



CALIFORNIA
HEALTH BENEFITS REVIEW PROGRAM

Analysis of Assembly Bill 1962: Maternity Services

A Report to the 2007-2008 California Legislature
April 4, 2008

CHBRP 08-03



The California Health Benefits Review Program (CHBRP) responds to requests from the State Legislature to provide independent analyses of the medical, financial, and public health impacts of proposed health insurance benefit mandates and proposed repeals of health insurance benefit mandates. In 2002, CHBRP was established to implement the provisions of Assembly Bill 1996 (California Health and Safety Code, Section 127660, et seq.) and was reauthorized by Senate Bill 1704 in 2006 (Chapter 684, Statutes of 2006). The statute defines a health insurance benefit mandate as a requirement that a health insurer or managed care health plan (1) permit covered individuals to obtain health care treatment or services from a particular type of health care provider; (2) offer or provide coverage for the screening, diagnosis, or treatment of a particular disease or condition; or (3) offer or provide coverage of a particular type of health care treatment or service, or of medical equipment, medical supplies, or drugs used in connection with a health care treatment or service.

A small analytic staff in the University of California's Office of the President supports a task force of faculty from several campuses of the University of California, as well as Loma Linda University, the University of Southern California, and Stanford University, to complete each analysis within a 60-day period, usually before the Legislature begins formal consideration of a mandate bill. A certified, independent actuary helps estimate the financial impacts, and a strict conflict-of-interest policy ensures that the analyses are undertaken without financial or other interests that could bias the results. A National Advisory Council, drawn from experts from outside the state of California and designed to provide balanced representation among groups with an interest in health insurance benefit mandates, reviews draft studies to ensure their quality before they are transmitted to the Legislature. Each report summarizes scientific evidence relevant to the proposed mandate, or proposed mandate repeal, but does not make recommendations, deferring policy decision making to the Legislature. The State funds this work through a small annual assessment on health plans and insurers in California. All CHBRP reports and information about current requests from the California Legislature are available at the CHBRP Web site, www.chbrp.org.

A Report to the 2007-2008 California State Legislature

Analysis of Assembly Bill 1962 Maternity Services

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PREFACE

This report provides an analysis of the medical, financial, and public health impacts of Assembly Bill 1962, which would require health insurance products regulated under the California Department of Insurance to cover maternity services. The bill defines “maternity services” to include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care including labor and delivery and postpartum care. In response to a request from the California Assembly Committee on Health on February 1, 2008, the California Health Benefits Review Program (CHBRP) undertook this analysis pursuant to the provisions of Senate Bill 1704 (Chapter 684, Statutes of 2006) as chaptered in Section 127600, et seq. of the California Health and Safety Code.

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CHBRP gratefully acknowledges all of these contributions but assumes full responsibility for all of the report and its contents. Please direct any questions concerning this report to:

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EXECUTIVE SUMMARY

California Health Benefits Review Program Analysis of Assembly Bill 1962: Maternity Services

The California Health Benefits Review Program (CHBRP) undertook the analysis of Assembly Bill (AB) 1962 in response to a request from the California Assembly Committee on Health on February 5, 2008, pursuant to the provisions of Senate Bill 1704 (Chapter 684, Statutes of 2006) as chaptered in Section 127600, et seq. of the California Health and Safety Code. This report provides an analysis of the medical, financial, and public health impacts of AB 1962.

AB 1962, introduced by Assemblymember Hector De La Torre, would require health insurance products regulated under the California Department of Insurance (CDI) to cover maternity services.¹ The bill would apply only to CDI-regulated policies, which mostly includes preferred provider organizations and represents approximately 10.4% of the privately insured market in California. The remaining portion of the privately insured market are health care service plans (including health maintenance organizations, point of service plans and some preferred provider organization) regulated under the Department of Managed Health Care (DMHC). While DMHC-regulated plans make up the majority of the privately insured market, CDI-regulated policies represent a substantial portion of those products sold in the *individual* market—about 38.5%.

Current laws and regulations governing health care service plans regulated by the DMHC require coverage for maternity services under provisions related to “basic health care services.” DMHC-regulated plans are required to cover maternity and pregnancy-related care under laws governing emergency and urgent care.² Regulations defining basic health care services specifically include prenatal care as preventive care that must be covered.³ CDI-regulated plans currently have no such requirements.

The Federal Civil Rights Act requires employers that offer health insurance and have 15 or more employees to cover maternity services benefits at the same level as other health care benefits.⁴ Complications of pregnancy are generally covered regardless of whether the health insurance plan provides coverage for maternity benefits.

In 2005, the birth rate in California was 70.2 births per 1,000 women of childbearing age, or nearly 550,000 births. Approximately 96% of births in California are covered by some form of health insurance. Overall in California, the rate of maternal pregnancy-related mortality is 13.6 deaths per 100,000 live births, or nearly 75 maternal deaths in California each year. The infant mortality rate in California is 5.3 per 1,000 births and it is estimated that nearly 3,000 infants die each year in their first year of life due to birth defects, prematurity and low birth weight, SIDS, respiratory distress syndrome, and maternal complications of pregnancy.

1 AB 1962 would add Section 10123.865 to the California Insurance Code.

2 Section 1317.1 of the California Health and Safety Code

3 Section 1300.67 of the California Code of Regulations, Title 28

4 The Pregnancy Discrimination Act under Title VII of the Civil Rights Act of 1964

AB 1962 defines “maternity services” to include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care including labor and delivery and postpartum care. However, the *Medical Effectiveness* and *Public Health Impacts* sections of this report focus on the outcomes associated with prenatal care services because 1) a majority of births occur in the hospital setting regardless of insurance status, 2) prenatal care services use would be most affected by the potential for out-of-pocket costs and thus most directly impacted by AB 1962, 3) AB 1962 would not affect coverage for infants, and 4) plans and policies that do not cover maternity services cover complications related to a pregnancy.

Because all group policies are required to and, in practice currently cover maternity services, the *Utilization, Cost, and Coverage Impact* analysis will focus on the CDI-regulated individual market. That section specifically examines the impact of adding maternity services to those CDI-regulated individual policies that do not currently cover those services.

Medical Effectiveness

Studies of prenatal care can be divided into two major groups:

- Studies of the impact of variation in the number of prenatal care visits that pregnant women receive; and
- Studies of the effectiveness of specific services provided during prenatal care visits or in conjunction with them (e.g., laboratory tests, medications).

Randomized controlled trials (RCTs) have consistently found no association between the numbers of prenatal visits pregnant women receive and birth outcomes for either infants or mothers.

However, there is clear and convincing evidence from multiple RCTs that the following prenatal care services are effective:

- Smoking cessation counseling
- Screening and treatment for asymptomatic bacteriuria
- Screening for hepatitis B
- Screening and treatment for human immunodeficiency virus
- Aspirin and calcium supplements for treatment of hypertensive disorders
- Screening and treatment for Rh(D) incompatibility
- Corticosteroids and progestational agents for women at increased risk for preterm delivery
- Ultrasound to determine gestational age and identify fetal abnormalities
- External cephalic version for breech presentation at term
- Membrane sweeping and induction of labor for prevention of postterm pregnancies

In addition, there is a preponderance of evidence from nonrandomized studies and/or a small number of RCTs that the following prenatal care services are effective:

- Screening for domestic violence
- Screening for certain genetic disorders

- Screening and treatment for chlamydia, gonorrhea, and syphilis
- Screening for group B streptococcus
- Screening and treatment for gestational diabetes
- Iron supplements for treatment of iron deficiency anemia
- Blood pressure monitoring for hypertensive disorders
- Screening for atypical red blood cell alloantibodies other than Rh(D) incompatibility
- Ultrasound to diagnose placenta previa

Utilization, Cost, and Coverage Impacts

Current Coverage

- Most Californians enrolled in CDI-regulated health policies (68%) currently have coverage for maternity benefits, including prenatal care and delivery services.
 - CHBRP estimates that all enrollees in CDI-regulated health policies in the *large- and small-group* markets currently have maternity benefits.
 - An estimated 600,800 enrollees in CDI-regulated health policies in the *individual* (non-group) market currently lack maternity benefits (see rows labeled “Number of individuals with coverage for maternity services” in Table 1).
- Currently, the Medi-Cal and Aid to Infants and Mothers (AIM) programs cover maternity services for women who qualify—generally those women who are in households with incomes less than or equal to 300% of the Federal poverty level. AIM requires that women who are covered by insurance must face costs for maternity services greater than \$500 in order to qualify. CHBRP estimates that currently, approximately 2,700 women enrolled in CDI-regulated plans switch to Medi-Cal or AIM following pregnancy. This is because their income eligibility would change following pregnancy (since pregnant women are considered a household of two and presumably their household income would not change).
 - CHBRP estimates that of the approximately 9,200 expected births among women in 2008 who have no maternity benefits when they become pregnant, about 30% may qualify for Medi-Cal or AIM. CHBRP estimates that about 300 of these women may transfer to plans covering maternity that are offered by their existing carrier.
 - Based on data from AIM, there is evidence that there is current cost-shifting to that program. As of 2007, about 6% of their total enrollment (700 women) was enrolled in health insurance policies that did not cover maternity services. In addition, 10% of their total enrollment (about 1,200 women) were enrolled in policies that *did* cover maternity services.
- There is evidence that risk segmentation has already had a substantial impact on the individual (non-group) insurance market since only 26% of an estimated 812,000 individuals currently have maternity benefits. In 2004, CHBRP had estimated, in the analysis of Senate Bill 1555, that approximately 82% of those in the individual market had maternity benefits.

Post-mandate Coverage, Cost, and Utilization

- The enactment of AB 1962 would require all those CDI-individual policies that do not cover maternity services to do so, thus expanding maternity services coverage to 600,800 enrollees, including 147,000 women aged 19-44 years. Because individuals choosing plans without maternity services are doing so save monthly premiums, those who can afford so (and do not drop insurance entirely) would purchase the next “cheapest” option—high-deductible health plans (HDHPs). Thus, it is likely that most individuals currently enrolled in non-maternity CDI individual plans would purchase HDHPs post-mandate.
- CHBRP estimates that there would not be a direct impact on AIM and Medi-Cal enrollment as result of AB 1962. Those women who qualify for Medi-Cal after pregnancy would still shift to Medi-Cal due to their income levels. Those women enrolled in AIM who are currently enrolled in plans that do not cover maternity services would be enrolled in a plan that *does* cover maternity services post-mandate. However, since the cost of maternity services in those plans would be likely still be greater than \$500 (adding up deductibles and copayments), those women would still qualify for AIM.
- Total health expenditures by or for all enrollees in CDI-regulated policies are estimated to increase by almost 0.03%, or \$24.7 million, statewide as a result of this mandate (see row labeled “Total Annual Expenditures” in Table 1). Note that the increase in total expenditures is a total of:
 - the increased premium expenditures in the individual market: \$74.6 million (see row labeled “Premium expenditures for individually purchased insurance” in Table 1).
 - the increased out-of-pocket expenditures for copayments and deductibles for maternity benefits: \$17.9 million (see row labeled “Individual out-of-pocket expenditures”).
 - the reduction in out-of-pocket expenditures for maternity benefits not currently covered by insurance: \$67.9 million (see row labeled, “Out-of-pocket expenditures for noncovered services”).
- All of the cost impact of the mandate would be concentrated in the individual CDI-regulated market, where total expenditures are estimated to increase by about 1.21%, or \$74.6 million (see row labeled “Premium expenditures for individually purchased insurance” in Table 1). Per member per month (PMPM) premium expenditures are estimated to increase by an *average* of \$7.56. Most of the increase in total expenditures would be concentrated among those aged 19-44 years, because insurance premiums in the individual market are stratified by age bands.
- Adding maternity services is expected to increase the premiums of CDI-regulated individual policies. The actual premium increase of those policies depends on a number of market factors, including, but not limited to, the changes in actuarial costs. CHBRP estimates that adding maternity services to policies that do not currently cover maternity would increase the actuarial costs of these policies by a range of 1.13% to 13.42% depending on the age of the enrollee. If the premium increases by the same amount as the actuarial costs increases, the premium increase could result in approximately 2,300 newly uninsured. It is likely that

these newly uninsured would disproportionately consist of younger individuals (e.g., ages 19-29) since they are more likely to be uninsured and are more price-sensitive to premium changes than older individuals.

- CHBRP estimates that approximately, 6,200 pregnancies would be newly-covered under CDI insurance policies post-mandate. Utilization impacts as a result of expanded coverage is summarized below:
 - Overall, the mandate is estimated to have no impact on the number of deliveries since the birth rate is not expected to change post-mandate.
 - There may be an increase in utilization of maternity services, specifically prenatal care. The number of women who forgo any prenatal care may be reduced, because they may no longer face large out-of-pocket expenditures for their obstetrician's services early in the pregnancy. However, to the extent non-maternity CDI-regulated plans would be replaced by HDHPs, most women are likely to continue to face large out-of-pocket expenditures for their obstetrician's services regardless of whether their insurance policy includes maternity benefits. This is because prenatal care is usually subject to the deductible for HDHPs.
 - Specific components of prenatal care may change (e.g., specific types of screening). But again, the amount of the increase is difficult to estimate. (Note that increased use of prenatal care would not affect expenditures as prenatal care is almost always paid for as a single lump-sum fee to physicians.)

Public Health Impacts

- The extent to which AB 1962 would result in increased utilization of effective prenatal care services is unknown. If coverage through health insurance plans that reduce out-of-pocket costs for prenatal care is increased, utilization of effective prenatal services could increase, leading to decreases in preterm births, low birth weight babies, and infant and maternal mortality. AB 1962 does not guarantee that pregnant women would not shift into HDHPs, which typically do not exclude prenatal care from the deductible, thus facing similar financial barriers to prenatal care as those without insurance for maternity care.
- Babies born to black women are twice as likely as babies born to mothers of all other races/ethnicities to be born prematurely and to be classified as low birth weight. In addition, infant mortality rates are twice as high for babies born to black women compared to babies born to mothers belonging to other racial/ethnic groups. There is no evidence that AB 1962 would make an impact on prenatal care utilization rates among black women specifically or reduce these disparities in health outcomes.
- Although there is significant infant and maternal mortality that can be reduced through specific effective prenatal care services, the impact of AB 1962 on the utilization of prenatal care is ambiguous. Therefore, although there is a potential for a decrease in mortality and associated lost productivity, the overall effect of AB 1962 on infant and maternal health is unknown.

Table 1. Summary of Coverage, Utilization, and Cost Impacts of AB 1962

	Before Mandate	After Mandate	Increase/Decrease	Change After Mandate
Coverage				
Number of individuals subject to the mandate				
In Large- and Small-Group Plans	1,070,000	1,070,000	0	0%
In Individual Plans	812,000	812,000	0	0%
Total	1,882,000	1,882,000	0	0%
Percentage of individuals with maternity coverage				
In Large- and Small-Group Plans	100%	100%	0%	0%
In Individual Plans	26%	100%	74%	285%
Total	68%	100%	32%	47%
Number of individuals with coverage for maternity services				
In Large- and Small-Group Plans	1,070,000	1,070,000	-	0%
In Individual Plans	211,200	812,000	600,800	285%
Total	1,281,200	1,882,000	600,800	47%
Utilization and cost				
Number of individuals subject to the mandate with uncomplicated pregnancies ^a				
Maternity services covered by insurance	16,600	22,800	6,200	37%
Covered by AIM or Medi-Cal because individuals switched following pregnancy	2,700	2,700	0	0%
Maternity services not covered by insurance	6,200	-	-6,200	-100%
Total	25,500	25,500	-	0%
Average cost per uncomplicated delivery	\$11,100	\$11,100	-	0%

Table 1. Summary of Coverage, Utilization, and Cost Impacts of AB 1962 (cont'd)

	Before Mandate	After Mandate	Increase/ Decrease	Change After Mandate
Expenditures				
Premium expenditures by private employers for group insurance	\$47,088,966,000	\$47,088,966,000	\$0	0%
Premium expenditures for individually purchased insurance	\$6,158,288,000	\$6,232,850,000	\$74,562,000	1.21%
Premium expenditures by individuals with group insurance, CalPERS, Healthy Families, AIM or MRMIP	\$12,819,308,000	\$12,819,308,000	\$0	0%
CalPERS employer expenditures	\$2,942,984,000	\$2,942,984,000	\$0	0%
Medi-Cal (including AIM) state expenditures ^b	\$4,044,192,000	\$4,044,192,000	\$0	0%
Healthy Families state expenditures	\$644,074,000	\$644,074,000	\$0	0%
Individual out-of-pocket expenditures (deductibles, copayments, etc.)	\$5,602,060,000	\$5,620,007,000	\$17,947,000	0.32%
Out-of-pocket expenditures for noncovered services	\$67,853,000	\$0	-\$67,853,000	-100%
Total annual expenditures	\$79,367,725,000	\$79,392,381,000	\$24,656,000	0.03%

Source: California Health Benefits Review Program, 2008.

Notes: The population includes employees and dependents covered by employer-sponsored insurance or individually purchased insurance. All population figures include enrollees aged 0-64 years and enrollees 65 years or older covered by employer-sponsored insurance. Premium expenditures by individuals include employee contributions to employer-sponsored health insurance and member contributions to public health insurance.

(a) This section details the number of pregnancies for individual in CDI-regulated policies. The population that does not currently have coverage for maternity services, 30% (2,700) are expected to switch to Medi-Cal or AIM, 67% (6,200) are estimated to currently not be covered by insurance, and about 3% (300) are expected to currently switch to a policy that covers maternity services. (b) Medi-Cal state expenditures for members under 65 years of age include expenditures for Major Risk Medical Insurance Program (MRMIP) and Access for Infants and Mothers (AIM) program.

Key: CalPERS = California Public Employees' Retirement System.

INTRODUCTION

Assembly Bill (AB) 1962, introduced by Assemblymember Hector De La Torre, would require health insurance products regulated by the California Department of Insurance (CDI) to cover maternity services.⁵ The California Health Benefits Review Program (CHBRP) undertook the analysis of AB 1962 in response to a request from the California Assembly Committee on Health on February 1, 2008, pursuant to the provisions of Senate Bill 1704 (Chapter 684, Statutes of 2006) as chaptered in Section 127600, et seq. of the California Health and Safety Code.

Background of Disease or Condition

In 2005, the birth rate in California was 70.2 births per 1,000 women of childbearing age, or nearly 550,000 births (CDPH, 2007a). Approximately 96% of births in California are covered by some form of health insurance (California Department of Health Services, 2003). Maternity services benefits generally include prenatal care, such as office visits and screening tests; labor and delivery services, including hospitalization; care resulting from complications related to a pregnancy; and postnatal care.

In California in 2005, only 0.6% of births were to women receiving no prenatal care, 12.4% of live births were to women having 1 to 8 prenatal visits, 46.4% had 9 to 12 visits, 33.0% had 13 to 16 visits, while 7.6% had 17 or more visits (CDPH, 2007a). The overwhelming majority (86.6%) of births were to mothers who initiated prenatal care in the first trimester. Another 10.8% started prenatal care in the second trimester, with 2.1% starting care in the third trimester (defined by the March of Dimes as “late” prenatal care). Overall, 2.7% of births in California are to women receiving “late” or no prenatal care (CDPH, 2007a).

Three major health outcomes in relation to maternity care and utilization of prenatal services are birth weight, preterm deliveries, and infant and maternal mortality. An infant is considered low birth weight if he or she is below 2500 grams at birth. In California, 6.8% of babies born weigh less than 2500 grams, and 1.2% of those are considered very low birth weight (i.e., less than 1500 grams) (CDPH, 2007a). Major risk factors for low birth weight include multifetal pregnancy, history of preterm delivery, birth defects, chronic maternal health problems, smoking, alcohol and illicit drug use, maternal and fetal infections, placental problems, inadequate maternal nutrition, and socioeconomic factors (MOD).

A full-term pregnancy is defined as a gestational length of 37 to 42 weeks. Babies born before 37 weeks of gestation are classified as preterm, while babies born before 32 weeks of gestation are classified as very preterm. In California, 11.2% of births were preterm births in 2005, with approximately 1.5% being very preterm (CDPH, 2007a). Both preterm and very preterm babies are at higher risk for death and disabilities such as cerebral palsy, mental retardation, visual impairment, and hearing loss (IOM, 2006). The causes of preterm birth are not well understood, but medical conditions such as chronic hypertension, diabetes, infections, and stress are associated with preterm birth (IOM, 2006). In addition, a family or personal history of preterm birth and multifetal pregnancy also increases the risk of preterm birth (IOM, 2006).

⁵ AB 1962 would add Section 10123.865 to the California Insurance Code.

Overall in California, the rate of maternal pregnancy-related mortality is 13.6 deaths per 100,000 live births (CDPH, 2007b). This translates into nearly 75 maternal deaths in California each year. Infant mortality rates in California are 530 deaths per 100,000 live births, resulting in close to 3,000 deaths annually (MOD, 2004). Infant mortality, or death of an infant in the first year of life, is most frequently caused by birth defects (128 per 100,000 live births), followed by prematurity and low birth weight (75 per 100,000 live births), SIDS (32.5 per 100,000), respiratory distress syndrome (18 per 100,000), and maternal complications of pregnancy (19 per 100,000) (MOD, 2004).

Background of AB 1962

According to the bill's author, the primary goal of AB 1962 is to level the playing field between health care service plans that are regulated by the Department of Managed Health Care (DMHC) (which are required to cover maternity services) and health insurers regulated by the CDI (which presently are not). Presumably requiring all insurers to cover maternity service would halt the current risk segmentation of the market, which is the dynamic of insurers selling low-cost policies to individuals who would use less health care services (in this case no maternity services), and higher-cost policies to those who would use more health care services.

CHBRP analyzed two similar bills introduced by Senator Jackie Speier in 2003, (Senate Bill 897) and again in 2004 (SB 1555).⁶ In 2004, CHBRP had estimated that approximately 82% of those in the individual market had coverage for maternity services. Or, about 192,000 individuals did not have coverage for maternity services in the individual market in 2004. As will be discussed in further detail in the *Utilization, Cost, and Coverage Impacts* section, the percentage of those that have coverage for maternity services in the individual market has dropped to 26%. Or, about 600,800 individuals currently do not have coverage for maternity services. This indicates that risk segmentation has already had a substantial impact on the individual (non-group) insurance market.

Current Requirements

There are state and federal laws and regulations currently in place related to health insurance coverage of maternity services. As mentioned, health care service plans regulated by the DMHC are required to provide coverage for maternity services under provisions related to "basic health care services." While this coverage requirement is not explicit in statute, regulations defining basic health care services specifically include prenatal care as preventive care that must be covered. DMHC-regulated plans are also required to cover maternity and pregnancy-related care under statutes governing emergency and urgent care.⁷ Thus, under existing California laws and regulations, the 89.6% of the privately insured market that is enrolled in DMHC-regulated plans has coverage for maternity services.⁸

⁶ Analyses of both bills are available on CHBRP's Web site at http://www.chbrp.org/completed_analyses/index.php.

⁷ Section 1300.67 of the California Code of Regulations, Title 28

⁸ CHBRP's methods of calculating enrollment in private and public programs that would be affected by the mandate are described in Appendix D.

Under Title VII of the Federal Civil Rights Act, employers may not discriminate on the “basis of pregnancy, childbirth, or related medical conditions.” In terms of health insurance coverage, employers that offer health insurance and have 15 or more employees must cover maternity services benefits at the same level as other health care benefits.⁹ Thus, under federal law all members obtaining health insurance in the large-group market (groups with more than 50 employees) have coverage for maternity services. As determined in CHBRP’s survey of the largest health insurers in the California, which will be discussed in detail in the *Utilization, Cost, and Coverage Impacts* section, small-group members also have coverage for maternity services.

In addition to general requirements on coverage, there are a set of existing laws and regulations related to the maternity services benefit *if* the health insurance product includes this benefit. Specifically:

- Minimum length of stay for maternity services: Health plan and policies that provide maternity coverage are prohibited from restricting “benefits for inpatient hospital care to a time period less than 48 hours following a normal vaginal delivery and less than 96 hours following a delivery by cesarean section.”¹⁰ This is also a federal protection under the Newborns’ and Mothers’ Health Protection Act of 1996.¹¹
- Limitation on copayments and deductibles for specified maternity services: Health plans and policies that provide maternity coverage are prohibited from charging members copayments and deductibles for maternity services that “exceeds the most common amount of the copayment or deductible” for inpatient and outpatient services.¹²

California law includes provisions related to accessing health insurance in the *group* market if you are pregnant. Currently, health plans and insurers issuing group contracts or policies “may not impose a pre-existing condition exclusion to... a condition relating to benefits for pregnancy or maternity care.” However, health plans and insurers that write *individual* policies have the right to deny issuing policies to applicants that have certain conditions, including pregnancy, pregnancy of a spouse or covered dependent, or planned surrogacy or adoption in process.¹³

The federal Health Insurance Portability and Accountability Acts, which amends the Employee Retirement Income Security Act, prohibits employer-based plans from applying pre-existing condition exclusions to pregnancy, whether or not the woman had previous coverage.

State Activities

If a woman does not have maternity services coverage through her health insurance, she may qualify to receive maternity care through the Access for Infants and Mothers (AIM) program administered by the Managed Risk Medical Insurance Board (MRMIB).

⁹ The Pregnancy Discrimination Act under Title VII of the Civil Rights Act of 1964

¹⁰ California Health and Safety Code, Section 1367.621; California Insurance Code, Section, 10123.87

¹¹ Newborns’ and Mothers’ Health Protection Act of 1996. Pub L No.104–204, §601 (1996)

¹² California Health and Safety Code, Section 1373.4; California Insurance Code, Section 10119.5

¹³ California Health and Safety Code, Sections 1357.06 and 1357.51; California Insurance Code, Section 10198.7 and 10708. Also see www.dmh.ca.gov/dmhc_consumer/hp/hp_individual.asp#rights.

To qualify, a woman must:

- be pregnant (though no more than 30 weeks)
- be a California resident
- not be enrolled in another publicly funded program
- not have coverage from private insurance that costs less than \$500 (for example, a woman may be in a high-deductible health plan (HDHP) facing deductibles and co-insurance higher than \$500)
- be below 300% of the Federal poverty level

There are 17 states, including California, that currently have a requirement related to the coverage of maternity services (BCBSA, 2007). State laws related to maternity coverage vary by the market that is targeted (e.g. individual or group) or by provisions related to the terms and conditions that maternity services must be covered (e.g. cost-sharing levels). For example, maternity services are required to be covered as part of Hawaii's rules for prepaid health plans in the group market.¹⁴ Washington requires carriers that sell individual health plans to (1) cover maternity services and (2) ensure cost-sharing levels are the same as other health care benefits.¹⁵ New Hampshire requires carriers selling individual health policies to offer a maternity rider if the policy does not cover maternity services in its base plan.¹⁶

Bill Provisions, Key Assumptions, and Analytic Approach

AB 1962 would require the entire CDI-regulated market to cover maternity services. The CDI-regulated market consists of approximately 10.4% of the privately insured market in California. The CDI-regulated enrollment market represent about 38.5% of those enrolled in privately insured individual products and 18.3% of those enrolled in the privately insured small-group market. Because all group policies are required to and in practice currently cover maternity services, the *Utilization, Cost, and Coverage Impacts* analysis will focus on the CDI-regulated individual market. That section specifically examines the impact of adding maternity services to those CDI-regulated individual policies that do not currently cover those services.

AB 1962 would not directly affect populations that are enrolled in health insurance products that are not subject to benefit mandates, such as those enrolled in self-insured plans or those who are uninsured.¹⁷ In addition, AB 1962 would not place any new requirements on publicly funded programs such as CalPERS, Medi-Cal, or AIM.

As discussed above, there are existing laws related to underwriting and these would not be affected by AB 1962: AB 1962 is silent on rules related to underwriting and thus would allow

¹⁴ Hawaii Statute §393-7 "Required health care benefits"

¹⁵ Washington Insurance Code RCW 48.43.041

¹⁶ New Hampshire Statute Section 415:6-d

¹⁷ SB 1704, CHBRP's authorizing legislation, defines a benefit mandate bill as "a proposed statute that requires a health care service plan or a health insurer, or both, to ...offer or provide coverage of a particular type of health care treatment or service." Thus, the portion of the population directly affected by a benefit mandate bill are those enrolled in a health insurance products offered by health care service plans or health insurers.

health insurance products regulated by the CDI and the DMHC to continue to apply pre-existing condition limitations for individual (non-group) insurance.

AB 1962 defines “maternity services” to include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care including labor and delivery and postpartum care. However, the *Medical Effectiveness* and *Public Health Impacts* sections of this report focus on the outcomes associated with prenatal care services because 1) a majority of births occur in the hospital setting regardless of insurance status, 2) prenatal care services use would be most affected by the potential for out-of-pocket costs and thus most directly impacted by AB 1962, 3) AB 1962 would not affect coverage for infants, and 4) plans and policies that do not cover maternity services cover complications related to a pregnancy.

MEDICAL EFFECTIVENESS

As noted in the *Introduction*, AB 1962 defines “maternity services” to include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care including labor and delivery and postpartum care. Each of these categories of maternity services in turn encompasses multiple screening tests, diagnostic tests, monitoring services, and treatments. Conducting a medical effectiveness analysis on the full range of maternity services is not feasible within the 60 days allotted for CHBRP analysis. In addition, because AB 1962 is most likely to affect utilization of prenatal care, CHBRP focuses this review of the literature on the effectiveness of prenatal care services. Regardless of health insurance status, the vast majority of women in the United States deliver their babies in hospitals. AB 1962 would not affect coverage for infants.

Literature Review Methods

Due to the large amount of literature on prenatal care services, CHBRP limited its literature search to meta-analyses, systematic reviews, and evidence-based guidelines because such syntheses of multiple studies are the strongest forms of evidence of the effectiveness of medical interventions. Syntheses of studies of the effects of prenatal care services were identified through searches of MEDLINE (PubMed), the Cochrane Database of Systematic Reviews, the Cochrane Register of Controlled Clinical Trials Web of Science, and EconLit. In addition, Web sites maintained by the following organizations that index or publish systematic reviews and evidence-based guidelines were searched: Agency for Healthcare Research and Quality, American College of Obstetricians and Gynecologists, Institute for Clinical Systems Improvement, International Network of Agencies for Health Technology Assessment, National Institutes of Health, National Guidelines Clearinghouse, National Institute of Clinical Evidence, NHS Centre for Reviews and Dissemination, Scottish Intercollegiate Guideline Network, and the U.S. Preventive Services Task Force.

The search was limited to studies published in English from 1995 to present. Twenty-eight pertinent studies were identified, retrieved, and reviewed. A more thorough description of the methods used to conduct the medical effectiveness review and the process used to grade the evidence for each outcome measure is presented in *Appendix B: Literature Review Methods*. *Appendix C* includes tables that describe the studies that CHBRP reviewed and their findings. A table that lists effective prenatal care services appears at the end of this section of the report (Table 2).

Outcomes Assessed

The literature search focused on the impact of prenatal care services on health outcomes for pregnant women and infants. Findings from studies of the accuracy of screening tests were examined only for purposes of determining whether accurate tests of a given disease or condition are available. Findings regarding the effectiveness of treatments were reviewed but are not summarized below because CHBRP is less interested in whether treatments cure the diseases or conditions they are intended to treat than in whether receiving treatment is associated with better birth outcomes for mothers and infants.

Infant health outcomes assessed include:

- Preterm birth
- Low birth weight
- Small birth weight for gestational age
- Fetal, neonatal, and infant mortality
- Admission to neonatal intensive care unit
- Transmission of infectious disease
- Alloimmune hemolytic disease
- Cerebroventricular hemorrhage
- Respiratory distress syndrome

Maternal health outcomes assessed include:

- Maternal mortality
- Eclampsia
- Pre-eclampsia
- Kidney infection
- Antepartum hemorrhage
- Placental abruption
- Preterm premature rupture of membranes
- Induction of labor
- Postpartum hemorrhage

Study Findings

Studies of prenatal care can be divided into two major groups.

- Studies of the impact of variation in the number of prenatal care visits that pregnant women receive; and
- Studies of the effectiveness of specific services provided during prenatal care visits or in conjunction with them (e.g., laboratory tests, medications).

These two sets of studies are summarized separately below.

Studies of the Impact of the Number of Prenatal Care Visits

Randomized controlled trials (RCTs) generally have found no association between the number of prenatal visits and birth outcomes for either infants or mothers (Alexander and Korenbrot, 1995). Of the 11 RCTs included in a systematic review published in 1995, all of them found that pregnant women who had greater numbers of prenatal care visits (either office or home visits)

were no less likely than women who had fewer visits to have a preterm birth or a low-birth weight infant (Fiscella, 1995). The most recent meta-analysis of studies on the effects of numbers of prenatal care visits found that the number of visits does not affect the odds of having a preterm birth, delivering a low-birth weight infant, or admission of a newborn to a neonatal intensive care unit (Villar et al., 2001). This meta-analysis also reported that the number of visits was not associated with the odds of maternal mortality, pre-eclampsia, and antepartum or postpartum hemorrhage.

Most studies of prenatal care do not include a control group of pregnant women who receive no prenatal care. Providing prenatal care has been an established standard of medical practice for so long that it is considered unethical to randomize pregnant women to receive no prenatal care. Thus, the effect of having no prenatal care is unlikely to ever be studied in prospective RCTs (Alexander and Kotelchuck, 2001; Fiscella, 1995). As a consequence, researchers typically study the impact of more versus fewer prenatal care visits. In several studies, the differences studied have been as small as one or two visits (Villar et al., 2001). It is more difficult to detect an effect of a small difference in the number of prenatal visits than to detect a difference between a standard number of visits and no visits.¹⁸

There is clear and convincing evidence that having more prenatal care visits is not associated with better birth outcomes for either infants or mothers, but the threshold above which there is no benefit to additional visits has not been established.

Studies of the Effectiveness of Specific Prenatal Care Services

Although the number of prenatal care visits is not associated with birth outcomes, there is evidence that a number of services provided to pregnant women during or in conjunction with prenatal care visits are effective. These services include screening tests, diagnostic tests, monitoring services, and treatments for diseases or conditions associated with poorer birth outcomes. Some prenatal care services, such as blood pressure monitoring and ultrasound testing, are typically performed as part of an office visit. In other cases, samples of blood, urine or other bodily fluids are collected in a medical office and then analyzed in a medical laboratory. In still other cases, women who have positive results on screening tests for diseases or conditions associated with poorer birth outcomes are prescribed medications to cure or mitigate these conditions. However, the impact of these services on overall rates of poor birth outcomes is likely to be small, because the percentages of pregnant women who have many of these diseases and conditions are small.

The evidence of the effectiveness of these services is discussed below. Evidence was drawn primarily from meta-analyses and systematic reviews published by the Cochrane Collaboration and from systematic reviews conducted in conjunction with the preparation of evidence-based

¹⁸ Some nonrandomized studies have found that women who obtained more prenatal care visits delivered infants with larger mean birth weights and that their infants had a lower risk of death (Alexander and Korenbrot, 1995; Fiscella, 1995). However, many of these nonrandomized studies did not adequately adjust for preterm birth or for individual and socio-economic factors associated with poor birth outcomes, such as having a low income, having a low level of education, and having a substance use disorder (Alexander and Korenbrot, 1995; Alexander and Kotelchuck, 2001; Fiscella, 1995). Nonrandomized studies that did not adequately control for these factors may have overstated the benefits of having more prenatal care visits.

guidelines issued by the Institute for Clinical Systems Improvement (ICSI),¹⁹ the National Collaborating Centre for Women's and Children's Health (NCCWCH),²⁰ and the United States Preventive Services Task Force (USPSTF). Findings from studies of these services are grouped into categories below based on the nature of the disease or condition for which screening and/or diagnostic tests are performed, and monitoring or treatment provided.

Behavioral Risk Factors

Smoking. Smoking during pregnancy is a major risk factor for preterm birth and low birth weight (Fiscella, 1995). One meta-analysis and three systematic reviews of RCTs have examined the impact of brief advice to quit smoking and/or smoking cessation counseling on these birth outcomes (Lu et al., 2003; Lumley et al., 2004; NCCWCH, 2003; and US DHHS, 2000). All four studies concluded that brief advice and/or counseling regarding smoking cessation reduces the risk of giving birth preterm or delivering a low-birth weight infant. The meta-analysis found that smoking cessation advice or counseling decreased the risk of giving birth preterm by 16% and the risk of delivering a low-birth weight infant by 19% (Lumley et al., 2004).²¹

Domestic violence. Domestic violence during pregnancy can cause injury to both pregnant women and their fetuses. The authors of one systematic review conducted in conjunction with the preparation of an evidence-based guideline assessed evidence of the effectiveness of screening pregnant women to identify those being abused (ICSI, 2007). The systematic review identified several nonrandomized studies with comparison groups that reported findings that favored screening.

Fetal Abnormalities

Genetic disorders. Tests are available to screen pregnant women and, in some cases, their partners, for genetic traits for disorders that are associated with poor birth outcomes and serious illness or disability among children. Diagnostic tests are conducted on fetuses whose parents have these traits or are otherwise at elevated risk for these disorders. Two systematic reviews conducted in conjunction with the preparation of an evidence-based guideline have assessed evidence regarding the accuracy of screening tests for genetic disorders (ICSI, 2007; NCCWCH, 2003). Both concluded that there is sufficient evidence to recommend counseling all women about screening for Down syndrome and providing screening to those who would like to be tested (ICSI, 2007; NCCWCH, 2003). One systematic review recommends screening for hemoglobinopathies, such as sickle cell anemia, in populations in which genetic traits associated with these disorders are common (ICSI, 2007), but another concluded that there is insufficient evidence to determine whether screening should be offered (NCCWCH, 2003).

Other fetal anomalies. Ultrasound can be used to determine whether a fetus has any structural anomalies in the cardiovascular system, central nervous system, face, gastrointestinal system,

¹⁹ The Institute for Clinical Systems Improvement is an independent, not-for-profit organization that promotes quality improvement among health plans, hospitals, and medical groups in Minnesota. This citation is to an evidence-based guideline for routine prenatal care.

²⁰ The National Collaborating Centre for Women's and Children's Health is one of seven National Collaborating Centres in the United Kingdom that are funded by the National Institute for Health and Clinical Excellence (NICE) to develop the clinical guidelines for the National Health Service.

²¹ All risk reductions, odds, and percentage differences cited in this section of the report are statistically significant at $p < 0.05$.

pulmonary system, skeleton, or urinary system. Based on findings from a systematic review and individual studies, one evidence-based guideline recommended that all pregnant women be offered an ultrasound scan to screen for structural anomalies, ideally between 18 to 20 weeks of gestation. One individual RCT cited in this guideline found that the detection rate for fetal structural abnormalities was higher for routine screening of all pregnant women than for selective screening of women at high risk for carrying a fetus with structural abnormalities (NCCWHC, 2003).

Infectious disease

Pregnant women who have infectious diseases are at elevated risk for preterm delivery, low birth weight, and other poor birth outcomes. In addition, some infectious diseases can be transmitted from mother to child, which, if untreated, can cause blindness, liver problems, or death. Meta-analyses and systematic reviews have identified seven infectious diseases for which screening during pregnancy is beneficial for all women or women at elevated risk: asymptomatic bacteriuria, hepatitis B, human immunodeficiency virus, syphilis, chlamydia, gonorrhea, and group B streptococcus.

Asymptomatic bacteriuria. One meta-analysis and four systematic reviews of RCTs have examined the effectiveness of screening pregnant women for asymptomatic bacteriuria with urine culture, and prescribing antibiotics to those with positive urine cultures (Gartlehner et al., 2004; ICSI, 2007; Lu et al., 2003; NCCWCH, 2003; Smaill and Vazquez, 2007). All five studies conclude that screening and treatment for asymptomatic bacteriuria reduce the risks that a pregnant woman will have a kidney infection, deliver preterm, or deliver a low-birth weight infant. The meta-analysis found that the risk of delivering preterm was 34% lower for pregnant women who were treated for asymptomatic bacteriuria and that the risk of delivering a low-birth weight infant was 40% lower. The risk of having a kidney infection was 77% lower among pregnant women who were treated (Smaill and Vazquez, 2007).

Hepatitis B. One meta-analysis and three systematic reviews of RCTs have examined the effectiveness of screening pregnant women for hepatitis B and administering hepatitis B vaccine and/or hepatitis B immune globulin to newborns whose mothers have hepatitis B (ICSI, 2007; Krishnaraj, 2004; Lee et al., 2006; NCCWCH, 2003). All four studies conclude that vaccination and/or prophylaxis with immune globulin reduces the risk that a child will develop chronic hepatitis B infection, which is associated with serious liver problems. The meta-analysis found that the risk of developing chronic hepatitis B was 50% lower for infants who received hepatitis B immune globulin, 72% lower for those who received hepatitis B vaccine, and 92% lower for infants who received both hepatitis B immune globulin and vaccine (Lee et al., 2006).

Human immunodeficiency virus (HIV). Three systematic reviews have evaluated the effectiveness of screening pregnant women for HIV, and providing treatment and harm reduction interventions to women who are HIV-positive and their infants (Chou et al., 2005; ICSI, 2007; NCCWCH, 2003). All three systematic reviews concluded that all pregnant women should be screened for HIV and that treatment and harm reduction interventions reduce the risk of mother-to-child transmission of HIV. A meta-analysis of RCTs cited in one of the systematic reviews reported that providing antiretroviral therapy to pregnant women with HIV substantially reduces the odds of mother-to-child transmission of HIV, stillbirth, and death within the first year of life

(Chou et al., 2005). Individual studies cited in this systematic review found that HIV-positive women who delivered their babies by cesarean section were substantially less likely to transmit HIV to their babies than those who delivered vaginally (Chou et al., 2005). Other individual studies reported that mothers who fed their infants with formula were less likely to transmit HIV to their children than those who breastfed (Chou et al., 2005).

Sexually transmitted infections. Five systematic reviews have assessed the effectiveness of screening pregnant women for sexually transmitted infections (Glass et al., 2005; ICSI, 2007; NCCWCH, 2003; Nelson et al., 2004; USPSTF, 1996). Findings from nonrandomized studies suggest that prescribing penicillin or other antibiotics to pregnant women with syphilis substantially reduces mother-to-child transmission of this disease (ICSI, 2007; NCCWCH, 2003; Nelson et al., 2004; USPSTF, 1996). Nonrandomized studies also indicate that providing prophylaxis to infants born to mothers with gonorrhea was associated with substantial decreases in the rate of conjunctivitis or blindness (ICSI, 2007; USPSTF, 1996). In addition, nonrandomized studies suggest that prescribing antibiotics to pregnant women who have chlamydia reduces the risk of preterm premature rupture of membranes, low birth weight, and infant mortality (ICSI, 2007; USPSTF, 1996). The effectiveness of screening for sexually transmitted infections depends on the prevalence of a disease in a population, as well as the accuracy of screening tests and the benefits of treatment. Based upon the systematic reviews it commissioned, the USPSTF recommends screening all pregnant women for syphilis, women 25 years and older at increased risk and all women aged 24 years or younger for chlamydia, and pregnant women at increased risk for gonorrhea (USPSTF, 2007).

Group B streptococcus. Two systematic reviews evaluated the effectiveness of screening pregnant women for group B streptococcus by culturing tissue sampled from the vaginal or perianal area and administering antibiotics to those who tested positive during delivery (ICSI, 2007; NCCWCH, 2003). One of the evidence-based guidelines prepared in conjunction with these systematic reviews recommends screening all pregnant women for group B streptococcus based on nonrandomized studies (ICSI, 2007). This recommendation is consistent with a recommendation issued by the Centers for Disease Control (Schrag et al., 2002). However, the other concluded that there is insufficient evidence of effectiveness and cost-effectiveness to determine whether screening for group B streptococcus should be offered (NCCWCH, 2003).

Metabolic, Nutritional, and Endocrine Conditions

There is less evidence of beneficial effects of screening and treatment for metabolic, nutritional, and endocrine conditions relative to infectious disease.

Gestational diabetes. Two systematic reviews assessed the evidence of the impact of screening pregnant women for high blood glucose (i.e., high blood sugar) and providing dietary advice to women with high blood sugar and insulin, if needed (ICSI, 2007; USPSTF, 2007). One systematic review identified one study that found that controlling blood sugar was associated with small decreases (1% to 4%) in infant mortality, shoulder dystocia, bone fracture, and nerve palsy. The authors of the systematic review concluded that all pregnant women should be screened for gestational diabetes (ICSI, 2007). However, the other systematic review determined that there was insufficient evidence to recommend for or against screening for this disorder (USPSTF, 2007).

Iron deficiency anemia. Three systematic reviews evaluated evidence of the impact of screening pregnant women for iron deficiency anemia and prescribing iron supplements to those who are anemic (Helfand et al., 2006; ICSI, 2007; NCCWCH, 2003). The majority of studies on iron supplementation have not found that it improves birth outcomes. However, a poorly implemented RCT²² that was recently conducted in the United States reported that iron supplementation reduced the percentage of infants born to women with iron deficiency anemia who had low-birth weight infants (Helfand et al., 2006). This finding has led two organizations to recommend iron supplementation for pregnant women with iron deficiency anemia (ICSI, 2007; USPSTF, 2007).

Other Medical Conditions

There is also evidence of effectiveness for screening and treatment for hypertensive disorders and red blood cell antibody disorders.

Hypertensive disorders. Pre-eclampsia encompasses a variety of hypertensive disorders in pregnancy, including pregnancy-induced or gestational hypertension. These disorders occur in 2% to 8% of pregnancies (Duley et al., 2007). It can cause headaches, dizziness, nausea, vomiting, changes in vision, and upper abdominal pain. In severe cases, pre-eclampsia is associated with hemolysis, placental abruption, and lack of blood flow to the placenta, which can lead to preterm birth and small for gestational age birth. To prevent or mitigate these complications, pregnant women with pre-eclampsia are often scheduled for preterm delivery. A small percentage of women with uncontrolled pre-eclampsia develop eclampsia, a condition that can cause coma, brain damage, and death for both mother and baby, if not treated.

Three organizations that issue evidence-based guidelines recommend screening all pregnant women for pre-eclampsia through blood pressure monitoring and urine culture to detect proteinuria, although no controlled studies on this topic have been published (ICSI, 2007; NCCWCH, 2003; USPSTF, 2007). Controlled studies have not been undertaken because blood pressure monitoring for hypertension has been a standard practice for so long that it would be unethical to withhold it from pregnant women. In addition, both blood pressure monitoring and urine culture testing are inexpensive and noninvasive.

However, RCTs have been conducted on four treatments to improve outcomes for women with pre-eclampsia. Two systematic reviews and one meta-analysis of RCTs have assessed the effects of providing calcium supplements to all pregnant women regardless of their risk of hypertensive disorders. (Hofmeyr et al., 2006; ICSI, 2007; NCCWCH, 2003). All three concluded that calcium supplements reduce the risk of pre-eclampsia and maternal death or serious morbidity. The meta-analysis concluded that pregnant women with pre-eclampsia who took calcium supplements had a 20% lower risk of death or serious morbidity (Hofmeyr et al., 2006).

²² Randomization of pregnant women to the treatment and control groups was not successful. Women in the control group had higher weight pre-pregnancy and had higher levels of ferritin (the main iron storage protein) at the time they enrolled in the study. In addition, 23% of these women had to be excluded from the analysis because the researchers could not obtain birth weight data for their infants.

One meta-analysis of RCTs evaluated the impact of prescribing low doses of aspirin or other antiplatelet agents to pregnant women at risk for pre-eclampsia. The authors reported that pregnant women who used antiplatelet agents were 17% less likely to develop pre-eclampsia than pregnant women who received a placebo or no treatment (Duley et al., 2007). Use of antiplatelet agents was also associated with reductions in the risk of preterm birth, small-for-gestational-age birth, and fetal or neonatal death.

One systematic review and one meta-analysis of RCTs examined studies of the effect of prescribing corticosteroids to pregnant women to promote maturation of the lungs in fetuses scheduled for preterm delivery due to pre-eclampsia or other complications (Lu et al., 2003; Roberts and Dalziel, 2006). Both found that prescribing corticosteroids during pregnancy improved birth outcomes for newborns. The meta-analysis reported that treatment with corticosteroids was associated with a 31% lower risk of neonatal mortality as well as with lower risks of respiratory distress syndrome, cerebrovascular hemorrhage, necrotizing enterocolitis, and admission to neonatal intensive care units (Roberts and Dalziel, 2006).

One meta-analysis of RCTs investigated the impact of administering magnesium sulphate during delivery to prevent seizures associated with eclampsia (Duley et al., 2003). The authors reported that women who received magnesium sulphate during delivery had lower risks of eclampsia, placental abruption, and death.

Rh(D) incompatibility. Three systematic reviews have addressed the impact of Rh(D) immune globulin for treatment of Rh(D) incompatibility (ICSI, 2007; NCCWCH, 2003; USPSTF, 1996). If Rh(D) is not diagnosed and treated, children born to Rh(D) negative mothers are at high risk for hemolytic disease, a serious disease whose symptoms include anemia, body swelling, difficulty breathing, and jaundice. Based on controlled studies conducted in the 1960s, all three systematic reviews concluded that screening for Rh(D) incompatibility and administration of Rh(D) immune globulin is effective. One systematic review also recommends screening for other atypical red blood cell alloantibodies and referral of pregnant women with abnormalities to a specialist (NCCWCH, 2003).

Pregnancy Outcomes

There is also evidence that some interventions that are targeted at preventing preterm birth are effective, as are some interventions for preventing complications at term.

Prevention of preterm delivery. Two systematic reviews and one meta-analysis of RCTs have assessed studies of the effectiveness of progestational agents in preventing preterm delivery among women at risk for it (ICSI, 2007; Lu et al., 2003; Sanchez-Ramos et al., 2005). All three determined that prescribing progestational agents to pregnant women reduces the odds of preterm birth and delivering a low-birth weight infant. The meta-analysis reported that the odds of preterm birth were 0.45 in women taking progestational agents relative to those taking placebos (Sanchez-Ramos et al., 2005).

Placenta previa. Placenta previa is a condition under which the placenta covers the cervix, which can lead a pregnant woman to experience placental abruption or antenatal or postpartum hemorrhage. This condition can also lead to intrauterine growth restriction, which can cause a

newborn to be small for his or her gestational age. One systematic review evaluated the use of ultrasound to detect and monitor placenta previa (NCCWCH, 2003). The authors concluded that ultrasound should be performed at 20 weeks, and again at 32-36 weeks if the scan at 20 weeks is positive. This practice accurately identifies most women for whom placenta previa will persist until term, enabling pregnant women and their physicians to anticipate and treat complications.

Breech presentation at delivery. In order for a fetus to move through the birth canal properly, the fetus must be able to precede head first. Most fetuses move into this position prior to term but some remain in a feet-first (breech) position, which places them at increased risk for poor birth outcomes unless they are delivered by elective cesarean section. While beneficial to babies in the breech position at term, cesarean section is a major abdominal surgery that has a greater risk of complications than vaginal delivery. Two systematic reviews have examined RCTs regarding the effectiveness of external cephalic version (application of pressure to the pregnant woman's abdomen to encourage the fetus to turn to the head-first position) (Hutton and Hofmeyr, 2006; NCCWCH, 2003). Both found that external cephalic version was associated with lower risks of breech presentation at birth and delivery by cesarean section.

Postterm delivery. Once a pregnancy has reached term, continuation can be detrimental to the fetus and can lead to perinatal death. If a pregnancy continues beyond term, labor may be induced with pharmaceutical agents, but the risks of induction may outweigh benefits unless the fetus is truly past term (Baxley, 2003).²³ Determining whether a pregnancy has continued past term is not simple. Identifying a fetus's gestational age based on a pregnant woman's recollection of the date of her last menstrual period is subject to significant recall bias. One systematic review of RCTs concluded that performing ultrasound prior to 24 weeks is a reliable method for determining gestational age (NCCWCH, 2003). Another RCT compared rates of labor induction for postterm pregnancy between pregnant women who received ultrasound screening during the first trimester of pregnancy and pregnant women who received it during the second trimester. The authors found that first trimester ultrasound was associated with a 63% lower risk of labor induction due to postterm pregnancy (Bennett et al., 2004).

Two systematic reviews have assessed RCTs on membrane sweeping to encourage spontaneous labor to prevent postterm pregnancies (ICSI, 2007; NCCWCH, 2003). To sweep the membranes, a woman's physician or nurse midwife inserts a finger into the cervix and moves it in a circular fashion to separate the membranes from the cervix. Both systematic reviews concluded that membrane sweeping reduces the risk of induction of labor with pharmaceutical agents.

Two systematic reviews and two meta-analyses examined RCTs on the impact of inducing labor with pharmaceutical agents relative to monitoring and waiting for spontaneous labor (Gülmezoglu et al., 2006; ICSI, 2007; NCCWCH, 2003; Sanchez-Ramos et al., 2003). All four found that inducing labor with pharmaceutical agents reduces the risk of perinatal death. The meta-analysis reported that induction of labor was associated with a 70% lower risk of perinatal

²³ Risks associated with elective induction of labor include iatrogenic prematurity, uterine hyperstimulation, fetal heart rate abnormalities, shoulder dystocia, postpartum hemorrhage, and cesarean section. The risk that labor induction will result in an unplanned cesarean section is especially high for nulliparous women (i.e., women giving birth to their first child), who are also at increased risk for delivery with forceps and admission of their infants to neonatal intensive care units (Baxley, 2003).

death that was statistically significant (Gülmezoglu et al., 2006) and the other reported a difference that was not statistically significant (Sanchez-Ramos et al., 2003). The meta-analyses also found that women whose labor was induced were at a lower risk of cesarean section (Gülmezoglu et al., 2006; Sanchez-Ramos et al., 2003).

Summary of Findings

Randomized controlled trials (RCTs) have consistently found no association between the number of prenatal visits a pregnant woman receives and birth outcomes for either infants or mothers.

However, there is clear and convincing evidence from multiple RCTs that the following prenatal care services are effective:

- Smoking cessation counseling
- Screening and treatment for asymptomatic bacteriuria
- Screening for hepatitis B
- Screening and treatment for human immunodeficiency virus
- Aspirin and calcium supplements for treatment of hypertensive disorders
- Screening and treatment for Rh(D) incompatibility
- Corticosteroids and progestational agents for women at increased risk for preterm delivery
- Ultrasound to determine gestational age and identify fetal abnormalities
- External cephalic version for breech presentation at term
- Membrane sweeping and induction of labor for prevention of postterm pregnancies

There is also a preponderance of evidence from nonrandomized studies and/or a small number of RCTs that the following prenatal care services are effective:

- Screening for domestic violence
- Screening for certain genetic disorders
- Screening and treatment for chlamydia, gonorrhea, and syphilis
- Screening for group B streptococcus
- Screening and treatment for gestational diabetes
- Iron supplements for treatment of iron deficiency anemia
- Blood pressure monitoring for hypertensive disorders
- Screening for atypical red blood cell alloantibodies other than Rh(D) incompatibility
- Ultrasound to diagnose placenta previa

Table 2. Medically Effective Prenatal Care Services

Risk Factor/Problem	Prenatal Screening Test	Treatment	Effect of Treatment on Health Outcomes	Source
Behavioral				
Domestic violence	Interview patient	Interventions and resources to improve mother's safety	Reduction in risk of injury to mother and fetus	ICSI, 2007 ²⁴
Smoking	Ask patient whether she smokes	Provide brief advice and/or counseling to mother	Reduction in risk of preterm delivery and low birth weight	Lu et al., 2003; Lumley et al., 2004; NCCWCH, 2003 ²⁵ ; US DHHS, 2000 ²⁶
Genetic Disorders				
Down syndrome	Ultrasound for nuchal translucency and blood test for biochemical markers followed by diagnostic testing for mothers at high risk (amniocentesis or chorionic villus sampling)	None available	Not applicable	ICSI, 2007; NCCWCH, 2003
Hemoglobinopathies ^{27,28}	Blood test for biochemical markers followed by diagnostic testing for mothers at high risk (amniocentesis or chorionic villus sampling)	None available	Not applicable	ICSI, 2007

²⁴ ICSI = Institute for Clinical Systems Improvement. ICSI is an independent, not-for-profit organization that promotes quality improvement among health plans, hospitals, and medical groups in Minnesota. This citation is to an evidence-based guideline for routine prenatal care.

²⁵ NCCWCH = British National Collaborating Centre for Women's and Children's Health. This citation is to an evidence-based guideline for routine prenatal care that was prepared for the National Institute for Clinical Excellence.

²⁶ US DHHS = United States Department of Health and Human Services.

²⁷ Hemoglobinopathies are genetic disorders in the genes that control the expression of hemoglobin protein. Disorders of these genes can result in anemia and abnormal hemoglobins. Sickle cell anemia and thalassemia are two of the most common types of hemoglobinopathies.

²⁸ ICSI recommends only for women who are at increased risk of carrying a child with a hemoglobinopathy disorder.

Table 2. Medically Effective Prenatal Care Services (cont'd)

Risk Factor/Problem	Prenatal Screening Test	Treatment	Effect of Treatment on Health Outcomes	Source
Infectious Disease				
Asymptomatic bacteriuria	Urine culture	Prescribe antibiotics to mother	Reduction in risk of kidney infection in mother and risk of preterm delivery and low birth weight	Gartlehner et al., 2004; ICSI, 2007; Lu et al., 2003; NCCWH, 2003; Smaill and Vazquez, 2007
Chlamydia ²⁹	Nucleic acid amplification tests on specimens obtained from urine or vaginal swabs	Prescribe antibiotics to mother	Reduction in risk of miscarriage, preterm premature rupture of membranes, preterm labor, low birth weight, and infant mortality	ICSI, 2007; USPSTF, 1996
Gonorrhea ³⁰	Tests on specimens obtained from urine or swabs of the vagina, rectum, urethra, or pharynx	Prescribe antibiotics to mother; provide ocular prophylaxis with silver nitrate, erythromycin, or tetracycline to newborn	Reduction in risk of conjunctivitis and blindness	ICSI, 2007; USPSTF, 1996
Group B Streptococcus	Culture sample from lower vagina or perianal area	Administer antibiotics during delivery	Reduction in incidence of group B streptococcus in newborns	ICSI, 2007
Hepatitis B	Blood test for detecting HBsAg	Administer hepatitis B vaccine and hepatitis B immune globulin to newborn	Reduction in risk of newborn developing chronic hepatitis B	ICSI, 2007; Krishnaraj, 2004; Lee et al., 2006; NCCWCH, 2003
Human Immunodeficiency Virus	HIV test (blood or oral fluid)	Prescribe antiretroviral therapy to mother, perform cesarean section, avoid breastfeeding	Reduction in risk of mother-to-child transmission of HIV	Chou et al., 2005; ICSI, 2007; NCCWCH, 2003

²⁹ The U.S. Preventive Services Task Force (USPSTF) recommends only for pregnant women who are aged 24 years or younger and pregnant women at increased risk of chlamydia infection (USPSTF, 2007).

³⁰ USPSTF recommends only for pregnant women at increased risk of gonorrhea infection (USPSTF, 2007).

Table 2. Medically Effective Prenatal Care Services (cont'd)

Risk Factor/Problem	Prenatal Screening Test	Treatment	Effect of Treatment on Health Outcomes	Source
Syphilis	Blood test for syphilis	Prescribe penicillin to mother	Reduction in proportion of infants with syphilis, and reduction in infant mortality and maternal death	ICSI, 2007; NCCWCH, 2003; Nelson et al., 2004
Metabolic, Nutritional, and Endocrine Conditions				
Gestational diabetes	Blood test for glucose level	Dietary changes to control blood glucose, insulin	Reduction in risk of infant death, shoulder dystocia, bone fracture, nerve palsy	ICSI, 2007
Iron deficiency anemia	Hemoglobin or hematocrit test	Prescribe iron supplements to mother	Reduction in risk of low birth weight	Helfand et al., 2006; ICSI, 2007
Other Medical Conditions				
Hypertensive disorders	Assess risk of pre-eclampsia, monitor blood pressure, test urine for proteinuria	Prescribe antiplatelet agents (e.g., aspirin) or calcium supplements to mother; administer magnesium sulphate during delivery	<p>Antiplatelet agents: Reduction in risk of pre-eclampsia, preterm birth, small for gestational age birth, and fetal or neonatal death</p> <p>Calcium supplements: Reduction in risk of pre-eclampsia and maternal death or serious morbidity (e.g., kidney failure)</p> <p>Magnesium sulfate: Reduction in risk of eclampsia, placental abruption</p>	<p>Antiplatelet agents: Duley et al., 2007</p> <p>Calcium supplements: Hofmeyr et al., 2006; ICSI, 2007; NCCWCH, 2003</p> <p>Magnesium sulfate: Duley et al., 2003</p>
Rh(D) incompatibility	Blood test for Rh(D) typing and antibody screening	Administer Rh(D) immune globulin to mother	Reduction in risk of hemolytic disease in neonates and newborns	ICSI, 2007; NCCWCH, 2003; USPSTF, 1996

Table 2. Medically Effective Prenatal Care Services (cont'd)

Risk Factor/Problem	Prenatal Screening Test	Treatment	Effect of Treatment on Health Outcomes	Source
Other atypical red blood cell alloantibodies	Blood test for atypical red blood cell alloantibodies	Referral to specialist	Reduction in risk of hemolytic disease ³¹ in neonates and newborns	NCCWCH, 2003
Pregnancy Outcomes				
Placenta previa	Ultrasound at 20 weeks to determine if placenta covers opening to vagina with follow-up scan at 36 weeks if the scan at 20 weeks is positive	Hospitalization of mother if she becomes symptomatic	Reduction in risk of placental abruption, hemorrhage, intrauterine growth restriction	NCCWCH, 2003
Preterm delivery	Any test for a condition or behavior associated with increased risk of preterm delivery	Prescribe corticosteroid therapy and/or progesterational agents to mother	Corticosteroids: Reduction in risk of neonatal death and respiratory distress syndrome, cerebroventricular hemorrhage, necrotizing enterocolitis, systemic infection, and intensive care admissions among newborns Progesterational agents: Reduction in risk of preterm delivery and low birth weight	Corticosteroids: Lu et al., 2003; Roberts and Dalziel, 2006 Progesterational agents: ICSI, 2007; Lu et al., 2003; Sanchez-Ramos et al., 2005
Breech presentation at term	Abdominal palpitations at 36 weeks or later	External cephalic version ³²	Reduction in risk of baby being born in breech position and cesarean section	Hutton and Hofmeyr, 2006; NCCWCH, 2003

³¹ Symptoms of hemolytic disease include anemia, jaundice, body swelling, and difficulty breathing.

³² Health professional applies pressure to mother's abdomen to encourage the fetus to turn from feet-first to head-first position.

Table 2. Medically Effective Prenatal Care Services (cont'd)

Risk Factor/Problem	Prenatal Screening Test	Treatment	Effect of Treatment on Health Outcomes	Source
Postterm delivery (after 41 or 42 weeks)	Examine cervix and perform ultrasound during first and third or fourth month of pregnancy to determine the gestational age of the fetus	Membrane sweeping; induction of labor	<p>Ultrasound: Reduction in rate of labor induction</p> <p>Membrane sweeping: Reduction in rate of labor induction</p> <p>Induction of labor: Lower rate of cesarean section; lower risk of perinatal death</p>	<p>Ultrasound: Kelly et al., 2004</p> <p>Membrane sweeping: ICSI, 2007; NCCWCH, 2003</p> <p>Induction of labor: Gülmezoglu, et al., 2006; ICSI, 2007; NCCWCH, 2003; Sanchez-Ramos et al., 2003</p>

UTILIZATION, COST, AND COVERAGE IMPACTS

Maternity benefits generally include prenatal care (office visits, screening tests, and dietary supplements), labor and delivery services (including hospitalization), and postnatal care. The vast majority of private insurance plans, and all public insurance programs, currently provide coverage for maternity benefits.

Present Baseline Cost and Coverage

Current Coverage of Mandated Benefit

Coverage for maternity services is almost universal, particularly in the public sector and for individuals and families who receive employment-based health insurance.

Public programs

All public programs include maternity benefits for eligible recipients. As discussed in the *Introduction*, pregnant women with incomes less than 200% of the Federal poverty level qualify for maternity benefits under the Medi-Cal program. In addition, women who have incomes between 200% and 300% of the Federal poverty level qualify for maternity benefits through the AIM program, even if they have insurance with maternity benefits but have inadequate coverage for maternity care because of high deductibles or copayments.

Private insurance

Because maternity benefits are required to be provided by Knox-Keene licensed DMHC-regulated plans,³³ AB 1962 targets CDI-regulated plans. The distribution of enrollee coverage is summarized as follows:

- About 1,882,000 Californians, or 10.4% of the privately insured market are in the CDI-regulated market.
- Within the CDI-regulated market, large- and small-groups policies *all* cover maternity services according to CHBRP's survey of health insurers.³⁴
- Therefore, the proposed mandate would impact the 812,000 enrollees in individual (non-group) CDI-regulated policies.
- Within the CDI-regulated *individual* market, 26% of enrollees or about 211,200 individuals have coverage for maternity services and 600,800 do not.
- Of those that do not currently have coverage for maternity services, about 147,000 are women of childbearing age (19-44).

As a result of the broad availability of maternity benefits within the private insurance markets and through public programs, only 4% of deliveries in California were not covered by some form of insurance in 2003, according to the latest data available from the California Department of Health Services (DHS, 1998). However, since 2004 when CHBRP conducted its analysis of SB

³³ Health maintenance organizations in California are licensed under the Knox-Keene Health Care Services Plan Act, which is part of the California Health and Safety Code.

³⁴ CHBRP surveyed the six major insurance carriers that offer CDI-regulated plans in the state. Responding carriers represent 77.8% of the CDI-regulated market.

1555, the number of insured Californians in CDI-licensed individual plans without maternity benefits has more than tripled, from an estimated 192,000 in 2004 to an estimated 600,800 in 2008.

In addition, about 234,000 Californians with health insurance that includes maternity benefits may have inadequate coverage because they have HDHPs (defined as deductibles of \$1,050 or higher) which may discourage prenatal care since prenatal care is usually subject to the deductible (KFF, 2007).

Table 3 below summarizes the distribution of those enrolled in CDI-regulated individual plans by whether they have coverage for maternity services and by age and gender of the enrollee.

Table 3. Percent of Individual CDI-Regulated Plan Members with Maternity Coverage

Age of Covered Individual	Male	Female	Total
00-19	31%	31%	31%
20-29	13%	20%	16%
30-34	15%	27%	20%
35-39	20%	29%	24%
40-44	24%	28%	26%
45-49	26%	27%	27%
50-54	29%	28%	28%
55-59	31%	31%	31%
60-64	38%	36%	37%
Under 65 Total	24%	28%	26%

Source: California Health Benefits Review Program, 2008.

Current Utilization Levels and Costs of the Mandated Benefit

Prenatal care utilization

Assessing the utilization of prenatal services requires analysis both of frequency of care (how many office visits) and when in the pregnancy a woman initiates care. Most estimates define adequate utilization of prenatal services as care that is initiated in the first trimester and a total of between 8 and 13 visits (Braveman et al., 2003). The combination of these two dimensions of care can be an indicator of the adequacy of prenatal care (Kotelchuck, 1994).

In 2005, there were 548,700 live births in California. The vast majority of those live births (86.0%) were preceded by at least 9 prenatal visits, and 85.8% were preceded by prenatal care initiated during in the first trimester. However, about 0.6% of live births were preceded by no prenatal care, and about 2.1% of live births were preceded by only 1 to 4 prenatal visits.

Prenatal and inpatient care utilization and costs

This analysis excluded complications of pregnancy because all health insurance plans provide coverage for such complications.

CHBRP's actuarial estimates of the utilization and costs for uncomplicated deliveries in California were based on age-specific rates of utilization for the following categories of services: hospital inpatient, hospital outpatient, and physician care. When aggregated across all categories of service and age categories, CHBRP estimates that the average cost of an uncomplicated delivery in California is \$11,083.

Within the CDI-regulated market, CHBRP estimates the per member per month (PMPM) cost as follows:

- Maternity benefits account for \$12.53 per member per month (PMPM) in expenses,
- \$6.38 PMPM of the total is currently covered by insurance,
- \$1.82 PMPM is paid by individuals in the form of copayments and deductibles for covered services,
- \$3.00 is paid by individuals in the form of out-of-pocket expenditures for noncovered services, and
- \$1.33 is paid for by Medi-Cal or AIM on behalf of women who drop their private coverage or who qualify for maternity benefits because their insurance does not cover maternity or they face costs for maternity services exceeding \$500.

Births

Based on the age and gender distribution of the 1,882,000 Californians enrolled in all CDI-regulated plans (i.e., group and individual), CHBRP estimates that about 25,500 births would occur in 2008. Of those, about 9,200 (36%) of those births would be to women enrolled in CDI-regulated individual policies without coverage for maternity services.

This estimate assumes that age-adjusted birth rates are the same among women who have maternity benefits and women who do not have maternity benefits, or no "selection effects". There are several reasons for this assumption:

- **Richer benefits:** Although there is clearly a good reason to believe that women who choose plans without maternity benefits would have lower birth rates due to self-selection, CHBRP's survey of health plan enrollment data by age and gender indicates that many women who are 50 years or older have plans with maternity benefits. This finding suggests that plans with maternity benefits are appealing for reasons other than the maternity benefit. For example these plans usually provide other richer benefits. Thus women of childbearing age are also likely to find these plans valuable for reasons other than the maternity benefit.
- **Unplanned pregnancies:** A recent Center for Disease Control (CD) study reports that 49% of pregnancies are unplanned, suggesting that even among women self-select into plans without maternity benefits, birth rates may be higher than the women themselves intend (Finer and Henshaw, 2006).
- **Insuring against financial risk:** Women (and men) may be selecting plans without maternity benefits primarily to provide protection against large financial risks, and may view pregnancy as a reasonable financial risk to self-insure against.

The values in this report are based on the Milliman Health Cost Guidelines estimates of age/gender pregnancy rates among all privately insured women with maternity coverage. Because CHBRP assumes the same birth rates or no selection effects between these plans, the estimates that follow based on this assumption should be considered an upper bound.

As an alternative, the Milliman Health Cost Guidelines also contain estimates of age/gender pregnancy rates among the subset of privately insured women with maternity coverage that are employees, as opposed to spouses of covered employees. Using these pregnancy rates, the estimated increase in Total Annual Expenditures in Table 1 would decrease to \$18.4 million. The estimated number of deliveries not covered by insurance prior to the mandate would decrease from about 9,200 to about 6,800.

The Extent to Which Costs Resulting From Lack of Coverage Are Shifted to Other Payers, Including Both Public and Private Entities

Cost-shifting to public programs

In 2002, about 42% of deliveries were covered by public insurance—predominantly Medi-Cal and AIM. Some uninsured women, when they become pregnant may qualify for Medi-Cal (if their income is less than 200% of the Federal poverty level) and receive coverage for maternity services through that program. AIM provides coverage for both uninsured and underinsured women between 200% and 300% of the Federal poverty level. Data provided to CHBRP from the AIM program indicate that in 2007, about 16% of births covered by AIM (1,914) were for women who either had insurance but no coverage for maternity services, or who had maternity benefits but faced costs for services greater than \$500.³⁵ Therefore, there is evidence that some cost-shifting occurs to these program from the privately insured market

The extent to AB 1962 would impact this cost-shifting dynamic is dependant on whether the CDI-individual policies that currently do not cover maternity services would be replaced by HDHPs. HDHPs typically do not exempt prenatal care services from the high deductible and typically have high cost-sharing levels to bring down the monthly premiums of the product.

Because individuals currently choosing plans without maternity services are doing so save monthly premiums, those who can afford to (and do not drop insurance entirely) would purchase the next “cheapest” option post-mandate—HDHPs. After enactment of AB 1962, while all insured women would have maternity benefits, it is likely that those lower-income women who can afford to purchase a low-premium individual policy would purchase an HDHP. Thus, it is not likely that AB 1962 would reduce the demand for maternity services from public programs, because HDHPs with maternity benefits may still be viewed as inadequate coverage by low-income women. Those women who qualify for Medi-Cal after pregnancy would still shift to Medi-Cal due to their income levels. Those women enrolled in AIM who are in currently enrolled in plans that do not cover maternity services would be enrolled in HDHPs that *do* cover maternity services. However, since the cost of maternity services in those HDHPs would likely still be greater than \$500 (adding up deductibles and copayments), those women would still qualify for AIM.

³⁵ Personal communication with Legislative Analyst, Managed Risk Medical Insurance Board (MRMIB), February 29, 2008

Risk segmentation and adverse selection

The absence of the mandate allows CDI-regulated insurers to offer a greater number of lower-cost individual policies that exclude maternity services. The effect of such a trend would be to allow insurers to sell low-cost policies to individuals who would use less health care services (in this case no maternity services), and higher-cost policies to those who would use more health care services. The impact of greater market segmentation is debatable. Advocates for greater segmentation argue that the current health insurance market generally provides an insufficient number of policies with basic benefits, effectively forcing individuals to purchase more generous benefits than they prefer. Opponents argue that greater segmentation without adequate mechanisms to risk-adjust premiums simply encourages favorable selection of lower-risk individuals into lower-cost policies, thereby driving up the cost of higher-cost policies (such as those that cover maternity services), because only higher-risk people purchase them.

There is evidence that risk segmentation has already had a substantial impact on the individual (non-group) insurance market. The number of insured Californians without maternity benefits has more than tripled, from an estimated 192,000 in 2004 to the current estimated of 600,800 (CHBRP, 2004).

The continued growth of HDHPs, as well as plans without maternity benefits, in the individual market may lead to adverse selection against plans that continue to offer maternity benefits although CHBRP finds no evidence that this is currently occurring. An informal assessment of insurance policies and premiums in the individual market suggests that affordable plans with maternity benefits are readily available in the individual market. This is an issue worthy of further, systematic evaluation; however it is not feasible to assess this within the 60-day analytic timeframe CHBRP has to conduct this analysis.

Public Demand for Coverage³⁶

While coverage for maternity benefits is widely available and essentially universal in the group insurance market, there is clearly a growing demand for lower-premium insurance policies. Lower premium policies may have less rich benefits (e.g., no maternity benefits) higher deductibles and/or higher copayments). The trends in the individual market are rapid growth of both HDHPs and plans without maternity benefits. HDHPs dominate the individual health insurance market with 58.1% of the enrollment in the CDI-regulated market, and 53.0% of the enrollment in the entire individual market. As discussed, the number of enrollees in plans that do not cover maternity services has tripled from 2004 to 2008.

³⁶ Based on criteria specified under SB 1704 (2007), CHBRP is to report on the extent to which collective bargaining entities negotiate for, and the extent to which self-insured plans currently have, coverage for the benefits specified under the proposed mandate to determine “public demand.” However, given that all group policies cover maternity services, including those that are self-insured, the standard criteria for evaluating public demand is not relevant.

Impacts of Mandated Coverage

How Will Changes in Coverage Related to the Mandate Affect the Benefit of the Newly Covered Service and the Per-Unit Cost?

Changes in coverage

The enactment of AB 1962 would require all those CDI-regulated individual policies that do not cover maternity service to do so, thus expanding maternity services coverage to 600,800 enrollees, including 147,000 women aged 19-44 years. As discussed, because individuals choosing plans without maternity services are doing so save monthly premiums, those who can afford so (and do not drop insurance entirely) would purchase the next “cheapest” option—high deductible health plans (HDHPs). Thus, it is likely that most individuals currently enrolled in non-maternity CDI-regulated individual plans would purchase HDHPs post-mandate.

The changes in premiums resulting from AB 1962 will impact the number of individuals who maintain health insurance coverage and this is discussed in further detail in the subsection, “Costs or Savings for Each Category of Insurer Resulting from the Benefit Mandate.”

Changes in per-unit costs

There is no evidence that the proposed mandate would change the effectiveness of maternity services or the per-unit costs of individual services (e.g., prenatal screenings) or the package of maternity services.

How Will Utilization Change As a Result of the Mandate?

CHBRP estimates that approximately 6,200 pregnancies would be newly-covered under CDI-regulated individual insurance policies post-mandate. Utilization impacts as a result of expanded coverage are summarized below:

- Overall, the mandate is estimated to have no impact on the number of deliveries, since the birth rate is not expected to change post-mandate.
- There may be an increase in utilization of maternity services, specifically, prenatal care. The number of women who forgo any prenatal care may be reduced, because they may no longer face large out-of-pocket expenditure for their obstetrician’s services early in the pregnancy. However, to the extent non-maternity CDI plans would be replaced by HDHPs, most women are likely to continue to face large out-of-pocket expenditures for their obstetrician’s services regardless of whether their insurance policy includes maternity benefits. This is because prenatal care is usually subject to the deductible for HDHPs.
- Specific components of prenatal care may change (e.g., specific types of screening). But again, the amount of the increase is difficult to estimate. (Note that increased use of prenatal care would not affect expenditures as prenatal care is almost always paid for as a single lump-sum fee to physicians.)
- CHBRP estimates the impact on length of stay to be negligible. Length of stay is likely to be shorter for mothers who are self-pay or for those women whose obstetricians are paid a fixed fee for postpartum care (Galbraith et al., 2003; Malkin et al., 2003).

To What Extent Does the Mandate Affect Administrative and Other Expenses

The mandate would increase the administrative expenses for health plans proportionate to the increase in health care costs. Claims administration costs may go up slightly due to an increase in maternity claims. Plans would have to modify some insurance contracts and member materials. Plans would probably not have to re-contract with providers to define reimbursement for these services because they already offer other plans that cover maternity services.

Health care plans include a component for administration and profit in their premiums. In estimating the impact of this mandate on premiums, it is assumed that health plans would apply their existing administration and profit loads to the marginal increase in health care costs produced by the mandate.

Impact of Mandate on Total Health Care Costs

Total health expenditures by or for all enrollees in CDI-regulated policies are estimated to increase by almost 0.03%, or \$24.7 million, statewide as a result of this mandate. Note that the increase in total expenditures is at total of:

- the increased premium expenditures in the individual market: \$74.6 million.
- the increased out-of-pocket expenditures for copayments and deductibles for maternity benefits: \$17.9 million
- the reduction in out-of-pocket expenditures for maternity benefits not currently covered by insurance: \$67.9 million

Costs or Savings for Each Category of Insurer Resulting from the Benefit Mandate

Cost Impacts on the CDI individual market

All of the cost impact of the mandate would be concentrated in the CDI-regulated individual market, where total expenditures are estimated to increase by about 1.21%, or \$74.6 million. Most of the increase in total expenditures would be concentrated among those aged 20-39 years, because insurance premiums in the individual market are stratified by age bands.

Adding maternity services is expected to increase the premiums of CDI-regulated individual policies. The actual premium increase of those policies depends on a number of market factors, including, but not limited to, the changes in actuarial costs. For the purposes of analysis, CHBRP assumes that the actuarial costs are equivalent to the premium changes. Premium impacts are summarized as follows:

- For those who currently *do not have* coverage for maternity services: For the majority (74%) of individuals in the CDI individual market who do not have maternity benefits, the projected *increase* in premiums associated with adding maternity benefits is estimated to range from 1.13% to 13.42% among those 20-44 years of age. The increase in premiums would be concentrated among those aged 20-39.
- For those who currently *have* maternity benefits: For those who have maternity coverage, CHBRP projects premium *declines* ranging from 0.30% to 11.84% among those 20-44 years of age. The decline in premiums would be concentrated among those aged 20-39.

Table 5 shows the net impact of the expected change in premiums on the number of insured Californians in the individual market.

Impacts of Premiums changes on the number of insured

CHBRP estimates the impacts on the number of insured when premium increases (or decreases) faced by any segment of the population is at least 1%.³⁷ Using CHBRP's standard methodology these premium changes are projected to lead to a net *increase* of approximately 2,300 uninsured Californians.

It is likely that these newly uninsured would disproportionately consist of younger individuals (e.g., those aged 19-29 years) since they are more likely to be uninsured and are more price-sensitive to premium changes than older individuals. According to estimates from the 2005 California Health Interview Survey, approximately 29% of individuals aged 19-29 years are uninsured compared with 16% of individuals aged 30-64 years (CHIS, 2005).

One caveat worth mentioning is that CHBRP assumes that the actuarial value of the maternity benefit is the best estimate of the change in premiums that would occur under the mandate. However, if health insurance products in the market that currently include maternity benefits also include other benefits not typically found in products without maternity benefits, the actuarial value of the maternity benefit may not accurately reflect the actual difference in premiums between products with and without maternity coverage. CHBRP has not been able to conduct a systematic review of the premium differences between health insurance products with and without maternity benefits, controlling for other differences in benefits, because such a study could not be conducted within a 60-day timeframe. But informal efforts to research the availability and premium difference between insurance plans with and without maternity benefits indicate that affordable policies that include maternity are readily available in the individual market. This anecdotal evidence suggests that the actuarial value of maternity benefits is a reasonable proxy for estimating the difference in premiums between policies with and without maternity benefits.

Impact on Long-Term Costs

The mandate is likely to have minimal impact on long-term costs for the following reasons. If women without maternity benefits were less likely to receive adequate prenatal care, and that lack of prenatal care was clearly shown to have an adverse effect on neonatal outcomes, then the long-term cost consequences might be considerable. Although there is evidence that some prenatal care services are associated with improvements in birth outcomes, AB 1962 does not stipulate which services health plans must provide as part of prenatal care. If AB 1962 were to result in some pregnant women obtaining more prenatal care visits, there is no guarantee that they would receive effective services. Furthermore, HDHPs have become the predominant form of insurance in the individual market (with 58.1% of the CDI-regulated market and 53.0% of the entire individual market). As a result, the majority of pregnant women in this market segment face financial barriers to receiving prenatal care that are not addressed by this mandate, because HDHPs generally do not exempt prenatal services from their high deductibles (KFF, 2007).

³⁷ See http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php for more information on CHBRP's methods for calculating the number of uninsured as a result of premium changes.

Therefore, to the extent that reduced or delayed access to prenatal care is associated with negative neonatal outcomes and thus higher long-term costs, these negative consequences are being largely driven by the growth of HDHPs, and would not be ameliorated by this mandate, which does nothing to address the growth or limits of such plans.

Impact on Access and Health Service Availability

As discussed previously, the mandate is estimated to have a minimal impact on access to and availability of maternity services, primarily because the benefit is currently so widely available.

Table 4. Baseline (Pre-mandate) Per Member Per Month Premium and Expenditures by Insurance Plan Type, California, 2008

	Large Group		Small Group		Individual		CalPERS	Medi-Cal Managed Care		Healthy Families Managed Care	Total Annual
	DMHC-Regulated	CDI-Regulated	DMHC-Regulated	CDI-Regulated	DMHC-Regulated	CDI-Regulated	HMO (a)	65 and Over	Under 65		
Population Currently Covered	11,721,000	342,000	3,256,000	728,000	1,299,000	812,000	815,000	172,000	2,532,000	685,000	22,362,000
Average Portion of Premium Paid by Employer	\$238.92	\$315.18	\$245.82	\$296.00	\$0.00	\$0.00	\$300.92	\$181.00	\$120.01	\$78.35	\$54,695,911,000
Average Portion of Premium Paid by Employee	\$54.60	\$86.99	\$93.75	\$62.26	\$294.46	\$160.95	\$53.10	\$0.00	\$0.80	\$6.81	\$19,001,902,000
Total Premium	\$293.53	\$402.17	\$339.57	\$358.26	\$294.46	\$160.95	\$354.02	\$181.00	\$120.81	\$85.17	\$73,697,813,000
Member expenses for covered benefits (Deductibles, copays, etc.)	\$15.78	\$45.50	\$24.95	\$95.56	\$50.61	\$39.36	\$18.26	\$0.00	\$0.56	\$2.32	\$5,602,060,000
Member expenses for benefits not covered	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.96	\$0.00	\$0.00	\$0.00	\$0.00	\$67,853,000
Total Expenditures	\$309.30	\$447.67	\$364.52	\$453.82	\$345.07	\$207.27	\$372.28	\$181.00	\$121.36	\$87.49	\$79,367,726,000

Source: California Health Benefits Review Program, 2008.

Note: The population includes individuals and dependents in California who have private insurance (group and individual) or public insurance (e.g., CalPERS, Medi-Cal, Healthy Families, AIM, MRMIP) under health plans or policies regulated by DMHC or CDI. All population figures include enrollees aged 0-64 years and enrollees 65 years or older covered by employment-based coverage. The total annual expenditures expressed in this Table vary from Table 1 in this report due to rounding.

Key: CalPERS = California Public Employees' Retirement System; HMO = health maintenance organization and point of service plans.

(a) Of these CalPERS members, about 60% or 489,000 are state employees whose cost is borne by the General Fund.

Table 5. Post-mandate Impacts on Per Member Per Month and Total Expenditures by Insurance Plan Type, California, 2008

	Large Group		Small Group		Individual		CalPERS	Medi-Cal Managed Care		Healthy Families Managed Care	Total Annual
	DMHC-Regulated	CDI-Regulated	DMHC-Regulated	CDI-Regulated	DMHC-Regulated	CDI-Regulated	HMO (a)	65 and Over	Under 65		
Population Covered	11,721,000	342,000	3,256,000	728,000	1,299,000	812,000	815,000	172,000	2,532,000	685,000	22,362,000
Average Portion of Premium Paid by Employer	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0
Average Portion of Premium Paid by Employee	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$7.65	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$74,562,000
Total Premium	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$7.65	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$74,562,000
Member expenses for covered benefits (Deductibles, copays, etc.)	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$1.84	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$17,948,000
Member expenses for benefits not covered	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	-\$6.96	\$0.0000	\$0.0000	\$0.0000	\$0.0000	-\$67,853,000
Total Expenditures	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$2.53	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$24,657,000
Percentage Impact of Mandate											
Insured Premiums	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	4.7543%	0.0000%	0.0000%	0.0000%	0.0000%	0.1012%
Total Expenditures	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	1.2208%	0.0000%	0.0000%	0.0000%	0.0000%	0.0311%

Source: California Health Benefits Review Program, 2008.

Note: The population includes individuals and dependents in California who have private insurance (group and individual) or public insurance (e.g., CalPERS, Medi-Cal, Healthy Families, AIM, MRMIP) under health plans or policies regulated by DMHC or CDI. All population figures include enrollees aged 0-64 years and enrollees 65 years or older covered by employment-based coverage. Key: CalPERS = California Public Employees' Retirement System; HMO = health maintenance organization and point of service plans. The total annual expenditures expressed in this Table vary from Table 1 in this report due to rounding.

(a) Of these CalPERS members, about 60% or 489,000 are state employees whose cost is borne by the General Fund.

Table 6. Estimated Impact on Individual Premiums

		Estimated Number of Current Individuals								
		Covered w/ Maternity			Covered w/o Maternity			Total		
	Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
Child	0-1			4,384			9,793			14,177
Child	2-6			12,053			26,927			38,981
Child	7-18			34,611			77,321			111,933
Child ^a	19-22			7,933			17,722			25,655
Adult ^b	to 25	4,262	5,331	9,593	28,012	21,758	49,769	32,274	27,088	59,362
Adult	25-29	6,752	8,653	15,405	44,371	35,320	79,691	51,123	43,973	95,097
Adult	30-34	4,813	7,315	12,128	27,632	20,005	47,636	32,445	27,320	59,765
Adult	35-39	6,823	9,960	16,783	27,843	23,975	51,818	34,666	33,935	68,601
Adult	40-44	8,908	10,914	19,822	28,269	28,285	56,553	37,177	39,199	76,375
Adult	45-49	10,183	11,235	21,418	28,251	29,929	58,180	38,434	41,165	79,599
Adult	50-54	10,410	10,588	20,998	25,946	27,672	53,618	36,356	38,260	74,616
Adult	55-59	8,973	9,868	18,841	19,689	22,475	42,164	28,661	32,343	61,004
Adult	60-64	7,828	9,361	17,190	13,019	16,628	29,647	20,847	25,989	46,837
	Total	68,953	83,225	211,159	243,030	226,047	600,841	311,983	309,272	812,000

Table 6. Estimated Impact on Individual Premiums (cont'd)

		Estimated Premiums						
		Pre Mandate			Post Mandate	% Impact on Premiums		
	Age	Covered w/ Maternity	Covered w/o Maternity	All		Covered w/ Maternity	Covered w/o Maternity	All
Child	0-1	\$227.42	\$227.42	\$227.42	\$227.42	0.00%	0.00%	
Child	2-6	\$51.83	\$51.83	\$51.83	\$51.83	0.00%	0.00%	
Child	7-18	\$61.57	\$61.19	\$61.31	\$61.49	-0.13%	0.49%	
Child ^a	19-22	\$87.41	\$86.18	\$86.56	\$87.15	-0.30%	1.13%	
Adult ^b	to 25	\$107.06	\$87.33	\$90.52	\$96.97	-9.42%	11.04%	
Adult	25-29	\$128.10	\$100.87	\$105.28	\$114.40	-10.69%	13.42%	
Adult	30-34	\$145.67	\$114.36	\$120.71	\$128.42	-11.84%	12.29%	
Adult	35-39	\$152.86	\$134.65	\$139.10	\$143.49	-6.13%	6.57%	
Adult	40-44	\$165.82	\$160.55	\$161.92	\$163.22	-1.57%	1.66%	
Adult	45-49	\$196.50	\$195.60	\$195.84	\$196.09	-0.20%	0.25%	
Adult	50-54	\$248.88	\$249.05	\$249.01	\$249.09	0.08%	0.01%	
Adult	55-59	\$314.74	\$314.68	\$314.70	\$314.72	0.00%	0.01%	
Adult	60-64	\$395.09	\$394.62	\$394.79	\$394.80	-0.07%	0.05%	
	Total	\$176.27	\$155.57	\$160.95	\$163.63	-7.17%	5.18%	1.66%

Source: California Health Benefits Review Program, 2008.

Note: (a) This analysis is based on Milliman's claims analysis and the claims database identifies "Child 19-22" as those young adults who are dependant on another individual policyholder.

(b) "Adult to 25" means those young adults who are individual policy holders.

PUBLIC HEALTH IMPACTS

The Impact of the Proposed Mandate on the Health of the Community

As presented in the *Medical Effectiveness* section, the prenatal care services that are effective in improving health outcomes are counseling on behavioral risks such as smoking and domestic violence; screening and counseling for genetic disorders; screening for and treating infectious diseases such as asymptomatic bacteriuria, hepatitis B, HIV, STIs, and group B streptococcus; screening and management of hypertensive disorders, gestational diabetes, anemia, and Rh(D) incompatibility; and screening and management of women at risk for preterm deliveries.

Although these specific prenatal care services are effective, as presented in the *Utilization, Cost, and Coverage Impacts* section, the extent to which AB 1962 would increase the utilization of these services is unknown.

In theory, reducing out-of-pocket costs for prenatal care through health insurance coverage of maternity care should increase utilization of these services. As presented in the *Utilization, Cost, and Coverage Impacts* section, it is assumed that post AB 1962, non-maternity CDI plans would be replaced by HDHPs. In this scenario, pregnant women would continue to face large out-of-pocket expenditures for prenatal care because HDHPs typically do not exclude prenatal care from the deductible (KFF, 2007). This scenario would maintain a similar financial barrier to accessing prenatal care services as the current situation where pregnant women in non-maternity CDI plans are forced to pay out-of-pocket for prenatal care. Therefore, in this scenario, no impact on public health as a result of AB 1962 would be expected.

An alternate scenario to the assumption we have made in this report is that pregnant women previously in non-maternity CDI plans do *not* all end up in HDHPs and instead gain coverage to health insurance that reduces financial barriers to prenatal care. In this scenario, we would expect to see an increase in utilization of prenatal services. Although the evidence with regards to prenatal care is a bit ambiguous (i.e., an increase in the utilization of prenatal care services, per se, does not increase health outcomes, but specific prenatal care services such as smoking cessation treatment and the use of progesterone do), it is assumed that in this scenario, access to prenatal care services without serious financial barriers would improve health outcomes associated with prenatal care.

As an example of how AB 1962 could impact health outcomes, prenatal care for smoking cessation is explored. If, as proposed in the alternate scenario, the 6,200 newly covered pregnant women gain coverage to health insurance that reduces financial barriers to prenatal care and increases prenatal services such as smoking cessation, it would be possible to improve related health outcomes. It is estimated that 6.9% of pregnant women in health plans in the individual market smoke during pregnancy—resulting in 430 pregnancies to smokers among the population affected by AB 1962 (CHIS, 2001 and 2003). A recent Cochrane Review reports that the reduction in smoking among pregnant women receiving smoking cessation counseling was 0.94 (Lumley et al., 2004). This would translate into 26 pregnant women quitting smoking. As presented in Table 2, smoking cessation among pregnant women results in a reduction in the risk of preterm delivery and low birth weight births.

To the extent that women of childbearing age gain access to health insurance coverage that minimizes the financial barriers to accessing effective prenatal care services, AB 1962 has the potential to reduce the rate of low birth weight babies, preterm births, and related mortality. Since the impact on prenatal care utilization is ambiguous, the effect of AB 1962 on overall public health is unknown.

The Impact on the Health of the Community Where Gender and Racial Disparities Exist

Of the nearly 549,000 live births each year in California, over half (51.4%) are to Hispanic women (CDPH, 2007a). Among non-Hispanic women, the largest number of births are to non-Hispanic white women (28.4%), followed by Asian/Pacific Islander women (11.7%), black women (5.2%), and Native American women (0.4%) (CDPH, 2007a). The birth rates across these groups differ dramatically, with the rate of births to Hispanic women of childbearing age almost double those of other race/ethnic groups (Table 7).

Table 7. Births in California by Race/Ethnicity of Mother, 2005

Race/Ethnicity of Mother	Number of Live Births^a	Percent of Live Births^b	General Fertility Rate^c
Total	548,700	100%	70.2
Hispanic	282,283	51.4%	96.2
Non-Hispanic			
White	155,900	28.4%	52.4
Asian/Pacific Islander	64,263	11.7%	61.1/75.8
Black	28,756	5.2%	55.1
Native American	2,116	0.4%	42.7

Sources and Notes:

(a) Data taken from CDPH, 2007a, Table 2-4, based on 2005 California birth certificate information.

(b) Data calculated from the birth data presented in Table 2-4. The sum does not equal 100% because women of other or unknown race/ethnicity are not included.

(c) Data taken from CDPH, 2007a, Table 2-2. The general fertility rate is the number of live births per 1,000 women of childbearing age (15-44).

Overall, 2.7% of births in California are to women receiving late or no prenatal care (CDPH, 2007a). This varies by race/ethnicity with Pacific Islanders and Native Americans having the highest rates of receiving late or no prenatal care (6.9%), and Asians and non-Hispanic whites having the lowest rates (1.8% and 2.0%, respectively) (Table 8). The rate of low-birth weight births vary significantly by race/ethnicity, with babies born to black women classified as low birth weight or very low birth weight twice as often as babies born to other racial/ethnic groups. In addition, black women have the highest rates of preterm births (16.3% of births), while non-Hispanic whites and Asians have the lowest (10.3%-10.4%). Accordingly, infant mortality rates are also more than twice as high for babies born to black women compared to other racial/ethnic groups.

As discussed in the *Medical Effectiveness* section, there are specific prenatal services that are effective in reducing low-birth weight births, preterm births, and infant mortality. To the extent

that the utilization of these services could increase among black women as a result of the mandate, there is potential to reduce the health disparities associated with births in this population. Although there is a possibility that utilization of prenatal care overall may increase with the passage of AB 1962, there is no evidence that utilization of effective prenatal care services would increase specifically among black women thus leading to better health outcomes for pregnant black women and their babies. In addition, the racial and ethnic distribution of women in non-maternity CDI plans is unknown. Therefore, there extent to which AB 1962 would decrease racial disparities in health outcomes is unknown.

Table 8. Births Characteristics in California by Race/Ethnicity of Mother, 2005

Race/Ethnicity of Mother	Late or No Prenatal Care ^a	Low Birth Weight Births ^b	Preterm Births ^c	Infant Mortality Rates ^d
Total	2.7%	6.9%	11.2%	5.3/1,000
Hispanic	3.1%	6.2%	11.2%	5.0/1,000
Non-Hispanic				
White	2.0%	6.5%	10.3%	4.6/1,000
Asian	1.8%	7.6%	10.4%	4.1/1,000
Pacific Islander	6.9%	7.2%	12.2%	Included in Asian Data
Black	3.5%	12.8%	16.3%	11.3/1,000
Native American	6.9%	6.6%	14.3%	6.4/1,000

Sources and Notes:

- (a) Data taken from CDPH, 2007a, Table 2-6. Late prenatal care is defined as prenatal care starting in the third trimester.
- (b) Data taken from CDPH, 2007a, Table 2-6. Low birth weight is defined as less than 2,500 grams (5.5 pounds).
- (c) Data taken from CDPH, 2007a, Table 2-6. Preterm births are births prior to 37 weeks of gestation.
- (d) Infant mortality rates are taken from www.marchofdimes.com/peristats for the years 2002-2004. An infant death is a death occurring within the first year of life).

The Extent to Which the Proposed Service Reduces Premature Death and the Economic Loss Associated with Disease

Premature Death

Overall in California, the rate of maternal pregnancy-related mortality is 13.6 deaths per 100,000 live births (CDPH, 2007b). Infant mortality rates in California are 530 deaths per 100,000 live births (MOD, 2004). As presented in the *Medical Effectiveness* section, there are specific prenatal care services that are effective in reducing the risk of preterm deliveries, low-birth weight babies, and other causes of infant and maternal mortality. To the extent that pregnant women gain access to health insurance plans that reduce out-of-pocket costs for prenatal care, it is possible that utilization of effective prenatal care services could increase, resulting in a reduction in premature death. If, on the other hand, the passage of AB 1962 results in a shift of pregnant women into HDHPs, which typically do not exclude prenatal care from the deductible, pregnant women would continue to face financial barriers to accessing prenatal care, and no reduction in mortality would be expected.

Economic Loss

The economic loss associated with poor pregnancy health outcomes consists of the direct costs discussed in the *Utilization, Cost, and Coverage Impacts* section and the indirect costs related to lost productivity and other special services needed to treat infants with additional health care needs. It has been estimated that the annual societal economic burden associated with preterm births is \$51,600 per infant born premature. More than one-fifth of this cost (\$11,200 per preterm infant) is associated with lost household and labor market productivity (IOM, 2006). As described above, it is possible that AB 1962 may increase the number of pregnant women who seek prenatal care, thus reducing the economic loss associated with poor health outcomes. But to the extent that these women are switched into HDHPs with large out-of-pocket costs, these reductions may be negligible.

Although there is significant infant and maternal mortality that can be reduced through specific prenatal care services that have been found to be effective, the impact of AB 1962 on the utilization of prenatal care is ambiguous. Therefore, although there is a potential for a decrease in mortality and associated lost productivity, the overall effect of AB 1962 on the health of pregnant women and infants is unknown.

Long-Term Public Health Impacts

As a result of AB 1962, premiums for individuals in plans that do not currently cover maternity services are expected to increase by more than 1%, thus increasing the number of uninsured by almost 2,300 people. The consequences of being uninsured have been well documented by the Institute of Medicine's Committee on the Consequences of Uninsurance.³⁸ Uninsured adults are more likely to delay getting needed care and do not receive the care they need. The uninsured also suffer from poorer health and development and are more likely to die early. In the U.S., it is estimated that 18,000 unnecessary deaths are attributable to lack of health coverage every year. Even one uninsured person in a family can put the financial stability and health of the whole family at risk.

³⁸ See www.iom.edu/Object.File/Master/17/736/Fact%20sheet%20overview.pdf.

APPENDICES

Appendix A: Text of Bill Analyzed

BILL NUMBER: AB 1962 INTRODUCED
BILL TEXT

INTRODUCED BY Assembly Member De La Torre
(Principal coauthor: Assembly Member Hancock)
(Principal coauthor: Senator Negrete McLeod)

FEBRUARY 13, 2008

An act to add Section 10123.865 to the Insurance Code, relating to health care coverage.

LEGISLATIVE COUNSEL'S DIGEST

AB 1962, as introduced, De La Torre. Maternity services. Existing law provides for the regulation of health insurers by the Department of Insurance. Under existing law, a health insurer that provides maternity coverage may not restrict inpatient hospital benefits, as specified, and is required to provide notice of the maternity services coverage. This bill would require specified health insurance policies to provide coverage for maternity services, as defined.

Vote: majority. Appropriation: no. Fiscal committee: yes.
State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares the following:

(a) In actual practice, health care service plans have been required by the Knox-Keene Health Care Service Plan Act of 1975 (Chapter 2.2 (commencing with Section 1340) of Division 2 of the Health and Safety Code) to provide maternity services as a basic health care benefit.

(b) At the same time, existing law does not require health insurers to provide designated basic health care services and, therefore, health insurers are not required to provide coverage for maternity services.

(c) Therefore, it is essential to clarify that all health coverage made available to California consumers, whether issued by health care service plans regulated by the Department of Managed Health Care or by health insurers regulated by the Department of Insurance, must include maternity services.

SEC. 2. Section 10123.865 is added to the Insurance Code, to read:

10123.865. (a) Every individual or group policy of health insurance that covers hospital, medical, or surgical expenses and that is issued, amended, renewed, or delivered on or after

January 1, 2009, shall provide coverage for maternity services. For the purposes of this section, "maternity services" include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care, including labor and delivery and postpartum care.

(b) This section shall not apply to Medicare supplement, short-term limited duration health insurance, vision-only, or CHAMPUS-supplement insurance, or to hospital indemnity, hospital-only, accident-only, or specified disease insurance that does not pay benefits on a fixed benefit, cash payment only basis.

Appendix B: Literature Review Methods

Appendix B describes methods used in the medical effectiveness literature review for AB 1962, a bill that would require health insurance policies issued by insurance companies regulated by the California Department of Insurance to provide coverage for maternity services.

As noted in the *Introduction*, AB 1962 defines “maternity services” to include prenatal care, ambulatory care maternity services, involuntary complications of pregnancy, neonatal care, and inpatient hospital maternity care including labor and delivery and postpartum care. Each of these categories of maternity services in turn encompasses multiple screening tests, diagnostic tests, monitoring services, and treatments. Conducting a medical effectiveness analysis on the full range of maternity services is not feasible during the timeframe within which this report had to be completed. Because AB 1962 is most likely to affect utilization of prenatal care, CHBRP focuses this review of the literature on the effectiveness of prenatal care services. Regardless of health insurance status, the vast majority of women in the United States deliver their babies in hospitals. In addition, AB 1962 would not affect coverage for infants.

Due to the large amount of literature on prenatal care services, CHBRP limited its literature search to meta-analyses, systematic reviews, and evidence-based guidelines because such syntheses of multiple studies are the strongest forms of evidence of the effectiveness of medical interventions. The medical librarian’s search encompassed both studies of the impact of receiving more or fewer prenatal care services, and studies of the effectiveness of the services provided during prenatal care visits. Studies on the impact of cost sharing for prenatal care and other preventive services were also included, because AB 1962 would result in lower out-of-pocket costs for prenatal care among women of childbearing age who previously had health insurance policies that did not cover maternity services.

For all topics, the literature search was limited to meta-analyses, systematic reviews, and evidence-based guidelines published in English. The search encompassed all pertinent studies published from 1995 to present. The following databases that index peer-reviewed literature were searched: PubMed, the Web of Science, EconLit, the Cochrane Library (including the Cochrane Database of Systematic Reviews and the Cochrane Register of Controlled Clinical Trials). Web sites maintained by the following organizations that publish systematic reviews and evidence-based guidelines were searched: Agency for Healthcare Research and Quality (including the U.S. Preventive Services Task Force), American College of Obstetricians and Gynecologists, International Network of Agencies for Health Technology Assessment, Institute for Clinical Systems Improvement, National Guideline Clearinghouse, National Institute for Clinical Excellence, National Institutes of Health, NHS Centre for Reviews and Dissemination, and the Scottish Intercollegiate Guideline Network.

The literature search yielded a total of 254 abstracts regarding the effectiveness of maternity services or the impact of cost sharing on the use of prenatal care or other preventive services. At least two reviewers screened the title and abstract of each citation returned by the literature search to determine eligibility for inclusion. The reviewers obtained the full text of articles that appeared to be eligible for inclusion in the review and reapplied the initial eligibility criteria.

Twenty-eight studies met the inclusion criteria and were included in the medical effectiveness review.

In making a “call” for each outcome measure, the team and the content expert consider the number of studies as well the strength of the evidence. To grade the evidence for each outcome measured, the team uses a grading system that has the following categories:

- Research design
- Statistical significance
- Direction of effect
- Size of effect
- Generalizability of findings

The grading system also contains an overall conclusion that encompasses findings in these five domains. The conclusion is a statement that captures the strength and consistency of the evidence of an intervention’s effect on an outcome. The following terms are used to characterize the body of evidence regarding an outcome.

- Clear and convincing evidence
- Preponderance of evidence
- Ambiguous/conflicting evidence
- Insufficient evidence

The conclusion states that there is “clear and convincing” evidence that an intervention has a favorable effect on an outcome, if most of the studies included in a review are well-implemented randomized controlled trials and report statistically significant and clinically meaningful findings that favor the intervention.

The conclusion characterizes the evidence as “preponderance of evidence” that an intervention has a favorable effect if most but not all five criteria are met. For example, for some interventions the only evidence available is from nonrandomized studies or from small RCTs with weak research designs. If most such studies that assess an outcome have statistically and clinically significant findings that are in a favorable direction and enroll populations similar to those covered by a mandate, the evidence would be classified as a “preponderance of evidence favoring the intervention.” In some cases, the preponderance of evidence may indicate that an intervention has no effect or has an unfavorable effect.

The evidence is presented as “ambiguous/conflicting if their findings vary widely with regard to the direction, statistical significance, and clinical significance/size of the effect.

The category “insufficient evidence” of an intervention’s effect is used where there is little if any evidence of an intervention’s effect.

Search Terms

The search terms used to locate studies relevant to the AB 1962 were as follows:

MeSH Terms Used to Search PubMed and the Cochrane Library

Calcium, Dietary
Cost-Benefit Analysis
Cost Sharing
Deductibles and Coinsurance
Delivery, Obstetric
Diabetes, Gestational/prevention & control
Dietary Supplements
Evidence-Based Medicine
Health Benefit Plans, Employee
Hypertension/ prevention & control
Infant Mortality
Infant, Newborn
Infant, Premature
Infant, Premature, Diseases/ prevention & control
Infant, Very Low Birth Weight
Insurance Coverage
Length of Stay
Managed Care Programs/economics/utilization
Mass Screening
Maternal Mortality
Medical Savings Accounts/economics/ utilization
Metabolism, Inborn Errors/ diagnosis
Neonatal Screening/economics/ methods
Patient Discharge
Perinatal Care
Phenylketonurias/ diagnosis/ therapy
Postnatal Care/economics/utilization
Pre-Eclampsia/ prevention & control
Pregnancy
Pregnancy Complications/ prevention & control
Pregnancy in Diabetics
Pregnancy Outcome
Premature Birth
Prenatal Care/economics/utilization
Prenatal Diagnosis
Program Evaluation
Quality of Life
Socioeconomic Factors
Streptococcal Infections
Treatment Outcome
Vaginosis, Bacterial/prevention & control

Keywords used to search PubMed, Cochrane Library, EconLit, Web of Science, and relevant Web sites

bacterial vaginosis, birth outcome*, coinsurance, consumer direct health plan*, consumer health plan*, copayment, cost*, cost effective*, cost sharing, cost benefit analysis, deductibles, dietary calcium supplement*, effective*, high deductible health plan*, gbs, hospital stay, length of stay, low birth weight, hospital discharge, intrapartum care, mass screening, maternal blood pressure, maternal infection*, maternity service*, neural tube defects, practice guideline*, perinatal (care or service*), pregnancy, pregnancy complication*, prenatal (care or service*), prenatal screening, preterm birth, preventive care, postnatal service*, postpartum service*, Rh incompatibility, screening, treatment outcome*

* indicates that a term was truncated to maximize the number of publications retrieved.

Appendix C: Summary Findings on Medical Effectiveness of Prenatal Care Services

Appendix C describes the studies on prenatal care services analyzed by the medical effectiveness team. Tables C-1-a through C-1-c present information regarding the citation, type of study, intervention and comparison groups, population studied, and the location at which a study was conducted. Tables C-2-a through C-2-b summarize findings from the studies reviewed.

Table C-1. Description of Published Studies on Effectiveness of Prenatal Care Services

Table C-1-a. Studies that Examined the Effectiveness of Different Numbers of Prenatal Visits

Citation	Type of Trial ³⁹	Intervention vs. Comparison Group	Population Studied	Location
Fiscella, 1995	Systematic review	Multiple intervention and comparison groups	Pregnant women	N/A
Villar et al., 2001	Meta-analysis	Reduced number of prenatal visits vs. standard number of prenatal visits	Pregnant women at low risk of developing complications during pregnancy or labor	N/A

Table C-1-b. Studies that Examined the Effectiveness of Multiple Interventions

Citation	Type of Trial	Intervention vs. Comparison Group	Population Studied	Location
ICSI, 2007 ⁴⁰	Evidence-based guideline	Multiple intervention and comparison groups	Pregnant women	N/A
Lu et al., 2003	Systematic review	Multiple intervention and comparison groups	Pregnant women	N/A
NCCWCH, 2003 ⁴¹	Evidence-based guideline	Multiple intervention and comparison groups	Pregnant women	N/A

³⁹ Level I = Well-implemented RCTs and cluster RCTs; Level II = RCTs and cluster RCTs with major weaknesses; Level III = Nonrandomized studies that include an intervention group and one or more comparison group, time series analyses, and cross-sectional surveys; Level IV = Case series and case reports; Level V = Clinical/practice guidelines based on consensus or opinion.

⁴⁰ ICSI = Institute for Clinical Systems Improvement. ICSI is an independent, not-for-profit organization that promotes quality improvement among health plans, hospitals, and medical groups in Minnesota. This citation is to an evidence-based guideline for routine prenatal care.

⁴¹ NCCWCH = British National Collaborating Centre for Women's and Children's Health. This citation is to an evidence-based guideline for routine prenatal care that was prepared for the National Institute for Clinical Excellence.

Table C-1-b. Studies that Examined the Effectiveness of Multiple Interventions (cont'd)

Citation	Type of Trial	Intervention vs. Comparison Group	Population Studied	Location
USPSTF, 1996 ⁴²	Evidence-based guideline	Multiple intervention and comparison groups	All persons—reviewed sections that address pregnant women	N/A
USPSTF, 2007	Evidence-based guideline	Multiple intervention and comparison groups	All persons—reviewed sections that address pregnant women	N/A

Table C-1-c. Studies that Examined the Effectiveness of Specific Interventions

Type of Risk Factor/Problem and Service	Citation	Type of Trial	Intervention vs. Comparison Group	Population Studied	Location
Behavioral					
Tobacco cessation counseling	Lumley et al., 2004	Meta-analysis	Brief advice vs. usual care; Individual counseling vs. usual care; Group counseling vs. usual care	Pregnant women who smoke	N/A
	US DHHS, ⁴³ 2000	Meta-analysis	Individual counseling vs. usual care	Pregnant women who smoke	N/A
Infectious Disease					
Antibiotics for treatment of asymptomatic bacteriuria	Gartlehner et al., 2004	Systematic review	Antibiotics vs. placebo or no treatment	Pregnant women with asymptomatic bacteriuria	N/A
	Smaill and Vazquez, 2007	Meta-analysis	Antibiotics vs. placebo or no treatment	Pregnant women with asymptomatic bacteriuria	N/A
Vaccination and/or immune globulin for hepatitis B	Lee et al., 2006	Meta-analysis	Hepatitis B vaccine vs. placebo or no treatment; Hepatitis B immune globulin vs. placebo or no treatment; Hepatitis B vaccine and immune globulin vs. placebo or no treatment	Infants born to women who have hepatitis B	N/A

⁴² USPSTF = United States Preventive Services Task Force

⁴³ US DHHS = United States Department of Health and Human Services

Table C-1-c. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Type of Risk Factor/Problem and Service	Citation	Type of Trial	Intervention vs. Comparison Group	Population Studied	Location
Antiretroviral therapy and other interventions to prevent transmission of HIV ⁴⁴ to newborns	Chou et al., 2005	Systematic review	Antiretroviral therapy vs. placebo or no treatment; Elective cesarean section vs. vaginal delivery; Formula feeding vs. breastfeeding	Pregnant women with HIV	N/A
Screening for chlamydial infection	Meyers et al., 2007	Systematic review	Screening for chlamydial infection vs. not screening	Women at increased risk for chlamydial infection	N/A
Screening for gonorrhea	Glass et al., 2005	Systematic review	Screening for gonorrhea vs. not screening	N/A—no new studies found since literature review completed for USPSTF, 1996	N/A
Vaccination for hepatitis B	Krishnaraj, 2004	Systematic review	Vaccination for hepatitis B vs. placebo or no treatment	Infants born to women with hepatitis B	N/A
Screening for syphilis	Nelson et al., 2004	Systematic review	Screening for syphilis vs. not screening	Pregnant women	N/A
Metabolic, Nutritional, and Endocrine Conditions					
Iron supplementation for anemia	Helfand et al., 2006	Systematic review	Iron supplements vs. placebo	Pregnant women with iron deficiency anemia	N/A
Other Medical Conditions					
Anti-convulsants for treatment of pre-eclampsia	Duley et al., 2003	Meta-analysis	Anti-convulsant drugs vs. placebo	Women with pre-eclampsia before or after delivery	N/A
Antiplatelet agents for preventing pre-eclampsia	Duley et al., 2007	Meta-analysis	Antiplatelet agents vs. placebo or no treatment	Women at risk for pre-eclampsia	N/A

⁴⁴ HIV = Human Immunodeficiency Virus

Table C-1-c. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Type of Risk Factor/Problem and Service	Citation	Type of Trial	Intervention vs. Comparison Group	Population Studied	Location
Calcium supplementation to prevent hypertensive disorders	Hofmeyr et al., 2006	Meta-analysis	Calcium supplementation vs. placebo	Pregnant women, regardless of risk of hypertensive disorders	N/A
Pregnancy Outcomes					
Corticosteroids to accelerate fetal lung maturation	Roberts and Dalziel, 2006	Meta-analysis	Corticosteroid drug capable of crossing the placenta vs. placebo or no treatment	Pregnant women expected to deliver their babies preterm due to spontaneous preterm labor, preterm premature rupture of membranes, or elective preterm labor	N/A
Progestational agents to prevent preterm birth	Sanchez-Ramos et al., 2005	Meta-analysis	Progestational agents vs. placebo	Pregnant women at risk for preterm delivery	N/A
External cephalic version for breech presentation before term	Hutton and Hofmeyr, 2006	Systematic review	External cephalic version vs. no intervention	Pregnant women whose fetuses are in breech position before term (i.e., before 37 weeks)	N/A
Induction of labor at or beyond term	Bennett et al., 2004	RCT	Ultrasound during the first trimester of pregnancy vs. ultrasound during the second trimester	Pregnant women with singleton pregnancies	N/A
Induction of labor at or beyond term	Gülmezoglu et al., 2006	Meta-analysis	Induction of labor vs. monitoring and waiting for spontaneous onset of labor	Pregnant women whose pregnancies continued beyond term	N/A
	Sanchez-Ramos et al., 2003	Meta-analysis	Induction of labor vs. monitoring and waiting for spontaneous onset of labor	Pregnant women whose pregnancies continued beyond term	N/A

Table C-2. Summary of Findings from Studies of the Effectiveness of Prenatal Care Services

Table C-2-a. Studies that Examined the Effectiveness of Different Numbers of Prenatal Visits

Outcome	Research Design⁴⁵	Statistical Significance	Direction of Effect	Size of Effect	Generalizability	Conclusion
Low birth weight	1 meta-analysis and 1 systematic review of Level II studies	• No statistically significant difference	• No effect	• No effect	• Somewhat generalizable—includes pregnant women from both developed and developing countries	• Changing the number of prenatal visits does not affect the odds of having a low-birth weight infant
Preterm birth	1 meta-analysis and 1 systematic review of Level II studies	• No statistically significant difference	• No effect	• No effect	• Somewhat generalizable—includes pregnant women from both developed and developing countries	• Changing the number of prenatal visits does not affect the odds of giving birth preterm
Admission to neonatal intensive care unit	1 meta-analysis and 1 systematic review of Level II studies	• No statistically significant difference	• No effect	• No effect	• Somewhat generalizable—includes pregnant women from both developed and developing countries	• Changing the number of prenatal visits does not affect the odds of admission of a newborn to a neonatal intensive care unit
Maternal mortality	1 meta-analysis and 1 systematic review of Level II studies	• No statistically significant difference	• No effect	• No effect	• Generalizable—includes pregnant women from developed countries	• Changing the number of prenatal visits does not affect the odds of maternal death
Ante-partum or postpartum hemorrhage	1 meta-analysis and 1 systematic review of Level II studies	• No statistically significant difference	• No effect	• No effect	• Somewhat generalizable—includes pregnant women from both developed and developing countries	• Changing the number of prenatal visits does not affect the odds of antepartum or postpartum hemorrhage

⁴⁵ Level I = Well-implemented RCTs and cluster RCTs; Level II = RCTs and cluster RCTs with major weaknesses; Level III = Nonrandomized studies that include an intervention group and one or more comparison group, time series analyses, and cross-sectional surveys; Level IV = Case series and case reports; Level V = Clinical/practice guidelines based on consensus or opinion.

Table C-2-a. Studies that Examined the Effectiveness of Different Numbers of Prenatal Visits (cont'd)

Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability	Conclusion
Pre-eclampsia	1 meta-analysis and 1 systematic review of Level II studies	<ul style="list-style-type: none"> No statistically significant difference 	<ul style="list-style-type: none"> No effect 	<ul style="list-style-type: none"> No effect 	<ul style="list-style-type: none"> Somewhat generalizable—includes pregnant women from both developed and developing countries 	<ul style="list-style-type: none"> Changing the number of prenatal visits does not affect the odds of having pre-eclampsia

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Behavioral						
Screening for domestic violence	Reduction in risk of injury to mother and fetus	1 systematic review of Level III studies	<ul style="list-style-type: none"> Results of formal test of statistical significance not reported 	<ul style="list-style-type: none"> Favors screening 	<ul style="list-style-type: none"> Not reported 	<ul style="list-style-type: none"> Somewhat generalizable
Smoking cessation counseling	Reduction in risk of low birth weight	1 meta-analysis and 3 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors smoking cessation counseling 	<ul style="list-style-type: none"> RR⁴⁶ = 0.81 (95% CI⁴⁷ = 0.70, 0.94)⁴⁸ 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of preterm birth	1 meta-analysis and 3 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors smoking cessation counseling 	<ul style="list-style-type: none"> RR = 0.84 (95% CI = 0.72, 0.98) 	<ul style="list-style-type: none"> Somewhat generalizable

⁴⁶ RR = Risk ratio

⁴⁷ CI = Confidence interval

⁴⁸ Both results for outcomes of smoking cessation counseling were reported in Lumley et al. (2004).

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Genetic Disorders						
Screening for Down syndrome with ultrasound and/or blood tests for biochemical markers	Accurate diagnosis	2 systematic reviews of Level III-IV studies	<ul style="list-style-type: none"> • N/A—studies of test accuracy 	<ul style="list-style-type: none"> • N/A—studies of test accuracy 	<ul style="list-style-type: none"> • Detection rates ranged from 48% to 96%;⁴⁹ false positive rates ranged from 3% to 29%⁵⁰ 	<ul style="list-style-type: none"> • Somewhat generalizable
Screening for hemoglobinopathies ⁵¹	Accurate diagnosis	1 systematic review	<ul style="list-style-type: none"> • N/A—studies of test accuracy 	<ul style="list-style-type: none"> • N/A—studies of test accuracy 	<ul style="list-style-type: none"> • Not stated 	<ul style="list-style-type: none"> • Somewhat generalizable
Infectious Disease						
Screening with urine culture and antibiotics for treatment of asymptomatic bacteriuria	Reduction in risk of kidney infection in mother	1 meta-analysis and 4 systematic reviews of Level II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antibiotics 	<ul style="list-style-type: none"> • RR = 0.23 (95% CI = 0.13, 0.41)⁵² 	<ul style="list-style-type: none"> • Somewhat generalizable
	Reduction in risk of low birth weight	1 meta-analysis and 4 systematic reviews of Level II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antibiotics 	<ul style="list-style-type: none"> • RR = 0.66 (95% CI = 0.49, 0.89) 	<ul style="list-style-type: none"> • Somewhat generalizable

⁴⁹ Varied across studies and across combinations of screening tests.

⁵⁰ Results of studies of the accuracy of screening tests for Down syndrome are from previously published studies cited in NCCWCH, 2003.

⁵¹ Hemoglobinopathies are genetic disorders in the genes that control the expression of hemoglobin protein. Disorders of these genes can result in anemia and abnormal hemoglobins. Sickle cell anemia and thalassemia are two of the most common types of hemoglobinopathies.

⁵² Results for outcomes of antibiotics for treatment of asymptomatic bacteriuria on risk of kidney infection and low birth weight were reported in Smaill and Vazquez 2007.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
	Reduction in odds of preterm birth	1 meta-analysis and 2 systematic reviews? (at least 1) of Level II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors antibiotics 	<ul style="list-style-type: none"> OR = 0.60 (95% CI = 0.45, 0.80)⁵³ 	<ul style="list-style-type: none"> Somewhat generalizable
Antibiotics for chlamydia	Reduction in risk of premature rupture of membranes	2 systematic reviews of Level III studies	<ul style="list-style-type: none"> Statistically significant Approaches statistical significance (p=0.08) 	<ul style="list-style-type: none"> Favors antibiotics 	<ul style="list-style-type: none"> Treated = 3%; untreated = 5%⁵⁴ 	<ul style="list-style-type: none"> Generalizable—studies conducted in Ohio and Tennessee
	Reduction in risk of low birth weight	2 systematic reviews of Level III studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors antibiotics 	<ul style="list-style-type: none"> Treated = 11%; untreated = 20% 	<ul style="list-style-type: none"> Generalizable—studies conducted in Ohio and Tennessee
	Reduction in risk of neonatal mortality	2 systematic reviews of Level III studies	<ul style="list-style-type: none"> Approaches statistical significance (p=0.08) 	<ul style="list-style-type: none"> Favors antibiotics 	<ul style="list-style-type: none"> Treated = 1%; untreated = 2% 	<ul style="list-style-type: none"> Generalizable—studies conducted in Ohio and Tennessee
Prophylaxis for infants born to mothers with gonorrhea	Reduction in rates of conjunctivitis and blindness in newborns	2 systematic reviews of Level III studies	<ul style="list-style-type: none"> No formal tests of statistical significance 	<ul style="list-style-type: none"> Favors prophylaxis 	<ul style="list-style-type: none"> 83% decrease in infants treated with silver nitrate 93% decrease in infants treated with tetracycline⁵⁵ 	<ul style="list-style-type: none"> Somewhat generalizable—studies conducted in Africa

⁵³ Lu et al. (2003) reported results from a previous meta-analysis.

⁵⁴ USPSTF (1996) reported results from a previous study.

⁵⁵ USPSTF (1996) reported results from previous studies.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Antibiotics for group B streptococcus	Reduction in incidence of group B streptococcus in newborns	1 systematic review of indirect evidence from Level III-IV studies	<ul style="list-style-type: none"> • No formal tests of statistical significance reported 	<ul style="list-style-type: none"> • Favors antibiotics 	<ul style="list-style-type: none"> • Not reported 	<ul style="list-style-type: none"> • Somewhat generalizable
Hepatitis B vaccination and/or hepatitis B immune globulin for hepatitis B	Reduction in risk of infant developing chronic hepatitis B	1 meta-analysis and 3 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors vaccination and/or immune globulin 	<ul style="list-style-type: none"> • RR = 0.08 for vaccine plus immune globulin • RR = 0.28 for vaccine • RR = 0.50 for immune globulin⁵⁶ 	<ul style="list-style-type: none"> • Somewhat generalizable—most studies conducted in developing countries
Screening for human immunodeficiency virus (HIV) and antiretroviral therapy	Reduction in risk of mother-to-child transmission of HIV	3 systematic reviews of Level I-III studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antiretroviral therapy 	<ul style="list-style-type: none"> • OR = 0.46 (95% CI = 0.35, 0.60)⁵⁷ 	<ul style="list-style-type: none"> • Somewhat generalizable—some studies conducted in developing countries
Elective cesarean section for mothers with HIV	Reduction in risk of mother-to-child transmission of HIV	2 systematic reviews of Level I-III studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors cesarean section 	<ul style="list-style-type: none"> • Transmission rate: cesarean section = 2%; Vaginal delivery = 11%⁵⁸ 	<ul style="list-style-type: none"> • Somewhat generalizable

⁵⁶ Lee et al., 2006

⁵⁷ All results for outcomes of treatments to prevent mother-to-child transmission of HIV are from previous studies that are cited in Chou et al. (2005).

⁵⁸ Some women in both the cesarean section and vaginal delivery groups took antiretroviral drugs during pregnancy (Chou et al., 2005).

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Avoiding breastfeeding infants whose mothers have HIV	Reduction in risk of mother-to-child transmission of HIV	3 systematic reviews of Level I-III studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors formula 	<ul style="list-style-type: none"> Transmission rate: Formula = 21%; Breast-feeding = 37%⁵⁹ 	<ul style="list-style-type: none"> Somewhat generalizable—some studies conducted in developing countries
Antibiotics for syphilis	Reduction in mother-to-child transmission of syphilis	3 systematic reviews of Level III-IV studies	<ul style="list-style-type: none"> No formal test of statistical significance 	<ul style="list-style-type: none"> Favors penicillin 	<ul style="list-style-type: none"> Prevented transmission in 98.2% of infants⁶⁰ 	<ul style="list-style-type: none"> Generalizable—conducted in Texas
Metabolic, Nutritional, and Endocrine Conditions						
Dietary advice ⁶¹ regarding gestational diabetes	Reduction in risk of infant mortality, shoulder dystocia, bone fracture, and nerve palsy	1 systematic review of Level I-III studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors treatment 	<ul style="list-style-type: none"> Rates of reduction in infant mortality, shoulder dystocia, bone fracture, and nerve palsy ranged from 1% to 4%⁶² 	<ul style="list-style-type: none"> Somewhat generalizable

⁵⁹ Chou et al. (2005) reported results from previous study. Mothers enrolled in the study cited had not taken antiretroviral drugs during pregnancy.

⁶⁰ NCCWCH (2003) reported results from a previous study.

⁶¹ Some women enrolled in the study whose blood sugar cannot be controlled through dietary changes alone also received insulin (Crowther et al., 2005, as referenced in ICSI, 2007).

⁶² Crowther et al., 2005, as referenced in ICSI, 2007.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Iron supplements for iron deficiency anemia	Reduction in risk of low birth weight	2 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors iron supplements 	<ul style="list-style-type: none"> • Intervention = 4% birth weight <2,500 grams, Control = 17% birth weight less < 2,500 grams⁶³ 	<ul style="list-style-type: none"> • Generalizable —conducted in Ohio
Other Medical Conditions						
Blood pressure monitoring and urine culture to detect pre-eclampsia	Early identification of pre-eclampsia	No direct evidence because unethical to withhold blood pressure monitoring	<ul style="list-style-type: none"> • No formal tests of statistical significance 	<ul style="list-style-type: none"> • Favors monitoring blood pressure 	<ul style="list-style-type: none"> • No direct evidence 	<ul style="list-style-type: none"> • Somewhat generalizable
Antiplatelet agents for women at risk for pre-eclampsia	Reduction in risk of pre-eclampsia	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antiplatelet agents 	<ul style="list-style-type: none"> • RR = 0.83 (95% CI = 0.77, 0.89)⁶⁴ 	<ul style="list-style-type: none"> • Somewhat generalizable
	Reduction in risk of preterm birth	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antiplatelet agents 	<ul style="list-style-type: none"> • RR = 0.92 (95% CI = 0.88, 0.97) 	<ul style="list-style-type: none"> • Somewhat generalizable
	Reduction in risk of small for gestational age birth	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antiplatelet agents 	<ul style="list-style-type: none"> • RR = 0.90 (95% CI = 0.83, 0.98) 	<ul style="list-style-type: none"> • Somewhat generalizable
	Reduction in risk of fetal or neonatal death	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors antiplatelet agents 	<ul style="list-style-type: none"> • RR = 0.86 (95% CI = 0.76, 0.98) 	<ul style="list-style-type: none"> • Somewhat generalizable

⁶³ Helfand et al. (2006) reported results from a previous study.

⁶⁴ All results for outcomes of prescribing antiplatelet agents were reported in Duley et al. (2007).

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Calcium supplements for hypertensive disorders	Reduction in risk of pre-eclampsia	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors calcium supplements 	<ul style="list-style-type: none"> RR = 0.48 (95% CI = 0.33, 0.69)⁶⁵ 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of maternal death and serious morbidity	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors calcium supplements 	<ul style="list-style-type: none"> RR = 0.80 (95% CI = 0.65, 0.97) 	<ul style="list-style-type: none"> Somewhat generalizable
Magnesium sulphate during delivery for pre-eclampsia	Reduction in risk of eclampsia	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors magnesium sulphate 	<ul style="list-style-type: none"> RR = 0.41 (95% CI = 0.29, 0.58)⁶⁶ 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of maternal death	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors magnesium sulphate 	<ul style="list-style-type: none"> RR = 0.54 (95% CI = 0.26, 1.10) 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of placental abruption	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors magnesium sulphate 	<ul style="list-style-type: none"> RR = 0.64 (95% CI = 0.50, 0.83) 	<ul style="list-style-type: none"> Somewhat generalizable
Immune globulin for Rh(D) incompatibility	Reduction in risk of hemolytic disease ⁶⁷ in newborns	3 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Formal test of statistical significance not reported 	<ul style="list-style-type: none"> Favors screening 	<ul style="list-style-type: none"> Not stated 	<ul style="list-style-type: none"> Somewhat generalizable
Referral to specialist for other atypical red blood cell alloantibodies	Reduction in risk of hemolytic disease in newborns	1 systematic review of Level III-IV studies	<ul style="list-style-type: none"> No formal test of statistical significance 	<ul style="list-style-type: none"> Favors screening 	<ul style="list-style-type: none"> Not stated 	<ul style="list-style-type: none"> Somewhat generalizable

⁶⁵ Both results for outcomes of prescribing calcium supplements during pregnancy were reported in Hofmeyr et al. (2006).

⁶⁶ All results for outcomes of administering magnesium sulphate during delivery were reported in Duley et al. (2003).

⁶⁷ Symptoms of hemolytic disease include anemia, jaundice, body swelling, and difficulty breathing.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Pregnancy Outcomes						
Ultrasound to diagnose placenta previa ⁶⁸	Accurate diagnosis	1 systematic review of Level II-IV studies	N/A—studies of test accuracy	N/A—studies of test accuracy	<ul style="list-style-type: none"> In 73% of women diagnosed with placenta previa at 32-35 weeks, condition persisted to delivery 	<ul style="list-style-type: none"> Somewhat generalizable
Corticosteroids to accelerate fetal lung maturation	Reduction in risk of neonatal mortality	1 meta-analysis and 1 systematic review of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors corticosteroids 	<ul style="list-style-type: none"> RR = 0.69 (95% CI = 0.58, 0.81)⁶⁹ 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of respiratory distress syndrome	1 meta-analysis and 1 systematic review of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors corticosteroids 	<ul style="list-style-type: none"> RR = 0.66 (95% CI = 0.59, 0.71) 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of cerebroventricular hemorrhage	1 meta-analysis and 1 systematic review of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors corticosteroids 	<ul style="list-style-type: none"> RR = 0.54 (95% CI = 0.43, 0.69) 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of necrotizing enterocolitis	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors corticosteroids 	<ul style="list-style-type: none"> RR = 0.46 (95% CI = 0.29, 0.74) 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of intensive care admission	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors corticosteroids 	<ul style="list-style-type: none"> RR = 0.80 (95% CI = 0.65, 0.99) 	<ul style="list-style-type: none"> Somewhat generalizable

⁶⁸ A diagnosis of placenta previa indicates that the placenta covers the opening to the vagina, which is associated with placental abruption, hemorrhage, intrauterine growth restriction.

⁶⁹ All results for outcomes of prescribing antenatal corticosteroids were reported in Roberts and Dalziel, 2006.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Progestational agents to prevent preterm delivery	Reduction in risk of preterm delivery	1 meta-analysis and 2 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors progestational agents 	<ul style="list-style-type: none"> OR = 0.45 (95% CI = 0.25, 0.80)⁷⁰ 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of low birth weight	1 meta-analysis and 2 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors progestational agents 	<ul style="list-style-type: none"> OR = 0.50 (95% CI = 0.36, 0.71) 	<ul style="list-style-type: none"> Somewhat generalizable
External cephalic version ⁷¹ for breech presentation at term	Reduction in risk of baby being born in breech position	2 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors external cephalic version 	<ul style="list-style-type: none"> RR = 0.59 to 1.0 if performed preterm⁷² RR = 0.42 (95% CI = 0.35, 0.50)⁷³ if performed at term 	<ul style="list-style-type: none"> Somewhat generalizable
	Reduction in risk of cesarean section	1 systematic review of Level I-II studies	<ul style="list-style-type: none"> Statistically significant 	<ul style="list-style-type: none"> Favors external cephalic version 	<ul style="list-style-type: none"> 7% decrease in rate if performed preterm RR = 0.52 (95% CI = 0.39, 0.71) if performed at term 	<ul style="list-style-type: none"> Somewhat generalizable

⁷⁰ Both results for outcomes of prescribing progestational agents were reported in Sanchez-Ramos et al. (2005).

⁷¹ Health professional applies pressure to the mother's abdomen to encourage the fetus to turn from feet first to head first.

⁷² Both results for outcomes of external cephalic version performed preterm were reported in Hutton and Hofmeyr (2006).

⁷³ NCCWCH (2003) reported results of a previously published meta-analysis for both outcomes of external cephalic version performed at term for breech presentation.

Table C-2-b. Studies that Examined the Effectiveness of Specific Interventions (cont'd)

Risk Factor/ Intervention	Outcome	Research Design	Statistical Significance	Direction of Effect	Size of Effect	Generalizability
Ultrasound to determine gestational age	Reduction in odds of inducing labor	1 systematic review of Level I-II studies and 1 Level II study	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors routine ultrasound 	<ul style="list-style-type: none"> • OR = 0.61 (95% CI = 0.52, 0.72)⁷⁴ 	<ul style="list-style-type: none"> • Somewhat generalizable
Membrane sweeping to induce labor in postterm pregnancies	Reduction in odds of inducing labor	2 systematic reviews of Level II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors membrane sweeping 	<ul style="list-style-type: none"> • RR = 0.59 (95% CI = 0.50, 0.70)⁷⁵ 	<ul style="list-style-type: none"> • Somewhat generalizable
Routine induction of labor with pharmaceuticals in postterm pregnancies	Reduction in odds of cesarean section	1 meta-analysis of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors induction of labor 	<ul style="list-style-type: none"> • OR = 0.88 (95% CI = 0.78, 0.99)⁷⁶ 	<ul style="list-style-type: none"> • Somewhat generalizable
	Reduction in odds of perinatal death	2 meta-analyses and 2 systematic reviews of Level I-II studies	<ul style="list-style-type: none"> • Statistically significant 	<ul style="list-style-type: none"> • Favors induction of labor 	<ul style="list-style-type: none"> • RR = 0.30 (95% CI = 0.09, 0.99)⁷⁷ 	<ul style="list-style-type: none"> • Somewhat generalizable

⁷⁴ NCCWCH (2003) reported results of a previously published meta-analysis.

⁷⁵ NCCWCH (2003) reported results from a previous meta-analysis.

⁷⁶ Sanchez-Ramos et al., 2003

⁷⁷ Gülmezoglu et al., 2006

Appendix D: Cost Impact Analysis: Data Sources, Caveats, and Assumptions

This appendix describes data sources, as well as general and mandate-specific caveats and assumptions used in conducting the cost impact analysis. For additional information on the cost model and underlying methodology, please refer to the CHBRP Web site at http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

The cost analysis in this report was prepared by the Cost Team, which consists of CHBRP task force members and staff, specifically from the University of California, Los Angeles, and Milliman Inc. (Milliman). Milliman is an actuarial firm, and it provides data and analyses per the provisions of CHBRP authorizing legislation.

Data Sources

In preparing cost estimates, the Cost Team relies on a variety of data sources as described below.

Private Health Insurance

1. The latest (2005) California Health Interview Survey (CHIS), which is utilized to estimate insurance coverage for California's population and distribution by payer (i.e., employment-based, privately purchased, or publicly financed). The biannual CHIS is the largest state health survey conducted in the United States, collecting information from over 40,000 households. More information on CHIS is available at www.chis.ucla.edu/
2. The latest (2007) California Employer Health Benefits Survey is utilized to estimate:
 - size of firm,
 - percentage of firms that are purchased/underwritten (versus self-insured),
 - premiums for plans regulated by the Department of Managed Health Care (DMHC) (primarily health maintenance organizations [HMOs]),
 - premiums for policies regulated by the California Department of Insurance (CDI) (primarily preferred provider organizations [PPOs]), and
 - premiums for high-deductible health plans (HDHPs) for the California population covered under employment-based health insurance.

This annual survey is released by the California Health Care Foundation/National Opinion Research Center (CHCF/NORC) and is similar to the national employer survey released annually by the Kaiser Family Foundation and the Health Research and Educational Trust. Information on the CHCF/NORC data is available at www.chcf.org/topics/healthinsurance/index.cfm?itemID=133543.

3. Milliman data sources are relied on to estimate the premium impact of mandates. Milliman's projections derive from the Milliman Health Cost Guidelines (HCGs). The HCGs are a health care pricing tool used by many of the major health plans in the United States. See www.milliman.com/expertise/healthcare/products-tools/milliman-care-guidelines/index.php. Most of the data sources underlying the HCGs are claims databases

from commercial health insurance plans. The data are supplied by health insurance companies, Blues plans, HMOs, self-funded employers, and private data vendors. The data are mostly from loosely managed healthcare plans, generally those characterized as preferred provider plans or PPOs. The HCGs currently include claims drawn from plans covering 4.6 million members. In addition to the Milliman HCGs, CHBRP's utilization and cost estimates draw on other data, including the following:

- The MEDSTAT MarketScan Database, which includes demographic information and claim detail data for approximately 13 million members of self-insured and insured group health plans.
- An annual survey of HMO and PPO pricing and claim experience. The most recent survey (2006 Group Health Insurance Survey) contains data from seven major California health plans regarding their 2005 experience.
- Ingenix MDR Charge Payment System, which includes information about professional fees paid for healthcare services, based upon approximately 800 million claims from commercial insurance companies, HMOs, and self-insured health plans.

These data are reviewed for applicability by an extended group of experts within Milliman but are not audited externally.

4. An annual survey by CHBRP of the seven largest providers of health insurance in California (Aetna, Blue Cross of California, Blue Shield of California, CIGNA, Health Net, Kaiser Foundation Health Plan, and PacifiCare) to obtain estimates of baseline enrollment by purchaser (i.e., large and small group and individual), type of plan (i.e., DMHC- or CDI-regulated), cost-sharing arrangements with enrollees, and average premiums. Enrollment in these seven firms represents 94.6% of privately insured enrollees in full-service health plans regulated by DMHC and 85.4% of those privately insured by comprehensive health insurance products regulated by CDI.

Public Health Insurance

5. Premiums and enrollment in DMHC- and CDI-regulated plans by self-insured status and firm size are obtained annually from CalPERS for active state and local government public employees and their family members who receive their benefits through CalPERS. Enrollment information is provided for fully funded, Knox-Keene licensed health care service plans covering non-Medicare beneficiaries, which is about 75% of CalPERS total enrollment. CalPERS self-funded plans—approximately 25% of enrollment—are not subject to state mandates. In addition, CHBRP obtains information on current scope of benefits from health plans' evidence of coverage (EOCs) publicly available at www.calpers.ca.gov.
6. Enrollment in Medi-Cal Managed Care (Knox-Keene licensed plans regulated by DMHC) is estimated based on CHIS and data maintained by the Department of Health Care Services (DHCS). DHCS supplies CHBRP with the statewide average premiums negotiated for the Two-Plan Model, as well as generic contracts that summarize the current scope of benefits. CHBRP assesses enrollment information available online at www.dhs.ca.gov/admin/ffdmb/mcss/RequestedData/Beneficiary%20files.htm.

7. Enrollment data for other public programs—Healthy Families, Access for Infants and Mothers (AIM), and the Major Risk Medical Insurance Program (MRMIP)—are estimated based on CHIS and data maintained by the Major Risk Medical Insurance Board (MRMIB). The basic minimum scope of benefits offered by participating plans under these programs must comply with all requirements of the Knox-Keene Act, and thus these plans are affected by changes in coverage for Knox-Keene licensed plans. CHBRP does not include enrollment in the Post-MRMIB Guaranteed-Issue Coverage Products as these individuals are already included in the enrollment for individual health insurance products offered by private carriers. Enrollment figures for AIM and MRMIP are included with enrollment for Medi-Cal in presentation of premium impacts. Enrollment information is obtained online at www.mrmib.ca.gov/. Average statewide premium information is provided to CHBRP by MRMIB staff.

General Caveats and Assumptions

The projected cost estimates are estimates of the costs that would result if a certain set of assumptions were exactly realized. Actual costs will differ from these estimates for a wide variety of reasons, including:

- Prevalence of mandated benefits before and after the mandate may be different from CHBRP assumptions.
- Utilization of mandated services before and after the mandate may be different from CHBRP assumptions.
- Random fluctuations in the utilization and cost of health care services may occur.

Additional assumptions that underlie the cost estimates presented in this report are:

- Cost impacts are shown only for people with insurance and only for the first year after enactment of the proposed mandate.
- The projections do not include people covered under self-insured employer plans because those plans are not subject to state-mandated minimum benefit requirements.
- Employers and employees will share proportionately (on a percentage basis) in premium rate increases resulting from the mandate. In other words, the distribution of premium paid by the subscriber (or employee) and the employer will be unaffected by the mandate.
- For state-sponsored programs for the uninsured, the state share will continue to be equal to the absolute dollar amount of funds dedicated to the program.
- When cost savings are estimated, they reflect savings realized for one year. Potential long-term cost savings or impacts are estimated if existing data and literature sources are available and provide adequate detail for estimating long-term impacts. For more information on CHBRP's criteria for estimating long-term impacts please see http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php.
- Several recent studies have examined the effect of private insurance premium increases on the number of uninsured (Chernew et al., 2005; Hadley, 2006; Glied and

Jack, 2003). Chernew et al., estimate that a 10% increase in private premiums results in a 0.74 to 0.92 percentage point decrease in the number of insured, while Hadley (2006) and Glied and Jack (2003) estimate that a 10% increase in private premiums produces a 0.88 and 0.84 percentage point decrease in the number of insured, respectively. The price elasticity of demand for insurance can be calculated from these studies in the following way. First, take the average percentage point decrease in the number of insured reported in these studies in response to a 1% increase in premiums (about -0.088), divided by the average percentage of insured individuals (about 80%), multiplied by 100%, i.e., $([-0.088/80] \times 100) = -0.11$. This elasticity converts the percentage point decrease in the number of insured into a percentage decrease in the number of insured for every 1% increase in premiums. Because each of these studies reported results for the large-group, small-group, and individual insurance markets combined, CHBRP employs the simplifying assumption that the elasticity is the same across different types of markets. For more information on CHBRP's criteria for estimating impacts on the uninsured please see http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

There are other variables that may affect costs, but which CHBRP did not consider in the cost projections presented in this report. Such variables include, but are not limited to:

- Population shifts by type of health insurance coverage: If a mandate increases health insurance costs, then some employer groups and individuals may elect to drop their coverage. Employers may also switch to self-funding to avoid having to comply with the mandate.
- Changes in benefit plans: To help offset the premium increase resulting from a mandate, health plan members may elect to increase their overall plan deductibles or copayments. Such changes would have a direct impact on the distribution of costs between the health plan and the insured person, and may also result in utilization reductions (i.e., high levels of patient cost sharing result in lower utilization of health care services). CHBRP did not include the effects of such potential benefit changes in its analysis.
- Adverse selection: Theoretically, individuals or employer groups who had previously foregone insurance may now elect to enroll in an insurance plan post-mandate because they perceive that it is to their economic benefit to do so.
- Health plans may react to the mandate by tightening their medical management of the mandated benefit. This would tend to dampen the CHBRP cost estimates. The dampening would be more pronounced on the plan types that previously had the least effective medical management (i.e., PPO plans).
- Variation in existing utilization and costs, and in the impact of the mandate, by geographic area and delivery system models: Even within the plan types CHBRP modeled (HMO—including HMO and point of service [POS] plans—and non-HMO—including PPO and fee for service [FFS] policies), there are likely variations in utilization and costs by these plan types. Utilization also differs within California due to differences in the health status of the local commercial population, provider practice patterns, and the level of managed care available in each community. The

average cost per service would also vary due to different underlying cost levels experienced by providers throughout California and the market dynamic in negotiations between health plans and providers. Both the baseline costs prior to the mandate and the estimated cost impact of the mandate could vary within the state due to geographic and delivery system differences. For purposes of this analysis, however, CHBRP has estimated the impact on a statewide level.

Mandate-Specific Caveats and Assumptions

This section highlights specific caveats and assumptions that are not already discussed in the *Utilization, Cost and Coverage* section of the report.

- CHBRP estimates there are approximately 9,200 expected births among women in 2008 who currently have no maternity benefits when they become pregnant. This estimate was based on birth rates in the privately-insured population drawing from Milliman claims data.
 - About 2,700 of these women may currently qualify for Medi-Cal or AIM. According to CHIS 2005, approximately 22% of women ages 15-49 with individual insurance are in households with incomes less than 200% of the FPL making them eligible for Medi-Cal.. According to data provided from the AIM program⁷⁸, CHBRP estimates that approximately 8% of those privately-insured women are eligible for AIM due to household income levels and the cost associated with maternity services under their insurance policies. Thus, CHBRP estimates the percentage of expected births among these women to be covered by AIM or Medi-Cal to be about 30%.
 - CHBRP estimates that about 300 of the 9,200 expected births among women who currently have no maternity benefits when they become pregnant are switching to plans covering maternity that are offered by their existing carrier. This estimate was based on responses to CHBRP coverage survey from the six major carriers of CDI-regulated policies in the state.
 - CHBRP estimates that the remaining 6,200 expected births among women who currently have no maternity benefits would be not be covered by insurance pre-mandate. This is the population that would directly be impacted by AB 1962 and be newly covered for maternity services post-mandate.

⁷⁸ Personal communication with Legislative Analyst, Managed Risk Medical Insurance Board (MRMIB), February 29, 2008

Appendix E: Information Submitted by Outside Parties

In accordance with CHBRP policy to analyze information submitted by outside parties during the first two weeks of the CHBRP review, the following parties chose to submit information.

Blue Cross of California submitted information regarding the premium impacts they would face for products that currently do not cover maternity services on March 1, 2008.

This information is available upon request.

For information on the processes for submitting information to CHBRP for review and consideration, please visit http://www.chbrp.org/recent_requests/index.php.

References

- Alexander GR, Korenbrot CC. The role of prenatal care in preventing low birth weight. *The Future of Children*. 1995;5:103-120.
- Alexander GR, Kotelchuck M. Assessing the role and effectiveness of prenatal care: History, challenges, and directions for future research. *Public Health Reports*. 2001;116:306-316.
- Baxley EG. Labor induction: A decade of change. *American Family Physician*. 2003;67:2076, 2078, 2083-4.
- Bennett KA, Crane JM, O'Shea P, Lacelle J, Hutchens D, Copel JA. First trimester ultrasound screening is effective in reducing postterm labor induction rates: A randomized controlled trial. *American Journal of Obstetrics and Gynecology*. 2004;190:1077-1081.
- Blue Cross and Blue Shield Association. (2007). "State Mandated Benefits and Providers." State Legislative Health Care and Insurance Issues. 2007 Survey of Plans. Office of Policy.
- Braveman P, Marchi K, Sarnoff R, Egerter S, Rittenhouse D, Salganicoff A. (2003). *Promoting Access to Prenatal Care: Lessons from the California Experience*. Menlo Park, Henry J. Kaiser Family Foundation.
- California Department of Health Services (DHS). (1998). Live Births By Number Of Prenatal Visits And Principal Source Of Payment for Prenatal Care. *Vital Statistics Data Tables 1998 Statewide Data*. Sacramento, California Department of Health Services. Available at www.dhs.ca.gov/hisp/chs/OHIR/vssdata/1998data/PDFCh_2/2-55-1998.pdf. Accessed October 15, 2003.
- California Health Interview Survey (CHIS). 2005 California Health Interview Survey: Los Angeles, CA: UCLA Center for Health Policy Research; 2005.
- California Health Interview Survey (CHIS). Available at www.askchis.com. Accessed March 27, 2008.
- Chernew M, Cutler M, Keenan SP. Competition, markets, and insurance: Increasing health insurance costs and the decline in insurance coverage. *Health Services Research*. 2005;40:1021-1039.
- Chou R, Smits AK, Huffman LH, Korthuis PT. *Screening for human immunodeficiency virus in pregnant women: Evidence synthesis*. Rockville, MD: Agency for Healthcare Research and Quality, 2006. Available at www.ahrq.gov/downloads/pub/prevent/pdfser/hivpresyn.pdf. Accessed February 13, 2008.
- Duley L, Gülmezoglu AM, Henderson-Smart DJ. Magnesium sulphate and other anticonvulsants for women with pre-eclampsia. *Cochrane Database of Systematic Reviews*. 2003(2):CD000025.
- Duley L, Henderson-Smart DJ, Meher S, King JF. Antiplatelet agents for preventing pre-eclampsia and its complications. *Cochrane Database of Systematic Reviews*. 2007(2):CD004659.
- Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives on Sexual and Reproductive Health*. 2006;38(2):90-6.
- Fiscella K. Does prenatal care improve birth outcomes: A critical review. *Obstetrics and Gynecology*. 1995;85:468-479.

- Galbraith AA, Egerter SA, Marchi KS, Chavez G, Braveman PA. Newborn early discharge revisited: are California newborns receiving recommended postnatal services? *Pediatrics*. 2003;111(2):364-71.
- Gartlehner G, Kahwati L, Lux L, West S. *Screening for asymptomatic bacteriuria: A brief evidence update for the U.S. Preventive Services Task Force Review*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at www.ahrq.gov/clinic/3rduspstf/asymbac/asymbacup.pdf. Accessed March 1, 2008.
- Glass N, Nelson HD, Villemeyer K. *Screening for gonorrhea: Update of the evidence*. Rockville, MD: Agency for Healthcare Research and Quality; 2005. Available at www.ahrq.gov/clinic/uspstf05/gonorrhea/gonup.pdf. Accessed March 1, 2008.
- Glied S, Jack K. *Macroeconomic condition, health costs and the distribution of health insurance*. Cambridge, MA: National Bureau of Economic Research. Working paper (W10029). 2003. Available at www.nber.org/papers/W10029. Accessed February 7, 2007.
- Gülmezoglu AM, Crowther CA, Middleton P. Induction of labour for improving birth outcomes for women at or beyond term. *Cochrane Database of Systematic Reviews*. 2006(4);CD004945.
- Hadley J. The effects of recent employment changes and premium increases on adults' insurance coverage. *Medical Care Research and Review*. 2006;63:447-476.
- Helfand M, Freeman M, Nygren P, Walker M. *Screening for iron deficiency anemia in childhood and pregnancy: Update of 1996 U.S. Preventive Services Task Force Review*. Rockville, MD: Agency for Healthcare Research and Quality; 2006. Available at www.ahrq.gov/clinic/uspstf06/ironsc/ironscrev.pdf. Accessed March 4, 2008.
- Hofmeyr GJ, Atallah AN, Duley L. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews*. 2006(3);CD001059.
- Hutton EK, Hofmeyr GJ. External cephalic version for breech presentation before term. *Cochrane Database of Systematic Reviews*. 2006(1);CD000084.
- Institute for Clinical Systems Improvement (ICSI). *Health Care Guideline: Routine Prenatal Care*. Bloomington, MN: Institute for Clinical Systems Improvement; 2007.
- Institute of Medicine (IOM). *Preterm Birth: Causes, Consequences, and Prevention, Report Brief, July 2006*. Available at www.iom.edu/Object.File/Master/35/975/pretermbirth.pdf, Accessed February 29, 2008.
- Kaiser Family Foundation (KFF). *Maternity Care and Consumer-Driven Health Plans*. Menlo Park, CA; 2007. Available at www.kff.org/womenshealth/upload/7636.pdf, Accessed March 19, 2008.
- Kotelchuck M. An evaluation of the Kessner adequacy of prenatal care index and a proposed adequacy of prenatal care utilization index. *American Journal of Public Health*. 84(9):1414-20.
- Krishnaraj R. *Screening for hepatitis B virus infection: A brief evidence update for the U.S. Preventive Services Task Force Review*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at www.ahrq.gov/clinic/3rduspstf/hepbscr/hepbup.pdf. Accessed March 1, 2008.

- Lee C, Gong Y, Brok J, Boxall EH, Glud C. Hepatitis B immunisation for newborn infants of hepatitis B surface antigen-positive mothers. *Cochrane Database of Systematic Reviews*. 2006(2):CD004790.
- Lu MC, Tache V, Alexander GR, Kotelchuck M, Halfon N. Preventing low birth weight: Is prenatal care the answer? *Journal of Maternal, Fetal and Neonatal Medicine*. 2003;13:362-380.
- Lumley J, Oliver SS, Chamberlain C, Oakley L. Interventions for promoting smoking cessation during pregnancy. *Cochrane Database of Systematic Reviews*. 2004(4):CD001055.
- Malkin JD, Keeler E, et al.. Postpartum length of stay and newborn health: a cost-effectiveness analysis. *Pediatrics*. 2003; 111(4 Pt 1):316-22.
- March of Dimes (MOD). PeriStats: Online Perinatal Statistics. 2004. Available at www.marchofdimes.com/peristats/. Accessed March 14, 2008.
- March of Dimes (MOD). Risk factors for preterm labor and birth. Available at www.marchofdimes.com/files/MP_RiskFactorsForPretermLabor041904.pdf. Accessed March 27, 2008.
- Meyers DS, Halvorson H, Luckhaupt S. *Screening for chlamydial infection: A focused evidence update*. Rockville, MD: Agency for Healthcare Research and Quality; 2007. Available at www.ahrq.gov/clinic/uspstf07/chlamydia/chlamydiasyn.pdf. Accessed March 1, 2008.
- National Collaborative Centre on Women's and Children's Health (NCCWCH). *Antenatal Care: Routine Care for the Healthy Pregnant Woman*. London: Royal College of Obstetricians and Gynecologists; 2003.
- Nelson HD, Glass N, Huffman LH, et al. *Screening for syphilis: Brief update for the U.S. Preventive Services Task Force Review*. Rockville, MD: Agency for Healthcare Research and Quality; 2004. Available at www.ahrq.gov/clinic/3rduspstf/syphilis/syphilup.pdf. Accessed March 1, 2008
- Roberts D, Dalziel S. Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. *Cochrane Database of Systematic Reviews*. 2006(3):CD004454.
- Sanchez-Ramos L, Kaunitz AM, Delke I. Progestational agents to prevent preterm birth: A meta-analysis of randomized controlled trials. *Obstetrics and Gynecology*. 2005;105:273-279.
- Sanchez-Ramos L, Oliver F, Delke I, Kaunitz AM. Labor induction versus expectant management for postterm pregnancies: A systematic review with meta-analysis. *Obstetrics and Gynecology*. 2003;101:1312-1318.
- Schrag S, Gorwitz R, Fultz-Butts K, Schuchat A. Prevention of perinatal group B streptococcal disease: Revised guidelines from CDC. *Morbidity and Mortality Weekly: Recommendations and Reports*. 2002;51:1-24.
- Smaill F, Vazquez JC. Antibiotics for asymptomatic bacteriuria in pregnancy. *Cochrane Database of Systematic Reviews*. 2007(2):CD000490.

- State of California, Department of Public Health (CDPH). 2005 Vital Statistics of California Report, Sacramento, CA, July 2007. 2007a. Available at ww2.cdph.ca.gov/data/statistics/Pages/BirthStatisticalDataTables.aspx. Accessed February 27, 2008.
- State of California, Department of Public Health (CDPH). Maternal/Pregnancy-Related Mortality Rate, California Residents & United States: 1991-2004, Sacramento, CA, October 2007. 2007b. Available at www.cdph.ca.gov/data/statistics/Documents/MO-CA-US1991-2004.pdf. Accessed February 27, 2008.
- United States Department of Health and Human Services (US DHHS) PHS. *Treating Tobacco Use and Dependence: Clinical Practice Guideline* Washington, DC: US Department of Health and Human Services; 2000.
- United States Preventive Services Task Force (USPSTF). *Guide to Clinical Preventive Services, 2007 Recommendations of the U.S. Preventive Services Task Force Review*. Rockville, MD: Agency for Healthcare Research and Quality; 2007.
- United States Preventive Services Task Force (USPSTF). *Guide to Clinical Preventive Services, Second Edition, 1996*. Rockville, MD: Agency for Healthcare Research and Quality; 2006.
- Villar J, Carroli G, Khan-Neelofur D, Piaggio G, Gulmezoglu M. Patterns of routine antenatal care for low-risk pregnancy. *Cochrane Database of Systematic Reviews*. 2001;(4)CD000934.

California Health Benefits Review Program Committees and Staff

A group of faculty and staff undertakes most of the analysis that informs reports by the California Health Benefits Review Program (CHBRP). The CHBRP **Faculty Task Force** comprises rotating representatives from six University of California (UC) campuses and three private universities in California. In addition to these representatives, there are other ongoing contributors to CHBRP from UC. This larger group provides advice to the CHBRP staff on the overall administration of the program and conducts much of the analysis. The CHBRP **staff** coordinates the efforts of the Faculty Task Force, works with Task Force members in preparing parts of the analysis, and coordinates all external communications, including those with the California Legislature. The level of involvement of members of the CHBRP Faculty Task Force and staff varies on each report, with individual participants more closely involved in the preparation of some reports and less involved in others.

As required by the CHBRP authorizing legislation, UC contracts with a certified actuary, Milliman Inc. (Milliman), to assist in assessing the financial impact of each benefit mandate bill. Milliman also helped with the initial development of CHBRP methods for assessing that impact.

The **National Advisory Council** provides expert reviews of draft analyses and offers general guidance on the program to CHBRP staff and the Faculty Task Force. CHBRP is grateful for the valuable assistance and thoughtful critiques provided by the members of the National Advisory Council. However, the Council does not necessarily approve or disapprove of or endorse this report. CHBRP assumes full responsibility for the report and the accuracy of its contents.

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