CALIFORNIA
HEALTH BENEFITS REVIEW PROGRAM

Analysis of Senate Bill 897
Maternity Services

A Report to the 2003-2004 California Legislature
February 9, 2004
Revised October 8, 2004

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Established in 2002 to implement the provisions of Assembly Bill 1996 (*California Health and Safety Code*, Section 127660, et seq.), the California Health Benefits Review Program (CHBRP) responds to requests from the State Legislature to provide independent analysis of the medical, financial, and public health impacts of proposed health insurance benefit mandates. The statute defines a health insurance benefit mandate as a requirement that a health insurer and/or managed care health plan (1) permit covered individuals to receive 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, University of Southern California, and Stanford University, to complete each analysis within 60 days, 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, made up of 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 sound scientific evidence relevant to the proposed mandate but does not make recommendations, deferring policy decision making to the Legislature. The state funds this work though an annual assessment of health plans and insurers in California. All CHBRP reports and information about current requests from the California Legislature are available at CHBRP's Web site, www.chbrp.org.

A Report to the 2003-2004 California State Legislature

An Analysis of Senate Bill 897
Maternity Services

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PREFACE

This report provides an analysis of the medical, financial, and public health impacts of Senate Bill 897, a bill to require all health care service plans and private health insurers to provide coverage for maternity services, defined as prenatal and ambulatory care services, inpatient hospital care (including labor and postpartum care), involuntary complications of pregnancy, and neonatal care. In response to a request from the California Senate Committee on Insurance on May 12, 2003, the California Health Benefits Review Program (CHBRP) undertook this analysis pursuant to the provisions of Assembly Bill 1996 (2002) as chaptered in Section 127660, et seq., of the *California Health and Safety Code*.

Gerald Kominski, PhD, Miriam Laugesen, PhD, and Nadereh Pourat, PhD, of the University of California, Los Angeles, coordinated the preparation of this report and prepared the cost impact section. Theodore Ganiats, MD, of the University of California, San Diego, and Miriam Laugesen prepared the medical effectiveness section. Judith Fullerton, PhD, CNM, of the College of Health Sciences, University of Texas, El Paso, provided technical assistance with the literature review and clinical expertise for the medical effectiveness section. Helen Halpin, PhD, and Sara McMenamin, PhD, both of the University of California, Berkeley, prepared the public health impact section. Robert Cosway, FSA, MAAA, and Jay Ripps, FSA, MAAA, both of Milliman USA, provided actuarial analysis. Other contributors include Michael E. Gluck, PhD, of CHBRP staff. Catherine Nancarrow of the University of California Office of the President provided editorial guidance on early drafts of this report, and Cherie Dee Wilkerson, freelance editor, copy edited the report. In addition, a balanced subcommittee of CHBRP's National Advisory Council (see final pages of this report), reviewed the analysis for its accuracy, completeness, clarity, and responsiveness to the Legislature's request.

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 CHBRP:

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Michael E. Gluck, PhD
Director

Revision:
October 8, 2004: Added a standard preface and appendix to appear in all CHBRP reports, identifying individual contributions to the analysis.

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EXECUTIVE SUMMARY

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Senate Bill 897 (SB 897) proposes to require all health care service plans and private health insurers to provide coverage for maternity services, defined as prenatal and ambulatory care services, inpatient hospital care (including labor and postpartum care), involuntary complications of pregnancy, and neonatal care.

The California Health Benefits Review Program has been asked by the California Legislature to conduct an evidence-based scientific review of the medical, financial, and public health impacts of this legislation. Our major findings follow.

I. Medical Effectiveness

- There is a lack of data on the effectiveness of the package of maternity services mandated by SB 897. Many maternity services have been shown to be effective, but there is a lack of understanding regarding which combination of maternity services makes a difference in outcomes for pregnant women and infants. This does not mean the services are ineffective, but that the evidence about what works best is inconclusive. Although many medical interventions have been tested in randomized controlled trials, few maternity services have been tested this way. Another reason for the lack of evidence is that almost all women in most industrialized countries have coverage for maternity services, making comparative studies between those with and those without coverage difficult to conduct.

- Evidence indicates that individual elements of maternity services, such as screening for specific conditions, are effective in avoiding perinatal complications, mortality, and other poor birth outcomes.

II. Utilization, Cost, and Coverage Impacts

- Most Californians with private insurance (97.6%) have coverage for prenatal care and maternity services. For small firms (up to 50 employees), about 144,000 adults (3.4% of those employed in small firms that provide employee health benefits) lack coverage for maternity benefits, whereas in large firms, about 18,000 adults (0.2% of those employed in large firms that provide employee health benefits) lack this coverage. In the market for individual coverage, about 192,000 people (approximately 12% of the individual market) lack maternity benefits. Statewide, an estimated 354,000 privately insured individuals do not have maternity benefits.

- Total expenditures (including total premiums and out-of-pocket spending for copayments and non-covered benefits) by or on the behalf of all commercially insured individuals are estimated to increase by 0.01% as a result of this mandate. Virtually all of the impact will be concentrated in the individual insurance market, where total costs (including total premiums

and out-of-pocket spending for copayments and non-covered benefits) are estimated to increase by 0.10%. Total costs in the group market, for both small and large firms, are estimated to increase by less than 0.01%.

- Public or private insurance already covers 96% of deliveries. Specific components of prenatal care may change. The number of prenatal care visits may increase due to the mandate, but the amount of the increase is difficult to estimate. Increased use of prenatal care will not affect expenditures as prenatal care is usually paid for as a single lump-sum fee to physicians.

- Actuarial costs are estimated to increase by 13% among those aged 25-39 years who currently purchase policies without maternity benefits. The increase in premium costs is difficult to estimate, because premiums depend on a number of market factors, including but not limited to changes in actuarial costs. If premiums increase by the same amount as actuarial costs, a 13% premium increase could result in approximately 1,900 newly uninsured individuals of whom 227 (12%) would be eligible for Medi-Cal.

- Coverage will be available for the 2.4% with private insurance whose coverage currently does not include maternity benefits. An estimated 354,000 adults statewide (2.4% of those with private insurance) who currently lack maternity benefits would be eligible under the mandate.

- If the mandate is not enacted, more commercial insurers in the individual and group insurance markets could potentially drop maternity benefits as a cost-saving strategy to lower premiums and increase market share. This market segmentation could drive up the premiums for insurers who continue to offer maternity benefits, and lead to more individuals with private insurance moving to the Medi-Cal program to pay for their prenatal and delivery care.

III. Public Health Impacts

- The impact on public health is expected to be limited because of high levels of existing coverage. Specifically, this mandate is not likely to impact the health of the community through the benefits of prenatal care, because 97.6% of the insured target population is already covered for prenatal care.

- This legislation is not likely to make significant improvements in health outcomes such as low birthweight and pre-term births, where racial and ethnic disparities are known to exist. This legislation is not likely to reduce infant mortality rates or premature death among pregnant women.

INTRODUCTION

Many private health insurers in California offer maternity coverage although they are not required to provide it. Senate Bill 897 (SB 897) proposes to mandate that health care service plans and health insurers provide maternity coverage. This Bill will affect all health insurers and managed health care plans in the State. SB 897 defines maternity services as prenatal and ambulatory care, inpatient hospital care (including labor and postpartum care), care for involuntary complications of pregnancy, and neonatal care. Prenatal care typically refers to the preventive care such as diagnostic and laboratory tests, ultrasound, and physician visits offered to pregnant women, but prenatal care can also include hospital care before delivery.

I. MEDICAL EFFECTIVENESS

The effectiveness of maternity services can be thought of in two different ways: as a whole or as individual elements. First, there are the "packages" of maternity care as outlined by SB 897: prenatal care or the care of the mother and the child from the first prenatal visit (or when the first visit should occur), delivery and peripartum care of the mother, and neonatal care in the first month of the child's life. Alternatively, the myriad services that make up each of the packages can be analyzed individually. For example, prenatal care consists of services ranging from tracking pregnant women's weight at each prenatal visit to using ultrasound to check for abnormalities of the fetus.

The evidence supporting the effectiveness of maternity and neonatal care varies and depends on whether one evaluates the package or the individual elements. This analysis focuses mainly on the package of care. An evaluation of a single component of maternity care will almost always over- or under-estimate its true effect, because each service is dependent on other services.

Prenatal Care and Neonatal Care Packages

Scientific evidence for the effectiveness of prenatal care is lacking. This does not mean it is ineffective-- as noted later, there is good evidence that many individual elements of these packages are highly effective--but our ability to *measure* the effectiveness of different components of the packages is limited or constrained. For example, it would be unethical to test the effect of lack of maternity services by denying care to pregnant women. Thus, researchers have to use other methods to evaluate the effectiveness of maternity services, including studying women who enroll in prenatal care programs or by studying trends over time in indicators such as birthweight or infant mortality.

One review (Fiscella, 1995) of prenatal care services found insufficient evidence to draw firm conclusions about the effect of prenatal care on birth outcomes, such as infant mortality, neonatal mortality, perinatal mortality, low birth weight, and preterm birth rates (Table 1). However, the author argued that although prenatal care has not been demonstrated to improve birth outcomes, "…policymakers deciding on funding for prenatal care must consider these findings in the context of prenatal care's overall benefits and potential cost-effectiveness (Fiscella, 1995)."

A large literature review of studies by the Institute of Medicine (Korenbrot and Moss, 2000) concluded that despite increased utilization of prenatal care in the United States, birthweight has failed to increase measurably, and that birthweight appears to largely reflect socio-economic and ethnic disparities. However, this study used birthweight as the outcome of interest. Birthweight is an important outcome of prenatal care, but it is not the only factor determining a healthy baby. Korenbrot and Moss's review of prenatal care notes that starting in 1984, Federal Medicaid reforms expanded the eligibility for pregnancy-related care and gave states incentives to provide such care. With these changes, access to prenatal services for low-income women improved in most states. The impact of these statewide changes found variable effects on prenatal care utilization and a small impact on pregnancy outcomes. Even though prenatal care improved, the increase in prenatal care utilization was not associated with a decrease in low birthweight babies. Secular trends in the processes of care make it difficult to evaluate other pregnancy outcomes such as costs and length of hospital stay.

In conclusion, the quality of the studies evaluating the effectiveness of maternity care packages means that making firm conclusions about the impact of prenatal benefits as a whole is difficult. There are even fewer studies evaluating neonatal care packages.

Maternity Care Elements and Neonatal Care Elements

Although there is little evidence to support the effectiveness of maternity services packages, clinical trials and other research data support many of the individual elements of maternity and neonatal care. For example, hypertensive disorders of pregnancy (i.e., pre-eclampsia, eclampsia) are among the most common causes of maternal death. Pregnancy-induced hypertension, a precursor of these conditions, carries little added risk for mother or fetus, but progression of the condition is unpredictable, and therefore, early identification and intervention is warranted.

Recent randomized clinical trials have investigated the effects of preventive therapies using dietary calcium supplementation, anticonvulsants, or low-dose aspirin therapy as adjuncts to the prenatal surveillance of maternal blood pressure levels (Heyborne, 2000; Atallah et al., 2002). One study (Shah, 2001) reviewed 19 randomized, placebo-controlled trials of low-dose aspirin therapy in women at risk of developing preeclampsia (women having their first child, women with underlying medical illness, poor obstetric history, and multiple gestation) reported in the literature. Low-dose aspirin therapy reduced the incidence of pre-eclampsia among women with poor obstetric histories and among those who were having their first child (Heyborne, 2000). The use of anticonvulsants to prevent seizures in patients with pre-eclampsia was evaluated in a 33-country study. Women with pre-eclampsia were randomized to either magnesium sulfate (n = 5071) or placebo (n = 5070). Follow-up was until discharge from hospital after delivery. Although, as expected, women receiving magnesium sulfate had more side effects than those receiving placebo (24% vs. 5%), women given magnesium sulfate had a 58% lower risk of eclampsia (95% confidence interval [CI] 0.40-0.71) than those allocated the placebo (11 fewer women with eclampsia per 1000 women). There was a trend for lower maternal mortality in women given magnesium sulfate (relative risk 0.55, 0.26-1.14) (Duley and The Magpie Trial Collaborative Group, 2002).

A large body of literature has identified a strong association between maternal infections (e.g., pyelonephritis, bacterial vaginosis) and the incidence of pre-term birth (Wadhwa et al., 2001; Foxman, 2002). The etiology of the relationship between these factors has been linked both to alterations in maternal hormonal status and to intrauterine inflammatory responses. Screening for maternal infections at several points during the prenatal time period (and timely treatment of these infections, once identified), has been demonstrated to have a positive impact on the length of intrauterine gestation (Goldenberg et al., 2000; Mitchell et al., 1991; Romero et al., 1998).

Women of Hispanic ethnicity are far more likely to experience gestational diabetes, which is associated with adverse maternal and neonatal consequences (Moore et al., 2002; Yang et al., 2002). This condition is easily identified through screening in the second trimester of pregnancy (Moses and Lucas 2001; Berger et al., 2002). Dietary counseling is effective in controlling the blood sugar levels of a majority of women who experience this condition. Maintaining normal glucose levels reduces the incidence of fetal macrosomia (excessive birthweight) and contributes to the improvement of birth outcomes (Dornhorst and Frost, 2002).

Other examples of effective prenatal care elements that are supported by the U.S. Preventive Services Task Force include screening for Rh incompatibility and for neural tube defects (U.S. Preventive Services Task Force, 1996). California law requires offering all pregnant women a screening for neural tube defects and trisomies via a triple serum marker test.

Screening for maternal Group B streptococcus (GBS) has been demonstrated to be effective in identifying women at high risk for transmitting this bacterium to the baby during birth. In a large study of 5,144 births (Schrag et al., 2002), the risk of early-onset GBS disease was significantly lower among the infants of screened and treated women than among those in a non-screened group (adjusted relative risk, 0.46; 95% CI, 0.36 to 0.60).

Neonatal interventions of proven effectiveness reviewed by the U.S. Preventive Services Task Force include screenings, such as for phenylketonuria (PKU; a preventable form of mental retardation), anemia, and hypothyroidism (U.S. Preventive Services Task Force, 1996). For those infants requiring specialized attention (those whose mothers use drugs, those with infections, etc.), neonatal care may provide lifesaving treatment.

In conclusion, although the *packages* of maternity care and neonatal care have not been shown to be effective, this may be due to study limitations (study design and selection of study outcomes). Many individual elements of both maternity and neonatal care have been demonstrated to be effective.

II. UTILIZATION, COST, AND COVERAGE IMPACTS

Our analysis of the financial impact of SB 897 includes present baseline cost and coverage of maternity services (pre-mandate) and the projected impact of mandated coverage for maternity services in the private health insurance market, both for individuals who buy their insurance directly from insurers and for firms that provide health insurance to their employees. The analysis of utilization, cost, and coverage does not include firms that self-insure, as the mandate does not affect these firms.

Maternity benefits generally include prenatal care (office visits, screening tests, and dietary supplements); labor and delivery services (including hospitalization); and postnatal care.

The estimated utilization of maternity services and the average costs of maternity services are shown in Appendix A. The pre-mandate cost of insurance coverage is shown on a per-member per-month (PMPM) basis in Appendix B. Post-mandate costs are shown in Appendix C. The analyses presented in these Appendices show costs as PMPM costs and assume that these changes in cost translate directly into changes in premium expenses. In actual insurance markets, premiums may change in response to a number of other factors in addition to PMPM cost changes. The analyses in Appendices A-C also show changes in total expenditures, which include estimated changes in premium costs and out-of-pocket expenses by individuals. Appendix D summarizes existing mandates dealing with maternity services.

Present Baseline Costs and Coverage

1. Current utilization levels and costs of the mandated benefit (Section 3(h))

Prenatal Care Utilization
In 2002, about 99.5% of all women with live births in California had more than one office visit for prenatal care (Table 2). As shown in Table 2, 46% of women had 9 to 12 visits for prenatal care and 33% had 13 to 16 prenatal visits. However, around 0.5% of women (2,620 women) received no prenatal care, and 2% of women had very low levels of utilization and received only 1 to 4 visits before giving birth.

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). As indicated by this combination measure, 83% of women in the state had adequate prenatal utilization in 1999 (Rittenhouse et al., 2003), and 85% of all women who delivered a live baby in 2002 initiated prenatal care in the first trimester (March of Dimes, 2003).

Prenatal and Inpatient Care Utilization and Costs
There were 529,245 live births statewide in 2002. The analysis first estimated utilization rates and costs for enrollees in the employer-sponsored private group insurance market who are

employed by firms that do not self-insure. The estimates of cost and utilization that follow are presented as average costs per case for those who use the service, and as the cost of providing those benefits to all enrollees whether they use the services or not. The actuarial estimates for the utilization and costs of maternity services in California (in 2004 dollars) are as follows:

Average inpatient utilization and costs for employer-sponsored plans:

- 14.5 admissions per 1,000 covered lives (excluding newborn admissions);
- 2.34 inpatient days per admission for delivery;
- $6094 per delivery;
- 33.9 inpatient days utilized per 1,000 covered lives;

Per member/per month (PMPM) average costs for employer-sponsored plans:

- $5.16 PMPM for inpatient admissions (including newborn admissions);
- $2.20 PMPM for outpatient services;
- $7.36 PMPM total costs.

These estimates suggest that 70% of the costs of maternity care are related to inpatient hospitalization for labor and delivery. Estimates of maternity admission rates are lower in the individual insurance market than the group market (12.9 per 1,000 versus 14.5 per 1,000 in the group market). As a result of this lower utilization, the PMPM costs in the individual market are estimated to be $6.54. This is calculated as $7.36 x (12.9/14.5) = $6.54.

2. Current coverage of the mandated benefit (Section 3(i))

Existing coverage for maternity services is determined by three factors: (1) the number of employees and dependents covered through their employers; (2) the number of individuals and dependents insured through the individual insurance market; and (3) public coverage.

Coverage for maternity services is almost universal particularly in the public sector and for individuals who work for large companies. All public programs include maternity benefits for eligible recipients. The most recent published data, taken from birth certificates, show that only a small percentage of women either paid for the delivery themselves (3%) or lacked insurance coverage (1%). Most women's maternity care is paid for by public insurers (42%) or private insurers (54%) (California Department of Health Services, 2003a). However, it should be noted that birth data only includes those women who delivered live infants – it does not include those who miscarried or delivered still births. Women whose pregnancies do not result in a live infant may have different rates of access to care and insurance coverage.

Table 3 shows the coverage for maternity services in California among the insured. The estimates are based on the Kaiser Family Foundation survey in 2002 of California employers who offer group health insurance benefits to their employees (Kaiser Family Foundation and Health Research and Educational Trust, 2003). This analysis assumes that employers who offer prenatal benefits also cover other maternity services. For small firms (up to 50 employees), about 144,000 adults (3.4% of those employed in small firms that provide employee health benefits) lack coverage for maternity benefits, whereas for large firms, about 18,000 adults (0.2% of those employed in large firms that provide employee health benefits) lack this coverage

(Table 3). In the market for individual coverage, however, about 192,000 people (approximately 12%) lack maternity benefits.

One recent study compared coverage levels with premiums to estimate how much consumers must pay to receive better coverage in the individual market in California (Beeuwkes-Buntin et al., 2003). Of the lower-cost policies, only 78% covered maternity, whereas 100% of higher-premium policies covered maternity. Thus, in some cases, maternity benefits are one of the services that may be omitted from lower-cost policies. It appears that policies that include maternity coverage are readily available to individuals who want (and can afford) such coverage.

In summary, an estimated 354,000 adults statewide (2.4% of those with private insurance) currently lack maternity benefits.

3. Public demand for health care coverage (Section 3(j))

As discussed previously, coverage for maternity benefits is currently widely available, although less widely purchased in the individual insurance market compared with the group insurance market, which indicates there already is broad support for and availability of maternity benefits.

A related issue that may be unique to this mandate is whether there is legitimate market demand for insurance coverage that *excludes* maternity benefits. Some individuals appear to have opted for no maternity coverage. Because of the rapidly rising costs of health insurance premiums and employee cost-sharing, one option for reducing premium costs might be for employers to expand their offering of lower-cost, less comprehensive benefits packages that exclude maternity services (among other benefits).

If (in the absence of a mandate) employers offered more options that excluded maternity benefits, the largest impact would likely be on the Medi-Cal program. The potential effect is discussed later under the impacts on each category of insurer.

Impacts of Mandated Coverage

4. How will changes in coverage related to the mandate affect the benefit of the newly covered service and the per-unit cost (Section 3(a))

There is no evidence that the proposed mandate would change the effectiveness of maternity services or the per-unit costs. As discussed previously, 96% of the women giving birth to live infants in the state currently receive prenatal, labor, and delivery services through public or private insurance, and the proposed mandate is not expected to measurably increase the demand for these services across the state.

5. How will utilization change as a result of the mandate (Section 3(b))

Overall, the mandate is estimated to have a very small impact on utilization of maternity services statewide. Specifically, the number of deliveries statewide is not expected to change significantly as a result of the mandate. The vast majority of deliveries (96%) are already covered by public or private insurance.

Within the individual insurance market, the rate of maternity admissions (deliveries) could decline slightly. Based on data provided by Milliman USA, women aged 25-39 years are slightly more likely to have maternity coverage currently, so the mandate would increase coverage for men[1] and for women in younger and older age categories where utilization of maternity services is substantially lower. An upper-bound estimate is that the utilization rate mentioned previously of 12.9 hospital admissions (births) per 1,000 members will remain unchanged, assuming that those currently without coverage will have the same rate of maternity utilization. A lower-bound estimate is that the 12% who currently do not have maternity coverage will have no utilization of maternity services, which would reduce the overall utilization rate by 9%, or 9.4 maternity admissions per 1,000.

Individuals currently may opt for policies without maternity benefits because they are unlikely to use them, and have thus self-selected into lower-cost policies. The net effect of the mandate may be to require a group of non-users to purchase a benefit they previously opted out of, thus increasing these non-users' insurance costs without increasing their useable benefits. There are no good estimates of the size of this effect.

Inpatient length of stay for deliveries might increase for women newly covered by the mandate. Length of stay is likely to be shorter for mothers who are uninsured and for those women whose physicians are paid a fixed fee for postpartum care (Galbraith et al., 2003; Malkin et al., 2003). However, we do not have evidence that substantial numbers of the uninsured will be able to afford individual insurance after the mandate, particularly since Medi-Cal provides maternity benefits for mothers with incomes up to 200% of the poverty level. Therefore, we expect the impact on length of stay to be negligible.

In summary, the mandate is likely to have offsetting impacts on utilization of services. It is likely to increase prenatal visits and inpatient length of stay for some individuals, but it is also likely to lower average utilization rates by requiring individuals who previously chose not to purchase maternity benefits to pay for services they are unlikely to use. Because the impacts are likely to affect a relatively small portion of the individual insurance market, the overall net impact on utilization is expected to be minimal.

6. To what extent does the mandate affect administrative and other expenses (Section 3(c))

The mandate will 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

[1] Men have maternity coverage for their spouses.

in maternity claims. Plans will have to modify some insurance contracts and member materials, but since a high proportion of carriers already offer policies that cover maternity services this will not be very costly. Plans will 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 will apply their existing administration and profit loads to the marginal increase in health care costs produced by the mandate.

7. Impact of mandate on total health care costs (Section 3(d))

The proposed mandate is likely to have minimal impact on overall costs of health care services in California. Virtually all of the impact will be concentrated in the individual insurance market where total costs (including total premiums and out-of-pocket spending for copayments) should remain essentially constant. The major effect on costs, discussed in the next section, would be to increase costs for the approximately 12% in the individual market who currently do not have the benefit. These cost increases should be offset substantially or entirely by slight decreases in premiums for those who currently have maternity benefits.

8. Costs or savings for each category of insurer resulting from the benefit mandate (Section 3(e))

Most of the impact of the mandate would be concentrated in the individual market. Total costs (including total premiums and out-of-pocket spending for copayments and non-covered benefits) are estimated to increase in the individual insurance market by about 0.10%. Because coverage for maternity benefits is essentially universal in the group insurance market, the effect on total costs will be smaller. However, as discussed later, the mandate could cause premium costs to increase substantially for those in the individual market who currently do not have maternity benefits, leading to an increase in the number of uninsured Californians (for those who opt out of coverage because the increased cost) and thus to an increase in the number of mothers giving birth under Medi-Cal. Based on cost estimates provided by Milliman USA, the cost of individual insurance premiums could increase by an average of about 13% for individuals aged 25-39 years without coverage for maternity services. (Milliman estimates that the average monthly premium for those aged 25-39 years purchasing individual policies without maternity benefits is $162.22 and that the increased actuarial cost of adding maternity benefits is $21.74, resulting in a estimated 13% [21.74/162.22 = 13%] increase in premiums). This is a lower-bound estimate based on the assumption that premiums in the individual market will decrease slightly for those who were previously insured, but must increase for those who purchased policies without maternity benefits, by an amount that is at least equal to the actuarial cost of the maternity benefit. The actual premium increases could be higher if insurers in the individual market choose to abandon lower-cost policies with higher deductibles and cost sharing, which are typical of the kinds of policies that exclude maternity benefits. On the other hand, the 88% of the people in the individual insurance market who currently have maternity benefits could

experience a slight decrease in premiums (about 0.5%) due to the expansion of the insurance pool and the subsequent reduction in average utilization.

Premium increases of the magnitude discussed previously for those without maternity coverage (presently 12% of the individual market, or 192,000 people) may lead people to drop their coverage. Using a model (Lewin Group, 2002) that predicts the size of this effect, it is estimated that 4.3% of the individually-insured may drop their insurance coverage if premiums rise by 13%. This is a lower-bound estimate because Californians aged 25-39 years in the individual market are slightly more likely to have incomes less than or equal to 200% of the Federal poverty level (UCLA Center for Health Policy Research, 2001), thus they are slightly more likely to become uninsured (Lewin Group, 2002). Based on our previous estimate of about 192,000 individuals without maternity benefits in the individual market, and our assumption above that 23% of these individuals fall within the 25-39 age category, the mandate could increase the number of uninsured by as many as 1,900 (192,000 x 0.23 x 0.043). About 12% of these individuals (or about 227) are women with incomes less than or equal to 200% of the Federal poverty level, and thus they would be eligible for Medi-Cal if they became pregnant (UCLA Center for Health Policy Research, 2001).

9. Current costs borne by payers (both public and private entities) in the absence of the mandated benefit (Section 3(f))

In 2002, about 42% of deliveries were covered by public insurance, predominantly Medi-Cal, and 54% by private insurers, predominantly employment-based policies. Because most uninsured mothers qualify for Medi-Cal maternity benefits (if their income is less than or equal to 200% of the Federal poverty level), some families in the absence of the mandate may forgo insurance or purchase policies without maternity benefits because they know they can qualify for Medi-Cal. To the extent that this is occurring, the Medi-Cal program is currently bearing a greater share of maternity costs than it might if the mandate where enacted. There is no evidence to suggest that this is occurring to a significant extent, however private insurance is currently difficult to afford for families eligible for Medi-Cal. The mandate would not change this phenomenon significantly, because it would not make premiums substantially more affordable.

The absence of the mandate allows health insurers and health plans to offer a greater number of lower-cost individual policies that exclude maternity services. The net effect of such a trend might be greater segmentation of the individual health insurance market according to risk because of the incentives for insurers to attract people with the lowest risk. 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. Since 12% of people with individual health insurance have chosen policies/plans without maternity coverage, it does not appear that favorable selection has caused significant market disruption. However, in the absence of a

mandate for maternity services, the number of people selecting policies without maternity coverage may deserve careful monitoring. Recent changes to the insurance code (10119.5) require insurers that offer maternity benefits to charge the same copayments and deductibles for maternity benefits as for other medical conditions. This requirement may make some insurers less willing to offer maternity benefits, which previously often had higher copayments and deductibles.

10. Impact on access and health service availability (Section 3(g))

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.

III. PUBLIC HEALTH IMPACTS

Present Maternity Health Outcomes

Of the approximately 532,000 babies born in California in 2000, almost 90,000 were born to mothers who received inadequate prenatal care defined as not starting prenatal care in their first trimester. Six percent, or more than 30,000 babies were born with low birthweight, approximately 50,000 babies were born pre-term (10%), and almost 2,900 babies died before their first birthday (March of Dimes, 2003). Overall birth rates for women in California were 71 per 1,000. These rates vary significantly by race, from 99 per 1,000 for Hispanic women (250,000 births) to 62 per 1,000 for non-Hispanic Black women (34,000 births) and 51 per 1,000 for non-Hispanic White women (172,000 births) (Table 4).

Three major outcomes of public health interest in relation to maternity care are low birthweight, pre-term deliveries, and mortality. Low birthweight and pre-term births are the second leading cause of infant deaths in California behind deaths due to birth defects.

Low Birthweight

Infants are considered low birthweight (LBW) if they are below 2,500 g at birth. In California, approximately 6% of babies born weigh less than 2,500 g, and 1% of those are considered very low birthweight (i.e., less than 1,500 g) (Table 5). Major risk factors for LBW include: multiple births, pre-term delivery, smoking, inadequate maternal nutrition, maternal age extremes, and short interpregnancy interval (March of Dimes 2003). The highest proportion of low birthweight infants are born to non-Hispanic Blacks (12%), followed by Asians (7%), Native Americans (6%), non-Hispanic Whites (6%), and Hispanics (6%).

Pre-term Infants

Pre-term infants are those born before they have completed 37 weeks of gestation. There were 50,486 pre-term births in California in 2001 (10% of live births; the 2010 National Health Objective is 7.6%). Pre-term births have increased 4% from 1991- 2001, with the highest rates among non-Hispanic Blacks (15%), followed by Native Americans (12%), Hispanics (10%), Asians (10%), and non-Hispanic Whites (9%) (Table 6).

The cause of pre-term labor is not always clear, but placenta previa (low-lying uterus) and maternal infection are known causes. Major risk factors for pre-term births include multiple births, previous pre-term delivery, stress, infection, bleeding, smoking, illicit drugs, and maternal age extremes (March of Dimes, 2003). A number of studies suggest that roughly 12% to 27% of pre-term births are multiple births (Slattery and Morrison, 2002).

Mortality

Infant mortality, or death of an infant in the first year of life, in California is most frequently caused by birth defects (138 per 100,000 live births) followed by prematurity and low birthweight (74 per 100,000 live births). Table 7 shows that respiratory distress among infants results in 115 deaths per year, or 22 per 100,000 live births per year. Maternal complications of pregnancy result in 101 infant deaths per year, or 19 per 100,000 live births. Reducing premature births and the rate of low birthweight infants is an important way of reducing infant mortality.

Approximately half of all neonatal deaths nationwide occur in infants who weighed less than 1,500 g at birth (California Department of Health Services, 2003b) Most of those deaths are concentrated in the lowest of these birthweights. A study of California Medicaid-funded births showed a survival rate of just 18% for infants weighing less than 750 g. Statewide data, which combine some of these weight bands, show slightly more favorable rates. Nearly a third of infants weighing between 500 and 999 g in California die (318 per 1000 births) (National Center for Health Statistics, 2002). Nationwide data suggest that the group of low-birthweight babies least likely to survive are those weighing between 250 and 499 g, who have a mortality risk greater than 50% (Alexander et al., 2003).

Receipt of Prenatal Care

Only 2.9% of live births in California in 2001 were to women who received no prenatal care or received late care (starting in the third trimester) (Table 8). In addition, 12% of live births were to women who started receiving prenatal care in the second trimester, and 85% of live births were to women who received prenatal care in the first trimester. The percentage of births where the mother started receiving prenatal care in the first trimester varies by race and ethnicity (Table 9). Among live births to non-Hispanic White women, 90% of these women had received prenatal care starting in the first trimester compared with 87% of Asians, 82% of non-Hispanic Blacks, 81% of Hispanics, and 73% of Native Americans (see Table 9).

Impact of the Proposed Mandate on the Public's Health

As presented in Section I, there have been no randomized controlled trials to study the effect of providing a maternity care benefit on maternal and infant health outcomes. In addition, as presented in Section II, effectively all insured women of childbearing age in California have coverage for maternity care. This mandate will not impact the health of the community through the benefits of prenatal care, because a large proportion of the insured target population is already covered for prenatal care. This legislation is also not likely to make any improvements

in health outcomes such as low birthweight and pre-term births, where racial and ethnic disparities are known to exist. Finally, this legislation is not likely to substantially reduce infant mortality rates or premature death among pregnant women because of the small number of women who will be affected by the mandate.

TABLES

Table 1. Summary of the Evidence and Quality of Evidence of the Effect of Prenatal Care on Birth Outcomes*

Criteria for Causality	Evidence for Criterion	Quality of Evidence
Temporal relationship: Does the cause precede the effect? (Terris and Glasser 1974; Tyson et al., 1990)	Weak Evidence	Poor Quality
Biologic plausibility: Is there a biological basis to support eh relationship? (Mustard and Roos, 1994; Raine et al., 1994)	Limited** Evidence	Fair Quality
Consistency: Is the association seen across many studies? (Terris and Glasser, 1974; Gortmaker, 1979; Quick et al., 1981; Showstack et al., 1984; Shiono et al., 1986; Scholl et al., 1987; Murray and Bernfield, 1988; Tyson et al., 1990; Malloy et al., 1992; Schramm, 1992; Kogan et al., 1994; Mustard and Roos, 1994; Parker et al., 1994; Raine et al., 1994)	Strong Evidence	Poor Quality
Adequate control for confounding: What other factors might explain birth outcomes? (see text)	No Evidence	Poor Quality
Dose-response: Does more prenatal care leads to better outcomes? (see text)	No Evidence	Good Quality
Strength of association: Is the link between care and its effect a strong one? (Terris and Glasser, 1974; Shiono et al., 1986; Scholl et al., 1987; Murray and Bernfield, 1988; Kogan et al., 1994; Mustard and Roos, 1994; Parker et al., 1994; Raine et al., 1994)	Variable Evidence	Poor Quality

Source: modified from Fiscella, 1995:475

* Without randomized trials we are forced to use observational studies. The listed criteria are commonly used to help establish causality from observational data

**Limited to women with potentially modifiable risk factors

Table 2. Percent of Live Births With and Without Prenatal Care, 2002

Number of Prenatal Visits	1-4	5-8	9-12	13-16	17-20	21-29	30 and Over	No Prenatal Care
As a percentage of total births	2.1%	10.5%	46.3%	32.9%	6.1%	1.1%	0.5%	0.5%

Number of Prenatal Visits	1-4	Up to 8 visits	Up to 12 visits	Up to 16 visits	Up to 20 visits	Up to 29 visits	Percentage women with 1+ visits	
Cumulative Percent with care	2.1%	12.6%	58.9%	91.8%	97.9%	99%	99.5%	0

Source: Data from California Department of Health Services

Table 3. Current Coverage for Maternity Services in California, 2003

Insurance Category	Percentage of Privately Insured Individuals with Prenatal Care Coverage	Number of Individuals without Prenatal Care Coverage
Large Employers Offering Coverage	99.8%	18,000
Persons enrolled in Health Maintenance Organizations	100%	0
Persons enrolled in Preferred Provider Organizations	100%	0
Persons enrolled in Point of Service plans	99%	14,000
Persons enrolled in Fee For Service plans	93%	4,000
Small Employers Offering Coverage	96.6%	144,000
Persons enrolled in Health Maintenance Organizations	97%	70,000
Persons enrolled in Preferred Provider Organizations	94%	66,000
Persons enrolled in Point of Service plans	99%	8,000
Persons enrolled in Fee For Service plans	100%	0
Individually Purchased Insurance	88.0%	192,000
Total Private Commercial Market	97.6%	354,000
Public Insurance	100%	100%
Medi-Cal	100%	0
Healthy Families	100%	0
CalPERs	100%	0
Other Government	100%	0

Sources: Kaiser Family Foundation, 2003; California Health Benefits Review Program.

Table 4. Births in California by Race/Ethnicity, California, 2002

Births	Rate	Number
Hispanic	98.5	258,105
Non-Hispanic White	51.2	171,552
Non-Hispanic Black	62.4	33,835
All Races/Ethnicity	70.7	531,959

Source: March of Dimes(2003).
Note: Rate per 1,000 women ages 15-44 in specified groups

Table 5. Low-Birthweight Births by Race/Ethnicity, California, 1999-2001

Race/Ethnicity	Low Birthweight (< 2500 g)	Very Low Birthweight (<1500 g)
Non-Hispanic White	5.7	1.0
Asian	7.0	1.0
Non-Hispanic Black	11.7	2.8
Hispanic	5.6	1.0
Native American	6.2	1.1
Total	6.2	1.1

Source: March of Dimes, 2003.

Table 6. Percent of Live Births that are Pre-term Births by Race/Ethnicity, California, 1999-2001

Race/Ethnicity	Pre-term birth (< 37 weeks)	Very Pre-term (<32 weeks)
Non-Hispanic Black	15.2%	3.4%
Native American	11.5%	1.7%
Hispanic	10.3%	1.4%
Asian	9.6%	1.2%
Non-Hispanic White	9.2%	1.2%
Total	10.2%	1.5%

Source: March of Dimes, 2003.

Table 7. Infant Deaths by Cause of Death, California, 2000.

	Rate	Number
Birth Defects	137.9	734
Prematurity/Low-Birthweight	73.8	393
SIDS	32.7	174
Respiratory Distress	21.5	115
Maternal Complications of Pregnancy	19	101

Source: March of Dimes, 2003.
Note: Rate per 100,000 live births

Table 8. Timing of Prenatal Care in California, 2001.

Timing of Prenatal Care	Percent of Live Births	Number of Births
Early care (1st trimester)	85.4%	443, 245
2nd Trimester	11.7%	60,744
Late care or no care	2.9%	15,293

Source: March of Dimes, 2003.

Table 9. Timing of Prenatal Care by Race/Ethnicity, California, 1999-2001.

Timing of Prenatal Care	Early care (1st trimester)	2nd Trimester	Late care or no care
Non-Hispanic White	89.7%	8.3%	2.0%
Asian	86.5%	11.0%	2.5%
Non-Hispanic Black	81.8%	14.4%	3.8%
Hispanic	81.0%	15.2%	3.8%
Native American	73.3%	19.7%	7.0%
Total	84.5%	12.4%	3.1%

Source: March of Dimes, 2003.

Appendix A. Estimated Utilization and Per Member/Per Month Costs of Mandated Maternity Services in the Private Group and Individual Insurance Market in California, Calendar Year 2004.

Estimated Utilization and Costs of Maternity Services, 2004

Population Under 65 Years of Age (excluding self-insured firms)	**Large Group**				**Small Group**				
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS	Individual
Maternity Deliveries Per 1000 Members With Maternity Benefits	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	12.9
Estimated Cost Per Delivery									
Inpatient (Mother, Well Newborn, Non-Deliveries)	$4,270	$4,270	$4,270	$4,270	$4,270	$4,270	$4,270	$4,270	$4,270
Professional	$1,824	$1,824	$1,824	$1,824	$1,824	$1,824	$1,824	$1,824	$1,824
Total	$6,094	$6,094	$6,094	$6,094	$6,094	$6,094	$6,094	$6,094	$6,094
Per Member/Per Month Cost	$7.36	$7.36	$7.36	$7.36	$7.36	$7.36	$7.36	$7.36	$6.54

Note: HMO = Health Maintenance Organization; PPO = Preferred Provider Organization; POS = Point of Service; FFS = Fee for Service.

Appendix B. Baseline (Pre-Mandate) Per Member Per Month Premium and Total Expenses, California, Calendar Year 2004.

	Large Group				Small Group				Individual	
	HMO	**PPO**	**POS**	**FFS**	**HMO**	**PPO**	**POS**	**FFS**		**Total**
Population Under 65 Years of Age (excluding self-insured firms)	5,692,000	1,538,000	1,433,000	54,000	2,325,000	1,103,000	775,000	40,000	1,602,000	14,562,000
Baseline Per Member Per Month Costs										
A. Insured Premiums										
Average Portion of Premium Paid by Employer	$169.13	$256.17	$185.92	$276.33	$168.18	$269.65	$194.56	$276.96	$0.00	$2,488,310,000
Average Portion of Premium Paid by Employee	$48.87	$58.56	$65.80	$43.37	$57.71	$48.11	$52.01	$54.63	$188.19	$996,060,000
Total Premium	$218.00	$314.73	$251.73	$319.70	$225.89	$317.75	$246.57	$331.59	$188.19	$3,484,370,000
B. Covered Benefits Paid by Member (Deductibles, copays, etc)	$7.72	$42.52	$15.92	$70.54	$11.53	$47.21	$19.26	$77.26	$32.93	$285,630,000
C. Total Cost of Covered Benefits	$225.72	$357.25	$267.64	$390.24	$237.42	$364.96	$265.83	$408.85	$221.12	$3,770,010,000
D. Benefits Not Covered	$0.00	$0.00	$0.09	$0.60	$0.26	$0.52	$0.09	$0.00	$0.50	$2,720,000
E. Total Expenditures	$225.72	$357.25	$267.73	$390.84	$237.68	$365.48	$265.92	$408.85	$221.62	$3,772,730,000
% of Covered Benefit Dollars that already cover the mandated provisions	100%	100%	99%	93%	97%	94%	99%	100%	88%	$18,860,000

Appendix C. Post-Mandate Impacts on Per Member Per Month (PMPM) and Total Expenses, California, Calendar Year 2004.

	Large Group				Small Group				Individual	
	HMO	**PPO**	**POS**	**FFS**	**HMO**	**PPO**	**POS**	**FFS**		**Total**
Population Under 65 Years of Age (excluding self-insured firms)	5,692,000	1,538,000	1,433,000	54,000	2,325,000	1,103,000	775,000	40,000	1,602,000	14,562,000
Per Member Per Month $ Impact of Mandate										
A. Insured Premiums										
Average Portion of Premium Paid by Employer	$0.00	$0.00	$0.06	$0.42	$0.19	$0.40	$0.07	$0.00	$0.00	$1,060,000
Average Portion of Premium Paid by Employee	$0.00	$0.00	$0.02	$0.07	$0.07	$0.07	$0.02	$0.00	$0.90	$1,720,000
Total Premium	$0.00	$0.00	$0.08	$0.49	$0.26	$0.48	$0.08	$0.00	$0.90	$2,780,000
B. Covered Benefits Paid by Member (Deductibles, copays, etc)	$0.00	$0.00	$0.01	$0.11	$0.01	$0.07	$0.01	$0.00	$0.16	$380,000
C. Total Cost of Covered Benefits	$0.00	$0.00	$0.09	$0.60	$0.27	$0.55	$0.09	$0.00	$1.06	$3,160,000
D. Benefits Not Covered	$0.00	$0.00	-$0.09	-$0.60	-$0.26	-$0.52	-$0.09	$0.00	-$0.83	($2,720,000)
E. Total Expenditures	$0.00	$0.00	$0.00	$0.00	$0.01	$0.03	$0.01	$0.00	$0.23	$440,000
Percentage Impact of Mandate										
A. Insured Premiums	0.00%	0.00%	0.03%	0.15%	0.11%	0.15%	0.03%	0.00%	0.48%	0.08%
E. Total Expenditures	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.00%	0.00%	0.10%	0.01%

Appendix D. Existing Maternity Mandates in California.

Present regulations in place	Existing Mandates
All plans	- Insurance plans may not regard pregnancy or care of a newborn as a pre-existing condition - Plans are required to specify whether or not they cover maternity services. - Insurance plans may not regard pregnancy or care of a newborn as a pre-existing condition.
Insurers offering maternity coverage	- Length of stay following delivery (state and federal) - Prenatal testing for fetal abnormalities - No restriction allowed on inpatient hospital benefits. - Patients must be offered continuity of care for women who are pregnant if provider networks change. - Co-payments and deductibles for maternity must be equal to those for non-maternity services.

Various state and federal laws regulate the coverage of maternity benefits in California. Insurers cannot regard pregnancy or the care of a newborn as a pre-existing condition, and they are required to provide notice of maternity services coverage. Although coverage is not mandated, if insurers and health care plans provide maternity coverage, they must provide it within certain guidelines. Health insurers and health care service plans offering maternity coverage must not restrict inpatient hospital benefits and must have equal deductibles and co-payments for maternity services and other services. Insurers and health care plans offering maternity coverage also must offer prenatal testing and continuation of coverage when provider networks change.

Length of stay is regulated by state and federal mandates. A federal mandate requires postpartum stays of 48 hours for a normal vaginal delivery and 96 hours for cesarean deliveries, under the Newborns' and Mothers' Health Protection Act (1996). Mothers can discharge themselves at any time in consultation with their provider. The California Newborns' and Mothers' Health Act of 1997 (NMHA) requires coverage of home or office follow-up for vaginally delivered newborns with stays less than 48 hours and cesarean-delivered newborns with stays less than 96 hours, when prescribed by the physician and in consultation with the mother (Galbraith et al., 2003).

APPENDIX

Cost Analysis and Estimates Used in This Report

Cost Estimation Approach – General Assumptions

The process of estimating the cost impact of a mandate involves developing assumptions regarding the current levels of health care coverage in place and then simulating the impact of the mandate on costs, premium levels, and benefit coverage. Four different "model" plans were selected: health maintenance organization (HMO), preferred provider organization (PPO), point-of-service (POS), and fee-for-service (FFS), along with three insured types (large group, small group, and individual) to represent typical insured plan benefits in California.

Coverage of mandated benefits in each model plan was estimated by surveying the seven largest California health insurers. Although this information is reflected in the modeling, each of these carriers offers a range of plan options, and it is impractical to summarize actual current coverage levels overall. Based on general knowledge of today's health insurance marketplace and information received from California insurers, the model plans are designed to be a reasonable representation of the average plans offered in California today.

The model plans used in the analysis are as follows:

- Large-Group HMO
- Large-Group PPO
- Large-Group POS
- Large-Group FFS
- Small-Group HMO
- Small-Group PPO
- Small-Group POS
- Small-Group FFS
- Individual (HMO and PPO)

The commercial market was divided into large-group (51 or more employees), small-group (2 to 50 employees), and individual coverage. Each of these markets is subject to different regulations and market forces.

Four model plans were selected, representing the four general plan types that are commonly available in today's market. These plan types vary in terms of the benefit structure, the limitations on choice of providers (i.e., physicians and hospitals), and the level of managed care restrictions imposed by the health insurer. Standard descriptions of these plan types are as follows:

- **HMO** – A health maintenance organization is a "closed-panel" plan that limits coverage to those providers in a designated panel (other than in emergency situations). The plan member is typically required to select one of the panel's primary care physicians, who serves as the referral point to specialty care. The primary care physician, by agreeing to participate in the HMO's network, agrees to abide by the utilization management

requirements and the fee schedules or other reimbursement approaches specified by the HMO.

The HMO coverage is broader than fee-for-service coverage, meaning it has lower member cost sharing and includes certain preventive care services that are not generally covered under an FFS or PPO plan. The model HMO plan used in this analysis is assumed to be moderately managed in terms of the degree of managed care, meaning that the plan uses some management protocols and standards, with moderate conformity to such standards.

- **PPO** – A preferred provider organization uses a fee-for-service approach to paying providers. The plan designates a preferred network of providers; members must use providers in the network in order to receive the highest level of benefit coverage. If a member chooses to use a non-network provider, the services are covered but the member must pay a substantially greater level of cost sharing. The model PPO plan used in this analysis is assumed to be loosely managed with respect to all services.

- **POS** – A point-of-service plan has a closed panel that is similar to an HMO plan, but it also allows members to go outside the panel, subject to paying a significantly higher level of cost sharing. The level of coverage for "in-network" benefits, meaning services within the closed panel, is similar to HMO coverage and has the same primary care physician role. The model POS plan used for this analysis is assumed to be moderately managed with respect to in-network coverage and loosely managed for out-of-network coverage.

- **Fee-for-Service (FFS)** – The fee-for-service plan is a traditional indemnity plan with minimal focus on managed care (referred to as "loosely managed"). Members can seek care from the providers of their choice.

The following information was estimated for each of the model plans:

Population Younger Than Age 65 Currently Covered

The data for these analyses were obtained from multiple sources. The California Health Interview Survey (CHIS), 2001 was used to identify the demographic characteristics and estimate the insurance coverage of the population in the state. CHIS is a random telephone survey of more than 55,000 households that is conducted in multiple languages by the University of California at Los Angeles Center for Health Policy Research. CHIS is the first state-level survey of its kind to provide detailed information on demographics and health insurance coverage as well as health status and access to care, including representative samples of non–English-speaking populations. CHIS insurance coverage estimates were cross-validated with administrative or other data sources.

To obtain estimates of the percentage of employees by size of firm and type of health plan, this analysis used the 2001 Health Research and Educational Trust (HRET) survey of California employers. Conducted annually for the Kaiser Family Foundation (KFF) of representative samples of small and large employers, these data provide estimates of numbers of employees working in such firms and their types of coverage. Coverage categories include conventional

FFS, PPOs, POS, and HMOs. Furthermore, the HRET/KFF survey also provides information on whether each health plan is self-insured or underwritten. The latter two data points were used to complement CHIS data, because CHIS does not provide details on PPO and POS or self-insured coverage. The HRET/KFF survey also contains data on health insurance premium costs of individual and family plans as well as the proportion of premiums that are paid by the employee and the firm for each type of health plan.

The percentages of workers with employment-based coverage obtained from CHIS data were inflated to reflect children and non-working individuals with this type of coverage. The final numbers of individuals with each type of coverage used in the analysis included only those covered under insured policies.

Baseline PMPM Costs – Insured Premiums

For large and small groups, the single and family premium rates from the HRET/KFF data were converted to per member per month (PMPM) rates by assuming 44% of covered employees had single coverage and 56% had family coverage. Employees with family coverage were assumed to have 2.21 dependents on average. These demographic assumptions were based on Milliman USA research.

For individual coverage, PMPM premium information was obtained through a survey of the largest insurers and HMOs in California.

The historical PMPM premium information discussed above was inflated by a rate of 12% per year to estimate premiums for calendar year 2004.

An actuarial cost model was constructed for each plan type, breaking down the observed premiums into administration costs and detailed health care service categories. The current utilization and average cost per service were estimated for each service category. The starting point for cost estimates in the analysis was the *Milliman Health Cost Guidelines* (HCGs), July 2003 edition. The HCGs are Milliman USA's proprietary information base that show how the components of per capita medical claim costs vary with benefit design, demographic composition, location, provider reimbursement arrangements, degree of managed care delivery, and other factors. In most instances, HCG cost assumptions are based on an evaluation of several data sources and are not specifically attributable to a single data source. The HCGs are used by Milliman USA client insurance companies, HMOs, and other organizations, primarily for pricing and evaluating health insurance products.

Adjustment factors from the HCGs were used to modify utilization and unit cost assumptions specifically for the state of California. The resulting cost estimates were then compared with the average premium rate information for the State of California from Milliman USA's *2003 HMO Intercompany Rate Survey* and to the premium rate survey discussed above to ensure the reasonableness of the estimates of the overall health care cost and premium levels.

Baseline PMPM Costs – Average Portion of Insured Premium Paid by Employer/Employee

Most employers require employees to pay a portion of the health premium through monthly contributions. The calendar year 2002 data from HRET/KFF 2002 included the average single and family monthly employee contribution rates. The residual between the total premium and the employee contribution rates was assumed to be the portion of the premium paid by the employer. Note that the employee costs in this value are just the monthly contribution rates; member cost sharing at the point of service is calculated separately.

Covered Benefits Paid by Member

This value varies by the plan type. Using the actuarial cost models described above, an estimate was made for the PMPM value of the deductibles and copays paid by plan members/insured as a percentage of total PMPM health care costs for each plan type:

	Member Cost Sharing As a Percent of Total Health Care Costs
Large-Group HMO	4%
Large-Group PPO	14%
Large-Group POS	7%
Large-Group FFS	21%
Small-Group HMO	6%
Small-Group PPO	16%
Small-Group POS	9%
Small-Group FFS	23%
Individual	20%

Benefits Not Covered

For each mandate, an estimate was made for the cost of services that are now being paid for directly by patients, exclusive of deductible and cost sharing, for benefits that would be covered by insurance under the mandate.

Administrative/Profit Component of Premiums

Estimates are expressed as the percent change in premiums. These same percent changes would also apply separately to the benefit costs and the administrative expenses of health insurers. It was estimated that insurers' administrative expenses would change proportionately to the underlying change in benefit costs, reflecting the expected impact on claims-processing costs, utilization management costs, and other administrative functions.

The following table contains the assumed administrative/profit component of premium, expressed as a percentage of total premiums. These assumptions are general, and may not reflect the assumptions used by any particular insured plan in California.

	Administrative/Profit Expenses as a Percent of Total Insured Premiums
Large-Group HMO	15%
Large-Group PPO	17%
Large-Group POS	16%
Large-Group FFS	17%
Small-Group HMO	20%
Small-Group PPO	22%
Small-Group POS	21%
Small-Group FFS	22%
Individual	30%

Cost Estimation Approach – Mandate Impact Methodology

Once the current baseline PMPM health care costs and premiums are determined, the next step is to estimate the increase in these PMPM costs and premiums due to the mandate.

Step 1: Estimate the change in health care costs covered by insurance

For services that are newly required by the mandate, the PMPM health care cost of these services that are already covered and being paid for under insurance plans was determined first. Note that these are the total costs for insured benefits, including the amounts paid by the insurer and amounts paid by the member through cost sharing. For a given plan type, this is calculated as follows:

(Percentage of members currently covered for the service), X
(Percentage of currently covered members expected to use the service in a year), X
(The cost per person who uses the service)

These costs are assumed to be included in the baseline costs estimated above.

Next is determined the cost of these mandated services covered under insurance plans after the mandate. For a given plan type, this is calculated as follows:

(Percentage of members covered for the service (assumed to be 100%)), X
(Percentage of current and newly covered members expected to use the service in a year), X
(The cost per person who uses the service)

The difference between the PMPM insured health care costs of newly mandated services before and after the mandate is the change in the *direct* health care costs covered by insurance.

In some cases, the increase in cost due to the newly covered services is offset by a decrease in the cost for other health care services.

The total change in health care costs covered by insurance is equal to the change in the *direct* health care costs covered by insurance less the value of the offset due to decreases in other health care costs.

Step 2: Allocate the change in health care costs covered by insurance between amounts paid by member cost sharing and amounts paid by the insurer

The portion of new health care costs that is paid by member cost sharing, "Covered Benefits Paid by Member," is estimated based on the above table, "Member Cost Sharing as a Percent of Total Health Care Costs." This is modified if the impact of the mandate is to modify the cost-sharing provisions as opposed to adding new covered benefits.

The portion of new health care costs not paid by member cost sharing is defined as the increase in the health care component of insured premiums.

Step 3: Estimate the change in insured premiums

The change in insured premiums is equal to the increase in the health care component of insured premiums, from Step 2, plus the increase in the administration and profit expense of the insurer. The administration and profit portion of the increase in insured premiums is based on the above table, "Administrative/Profit Expenses as a Percent of Total Insured Premiums."

The total of the increase in the health care and administrative/profit components of premium is added to the baseline PMPM premiums to estimate the PMPM premiums after the mandate.

Step 4: Allocate the change in health care premiums between amounts paid by the employer and amounts paid by the employee

The PMPM premium after the mandate is allocated between the portions paid by the employer and employee by assuming employers will continue to pay the same percentage of health care costs as before the mandate.

Step 5: Estimate the health care costs for newly mandated services that are currently paid by individuals due to lack of insurance coverage

For services that are newly required by the mandate, the PMPM health care cost of these services that are not currently covered but are being paid out of pocket by individuals is determined. For a given plan type, this is calculated as follows:

(Percentage of members currently not covered for the service), X
(Percentage of currently not-covered members expected to use the service in a year), X
(The cost per person who uses the service)

Step 6: Estimate the health care costs for newly mandated services that will be paid by individuals due to lack of insurance coverage after the mandate

This value is assumed to be zero.

Step 6: Estimate the impact on total expenditures for the insured population

The impact on total expenditures is equal to the total change in insured premiums, plus the change in the Covered Benefits Paid by Member, plus the change in the Benefits not Covered. Note that this amount is typically less than the impact on Insured Premiums, because some of the increase in Insured Premiums is offset by decreases in the Covered Benefits Paid by Member and Benefits not Covered. Also, the analysis assumes the estimated net change in actuarial costs translates fully into expenditure changes.

General Caveats and Assumptions

The California Health Benefit Review Program conducted the cost analysis presented in this report. Per the provisions of AB 1996 (*California Health and Safety Code* Section 127660 *et seq*.), the analysis includes input and data from an independent actuarial firm, Milliman, U.S.A.

A variety of external data sources was used in preparing the cost estimates for this report. Although this data was reviewed for reasonableness, it was used without independent audit. The *Milliman Health Cost Guidelines* were used extensively to augment the specific data gathered for this mandate. The HCGs are updated annually and are widely used in the health insurance industry to estimate the impact of plan changes on health care costs.

Unless otherwise noted in the report, the estimated net changes in actuarial costs are not the same as economic costs associated with the mandate because actuaries and economists define "costs" differently. While actuarial costs are net expenditures as just described, estimates of economic costs would typically include the value of the alternative uses of resources associated with the mandate.

The expected costs in this report are not predictions of future costs. Instead, they 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 already covered different from analysis assumptions
- Utilization of mandated services before and after the mandate different from analysis assumptions
- Assumptions used by health plans to price the mandated benefits different from analysis assumptions
- Random fluctuations in the utilization and cost of health care services

Additional assumptions that underlie the cost estimates presented here are as follows:

- Cost impacts are shown only for people with insurance.

- The projections do not include people covered under self-insurance employer plans, as those employee benefit 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 by unaffected by the mandate.

There are other variables that may affect costs but were not considered in the cost projections presented in this report. Such variables include, but are not limited to, the following:

- Population Shifts by Type of Health Insurance Coverage. If a mandate increases health insurance costs, then some employer groups or 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, members or insured may elect to increase their overall plan deductibles or copayments. Such changes will 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). The effects of such potential benefit changes in its analysis were not included.

- Adverse Selection. Theoretically, individuals or employer groups who had previously foregone insurance may now elect to enroll in an insurance plan because they perceive that it is to their economic benefit to do so.

- Medical Management. Health plans may react to the mandate by tightening their medical management of the mandated benefit. This would tend to dampen cost estimates in the analysis. The dampening would be more pronounced on the plan types that previously had the least effective medical management (i.e., FFS and 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 modeled (HMO, PPO, POS, and FFS) there are variations in utilization and costs within California. One source of difference is geographic. Utilization differs within California due to differences in provider practice patterns, the level of managed care, and possibly the underlying health status of the local commercial population. The average cost per service varies due to different underlying cost levels experienced by providers 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, the impact has been estimated on a statewide level.

Cost Estimation Approach - Mandate Impact Assumptions

The following assumption underlie discussions in the Utilization, Cost, and Coverage Impact section of this report, specifically as it related to:

- Current Coverage of Maternity Services, by insurance type
- Per member per month (PMPM) cost for maternity services for currently-covered members, by insurance type.

After the mandate, the PMPM cost for maternity services for newly-covered members is assumed to equal the PMPM cost for currently-covered members.

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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 CHBRP's 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 CHBRP's authorizing legislation, UC contracts with a certified actuary, Milliman USA, to assist in assessing the financial impact of each benefit mandate bill. Milliman USA also helped with the initial development of CHBRP's 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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