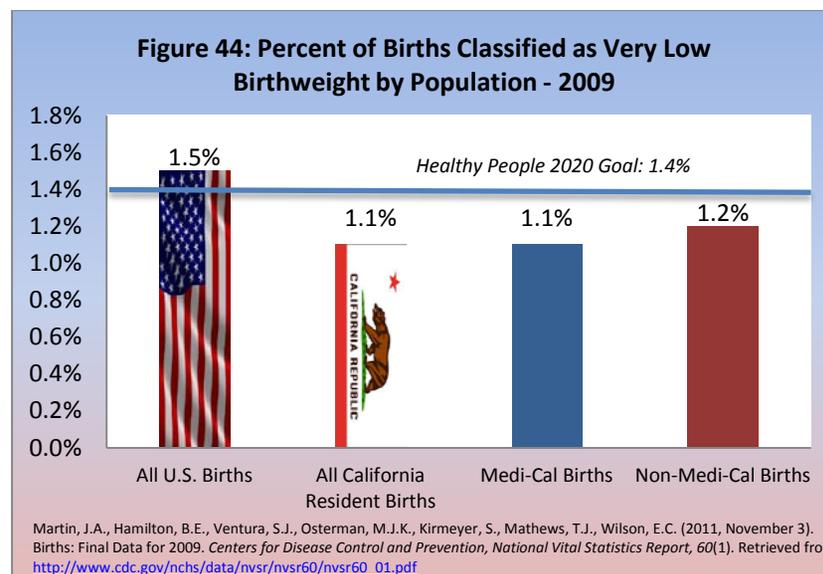
The percentages of very low birthweight were similar for births to Medi-Cal managed care beneficiaries (1.1%), Medi-Cal FFS beneficiaries (1.1%), and mothers with private insurance (1.1%).

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

- Multiple gestation births
- Hypertension
- Substance Use
- African-American Mothers
- Blind/Disabled Mothers
- Mothers over Age 35

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

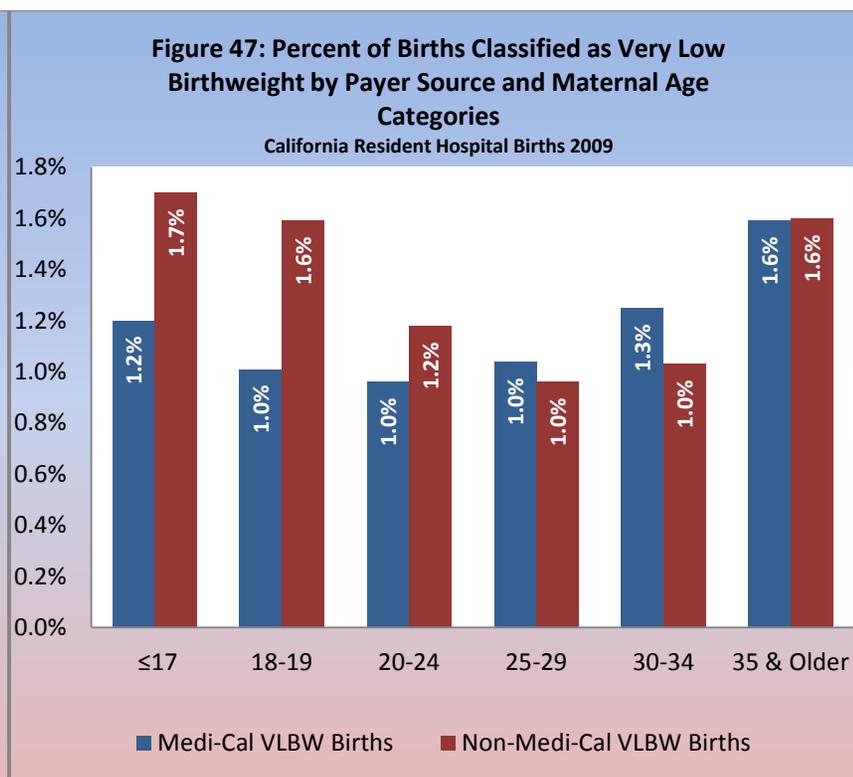
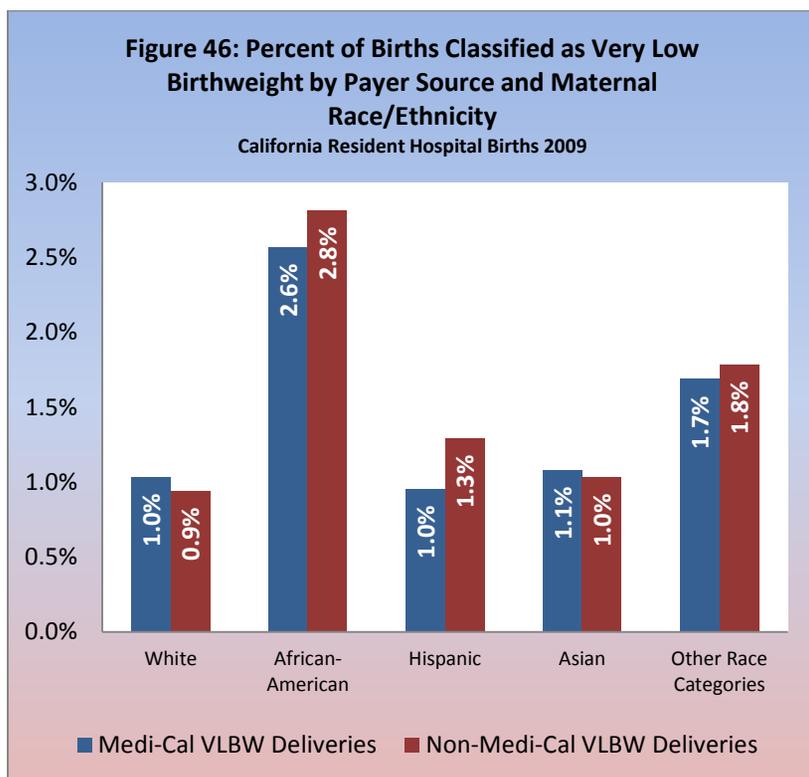
- Mothers without SIS
- Singleton Births
- Age 18-29
- One Previous Birth
- Hispanic or White Mothers



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 2.8% for non-Medi-Cal births (Figure 46). The lowest percentages of very low birthweight occurred among white, Asian, and Hispanic mothers.

Very low birthweight was lowest among Medi-Cal mothers ages 18-29 at 1.0%. Percentages of very low birthweight within Medi-Cal were somewhat higher among women age 17 or younger at 1.2%. The highest percent was among this same age group for non-Medi-Cal births at 1.7%. The percent of very low birthweight was high among mothers age 35 or older, at 1.6% for Medi-Cal births and non-Medi-Cal births (Figure 47).

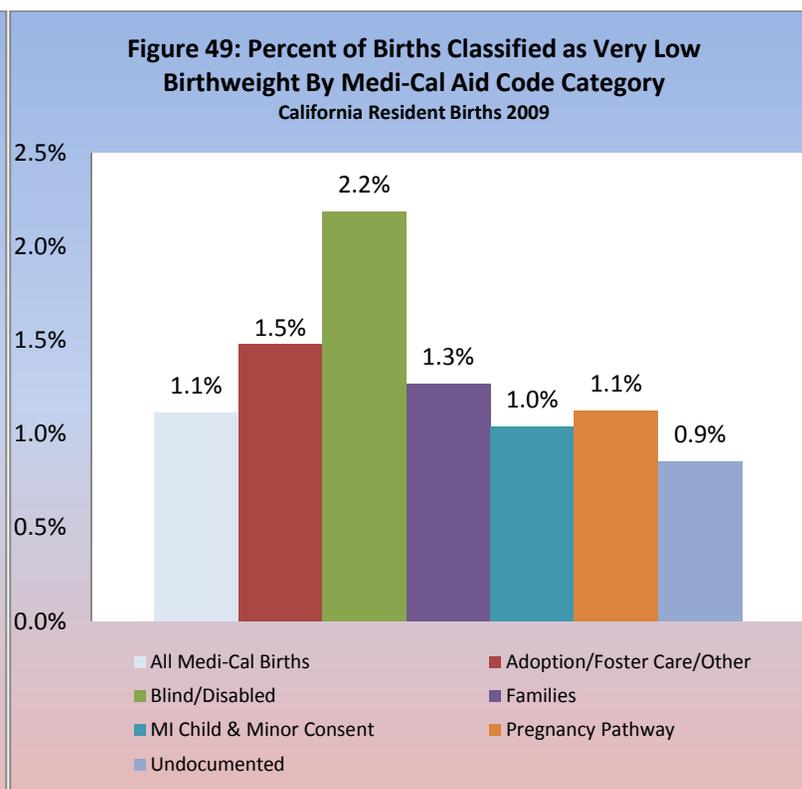
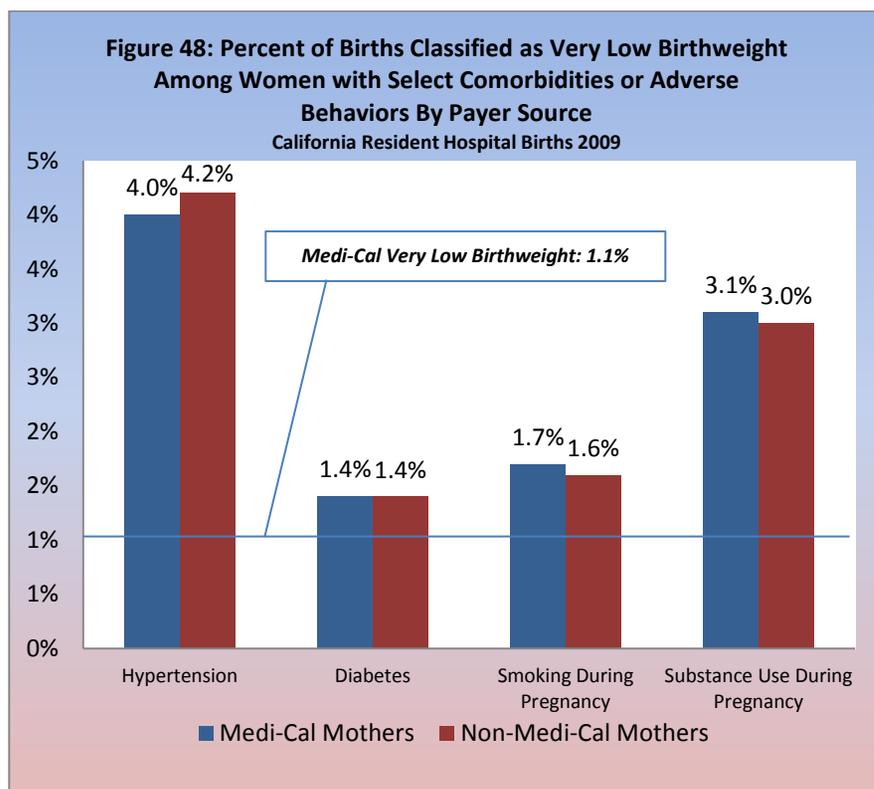


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

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

low birthweight delivery between both Medi-Cal and non-Medi-Cal populations.

Among Medi-Cal mothers, the highest percentage of very low birthweight was found among mothers enrolled in Blind/Disabled aid codes (2.2%), and the lowest was found among mothers without SIS (Undocumented, 0.9%) (Figure 49).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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%.

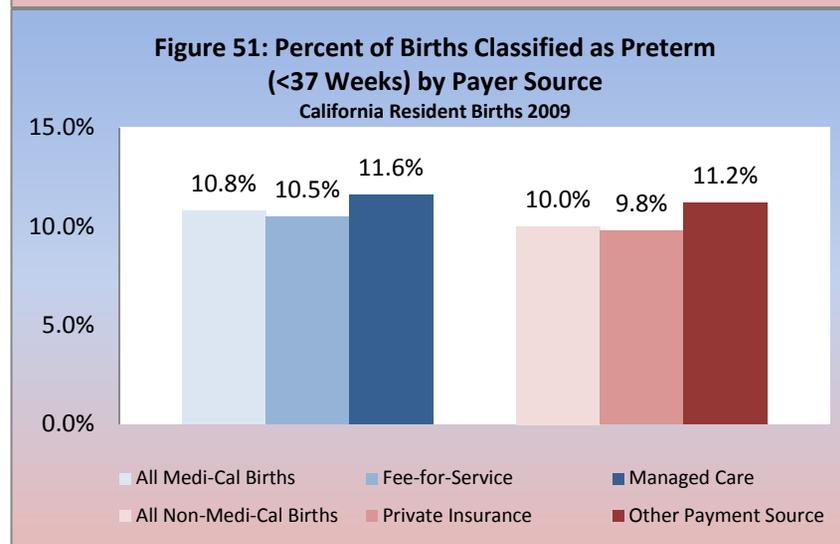
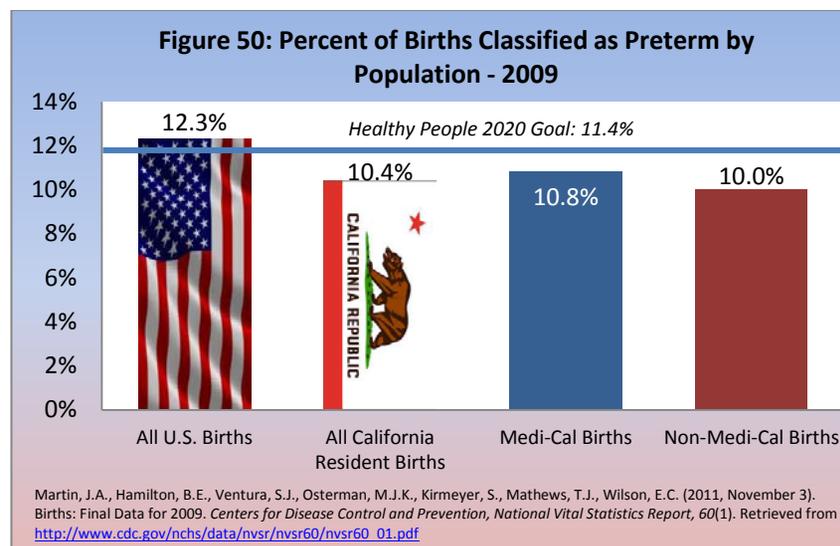
In 2009, 10.4% of hospital births to all California resident mothers were premature. Preterm births were more common among Medi-Cal-financed births (10.8%) than non-Medi-Cal financed births (10.0%) (Figure 50). Preterm percentages were slightly higher among Medi-Cal FFS beneficiaries (10.5%) than births financed by private insurance (9.8%), and more prevalent among Medi-Cal managed care beneficiaries (11.6%) and births financed by other funding sources (11.2%) (Figure 51).

Medi-Cal categories with higher percentages of preterm births:

- Multiple Gestation Births
- Age 35 and Older
- Blind/Disabled and Adoption/Foster Care Aid Categories
- Substance Use and Smoking During Pregnancy
- African-American Mothers
- Diabetes

Medi-Cal categories with lower percentages of preterm births:

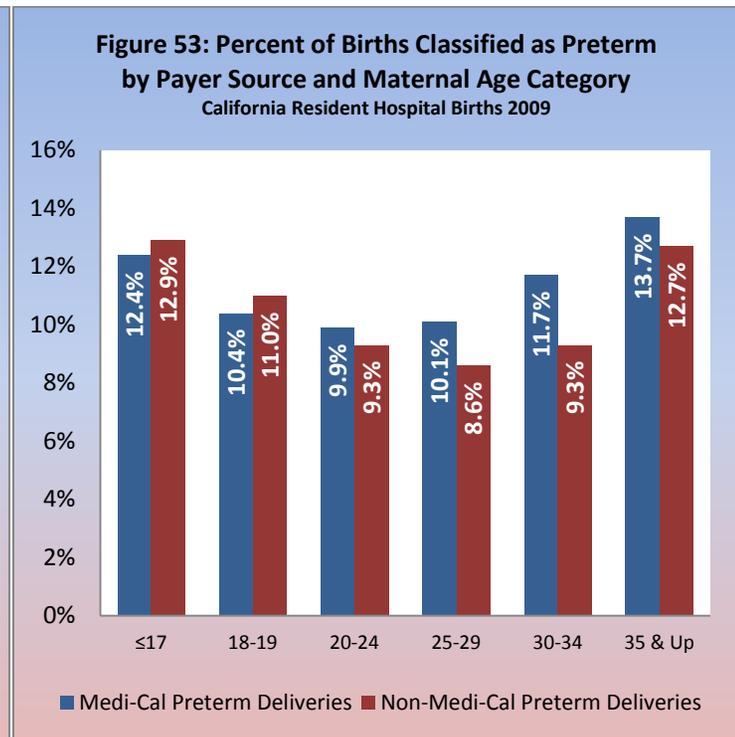
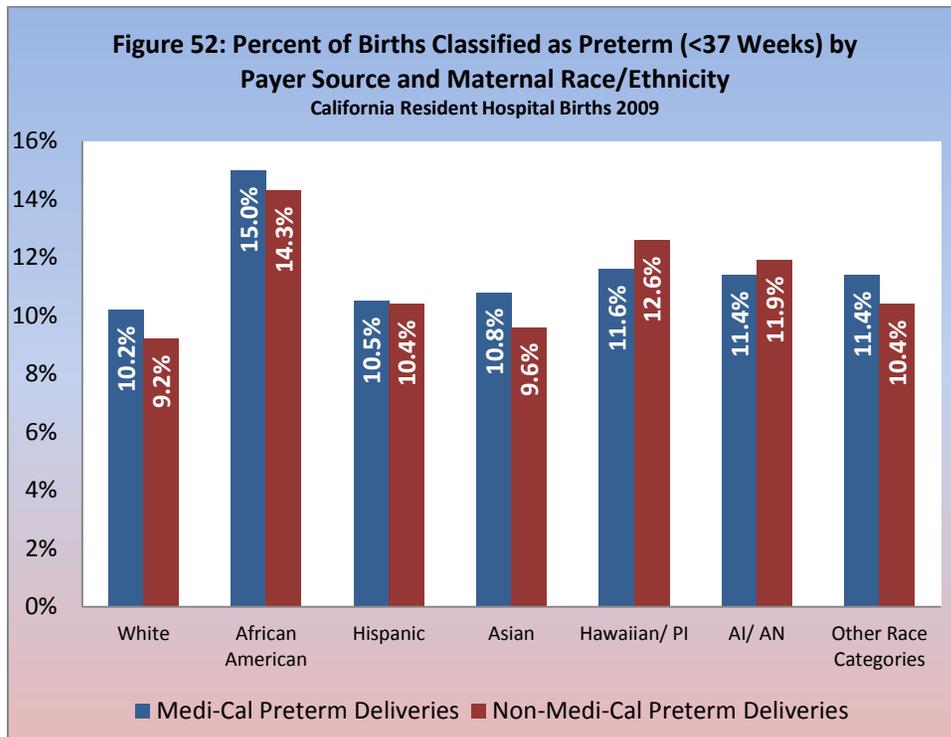
- Singleton Birth
- Pregnancy-Related Aid Category
- Ages 20-24
- Bachelor’s Degree or Higher
- White and Hispanic Mothers
- Foreign-Born Mothers



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Similar to low birthweight deliveries, African-American mothers had the highest percentages of preterm deliveries among racial cohorts (15.0% for Medi-Cal financed births and 14.3% for non-Medi-Cal financed births). Between both Medi-Cal and non-Medi-Cal financed births, white mothers experienced the lowest percent of preterm delivery at 10.2% and 9.2%, respectively (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).

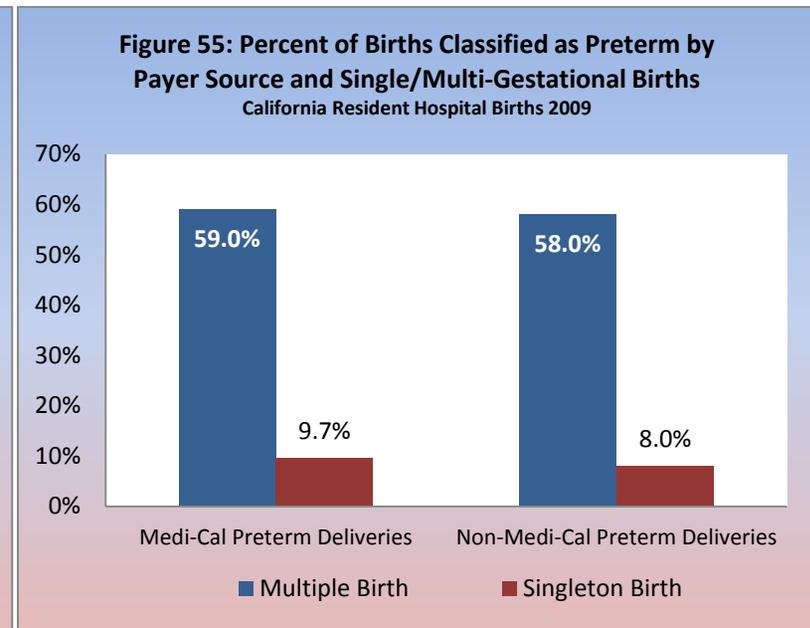
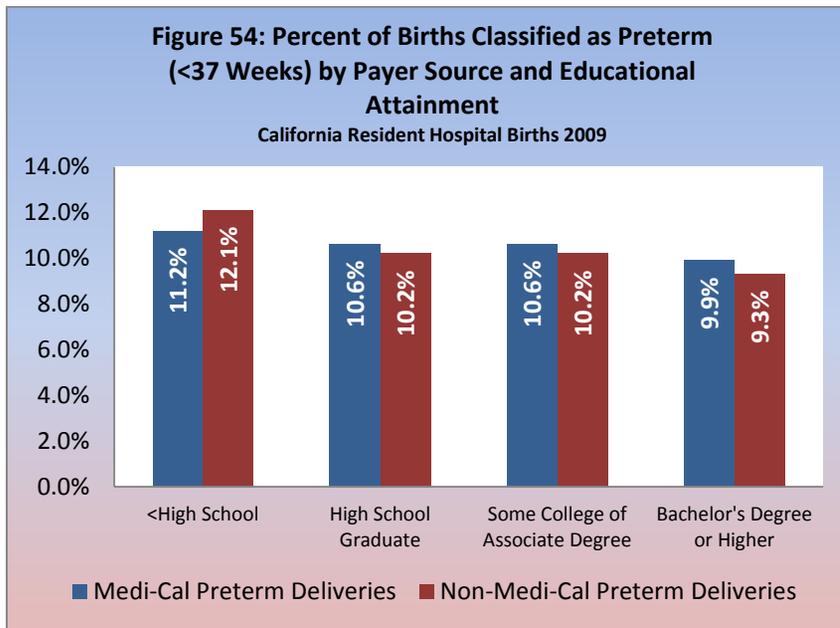


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Percentages of preterm delivery were inversely associated with educational attainment. Mothers with less than a high school education had the highest percentage of preterm birth (11.2% for Medi-Cal financed births and 12.1% for non-Medi-Cal financed births), and those with a bachelor’s degree or higher experienced the lowest percentage of preterm birth (9.9% for Medi-Cal financed births and 9.3% for non-Medi-Cal financed births) (Figure 54). Non-Medi-Cal

mothers were particularly illustrative of this trend.

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

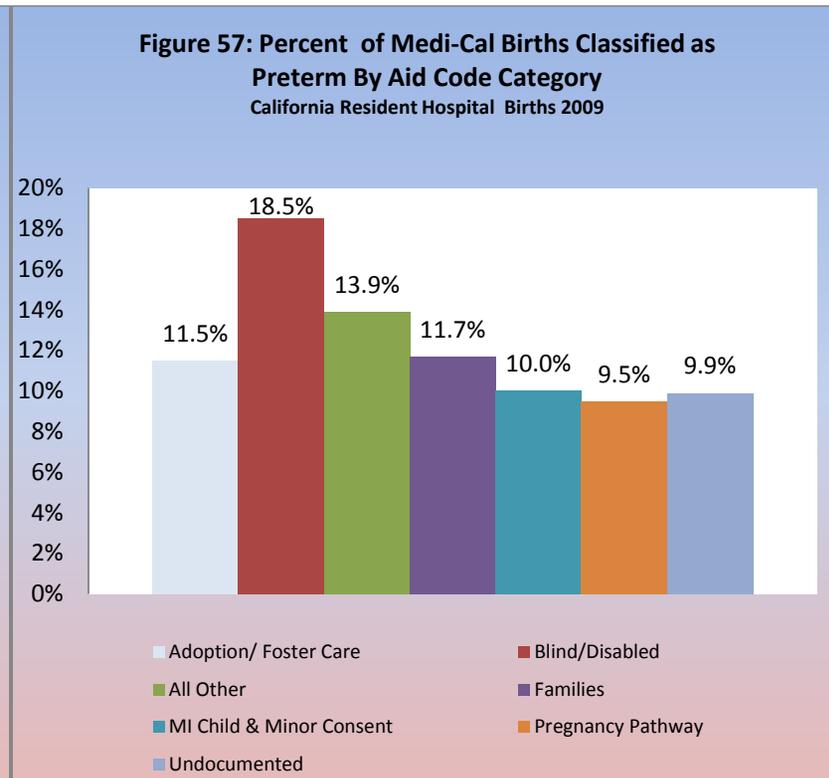
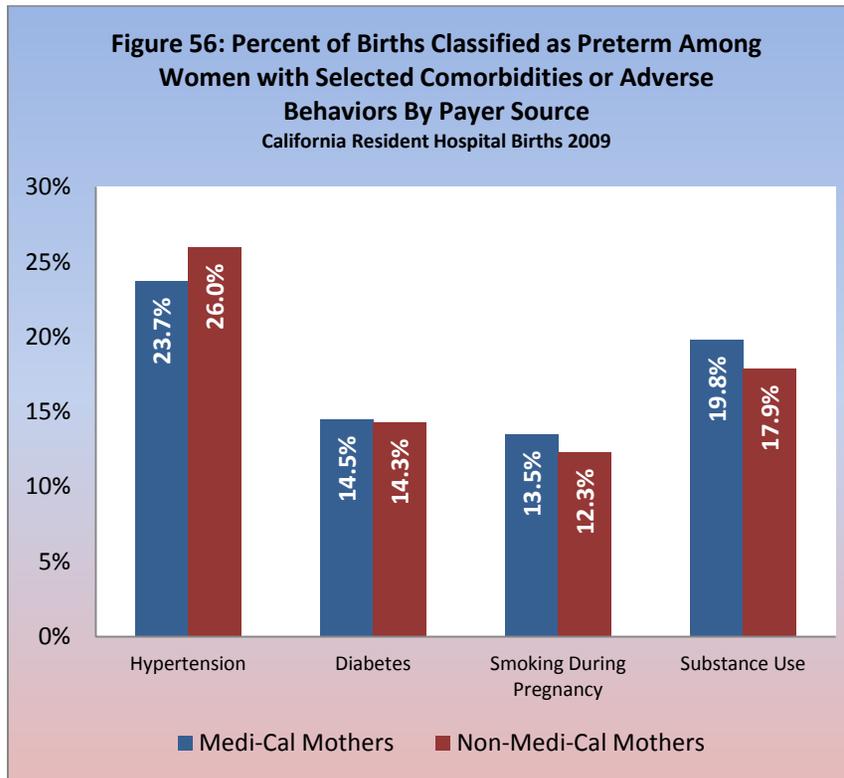


Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Medi-Cal and non-Medi-Cal mothers with hypertension experienced a percentage of preterm birth about twice the Healthy People 2020 goal of 11.4%. The percentage for mothers with hypertension was 23.7% for Medi-Cal financed births and 26.0% for non-Medi-Cal financed births. Mothers with diabetes also exhibited elevated incidence of preterm delivery, with percentages of 14.5% and 14.3% for Medi-Cal and non-Medi-Cal financed births, respectively (Figure 56). Significantly higher percentages of preterm delivery were also found among mothers with

a diagnosis for substance use, 19.8% for Medi-Cal financed births and 17.9% 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 (18.5%) compared to Medi-Cal mothers enrolled in other aid codes. Women without SIS (Undocumented, 9.9%) and women enrolled in Pregnancy aid codes (9.5%) 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, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Very Preterm Births: Very preterm births are those that occur at less than 32 weeks of pregnancy. Nationally, according to the CDC, 12.3% of infants were born preterm in 2009. Nationally, 8.7% of babies were born at 34 to 36 weeks gestation, 1.6% of babies were born at 32-33 weeks, and 2.0% were born “very preterm” (less than 32 weeks).¹¹⁴

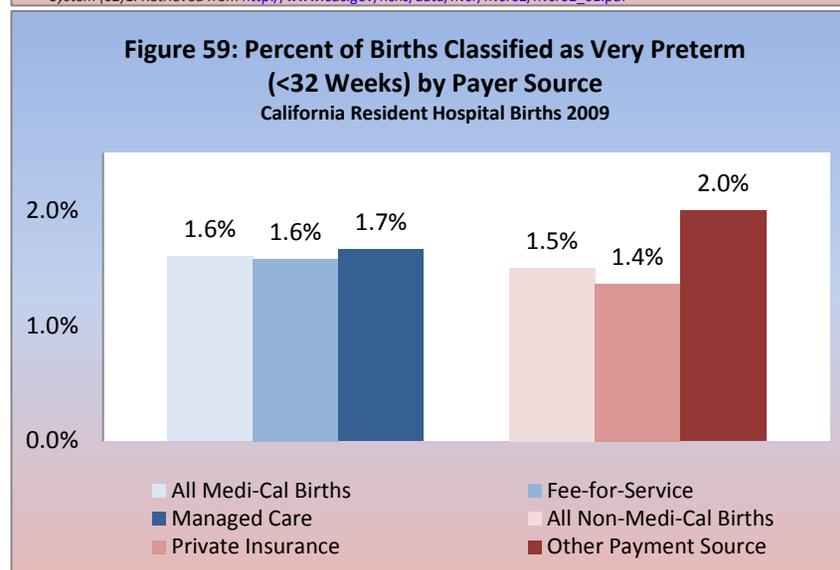
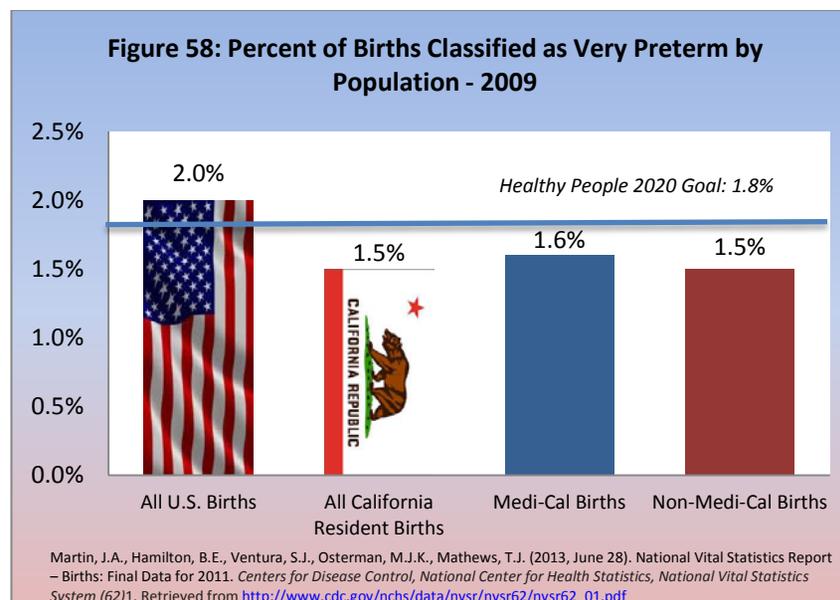
In California, the percentage of very preterm births (1.5%) was lower than the national average. Very preterm births were slightly higher among Medi-Cal births (1.6%) than non-Medi-Cal births (1.5%). Among Medi-Cal financed births, very preterm delivery percentages were similar among births financed 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
- Hypertension
- Substance Use
- African-American Mothers
- Smoking During Pregnancy
- Age 17 or Younger and Age 35 and Older

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

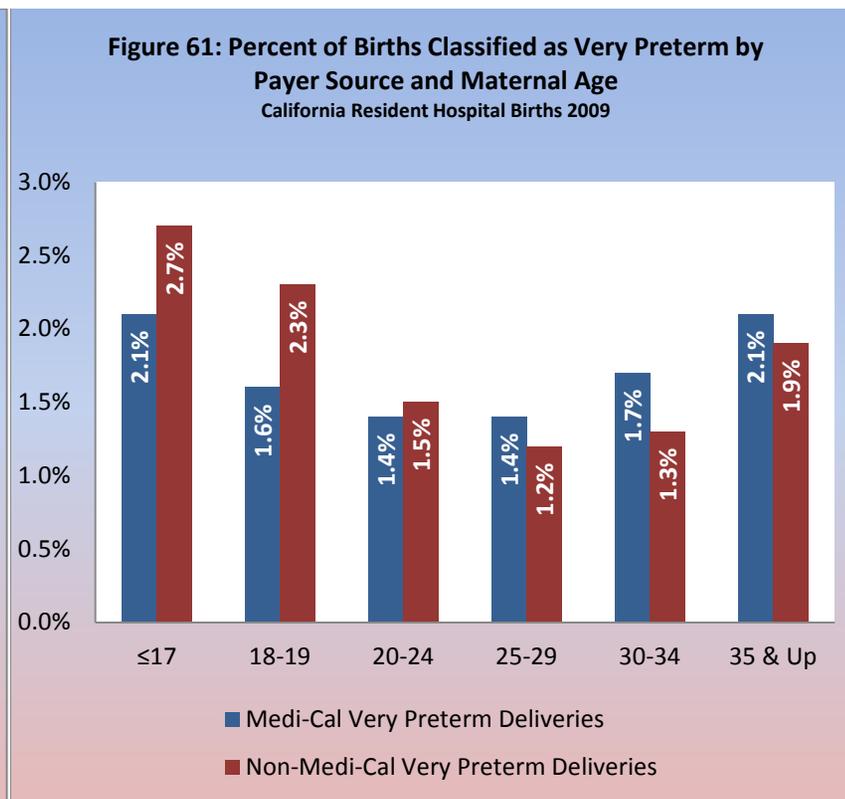
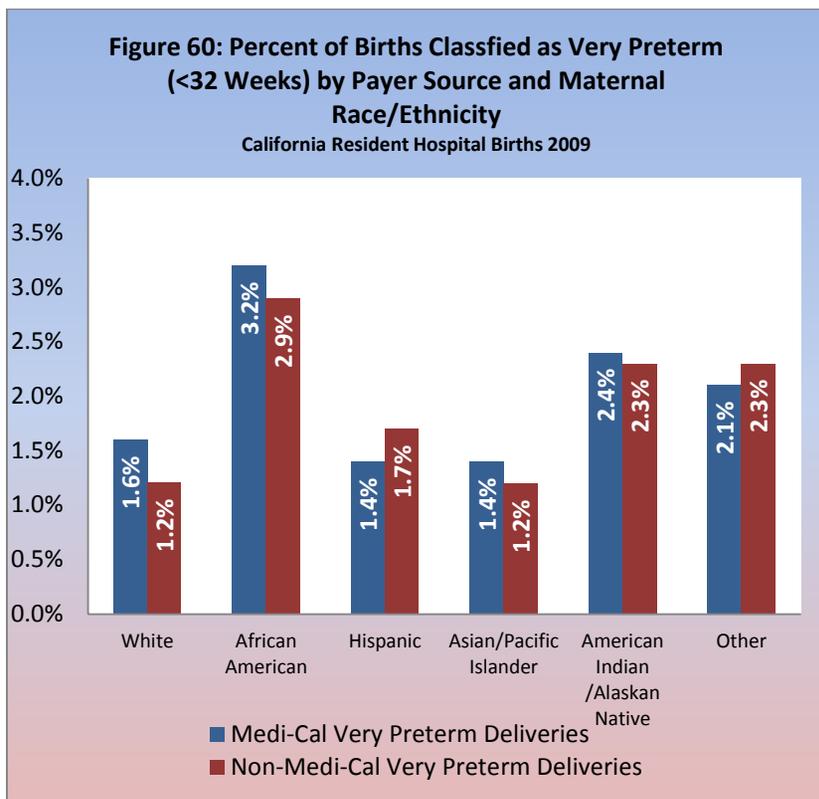
- Bachelor's Degree or Higher
- Asian or Hispanic mothers
- Age 20-29
- One Previous Birth
- Singleton Birth
- Mothers Without SIS



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

The incidence of very preterm births was elevated for African-American mothers regardless of payer source. American Indian/Alaskan Native mothers and mothers who self-identify in the “other” racial cohort had similarly heightened percentages.

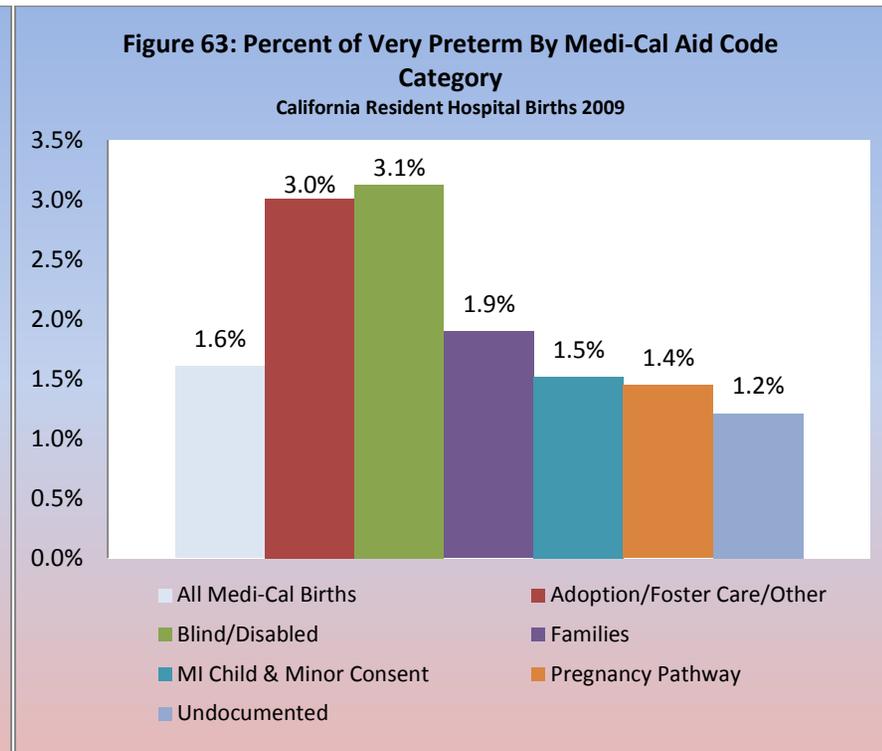
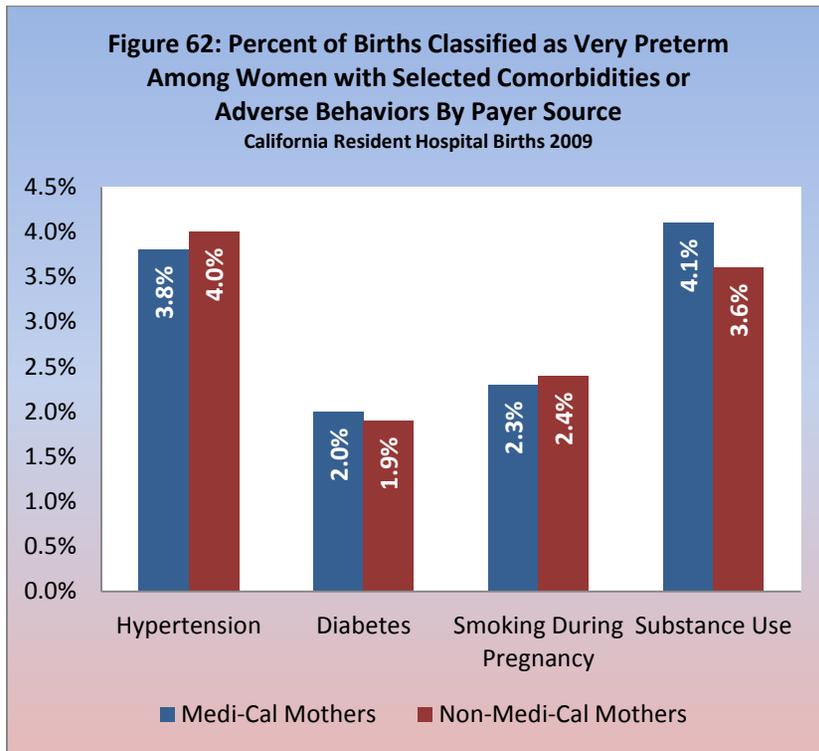
When considering only Medi-Cal mothers, very preterm birth outcomes were most common among those age 17 and younger (2.1%), as well as mothers age 35 and older (2.1%). Non-Medi-Cal mothers age 17 and younger had a very preterm percent of 2.7%, while non-Medi-Cal mothers age 35 and older had a percent of 1.9%.



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 reflecting a 12-month reporting lag.

Very preterm births among Medi-Cal mothers with hypertension (3.8%) and substance use (4.1%) diagnoses were more than twice the Healthy People 2020 goal of 1.8% or less. Medi-Cal mothers who smoked during pregnancy (2.3%) or had a diagnosis for diabetes (2.0%) also had percentages of very preterm delivery above the Healthy People 2020 target (Figure 62).

The incidence of very preterm births varied widely across Medi-Cal aid code categories. Very preterm births were more prevalent among mothers enrolled in Blind/Disabled aid codes (3.1%), and Adoption/Foster Care (3.0%) aid categories, while mothers enrolled in Pregnancy Pathway (1.4%) and Undocumented (1.2%) aid codes were the least likely to have a preterm birth (Figure 63).



Source: Prepared by DHCS Research and Analytic Studies Branch using data from the California Department of Public Health, 2009 Birth Statistical Master File; Office of Statewide Health Planning and Development, 2009 Patient Discharge Data; and Medi-Cal eligibility data obtained from the MEDS System MMEF files, January 2009 – December 2009 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 nearly 50% of resident hospital births in 2009. 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, nearly 13% of births to Medi-Cal mothers enrolled in the Blind/Disabled aid categories resulted in a low birthweight outcome.

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

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

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

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

Appendix A – Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix B – Acronyms

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

Totals	Subtractions	Vital Statistics
Birth Records on File		528,625
	Out-of State Resident	(1,851)
California Resident Births		526,774
	Non-Hospital Birth or Birth in Transit	(3,522)
	Out-of-State Hospital	(728)
	Location Not Classifiable	(1,060)
	Maternity Hospital Code Could Not be Confirmed	(5)
California Resident In-Hospital Births		521,459

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- ¹¹ Medi-Cal Eligibility Procedures Manual, 5N-F
- ¹² Medi-Cal Eligibility Procedures Manual, 5N-F
- ¹³ W&I CODE § 14007.5 : California Code - Section 14007.5
- ¹⁴ OBRA-1986 provided states the option to extend Medicaid income eligibility to pregnant women up to 100% of FPL, and allowed simplified enrollment processes. OBRA-1987 allowed states the option to extend Medicaid income eligibility to pregnant women to 185% of FPL. OBRA-1989 mandated coverage for pregnant women up to 133% of FPL. OBRA-1990 mandated continuous eligibility for pregnant women through 60-days postpartum.
- ¹⁵ 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.
- ¹⁶ 42 U.S.C. Section 1396r-1(b)(1)(B).

- ¹⁷ Medi-Cal Eligibility Procedures Manual, 5M-4, 5M-6
- ¹⁸ 42 U.S.C. Section 1396r-1 (a)
- ¹⁹ 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.
- ²⁰ Medi-Cal Eligibility Procedures Manual 5M-4
- ²¹ Introduced as the 185 percent program under the Omnibus Budget Reconciliation Act (OBRA) of 1987 [Public Law (PL) 100-203], federal funding was provided to states for Medicaid benefits to eligible pregnant women with family incomes not exceeding 185% of the FPL. On June 30, 1993, Senate Bill (SB) 35 provided an income deduction for eligible pregnant women, based on the families' size, by disregarding the income which is the difference between the 185% and 200% FPL [Welfare and Institutions Code (W&I) §14148]. Under this program, assets are disregarded. This extended no SOC Medi-Cal to eligible pregnant women and infants whose income does not exceed 200% of the FPL.
- ²² 42 U.S.C. Sections 1396a(a)(10)(A)(i)(IV), (VI), 1396a(l)(1)(A); Cal. Welf. & Inst. Code Section 14148(f); Medi-Cal Eligibility Procedures Manual, Article 5F.
- ²³ 42 U.S.C. Section 1396o(a)(2)(B); 42 C.F.R. Section 447.53(b)(2).
- ²⁴ Medi-Cal Medical Services Provider Manual at 100-31-2
- ²⁵ Prior to July 2012, California did not require all health insurance policies to provide coverage for maternity-related expenses. In 2004, 82% of plans included maternity coverage while in 2010, only 12% did. In some parts of the state, it is less than 1%. Health Access, California Coverage Now Includes Maternity Care For Individual & Small Group Health Plans. <http://www.health-access.org/files/advocating/Maternity%20Fact%20Sheet%207-1-12.pdf>
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Appendix H

Table 1. Medi-Cal and Non-Medi-Cal Births by Select Maternal Characteristics
California Resident Hospital Births, 2009

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
AGE OF MOTHER						
Age ≤17	11,440	6,765	4,675	4,414	2,429	1,985
18-19	26,098	15,368	10,730	6,097	3,176	2,921
20-24	81,320	52,924	28,396	31,716	10,752	20,964
25-29	68,090	48,143	19,947	71,439	12,143	59,296
30-34	42,458	32,076	10,382	85,168	10,197	74,971
35 and Older	27,257	20,594	6,663	65,929	7,015	58,914
<i>Invalid/Out-of-Range</i>	0	0	0	33	22	11
RACE/ETHNICITY OF MOTHER						
White	35,462	21,533	13,929	102,779	11,063	91,716
African American	18,410	6,836	11,574	9,938	2,658	7,280
Hispanic	179,496	133,800	45,696	89,164	23,949	65,215
Asian	13,900	8,346	5,554	48,672	5,728	42,944
Hawaiian/Pacific Islanders	1,209	607	602	1,178	260	918
American Indian/Alaskan Native	1,127	741	386	798	221	577
Two or more Race Categories	3,923	2,018	1,905	5,734	805	4,929
<i>Others/Unknown</i>	3,136	1,989	1,147	6,533	1,050	5,483
MOTHER'S NATIVITY						
Foreign Born	127,726	111,582	16,144	96,648	20,564	76,084
US Born	128,835	64,220	64,615	167,999	25,105	142,894
<i>Unknown</i>	102	68	34	149	65	84
MOTHER'S EDUCATION STATUS						
<High School	104,704	79,573	25,131	22,522	11,872	10,650
High School Graduate	84,411	53,433	30,978	49,861	12,633	37,228
Some College or Associate Degree	49,621	29,963	19,658	68,365	10,568	57,797
Bachelor's Degree or Higher	9,457	7,230	2,227	113,638	8,636	105,002
<i>Unknown</i>	8,470	5,671	2,799	10,410	2,025	8,385
TOTAL BIRTHS¹	256,663	175,870	80,793	264,796	45,734	219,062

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 2. Medi-Cal and Non-Medi-Cal Births by Select Birth Characteristics
California Resident Hospital Births, 2009

MATERNAL CHARACTERISTICS	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
PARITY STATUS						
First Born	91,651	64,916	26,735	112,362	18,772	93,590
One Previous Birth	73,008	49,438	23,570	89,814	13,466	76,348
Two+ Previous Births	91,796	61,374	30,422	62,140	13,433	48,707
<i>Unknown or Unreported</i>	208	142	66	480	63	417
SINGLE/MULTIPLE BIRTH						
Multiple Birth	5,679	3,657	2,022	11,009	1,590	9,419
Singleton	250,984	172,213	78,771	253,787	44,144	209,643
PRENATAL CARE INITIATION						
No Prenatal Care	1,503	966	537	882	739	143
First Trimester	192,739	133,201	59,538	232,321	35,571	196,750
Second Trimester	47,386	31,489	15,897	23,345	6,765	16,580
Third Trimester	10,107	7,140	2,967	3,536	1,588	1,948
<i>Unknown or Unreported</i>	4,928	3,074	1,854	4,712	1,071	3,641
METHOD OF DELIVERY						
Cesarean-Primary	42,383	29,662	12,721	54,334	8,493	45,841
Cesarean-Repeat	40,301	27,291	13,010	36,258	6,452	29,806
Vaginal	172,424	117,826	54,598	172,203	30,541	141,662
Vaginal After Previous Cesarean	1,555	1,091	464	2,001	248	1,753
TOTAL BIRTHS¹	256,663	175,870	80,793	264,796	45,734	219,062

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 3a. **Medi-Cal** Delivery Methods by Select Maternal Characteristics
California Resident Hospital Births, 2009

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
AGE OF MOTHER					
Age ≤ 17	11,440	2,120	188	9,127	5
18-19	26,098	5,080	1,089	19,885	44
20-24	81,320	13,873	9,386	57,748	313
25-29	68,090	9,887	12,565	45,148	490
30-34	42,458	6,429	9,872	25,750	407
35 and Older	27,257	4,994	7,201	14,766	296
RACE/ETHNICITY OF MOTHER					
White	35,462	6,648	4,845	23,777	192
African American	18,410	3,836	2,926	11,485	163
Hispanic	179,496	27,898	29,596	120,973	1,029
Asian	13,900	2,290	1,675	9,824	111
Hawaiian/Pacific Islanders	1,209	172	181	838	18
American Indian/Alaskan Native	1,127	184	178	757	8
Two or more Race Categories	3,923	743	466	2,700	14
<i>Others/Unknown</i>	3,136	612	434	2,070	20
MOTHER'S NATIVITY					
Foreign Born	127,726	19,340	22,788	84,620	978
US Born	128,835	23,025	17,497	87,738	575
<i>Unknown</i>	102	18	16	66	2
MOTHER'S EDUCATION STATUS					
<High School	104,704	15,197	18,114	70,707	686
High School Graduate	84,411	14,383	12,425	57,191	412
Some College or Associate Degree	49,621	9,411	7,214	32,685	311
Bachelor's Degree or Higher	9,457	1,949	1,356	6,069	83
<i>Unknown</i>	8,470	1,443	1,192	5,772	63
TOTAL BIRTHS¹	256,663	42,383	40,301	172,424	1,555

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 3b. **Non-Medi-Cal** Delivery Methods by Select Maternal Characteristics
California Resident Hospital Births, 2009

MATERNAL CHARACTERISTICS	Total	Method of Delivery			
		Cesarean-Primary	Cesarean-Repeat	Vaginal	Vaginal After Previous Cesarean
AGE OF MOTHER					
Age ≤ 17	4,414	806	48	3,557	3
18-19	6,097	1,205	163	4,720	9
20-24	31,716	5,886	2,242	23,464	124
25-29	71,439	13,880	7,706	49,409	444
30-34	85,168	16,933	12,551	54,956	728
35 and Older	65,929	15,613	13,542	36,081	693
<i>Invalid/Out-of-Range</i>	33	11	6	16	-
RACE/ETHNICITY OF MOTHER					
White	102,779	21,478	13,386	67,049	866
African American	9,938	2,363	1,504	5,995	76
Hispanic	89,164	16,787	13,259	58,514	604
Asian	48,672	10,436	6,285	31,609	342
Hawaiian/Pacific Islanders	1,178	236	183	745	14
American Indian/Alaskan Native	798	156	119	517	6
Two or more Race Categories	5,734	1,233	660	3,788	53
<i>Others/Unknown</i>	6,533	1,645	862	3,986	40
MOTHER'S NATIVITY					
Foreign Born	96,648	19,733	14,450	61,719	746
US Born	167,999	34,575	21,788	110,382	1,254
<i>Unknown</i>	149	26	20	102	1
MOTHER'S EDUCATION STATUS					
<High School	22,522	3,615	3,467	15,279	161
High School Graduate	49,861	9,100	6,760	33,648	353
Some College or Associate Degree	68,365	13,765	9,658	44,425	517
Bachelor's Degree or Higher	113,638	25,456	15,057	72,214	911
<i>Unknown</i>	10,410	2,398	1,316	6,637	59
TOTAL BIRTHS¹	264,796	54,334	36,258	172,203	2,001

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 4. Medi-Cal and Non-Medi-Cal Births by Select Maternal Comorbidities
California Resident Hospital Births, 2009

COMORBIDITIES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
HYPERTENSION¹						
Hypertension	17,479	11,504	5,975	16,939	1,983	14,956
No Hypertension Diagnosis	239,184	164,366	74,818	220,337	28,689	191,648
<i>Unknown</i>	0	0	0	27,520	15,062	12,458
DIABETES¹						
Diabetes	19,587	14,412	5,175	20,654	2,043	18,611
No Diabetes Diagnosis	237,076	161,458	75,618	216,622	28,629	187,993
<i>Unknown</i>	0	0	0	27,520	15,062	12,458
SMOKING DURING PREGNANCY⁴						
Maternal Smoker	8,738	4,764	3,974	2,468	701	1,767
Maternal Non-Smoker	242,052	167,183	74,869	231,957	29,213	202,744
<i>Unknown</i>	5,873	3,923	1,950	30,371	15,820	14,551
SUBSTANCE USE¹						
Maternal Substance User	4,221	2,013	2,208	1,093	467	626
Maternal Non-Substance User	252,442	173,857	78,585	236,183	30,205	205,978
<i>Unknown</i>	0	0	0	27,520	15,062	12,458
PRE-PREGNANCY WEIGHT²						
Underweight	9,008	5,828	3,180	9,383	1,320	8,063
Normal Weight	101,320	70,025	31,295	122,315	13,936	108,379
Overweight	64,516	45,783	18,733	50,942	6,861	44,081
Obese/Extremely Obese	56,901	36,608	20,293	35,577	4,858	30,719
<i>Out of Range/Unknown</i>	24,918	17,626	7,292	46,579	18,759	27,820
TOTAL BIRTHS³	256,663	175,870	80,793	264,796	45,734	219,062

¹Comorbidities 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).

²Pre-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.

³Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

⁴Maternal 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, 2009

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
BIRTHWEIGHT						
Low Birthweight	16,972	11,255	5,717	18,451	3,534	14,917
Normal Birth Weight	239,670	164,602	75,068	246,306	42,185	204,121
<i>Out-of-Range</i>	21	13	8	39	15	24
VERY LOW BIRTHWEIGHT STATUS						
Birthweight >=1500g	253,787	173,886	79,901	261,619	45,014	216,605
Very Low Birthweight (<1500g)	2,855	1,971	884	3,138	705	2,433
<i>Out-of-Range</i>	21	13	8	39	15	24
GESTATION¹						
Preterm Delivery (<37 Weeks)	26,900	17,889	9,011	25,720	4,974	20,746
Normal Gestation (>= 37 weeks)	221,408	152,701	68,707	230,326	39,278	191,048
<i>Out-of-Range/Missing</i>	8,355	5,280	3,075	8,750	1,482	7,268
VERY PRETERM STATUS¹						
Very Preterm Delivery (<32 Weeks)	3,984	2,692	1,292	3,762	873	2,889
Gestation >= 32 weeks	244,324	167,898	76,426	252,284	43,379	208,905
<i>Out-of-Range/Missing</i>	8,355	5,280	3,075	8,750	1,482	7,268
TOTAL BIRTHS²	256,663	175,870	80,793	264,796	45,734	219,062

¹Gestational 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=17,105) are missing this data element.

²Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 5b. Medi-Cal and Non-Medi-Cal **SINGLETON** Births by Select Birth Outcomes
California Resident Hospital Births, 2009

BIRTH OUTCOMES	Medi-Cal Births			Non-Medi-Cal Births		
	Total	Fee-for-Service	Managed Care	Total	Other	Private Insurance
BIRTHWEIGHT						
Low Birthweight	13,718	9,148	4,570	12,459	2,656	9,803
Normal Birth Weight	237,246	163,053	74,193	241,297	41,475	199,822
<i>Out-of-Range</i>	20	12	8	31	13	18
VERY LOW BIRTHWEIGHT STATUS						
Birthweight >= 1500g	248,701	170,638	78,063	251,648	43,579	208,069
Very Low Birthweight (<1500g)	2,263	1,563	700	2,108	552	1,556
<i>Out-of-Range</i>	20	12	8	31	13	18
GESTATION¹						
Preterm Delivery (<37 Weeks)	23,671	15,839	7,832	19,577	4,155	15,422
Normal Gestation (>= 37 weeks)	219,161	151,216	67,945	225,877	38,567	187,310
<i>Out-of-Range/Missing</i>	8,152	5,158	2,994	8,333	1,422	6,911
VERY PRETERM STATUS¹						
Very Preterm Delivery (<32 Weeks)	3,297	2,232	1,065	2,608	708	1,900
Gestation >= 32 weeks	239,535	164,823	74,712	242,846	42,014	200,832
<i>Out-of-Range/Missing</i>	8,152	5,158	2,994	8,333	1,422	6,911
TOTAL SINGLETON BIRTHS²	250,984	172,213	78,771	253,787	44,144	209,643

¹Gestational 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=16,485) are missing this data element.

²Total Singleton Births = Births in Hospital Only. DHCS identified a total of 504,771 singleton births to California mothers in 2009 occurring in a hospital setting.

Table 6a. Birthweight Among **Medi-Cal** Births by Select Characteristics
California Resident Hospital Births, 2009

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	11,440	2	11,438	873	10,565	11,303	135
18-19	26,098	1	26,097	1,818	24,279	25,833	264
20-24	81,320	4	81,316	4,957	76,359	80,532	784
25-29	68,090	6	68,084	4,237	63,847	67,376	708
30-34	42,458	7	42,451	2,894	39,557	41,921	530
35 and Older	27,257	1	27,256	2,193	25,063	26,822	434
RACE/ETHNICITY OF MOTHER							
White	35,462	3	35,459	2,287	33,172	35,092	367
African American	18,410	3	18,407	2,238	16,169	17,935	472
Hispanic	179,496	11	179,485	10,660	168,825	177,770	1,715
Asian	13,900	2	13,898	1,080	12,818	13,748	150
Hawaiian/Pacific Islanders	1,209	0	1,209	62	1,147	1,196	13
American Indian/Alaskan Native	1,127	1	1,126	76	1,050	1,112	14
Two or more Race Categories	3,923	0	3,923	316	3,607	3,851	72
Others/Unknown	3,136	1	3,135	253	2,882	3,083	52
MOTHER'S NATIVITY							
Foreign Born	127,726	8	127,718	7,374	120,344	126,574	1,144
US Born	128,835	12	128,823	9,587	119,236	127,118	1,705
Unknown	102	1	101	11	90	95	6
MOTHER'S EDUCATION STATUS							
<High School	104,704	6	104,698	6,684	98,014	103,651	1,047
High School Graduate	84,411	9	84,402	5,585	78,817	83,448	954
Some College or Associate Degree	49,621	4	49,617	3,390	46,227	49,012	605
Bachelor's Degree or Higher	9,457	0	9,457	679	8,778	9,341	116
Unknown	8,470	2	8,468	634	7,834	8,335	133
PARITY STATUS							
First Born	91,651	7	91,644	6,407	85,237	90,606	1,038
One Previous Birth	73,008	8	73,000	4,300	68,700	72,295	705
Two+ Previous Births	91,796	6	91,790	6,240	85,550	90,690	1,100
Unknown or Unreported	208	0	208	25	183	196	12
SINGLE/MULTI BIRTH							
Multiple Birth	5,679	1	5,678	3,254	2,424	5,086	592
Singleton	250,984	20	250,964	13,718	237,246	248,701	2,263
TOTAL BIRTHS¹	256,663	21	256,642	16,972	239,670	253,787	2,855

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 6b. Birthweight Among **Medi-Cal** Births, by Select Comorbidities
California Resident Hospital Births, 2009

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	17,479	2	17,477	3,623	13,854	16,777	700
No Hypertension Diagnosis	239,184	19	239,165	13,349	225,816	237,010	2,155
DIABETES*							
Diabetes	19,587	0	19,587	1,523	18,064	19,306	281
No Diabetes Diagnosis	237,076	21	237,055	15,449	221,606	234,481	2,574
SUBSTANCE USE*							
Maternal Substance User	4,221	0	4,221	656	3,565	4,092	129
Maternal Non-Substance User	252,442	21	252,421	16,316	236,105	249,695	2,726
SMOKING DURING PREGNANCY²							
Maternal Smoker	8,738	1	8,737	916	7,821	8,590	147
Maternal Non-Smoker	242,052	17	242,035	15,578	226,457	239,421	2,614
Unknown	5,873	3	5,870	478	5,392	5,776	94
PRE-PREGNANCY WEIGHT**							
Underweight	9,008	1	9,007	884	8,123	8,905	102
Normal Weight	101,320	5	101,315	6,272	95,043	100,451	864
Overweight	64,516	4	64,512	3,336	61,176	63,928	584
Obese/Extremely Obese	56,901	3	56,898	3,126	53,772	56,239	659
Out of Range/Unknown	24,918	8	24,910	3,354	21,556	24,264	646
TOTAL BIRTHS¹	256,663	21	256,642	16,972	239,670	253,787	2,855

*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 four weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

²Maternal smoking was identified using self-reported data provided on the birth certificate and included in the California Birth Statistical Master File.

Table 6c. Birthweight Among **Non-Medi-Cal** Births by Select Characteristics
California Resident Hospital Births, 2009

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	4,414	0	4,414	362	4,052	4,340	74
18-19	6,097	2	6,095	502	5,593	5,998	97
20-24	31,716	5	31,711	1,926	29,785	31,338	373
25-29	71,439	11	71,428	4,240	67,188	70,740	688
30-34	85,168	12	85,156	5,616	79,540	84,282	874
35 and Older	65,929	8	65,921	5,797	60,124	64,889	1,032
<i>Invalid</i>	33	1	32	8	24	32	0
RACE/ETHNICITY OF MOTHER			0				
White	102,779	11	102,768	6,278	96,490	101,805	963
African American	9,938	3	9,935	1,180	8,755	9,656	279
Hispanic	89,164	15	89,149	5,825	83,324	88,000	1,149
Asian	48,672	2	48,670	3,962	44,708	48,177	493
Hawaiian/Pacific Islanders	1,178	1	1,177	87	1,090	1,156	21
American Indian/Alaskan Native	798	0	798	45	753	786	12
Two or more Race Categories	5,734	2	5,732	423	5,309	5,651	81
<i>Others/Unknown</i>	6,533	5	6,528	651	5,877	6,388	140
MOTHER'S NATIVITY							
Foreign Born	96,648	20	96,628	7,029	89,599	95,537	1,091
U.S. Born	167,999	17	167,982	11,398	156,584	165,947	2,035
<i>Unknown</i>	149	2	147	24	123	135	12
MOTHER'S EDUCATION STATUS							
<High School	22,522	7	22,515	1,694	20,821	22,188	327
High School Graduate	49,861	11	49,850	3,267	46,583	49,226	624
Some College or Associate Degree	68,365	8	68,357	4,573	63,784	67,542	815
Bachelor's Degree or Higher	113,638	6	113,632	7,931	105,701	112,490	1,142
<i>Unknown</i>	10,410	7	10,403	986	9,417	10,173	230
PARITY STATUS							
First Born	112,362	14	112,348	8,124	104,224	110,958	1,390
One Previous Birth	89,814	11	89,803	5,723	84,080	88,870	933
Two+ Previous Births	62,140	13	62,127	4,560	57,567	61,329	798
<i>Unknown or Unreported</i>	480	1	479	44	435	462	17
SINGLE/MULTI BIRTH							
Multiple Birth	11,009	8	11,001	5,992	5,009	9,971	1,030
Singleton	253,787	31	253,756	12,459	241,297	251,648	2,108
TOTAL BIRTHS¹	264,796	39	264,757	18,451	246,306	261,619	3,138

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 6d. Birthweight Among Non-Medi-Cal Births by Select Comorbidities
California Resident Hospital Births, 2009

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	16,939	3	16,936	3,738	13,198	16,225	711
No Hypertension Diagnosis	220,337	14	220,323	12,128	208,195	218,471	1,852
Unknown	27,520	22	27,498	2,585	24,913	26,923	575
DIABETES*							
Diabetes	20,654	1	20,653	2,021	18,632	20,364	289
No Diabetes Diagnosis	216,622	16	216,606	13,845	202,761	214,332	2,274
Unknown	27,520	22	27,498	2,585	24,913	26,923	575
SUBSTANCE USE*							
Maternal Substance User	1,093	0	1,093	166	927	1,060	33
Maternal Non-Substance User	236,183	17	236,166	15,700	220,466	233,636	2,530
Unknown	27,520	22	27,498	2,585	24,913	26,923	575
SMOKING DURING PREGNANCY²							
Maternal Smoker	2,468	0	2,468	242	2,226	2,428	40
Maternal Non-Smoker	231,957	17	231,940	15,416	216,524	229,460	2,480
Unknown	30,371	22	30,349	2,793	27,556	29,731	618
PRE-PREGNANCY WEIGHT**							
Underweight	9,383	0	9,383	751	8,632	9,316	67
Normal Weight	122,315	4	122,311	6,678	115,633	121,428	883
Overweight	50,942	1	50,941	2,670	48,271	50,479	462
Obese/Extremely Obese	35,577	6	35,571	2,120	33,451	35,100	471
Out of Range/Unknown	46,579	28	46,551	6,232	40,319	45,296	1,255
TOTAL BIRTHS¹	264,796	39	264,757	18,451	246,306	261,619	3,138

*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 four weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

²Maternal 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, 2009

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	11,440	442	10,998	1,363	9,635	230	10,768
18-19	26,098	941	25,157	2,617	22,540	400	24,757
20-24	81,320	2,778	78,542	7,796	70,746	1,137	77,405
25-29	68,090	2,219	65,871	6,665	59,206	938	64,933
30-34	42,458	1,243	41,215	4,814	36,401	710	40,505
35 and Older	27,257	732	26,525	3,645	22,880	569	25,956
RACE/ETHNICITY OF MOTHER							
White	35,462	1,442	34,020	3,465	30,555	543	33,477
African American	18,410	770	17,640	2,646	14,994	560	17,080
Hispanic	179,496	5,328	174,168	18,314	155,854	2,513	171,655
Asian	13,900	408	13,492	1,457	12,035	183	13,309
Hawaiian/Pacific Islanders	1,209	56	1,153	134	1,019	20	1,133
American Indian/Alaskan Native	1,127	70	1,057	121	936	25	1,032
Two or more Race Categories	3,923	158	3,765	429	3,336	70	3,695
Others/Unknown	3,136	123	3,013	334	2,679	70	2,943
MOTHER'S NATIVITY							
Foreign Born	127,726	3,188	124,538	12,510	112,028	1,573	122,965
U.S. Born	128,835	5,151	123,684	14,376	109,308	2,404	121,280
Unknown	102	16	86	14	72	7	79
MOTHER'S EDUCATION STATUS							
<High School	104,704	3,288	101,416	11,330	90,086	1,545	99,871
High School Graduate	84,411	2,816	81,595	8,668	72,927	1,320	80,275
Some College or Associate Degree	49,621	1,634	47,987	5,103	42,884	814	47,173
Bachelor's Degree or Higher	9,457	226	9,231	917	8,314	138	9,093
Unknown	8,470	391	8,079	882	7,197	167	7,912
PARITY STATUS							
First Born	91,651	2,653	88,998	8,467	80,531	1,363	87,635
One Previous Birth	73,008	2,447	70,561	7,179	63,382	1,010	69,551
Two+ Previous Births	91,796	3,180	88,616	11,228	77,388	1,602	87,014
Unknown or Unreported	208	75	133	26	107	9	124
SINGLE/MULTI BIRTH							
Multiple Birth	5,679	203	5,476	3,229	2,247	687	4,789
Singleton	250,984	8,152	242,832	23,671	219,161	3,297	239,535
TOTAL BIRTHS¹	256,663	8,355	248,308	26,900	221,408	3,984	244,324

*Gestational age and preterm status of newborn are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,355) are missing this data element.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 7b. Gestational Age Among **Medi-Cal Births**, by Select Comorbidities
California Resident Hospital Births, 2009

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	17,479	613	16,866	4,004	12,862	643	16,223
No Hypertension Diagnosis	239,184	7,742	231,442	22,896	208,546	3,341	228,101
DIABETES**							
Diabetes	19,587	567	19,020	2,767	16,253	388	18,632
No Diabetes Diagnosis	237,076	7,788	229,288	24,133	205,155	3,596	225,692
SUBSTANCE USE**							
Maternal Substance User	4,221	327	3,894	771	3,123	160	3,734
Maternal Non-Substance User	252,442	8,028	244,414	26,129	218,285	3,824	240,590
SMOKING DURING PREGNANCY²							
Maternal Smoker	8,738	476	8,262	1,118	7,144	194	8,068
Maternal Non-Smoker	242,052	7,376	234,676	25,045	209,631	3,663	231,013
Unknown	5,873	503	5,370	737	4,633	127	5,243
PRE-PREGNANCY WEIGHT***							
Underweight	9,008	263	8,745	1,044	7,701	153	8,592
Normal Weight	101,320	2,809	98,511	9,873	88,638	1,339	97,172
Overweight	64,516	1,741	62,775	6,038	56,737	828	61,947
Obese/Extremely Obese	56,901	1,654	55,247	5,786	49,461	886	54,361
Out of Range/Unknown	24,918	1,888	23,030	4,159	18,871	778	22,252
TOTAL BIRTHS¹	256,663	8,355	248,308	26,900	221,408	3,984	244,324

*Gestational age and preterm status of newborn are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,355) 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 four weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

²Maternal 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, 2009

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	4,414	236	4,178	539	3,639	113	4,065
18-19	6,097	279	5,818	641	5,177	134	5,684
20-24	31,716	1,305	30,411	2,839	27,572	445	29,966
25-29	71,439	2,534	68,905	5,921	62,984	842	68,063
30-34	85,168	2,477	82,691	7,657	75,034	1,034	81,657
35 and Older	65,929	1,901	64,028	8,115	55,913	1,193	62,835
<i>Invalid/Out-of-Range</i>	33	18	15	8	7	1	14
RACE/ETHNICITY OF MOTHER							
White	102,779	3,093	99,686	9,217	90,469	1,190	98,496
African American	9,938	402	9,536	1,361	8,175	276	9,260
Hispanic	89,164	3,427	85,737	8,959	76,778	1,424	84,313
Asian	48,672	1,053	47,619	4,557	43,062	556	47,063
Hawaiian/Pacific Islanders	1,178	45	1,133	143	990	28	1,105
American Indian/Alaskan Native	798	27	771	92	679	18	753
Two or more Race Categories	5,734	191	5,543	574	4,969	93	5,450
<i>Others/Unknown</i>	6,533	512	6,021	817	5,204	177	5,844
MOTHER'S NATIVITY							
Foreign Born	96,648	2,676	93,972	9,265	84,707	1,338	92,634
U.S. Born	167,999	6,044	161,955	16,430	145,525	2,413	159,542
<i>Unknown</i>	149	30	119	25	94	11	108
MOTHER'S EDUCATION STATUS							
<High School	22,522	897	21,625	2,608	19,017	453	21,172
High School Graduate	49,861	2,204	47,657	4,848	42,809	762	46,895
Some College or Associate Degree	68,365	2,200	66,165	6,720	59,445	978	65,187
Bachelor's Degree or Higher	113,638	2,690	110,948	10,322	100,626	1,302	109,646
<i>Unknown</i>	10,410	759	9,651	1,222	8,429	267	9,384
PARITY STATUS							
First Born	112,362	2,992	109,370	9,936	99,434	1,602	107,768
One Previous Birth	89,814	2,832	86,982	8,414	78,568	1,115	85,867
Two+ Previous Births	62,140	2,562	59,578	7,349	52,229	1,038	58,540
<i>Unknown or Unreported</i>	480	364	116	21	95	7	109
SINGLE/MULTI BIRTH							
Multiple Birth	11,009	417	10,592	6,143	4,449	1,154	9,438
Singleton	253,787	8,333	245,454	19,577	225,877	2,608	242,846
TOTAL BIRTHS¹	264,796	8,750	256,046	25,720	230,326	3,762	252,284

*Gestational age and preterm status of newborn are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,750) are missing this data element.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 7d. Gestational Age Among **Non-Medi-Cal** Births, by Select Comorbidities
California Resident Hospital Births, 2009

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	16,939	655	16,284	4,239	12,045	645	15,639
No Hypertension Diagnosis	220,337	7,276	213,061	18,021	195,040	2,440	210,621
Unknown	27,520	819	26,701	3,460	23,241	677	26,024
DIABETES**							
Diabetes	20,654	768	19,886	2,837	17,049	377	19,509
No Diabetes Diagnosis	216,622	7,163	209,459	19,423	190,036	2,708	206,751
Unknown	27,520	819	26,701	3,460	23,241	677	26,024
SUBSTANCE USE**							
Maternal Substance User	1,093	133	960	172	788	35	925
Maternal Non-Substance User	236,183	7,798	228,385	22,088	206,297	3,050	225,335
Unknown	27,520	819	26,701	3,460	23,241	677	26,024
SMOKING DURING PREGNANCY²							
Maternal Smoker	2,468	145	2,323	285	2,038	56	2,267
Maternal Non-Smoker	231,957	7,306	224,651	21,687	202,964	2,980	221,671
Unknown	30,371	1,299	29,072	3,748	25,324	726	28,346
PRE-PREGNANCY WEIGHT***							
Underweight	9,383	240	9,143	805	8,338	92	9,051
Normal Weight	122,315	3,047	119,268	9,590	109,678	1,117	118,151
Overweight	50,942	1,461	49,481	4,294	45,187	585	48,896
Obese/Extremely Obese	35,577	1,214	34,363	3,558	30,805	563	33,800
Out of Range/Unknown	46,579	2,788	43,791	7,473	36,318	1,405	42,386
TOTAL BIRTHS¹	264,796	8,750	256,046	25,720	230,326	3,762	252,284

*Gestational age and preterm status of newborn are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,750) 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 four weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

²Maternal 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, 2009

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/Foster Care	Blind/Disabled	All Other*	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
METHOD OF DELIVERY								
Cesarean-Primary	42,383	183	872	27	20,004	1,286	6,955	13,056
Cesarean-Repeat	40,301	17	846	11	18,109	107	4,693	16,518
Vaginal	172,424	624	2,469	85	80,231	5,067	24,311	59,637
<i>Vaginal After Previous Cesarean</i>	1,555	0	27	1	662	6	218	641
PRENATAL CARE INITIATION								
No Prenatal Care	1,503	8	61	3	978	31	97	325
First Trimester	192,739	539	2,995	81	85,466	4,440	27,914	71,304
Second Trimester	47,386	199	817	26	24,518	1,549	6,495	13,782
Third Trimester	10,107	53	182	9	5,268	338	1,063	3,194
<i>Unknown or Unreported</i>	4,928	25	159	5	2,776	108	608	1,247
BIRTHWEIGHT								
Low Birthweight	16,971	67	526	8	8,762	442	2,240	4,926
Normal Birthweight	239,670	757	3,688	116	110,231	6,023	33,932	84,923
<i>Out of Range</i>	22	0	0	0	13	1	5	3
VERY LOW BIRTHWEIGHT STATUS								
Birthweight >=1500g	253787	810	4122	124	117486	6398	35766	89081
Very Low Birthweight (<1500g)	2,855	14	92	0	1,508	67	406	768
<i>Out of Range</i>	21	0	0	0	12	1	5	3
GESTATION**								
Preterm Delivery (<37 Weeks)	26900	90	726	16	13447	627	3352	8642
Normal Gestation (>=37 Weeks)	221,408	692	3,206	99	101,045	5,641	31,776	78,949
<i>Out of Range/Missing</i>	8,355	42	282	9	4,514	198	1,049	2,261
VERY PRETERM STATUS**								
Very Preterm Delivery (<32 Weeks)	3984	23	123	4	2170	95	508	1061
Gestation >=32 Weeks	244,324	759	3,809	111	112,322	6,173	34,620	86,530
<i>Out of Range/Missing</i>	8,355	42	282	9	4,514	198	1,049	2,261
TOTAL BIRTHS¹	256,663	824	4,214	124	119,006	6,466	36,177	89,852

*Of the 124 births contained in the "All Other" category, 40 had multiple Client Identification Numbers (CINs) and could not be definitively linked to an aid code grouping.

**Gestational age and preterm status of newborn are estimated using the date of last menses from the birth certificate. A large number of birth certificates (N=8,355) are missing this data element.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Table 8b. Medi-Cal Births by Aid Category and Select Comorbidities
California Resident Hospital Births, 2009

COMORBIDITIES	Total	Medi-Cal Aid Category						
		Adoption/ Foster Care	Blind/Disabled	All Other*	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
HYPERTENSION**								
Hypertension	17,479	69	518	6	9,057	491	2,662	4,676
No Hypertension Diagnosis	239,184	755	3,696	118	109,949	5,975	33,515	85,176
DIABETES**								
Diabetes	19,587	13	406	2	7,468	113	2,882	8,703
No Diabetes Diagnosis	237,076	811	3,808	122	111,538	6,353	33,295	81,149
SUBSTANCE USE**								
Maternal Substance User	4,221	27	281	1	3,301	61	309	241
Maternal Non-Substance User	252,442	797	3,933	123	115,705	6,405	35,868	89,611
SMOKING DURING PREGNANCY²								
Maternal Smoker	8,738	47	518	5	6,776	142	932	318
Maternal Non-Smoker	242,052	754	3,579	114	109,599	6,196	34,668	87,142
<i>Unknown</i>	5,873	23	117	5	2,631	128	577	2,392
PRE-PREGNANCY WEIGHT***								
Underweight	9,008	54	181	3	4,706	412	1,388	2,264
Normal Weight	101,320	437	1,401	58	46,508	3,577	15,157	34,182
Overweight	64,516	164	905	25	27,646	1,302	8,864	25,610
Obese/Extremely Obese	56,901	105	1,181	23	29,284	743	8,052	17,513
<i>Out of Range/Unknown</i>	24,918	64	546	15	10,862	432	2,716	10,283
TOTAL BIRTHS¹	256,663	824	4,214	124	119,006	6,466	36,177	89,852

*Of the 124 births contained in the "All Other" category, 40 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 four weight groupings based on body mass index (BMI) classification set by the National Heart Lung and Blood Institute.

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

²Maternal 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, 2009

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	7,562	846	1,614	3,724	962	115	23	189	89
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	122	81	Suppressed	26	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Butte	1,479	854	23	354	136	Suppressed	30	76	Suppressed
Calaveras	182	134	Suppressed	33	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Colusa	235	29	Suppressed	198	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Contra Costa	4,450	663	699	2,662	241	38	Suppressed	120	Suppressed
Del Norte	220	128	Suppressed	43	14	Suppressed	18	17	Suppressed
El Dorado	651	365	Suppressed	244	13	Suppressed	12	Suppressed	Suppressed
Fresno	10,606	1,348	708	7,232	1,034	16	100	104	64
Glenn	292	105	Suppressed	167	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Humboldt	878	573	12	94	29	Suppressed	93	66	Suppressed
Imperial	1,962	97	12	1,841	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,226	1,740	636	6,440	170	12	46	106	76
Kings	1,351	227	52	1,017	11	Suppressed	Suppressed	32	Suppressed
Lake	466	251	Suppressed	157	Suppressed	Suppressed	21	24	Suppressed
Lassen	193	137	Suppressed	28	Suppressed	Suppressed	Suppressed	12	Suppressed
Los Angeles	76,854	4,506	6,999	60,569	3,488	256	117	618	301
Madera	1,705	241	29	1,389	15	Suppressed	Suppressed	11	Suppressed
Marin	689	93	30	527	19	Suppressed	Suppressed	13	Suppressed
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	795	369	Suppressed	327	Suppressed	Suppressed	56	23	12
Merced	3,038	506	86	2,166	226	Suppressed	Suppressed	40	Suppressed
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,227	255	55	3,786	65	13	Suppressed	38	Suppressed
Napa	643	122	Suppressed	492	18	Suppressed	Suppressed	Suppressed	Suppressed
Nevada	321	215	Suppressed	82	Suppressed	Suppressed	Suppressed	11	Suppressed
Orange	16,952	1,685	178	13,422	1,259	74	20	146	168
Placer	964	530	Suppressed	352	29	Suppressed	Suppressed	33	Suppressed
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,147	2,459	939	11,989	343	43	45	265	64
Sacramento	9,388	2,499	1,465	3,634	1,162	149	47	399	33
San Benito	404	41	Suppressed	348	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
San Bernardino	17,290	2,990	1,803	11,766	332	57	55	265	22
San Diego	15,218	2,068	962	9,936	591	94	44	338	1,185
San Francisco	2,701	270	393	1,204	707	46	Suppressed	60	Suppressed
San Joaquin	6,158	960	515	3,721	753	Suppressed	24	154	Suppressed
San Luis Obispo	1,181	442	Suppressed	671	18	Suppressed	Suppressed	36	Suppressed
San Mateo	2,697	220	72	1,563	225	91	Suppressed	Suppressed	491
Santa Barbara	3,434	298	35	2,987	43	Suppressed	Suppressed	50	13
Santa Clara	8,145	585	253	5,809	1,003	53	17	70	355
Santa Cruz	1,668	237	Suppressed	1,362	15	Suppressed	Suppressed	14	23
Shasta	1,227	898	14	173	43	Suppressed	61	25	Suppressed
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	253	175	Suppressed	28	Suppressed	Suppressed	25	16	Suppressed
Solano	2,163	428	443	970	164	29	Suppressed	103	Suppressed
Sonoma	2,351	563	28	1,563	61	14	33	67	22
Stanislaus	4,590	1,106	108	2,995	169	19	17	132	44
Sutter	656	252	15	274	92	Suppressed	Suppressed	11	Suppressed
Tehama	615	333	Suppressed	246	Suppressed	Suppressed	15	15	Suppressed
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,063	860	77	4,862	166	Suppressed	37	46	Suppressed
Tuolumne	229	169	Suppressed	43	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Ventura	5,734	625	46	4,906	96	Suppressed	Suppressed	44	Suppressed
Yolo	1,044	259	21	642	71	Suppressed	Suppressed	17	18
Yuba	582	307	12	176	60	Suppressed	11	14	Suppressed
Invalid County Code	158	34	11	105	3	1	0	2	2
TOTAL BIRTHS¹	256,663	35,462	18,410	179,496	13,900	1,209	1,127	3,923	3,136

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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

Table 9b - Medi-Cal Births by Beneficiary County and Maternal Age
California Resident Hospital Births, 2009

BENEFICIARY COUNTY	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Alameda	7,562	293	683	2,208	2,133	1,346	899
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	122	Suppressed	15	37	41	17	Suppressed
Butte	1,479	50	163	589	393	183	101
Calaveras	182	Suppressed	23	58	56	30	Suppressed
Colusa	235	12	21	82	66	33	21
Contra Costa	4,450	171	415	1,396	1,246	747	475
Del Norte	220	13	37	85	59	11	15
El Dorado	651	11	73	256	167	86	58
Fresno	10,606	599	1,153	3,589	2,767	1,562	936
Glenn	292	16	27	105	67	45	32
Humboldt	878	26	70	301	272	136	73
Imperial	1,962	133	253	681	469	256	170
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,226	532	1,203	3,200	2,250	1,266	775
Kings	1,351	87	155	492	337	186	94
Lake	466	21	47	204	98	54	42
Lassen	193	Suppressed	21	85	48	19	Suppressed
Los Angeles	76,854	3,245	7,250	22,994	20,310	13,641	9,414
Madera	1,705	91	200	562	420	284	148
Marin	689	29	41	199	212	134	74
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	795	30	73	253	237	139	63
Merced	3,038	151	352	985	812	460	278
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,227	230	476	1,320	1,121	672	408
Napa	643	23	41	226	180	115	58
Nevada	321	Suppressed	Suppressed	120	96	50	28
Orange	16,952	635	1,454	4,883	4,696	3,123	2,161
Placer	964	24	58	334	289	182	77
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,147	709	1,841	5,351	4,252	2,489	1,505
Sacramento	9,388	375	949	3,210	2,545	1,410	899
San Benito	404	26	41	116	125	65	31
San Bernardino	17,290	825	2,061	5,919	4,432	2,571	1,482
San Diego	15,218	719	1,619	4,785	3,976	2,504	1,615
San Francisco	2,701	90	153	696	801	547	414
San Joaquin	6,158	279	708	2,071	1,600	939	561
San Luis Obispo	1,181	40	97	411	344	179	110
San Mateo	2,697	80	231	740	768	521	357
Santa Barbara	3,434	192	378	1,116	890	552	306
Santa Clara	8,145	310	696	2,283	2,236	1,567	1,053
Santa Cruz	1,668	77	156	489	446	321	179
Shasta	1,227	42	152	452	342	171	68
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	253	11	30	98	61	36	17
Solano	2,163	75	219	747	573	348	201
Sonoma	2,351	83	192	755	656	415	250
Stanislaus	4,590	219	508	1,600	1,217	669	377
Sutter	656	18	73	224	182	109	50
Tehama	615	33	74	235	161	66	46
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,063	358	716	2,112	1,487	858	532
Tuolumne	229	Suppressed	24	112	56	23	Suppressed
Ventura	5,734	337	592	1,796	1,467	989	553
Yolo	1,044	34	104	306	310	177	113
Yuba	582	23	68	231	143	68	49
Invalid County Code	158	11	36	46	30	21	14
TOTAL BIRTHS¹	256,663	11,440	26,098	81,320	68,090	42,458	27,257

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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

Table 9c - Medi-Cal Births by Beneficiary County and Aid Category
California Resident Hospital Births, 2009

BENEFICIARY COUNTY	Total	Medi-Cal Aid Category					
		All Others	Blind/Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Alameda	7,562	40	194	3,817	166	856	2,489
Alpine	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Amador	122	Suppressed	Suppressed	84	Suppressed	24	Suppressed
Butte	1,479	Suppressed	82	905	Suppressed	323	99
Calaveras	182	Suppressed	Suppressed	99	Suppressed	54	12
Colusa	235	Suppressed	Suppressed	85	Suppressed	64	74
Contra Costa	4,450	Suppressed	120	1,970	Suppressed	604	1,672
Del Norte	220	Suppressed	Suppressed	164	Suppressed	28	14
El Dorado	651	Suppressed	Suppressed	329	17	151	143
Fresno	10,606	36	193	6,595	146	1,184	2,452
Glenn	292	Suppressed	Suppressed	133	11	74	67
Humboldt	878	Suppressed	34	514	Suppressed	267	38
Imperial	1,962	Suppressed	Suppressed	1,444	44	271	168
Inyo	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Kern	9,226	22	259	4,931	316	1,338	2,360
Kings	1,351	Suppressed	Suppressed	784	39	183	314
Lake	466	Suppressed	20	270	Suppressed	102	59
Lassen	193	Suppressed	Suppressed	131	Suppressed	37	Suppressed
Los Angeles	76,854	321	984	33,579	1,728	7,687	32,555
Madera	1,705	Suppressed	Suppressed	687	54	249	695
Marin	689	Suppressed	Suppressed	155	16	45	465
Mariposa	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mendocino	795	Suppressed	17	427	Suppressed	158	176
Merced	3,038	Suppressed	79	1,633	Suppressed	444	818
Modoc	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Mono	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Monterey	4,227	Suppressed	Suppressed	1,278	167	570	2,173
Napa	643	Suppressed	Suppressed	173	34	148	278
Nevada	321	Suppressed	Suppressed	144	13	105	54
Orange	16,952	29	98	4,983	656	2,442	8,744
Placer	964	Suppressed	Suppressed	465	20	255	207
Plumas	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Riverside	16,147	43	215	6,976	527	3,528	4,858
Sacramento	9,388	52	316	5,998	88	1,130	1,804
San Benito	404	Suppressed	Suppressed	208	19	50	122
San Bernardino	17,290	70	334	9,592	475	2,446	4,373
San Diego	15,218	66	183	6,324	519	3,602	4,524
San Francisco	2,701	25	59	1,210	16	476	915
San Joaquin	6,158	23	181	3,374	116	881	1,583
San Luis Obispo	1,181	Suppressed	Suppressed	494	26	274	361
San Mateo	2,697	Suppressed	Suppressed	679	102	368	1,519
Santa Barbara	3,434	12	30	1,126	82	455	1,729
Santa Clara	8,145	27	74	3,299	133	1,052	3,560
Santa Cruz	1,668	Suppressed	Suppressed	600	92	279	677
Shasta	1,227	Suppressed	52	840	Suppressed	252	51
Sierra	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Siskiyou	253	Suppressed	13	166	Suppressed	55	Suppressed
Solano	2,163	Suppressed	80	1,356	Suppressed	213	485
Sonoma	2,351	Suppressed	Suppressed	763	53	432	1,051
Stanislaus	4,590	Suppressed	97	2,632	Suppressed	688	1,103
Sutter	656	Suppressed	16	437	Suppressed	165	20
Tehama	615	Suppressed	Suppressed	335	21	126	110
Trinity	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed	Suppressed
Tulare	6,063	13	74	3,444	123	704	1,705
Tuolumne	229	Suppressed	Suppressed	133	12	68	Suppressed
Ventura	5,734	Suppressed	Suppressed	2,002	163	830	2,685
Yolo	1,044	Suppressed	18	480	Suppressed	212	313
Yuba	582	Suppressed	32	398	Suppressed	103	30
Invalid County Code	158	39	0	103	3	7	6
TOTAL BIRTHS¹	256,663	948	4,214	119,006	6,466	36,177	89,852

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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

Table 9d - **Medi-Cal** Births by Beneficiary Region and Maternal Race/Ethnicity
California Resident Hospital Births, 2009

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	31,401	3,790	3,535	18,514	3,400	389	100	661	1,012
Central Coast	16,648	1,898	155	14,060	241	25	25	187	57
Central Valley	42,737	6,988	2,211	29,822	2,544	80	244	625	223
Far North	1,593	1,160	17	213	49	Suppressed	93	44	Suppressed
Los Angeles	76,854	4,506	6,999	60,569	3,488	256	117	618	301
North Coast	2,359	1,321	24	621	51	Suppressed	188	130	Suppressed
Sacramento Valley	14,291	4,638	1,541	5,691	1,535	166	130	537	53
Sierra Range/ Foothills	3,053	1,828	23	947	61	12	66	103	13
Southern California	67,569	9,299	3,894	48,954	2,528	269	164	1,016	1,445
invalid Code	158	34	11	105	3	1	0	2	2
TOTAL BIRTHS¹	256,663	35,462	18,410	179,496	13,900	1,209	1,127	3,923	3,136

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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

Note: Regions are comprised of the following counties:

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

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

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

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

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

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

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

Table 9e - **Medi-Cal** Births by Beneficiary Region and Maternal Age
California Resident Hospital Births, 2009

BENEFICIARY REGION	Total	Age of Mother					
		Age ≤ 17	18-19	20-24	25-29	30-34	35 and Older
Bay Area	31,401	1,154	2,671	9,250	8,805	5,740	3,781
Central Coast	16,648	902	1,740	5,248	4,393	2,778	1,587
Central Valley	42,737	2,316	4,995	14,611	10,890	6,224	3,701
Far North	1,593	59	198	585	435	218	98
Los Angeles	76,854	3,245	7,250	22,994	20,310	13,641	9,414
North Coast	2,359	90	227	843	666	340	193
Sacramento Valley	14,291	561	1,479	4,982	3,867	2,091	1,311
Sierra Range/ Foothills	3,053	81	274	1,142	869	462	225
Southern California	67,569	3,021	7,228	21,619	17,825	10,943	6,933
invalid Code	158	11	36	46	30	21	14
TOTAL BIRTHS¹	256,663	11,440	26,098	81,320	68,090	42,458	27,257

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

Note: Regions are comprised of the following counties:

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

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

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

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

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

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

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

Table 9f - **Medi-Cal** Births by Beneficiary Region and Aid Category
California Resident Hospital Births, 2009

BENEFICIARY REGION	Total	Medi-Cal Aid Category					
		All Others	Blind/Disabled	Families	MI Child & Minor Consent	Pregnancy Pathway, not Undocumented	Undocumented
Bay Area	31,401	126	605	13,422	620	4,194	12,434
Central Coast	16,648	32	154	5,708	549	2,458	7,747
Central Valley	42,737	114	924	24,080	918	5,671	11,030
Far North	1,593	Suppressed	70	1,073	Suppressed	339	67
Los Angeles	76,854	321	984	33,579	1,728	7,687	32,555
North Coast	2,359	16	76	1,375	Suppressed	555	287
Sacramento Valley	14,291	69	493	8,771	244	2,197	2,517
Sierra Range/ Foothills	3,053	Suppressed	51	1,576	93	780	542
Southern California	67,569	216	857	29,319	2,221	12,289	22,667
Invalid Code	158	39	0	103	3	7	6
TOTAL BIRTHS¹	256,663	948	4,214	119,006	6,466	36,177	89,852

¹Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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

Note: Regions are comprised of the following counties:

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

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

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

Far North: Modoc, Shasta, Siskiyou, Trinity

Los Angeles: Los Angeles

North Coast: Del Norte, Humboldt, Lake, Mendocino

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

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

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

Table 10. Medi-Cal and Non-Medi-Cal Births by Select Comorbidities and Maternal Race/Ethnicity
California Resident Hospital Births, 2009

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
HYPERTENSION¹														
Hypertension	17,479	2,670	2,133	11,175	833	100	568	16,939	6,815	1,002	5,467	2,756	58	841
No Hypertension Diagnosis	239,184	32,792	16,277	168,321	14,276	1,027	6,491	220,337	86,060	7,166	72,899	44,188	599	9,425
Unknown	0	0	0	0	0	0	0	27,520	9,904	1,770	10,798	2,906	141	2,001
DIABETES¹														
Diabetes	19,587	1,968	931	14,597	1,564	98	429	20,654	5,495	604	7,327	6,313	60	855
No Diabetes Diagnosis	237,076	33,494	17,479	164,899	13,545	1,029	6,630	216,622	87,380	7,564	71,039	40,631	597	9,411
Unknown	0	0	0	0	0	0	0	27,520	9,904	1,770	10,798	2,906	141	2,001
SUBSTANCE USE¹														
Maternal Substance User	4,221	1,551	746	1,522	91	58	253	1,093	462	118	396	40	11	66
Maternal Non-Substance User	252,442	33,911	17,664	177,974	15,018	1,069	6,806	236,183	92,413	8,050	77,970	46,904	646	10,200
Unknown	0	0	0	0	0	0	0	27,520	9,904	1,770	10,798	2,906	141	2,001
SMOKING DURING PREGNANCY³														
Maternal Smoker	8,738	4,928	1,094	1,754	266	151	545	2,468	1,504	143	425	213	28	155
Maternal Non-Smoker	242,052	29,853	16,683	173,535	14,659	948	6,374	231,957	90,456	7,912	76,716	46,351	615	9,907
Unknown	5,873	681	633	4,207	184	28	140	30,371	10,819	1,883	12,023	3,286	155	2,205
TOTAL BIRTHS²	256,663	35,462	18,410	179,496	15,109	1,127	7,059	264,796	102,779	9,938	89,164	49,850	798	12,267

¹Comorbidities 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).

²Total Births = Births in Hospital Only. DHCS identified a total of 521,459 births to California mothers in 2009 occurring in a hospital setting.

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