CALIFORNIA
HEALTH BENEFITS REVIEW PROGRAM

Analysis of Assembly Bill 2281: High Deductible Health Care Coverage

A Report to the 2005-2006 California Legislature
April 18, 2006

CHBRP 06-07

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, 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, 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 a small annual assessment of 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 2005-2006 California State Legislature

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High Deductible Health Care Coverage

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PREFACE

This report provides an analysis of the medical, financial, and public health impacts of Assembly Bill 2281, a bill that would establish benefits standards, especially for preventive care, and disclosure requirements for high deductible health plans (HDHPs). In response to a request from the California Assembly Committee on Health on March 8, 2006, the California Health Benefits Review Program (CHBRP) undertook this analysis pursuant to the provisions of Assembly Bill 1996 (2002) as chaptered in Section 127600, et seq. of the California Health and Safety Code. This analysis differs from a standard CHBRP analysis in a two ways. First, to provide an analysis in time for the legislature's consideration, CHBRP conducted this analysis within 40 days. Second, AB 2281 is not a typical mandate bill in that it does not mandate coverage for a specific benefit or service. Instead it alters the cost sharing requirements for a set of services. Consequently, CHBRP adjusted its methods to address the issues unique to AB 2281.

Wade Aubry, MD, Harold Luft, PhD, Edward Yelin, PhD, Janet Coffman, PhD, Patricia Franks, BA, all of the University of California, San Francisco, prepared the literature analysis on the impacts of cost sharing on use of preventive services. Min-Lin Fan, MLIS, of UCSF conducted the literature search. Thomas Buchmueller, PhD, University of California, Irvine provided technical assistance with the literature review and expert input on the analytic approach. Helen Halpin, PhD, and Nicole Bellows, MHSA, all of the University of California, Berkeley, prepared the public health impact analysis. Gerald Kominski, PhD, Nadereh Pourat, PhD, and Meghan Cameron, MPH, all of the University of California, Los Angeles, prepared the analysis of the cost impact. Robert Cosway, FSA, MAAA and Jay Ripps, FSA, MAAA of Milliman, provided actuarial analysis. Joshua Dunsby, PhD, and Susan Philip, MPP, of CHBRP staff prepared the background section and contributed to preparing the individual sections into a single report. Cherie Wilkerson, BA, provided editing services. In addition, a subcommittee of CHBRP's National Advisory Council (see final pages of this report) and a member of the CHBRP Faculty Task Force, Thomas MaCurdy, PhD, of Stanford University 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:

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EXECUTIVE SUMMARY

California Health Benefits Review Program Analysis of Assembly Bill 2281

The California Legislature has asked the California Health Benefits Review Program (CHBRP) to conduct an evidence-based assessment of the medical, financial, and public health impacts of AB 2281. AB 2281 would establish benefits standards, especially for preventive care, and disclosure requirements for health plans considered to be high deductible health plans (HDHPs). Specifically, every Knox-Keene licensed HDHP and HDHP health insurance policy[1] offered, delivered, amended, or renewed after July 1, 2007, would be required to:

- limit annual out-of-pocket expenses to no more than $5,000 for individuals and $10,000 for families;
- limit copayments or coinsurance to no more than 30% of the negotiated rate of payment for the service. If the service is provided by a non-network provider that does not have a negotiated rate with the health plan or insurer, the copayment or coinsurance is limited to 30% of the plan's or insurer's allowed amount for the service;
- require covered preventive services be exempt from the deductible (although copayments and coinsurance may continue to apply);
- disclose to insured members the remaining deductible at least on a quarterly basis;
- provide to insured members information on costs that apply towards the deductible; potential charges for out-of-network services; and the percent of premiums that HDHPs spend on the delivery of health care services; and,
- provide comparative information such as quality ratings for providers within the network.

AB 2281 would also require that the Department of Managed Health Care (DMHC) and the California Department of Insurance (CDI) produce a consumer guide on HDHPs by July 2007. Finally, AB 2281 would require that an insurer also offer a policy with a lower deductible and cost-sharing amount than allowed for high deductible products. AB 2281 defines HDHPs as individual or group health plans that have an annual deductible of $1,000 or more for an individual and $2,000 or more for a family. Preventive services are defined to include periodic health evaluations, routine prenatal and well-child care services, child and adult immunizations, tobacco cessation programs, obesity weight-loss programs, and screening services for a variety of conditions such as cancer.

The Office of Wilma Chan, author of AB 2281, indicated that the clause "routine monitoring and management of chronic diseases, such as asthma, diabetes, hypertension, heart disease, and depression, and tests and diagnostic procedures ordered in connections with those evaluations" would be not be included in an amended version of AB 2281. Therefore this analysis does not address that provision. In addition, it is important to note that that the bill is not intended to mandate coverage of preventive services by HDHPs, but instead, it requires that those preventive services that are currently covered not be subject to the deductible.

[1] Health care service plans, commonly referred to as health maintenance organizations, are regulated and licensed by the California Department of Managed Care (DMHC), as provided in the Knox-Keene Health Care Services Plan Act of 1975. The Knox-Keene Health Care Services Plan Act is codified in the California Health and Safety Code. Health insurance policies are regulated by the California Department of Insurance and are subject to the California Insurance Code.

Coverage under high deductible health plans (HDHPs) is rapidly increasing nationally in the number of covered lives and market share. In California, about 11% of enrollees in the privately insured market are enrolled in HDHPs.[2] Some policy analysts have raised concerns about the potential adverse effect of HDHPs on access and utilization of healthcare services, especially the use of preventive services. This report acknowledges that continued growth of HDHPs in the individual and group market is expected; nonetheless, the health insurance marketplace is rapidly changing and fundamental uncertainties exist about consumers' selection of plans in the future. Thus, this report limits its analysis to a current "snapshot" of the HDHP market in California with the important caveat that our analysis, especially of quantitative impacts, may not be representative of the effects of AB 2281 if HDHPs increase rapidly.

This analysis differs from a standard CHBRP analysis in two ways. First, to accommodate the request of the legislature and to provide an analysis in time for the legislature's consideration, CHBRP conducted this analysis within 40 days. Second, AB 2281 is not a typical mandate bill in that it does not mandate coverage for a specific benefit or service. Instead it alters the cost sharing requirements for a set of services.[3] Consequently, CHBRP adjusted its methods to address the issues unique to AB 2281. For example, instead of conducting a medical effectiveness analysis of the various preventive services specified under AB 2281, CHBRP relies on the reviews of the United States Preventive Services Task Force (USPSTF) regarding the effectiveness of specific preventive services and analyzes the extent to which cost sharing affects patients' access and utilization of preventive services. The cost impact analysis examines two potential market responses to the preventive services provisions of AB 2281: (1) a scenario where a portion of HDHPs would continue to cover the preventive services they currently cover and exempt them from the deductible and, (2) a scenario where a portion of HDHPs would drop coverage for those preventive services that are not mandated by current law. Since CHBRP's standard cost methods do not model the impacts of provisions related to HDHP plan designs, these provisions are addressed in a qualitative discussion. The public health impact analysis discusses the potential impacts of each scenario on the health of the people of California.

I. Literature Analysis on the Impacts of Cost Sharing on Use of Preventive Services

- The USPSTF has determined that many clinical preventive services improve health and well-being.

- Cost sharing may affect use of preventive services directly through deductibles, coinsurance, or copayments for *preventive services*, or indirectly through cost sharing for *outpatient visits*.

[2] This figure is estimated from data collected for this CHBRP analysis from a survey of the eight largest insurers and health plans in California with HDHPs. It does not include individuals covered by self-insured plans, which are regulated under ERISA by U.S. Department of Labor and are not subject to state mandates, and, therefore, who are not analyzed in this report.

[3] AB 1996 defines a "mandate" in the following terms: a proposed statute that requires a health care service plan or a health insurer, or both, to do any of the following: (1) Permit a person insured or covered under the policy or contract 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. (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.

- Only one peer-reviewed study has explicitly addressed the impact of high deductible health plans as they exist currently and would be defined for purposes of AB 2281 on use of health care services.
    - This study did not analyze differences in use of preventive services.
    - However, the study found that persons enrolled in an HDHP had fewer outpatient visits than persons enrolled in a health maintenance organization (HMO), but more visits than persons enrolled in a preferred provider organization (PPO), which may have indirectly affected use of preventive services.
- Studies have assessed the effects of cost sharing in general on use of recommended preventive services by persons enrolled in conventional types of health plans, such as HMOs, PPOs, and fee-for-service (FFS) plans.
- Most studies of cost sharing in conventional types of health plans (i.e., plans that are not the recently developed high deductible health plans) have found that lower cost sharing is associated with greater use of preventive services.
    - Findings were uniformly favorable with respect to the effect of cost sharing on the use of periodic health examinations,[4] well-child care, and eye examinations (i.e., lower cost sharing was associated with greater use of these preventive services).
    - There was a pattern toward favorable findings with respect to the effect of cost sharing on the use of childhood and adult immunizations, tobacco cessation programs, mammography, Pap smears, colorectal cancer screening, prostate cancer screening, blood pressure screening, and cholesterol screening (i.e., lower cost sharing was associated with greater use of these preventive services).
    - The only study of the effect of cost sharing on the use of tuberculosis screening found that cost sharing had no effect on the probability of obtaining a tuberculosis skin test.
    - The evidence of the effect of cost sharing on the use of clinical breast examinations is ambiguous.

[4] Throughout this report the term "periodic health examinations" is used to refer to the sections of AB 2281 that would require high deductible health plans to exempt "periodic health evaluations" from the deductible (proposed Health and Safety Code section 1374.19(b)(2)(A) and proposed Insurance Code section 10238.2(b)(1)). The term "periodic health examinations" is used by the USPSTF and clinicians to refer to periodic examinations at which preventive services are provided. The specific services that the USPSTF recommends be provided vary by age and gender.

II. Utilization, Cost, and Coverage Impacts

Four provisions of AB 2281 were determined to have an effect on utilization, cost, and coverage for HDHP plans:

- require covered preventive services be exempt from the deductible;
- limit annual out-of-pocket expenses to no more than $5,000 for individuals and $10,000 for families;
- limit copayments or coinsurance to no more than 30% of the negotiated rate of payment for the service. If the service is provided by a non-network provider that does not have a negotiated rate with the health plan or insurer, the copayment or coinsurance is limited to 30% of the plan's or insurer's allowed amount for the service; and
- require additional disclosure and administrative tasks.

Preventive Services

The impact of AB 2281 is assessed under two scenarios, representing the upper and lower bound estimated changes in coverage, utilization, and costs of the proposed preventive package of services. Under Scenario #1, DMHC-regulated plans and CDI-regulated insurers would retain the current level of preventive benefits (subject to AB 2281) but exempt them from the deductible. This market response would result in an increase in premiums to cover their expected added health care costs. Under Scenario #2, DMHC plans and CDI insurers would drop those preventive benefits (1) that are not currently mandated, and (2) that are currently subject to a deductible.[5] They would react in this way to avoid exempting preventive services from the deductible and the subsequent increases in premiums. The estimated impact is depicted in Table 1.

- Of the 15,886,000 Californians commercially insured currently, approximately 11% or 1,746,000 individuals are covered under HDHPs.

- The majority of preventive services subject to AB 2281 are currently provided by DMHC plans and are exempt from the deductible. Similarly, large group plans currently provide more preventive services exempt from the deductible, followed by small groups, and then individually purchased policies. Thus, the impact of AB 2281 is greater on CDI policies in the individual and small group markets than DMHC plans in the large group market.

<u>Summary of Preventive Services Scenario #1 Findings</u>

- Utilization of services is expected to increase modestly for those preventive services that would be exempt from the deductible after the passage of AB 2281. Utilization of services is estimated to increase by a range of 0.1% to 2.9% depending on the preventive service, and the type of plan (e.g., individual PPO versus small-group PPO).

[5] One exception to this, under Scenario #2 is that carriers that currently cover maternity services (e.g. delivery) subject to a deductible would be expected to retain this benefit, but move to exempt prenatal benefits from the deductible.

- Net expenditures for health care are estimated to increase in total by $2,055,000 (0.05%), or $0.098 PMPM for current HDHP members. This amount reflects:
  - an annual reduction of $3,124,000 ($0.149 PMPM for current HDHP members) in individual out-of-pocket expenditures,
  - an increase of $3,734,000($0.28 PMPM for current individual HDHP members) in premiums paid through individual policies,
  - an increase of $1,194,000 ($0.156 PMPM for current group HDHP members) in employer premium expenditures, and
  - an increase of $251,000($0.033 PMPM for current group HDHP members) in employee premiums.

- When estimating the premiums and cost impacts, CHBRP assumes that the number of insured in each market segment remains stable. However, we consider the secondary impact of increases in premiums on the number of insured dropping coverage when premium increases exceed 1%. For most market segments, no measurable change in the number of uninsured is projected to occur as result of AB 2281 because *on average*, premiums are not estimated to increase by more than 1%. However, some subgroups within the individual insurance market who have purchased low-cost policies (e.g., young adults, low-income self-employed) may experience premium increases greater than 1%. CHBRP is unable to provide more detailed estimates of these impacts within the individual market due to a lack of sufficient data on subgroups within the individual insurance market.

<u>Summary of Preventive Services Scenario #2 Findings</u>

- Utilization of services is estimated to decrease for those preventive services that are not required under existing mandates because under this scenario those services (that are not currently exempt from a deductible) would be dropped by health plans and insurers after the passage of AB 2281. Utilization of services is estimated to decrease by a range of 0.1% to 0.8%, depending on the preventive service and the type of plan (e.g., individual PPO versus small-group PPO).

- Net expenditures for health care by HDHP holders are estimated to increase in total by $990,000 (0.03%), or $0.047 PMPM over all current HDHP members. This amount reflects:
  - a decrease of $3,573,000 ($0.171 PMPM for current HDHP members) in individual out-of-pocket expenditures,
  - an increase of $1,684,000 ($0.127 PMPM for current individual HDHP members) in premiums paid through individual policies,
  - an increase of $811,000 ($0.106 PMPM for current group HDHP members) in employer premium expenditures, and
  - an increase of $171,000 ($0.022 PMPM for current group HDHP members)in employee premiums.
  - This scenario reflects the assumption that carriers that *currently* cover maternity services (e.g. delivery) subject to a deductible would be expected to retain this benefit, but move to exempt prenatal care benefits from the deductible.

- No measurable change in the number of uninsured is projected to occur as result of AB 2281 because *on average,* premiums are not estimated to increase by more than 1%.

Other Potential Impacts of AB 2281 on Preventive Services offered by HDHPs

- Although CHBRP estimates that under Scenarios #1 and #2, AB 2281 would not have a large impact on total health expenditures or premiums, the proposed legislation may have the effect of discouraging lower-cost (i.e. those with low monthly premiums) HDHPs from being offered in the California market. According to CHBRP's survey of California health plans and insurers, although there is variation in the market, most insurers currently offer HDHPs with coverage for many of the preventive services identified in AB 2281 and exempt those services from the deductible. For example, if AB 2281 were not to pass into law and an insurer was interested in offering a minimal-coverage HDHP (with only those preventive services currently mandated under California law and with all those preventive services subject to a deductible) a reduced premium would be expected. CHBRP estimates that the potential reduction in premiums would range from $4.05 to $4.80 PMPM, depending on the type of market and insurer. CHBRP also estimates that the difference in premiums between minimal-coverage HDHPs with preventive services *subject* to a deductible and minimal-coverage HDHP with preventive services *exempt* from the deductible. The premium difference range from $0.87 to $4.13 PMPM, depending on the type of market and insurer. Therefore, AB 2281 may discourage insurers from offering lower-cost HDHPs with less extensive coverage for preventive services in the future, and the impact of AB 2281 on such low-cost health insurance products would be greater than the impact on "average" health insurance products offered currently.[6]

- Maternity services typically include prenatal care during pregnancy and delivery. HDHPs commonly subject maternity services to the deductible for the small group and individual markets. Requiring insurers to cover prenatal care without a deductible would potentially cause a decrease in HDHPs that cover maternity services.

Maximum Out-of-Pocket Limit and Coinsurance Provisions

- Provisions in AB2281 for maximum out-of-pocket limits and coinsurance standards could have a significant effect on some existing HDHP designs in California. Some HDHPs currently do not satisfy these requirements, especially for out-of-network benefits. Amending these plan provisions could cause premium increases or termination of some plans. Since some of these plans are among the lowest-cost, in terms of premiums, some currently insured Californians may choose to drop coverage due to premium increases or lose coverage due to plan termination

Additional Disclosure and Administrative Tasks

- AB 2281 requires a number of reporting and disclosure requirements from carriers offering HDHPs. These carriers would likely incur administrative costs at the point of set-up and an

[6] See Appendix C, Table C-1 for a summary of how these estimates were calculated.

ongoing basis. CHBRP is unable to estimate the magnitude of these increased administrative costs in this analysis because of to having insufficient time for an analysis of this level of detail.

Caveats and Assumptions

- As discussed in the *Literature Analysis on the Impacts of Cost Sharing* section, little evidence is available from scientific studies of the impact of HDHPs on utilization of preventive services. This is because HDHPs have been relatively rare until recently and, thus, there has not been adequate time for large-scale studies of their effects. The estimates of the impact of cost sharing on utilization of preventive services by CHBRP are based on the best existing evidence from of conventional health plans (not high deductible) as well as findings from the RAND Health Insurance Experiment.

- CHBRP does not estimate the magnitude of the potential mitigating effects of Health Savings Accounts (HSAs) or Health Reimbursement Accounts (HRAs) on changes in cost-sharing or the subsequent impact on utilization and health care expenditures in the analyses of AB 2281. This is because of the absence of reliable data on the proportion of HDHPs that are coupled with these accounts. Furthermore, individuals who purchase HDHPs may be less likely to purchase preventive services, even when they have HSAs, because of a desire to maximize the amount of tax-deferred savings in their HSAs.

- AB 2281 would require that an insurer that offers an HDHP also offer a policy with a lower deductible and cost-sharing amount than allowed for high deductible products. Because CHBRP limits its survey to the largest plans and insurers in California, this analysis does not report on the market share or proliferation of carriers that only offer HDHP in the California insurance market; nor do we report on the potential impacts of AB 2881 on these carriers.

Table 1: Utilization, Cost, and Coverage Impacts on AB 2281

	Scenario 1				Scenario 2			
	Before Mandate	**After Mandate**	**Increase/ Decrease**	**% Change After Mandate**	**Before Mandate**	**After Mandate**	**Increase/ Decrease**	**% Change After Mandate**
Coverage								
Number of Insured in California with Commercial Insurance	15,886,000	15,886,000	0	0.0%	15,886,000	15,886,000	0	0.0%
Number of Insured in High Deductible Plans in California with coverage subject to AB 2281	1,746,000	1,746,000	0	0.0%	1,746,000	1,746,000	0	0.0%
Utilization for Insured in High Deductible Plans								
Preventive services/visits per 1000 Insured in high deductible plans (includes services not covered and paid out of pocket)								
Adult Physical Exam	199.6	199.9	0.4	0.2%	199.6	199.4	-0.2	-0.1%
Adult Immunizations	103.1	106.1	3.0	2.9%	103.1	102.3	-0.8	-0.8%
Adult Vision Exams	149.5	149.5	0.0	0.0%	149.5	149.5	0.0	0.0%
Adult Hearing Exams	21.6	21.6	0.0	0.1%	21.6	21.6	0.0	-0.1%
Cervical Cancer Screening	217.8	218.1	0.2	0.1%	217.8	218.1	0.2	0.1%
Mammography Screening	85.1	85.3	0.1	0.1%	85.1	85.3	0.1	0.1%
Prostate Cancer Screening	51.4	51.5	0.1	0.3%	51.4	51.5	0.1	0.3%
Routine Prenatal Care	164.3	167.8	3.5	2.1%	164.3	167.8	3.5	2.1%
Child Physical Exam	121.4	121.6	0.2	0.2%	121.4	121.3	-0.1	-0.1%
Child Immunizations	422.3	422.7	0.4	0.1%	422.3	421.9	-0.4	-0.1%
Child Vision Exams	47.9	47.9	0.1	0.1%	47.9	47.8	-0.1	-0.1%
Child Hearing Exams	39.4	39.5	0.0	0.1%	39.4	39.4	0.0	-0.1%
Well Baby Exams	103.8	104.0	0.2	0.2%	103.8	103.7	-0.1	-0.1%
Smoking Cessation Programs	5.9	5.9	0.0	0.0%	5.9	5.9	0.0	0.0%
Obesity Weight Loss Programs	2.9	2.9	0.0	0.0%	2.9	2.9	0.0	0.0%

Table 1: Utilization, Cost, and Coverage Impacts on AB 2281 (cont.)

	Scenario 1				Scenario 2			
	Before Mandate	**After Mandate**	**Increase/ Decrease**	**% Change After Mandate**	**Before Mandate**	**After Mandate**	**Increase/ Decrease**	**% Change After Mandate**
Expenditures for All Insured in California								
Premium expenditures for individually purchased insurance	$4,744,086,000	$4,747,820,000	$3,734,000	0.079%	$4,744,086,000	$4,745,770,000	$1,684,000	0.04%
Premium expenditures by individuals with group insurance	$10,926,216,000	$10,926,467,000	$251,000	0.002%	$10,926,216,000	$10,926,387,000	$171,000	0.00%
Individual out-of-pocket expenditures (deductibles, copayments, etc)	$3,721,743,000	$3,718,619,000	-$3,124,000	-0.084%	$3,721,743,000	$3,718,170,000	-$3,573,000	-0.10%
Expenditures for non-covered services	$13,940,000	$13,940,000	$0	0.000%	$13,940,000	$15,837,000	$1,897,000	13.61%
Total annual expenditures	$55,198,960,000	$55,201,015,000	$2,055,000	0.004%	$55,198,960,000	$55,199,950,000	$990,000	0.00%
Expenditures for All Insured in High Deductible Plans in California								
Premium expenditures by private employers for group insurance	$1,136,771,000	$1,137,965,000	$1,194,000	0.11%	$1,136,771,000	$1,137,582,000	$811,000	0.07%
Premium expenditures for individually purchased insurance	$1,944,818,000	$1,948,552,000	$3,734,000	0.19%	$1,944,818,000	$1,946,502,000	$1,684,000	0.09%
Premium expenditures by individuals with group insurance	$328,112,000	$328,363,000	$251,000	0.08%	$328,112,000	$328,283,000	$171,000	0.05%
Individual out-of-pocket expenditures (deductibles, copayments, etc)	$439,317,000	$436,193,000	-$3,124,000	-0.71%	$439,317,000	$435,744,000	-$3,573,000	-0.81%
Expenditures for non-covered services	$13,940,000	$13,940,000	$0	0.00%	$13,940,000	$15,837,000	$1,897,000	13.61%
Total annual expenditures	$3,862,958,000	$3,865,013,000	$2,055,000	0.05%	$3,862,958,000	$3,863,948,000	$990,000	0.03%

Source: California Health Benefits Review Program, 2006. *Note:* The population includes individuals and dependents in California who have private insurance (group and individual). Since CalPERS, Medi-Cal, or Healthy Families do not offer HDHPs, they are not included in this analysis. Employees and their dependents who receive their coverage from self-insured firms are excluded because these plans are not subject to mandates. All population figures include enrollees aged 0–64 years and enrollees 65 years or older covered by employment-based coverage.

III. Public Health Impacts

- The empirical research on the populations who obtain their health insurance through HDHPs includes studies of Humana Inc., the University of Minnesota, the federal government, and national survey data of insured adults. Overall, HDHP enrollees are more likely to be younger, male, have higher incomes, and to have coverage in the individual market compared to those enrolled in conventional plans, such as HMOs and PPOs.

- For the preventive services that are recommended by the USPSTF and are mandated by law, it is expected that when the costs of these services are no longer subject to the deductible, this would lead to increased utilization among HDHP enrollees. Since the USPSTF recommends these preventive services as effective in preventing disease, disability, and premature death, subsequent improvements in the public's health are expected as a result of increased utilization.

- This analysis presents two possible scenarios of how utilization will change for the preventive services that are not currently mandated by state or federal law. In Scenario #1, HDHPs are expected to maintain coverage of the preventive services that they currently offer. Since the costs of these services would no longer be subject to the deductible, utilization would increase, with corresponding health benefits. In the Scenario #2, HDHPs are expected to drop coverage for preventive services that are not currently mandated to avoid paying for these services outside of the deductible. As such, it is expected that utilization of these services would decrease modestly, and there would likely be modest negative health consequences.

- It is not possible to clearly predict whether the net effect of AB 2281 on the public's health would be positive or negative. As stated above, the overall health effect will depend on whether insurance companies respond to AB 2281 by retaining or by dropping coverage for preventive services that are not currently mandated under law. Additionally, the *overall* effect depends on the magnitude of effect for *each* preventive service on numerous health outcomes. Examining the magnitude of effect for each preventive service is not possible for this analysis given the limited time frame. For example, to determine the magnitude of the overall public health effect, the health outcomes resulting from increased (or decreased) utilization by HDHP enrollees for cancer screenings, well-child visits, etc., would need to be assessed.

- It is not clear at this time if AB 2281 will have an impact on gender or racial disparities associated with the health conditions related to the use of preventive services. The effect that AB 2281 will have on disparities depends on how insurance companies respond for non-mandated preventive services, the magnitude of the health effects of specific preventive services, and the differential response of racial and ethnic groups to cost-sharing arrangements.

BACKGROUND AND INTRODUCTION

Coverage under high deductible health plans (HDHPs) is rapidly increasing nationally in the number of covered lives and market share. In 2004, 10% of firms offering health benefits offered an HDHP; in 2005, this doubled to 20%, and the trend is predicted to continue (Claxton, Gil, et al., 2005). In California, about 11% of enrollees in the privately insured market are enrolled in HDHPs.[7] Some policy analysts have raised concerns about the potential adverse effect of HDHPs on access and utilization of healthcare services, especially the use of preventive services (Buntin et al., 2005; CDI, 2006; Claxton, Gil, et al., 2005; Office of Assemblywoman Wilma Chan, 2006). In brief, AB 2281 would require HDHPs to limit out-of-pocket expenses, disclose consumer information about such plans, and exempt preventive services from a deductible (the amount an insured would have to spend before coverage begins). This report acknowledges that continued growth of HDHPs in the individual and group market is expected; nonetheless, the health insurance marketplace is rapidly changing and fundamental uncertainties exist about consumers' selection of plans in the future. Thus, this report limits its analysis to a current "snapshot" of the HDHP market in California, with the important caveat that our analysis, especially of quantitative impacts, may not be representative of the effects of AB 2281 if HDHPs proliferate rapidly.

Consumer-Directed Health Plans and High Deductible Health Plans

"Consumer-directed health plan" (CDHP) is the term used to describe a health insurance product conceived to give more financial responsibility to consumers through increased cost-sharing, aided by increased information and decision-making tools. CDHPs are emerging as a market response to rising health care costs and aim to reduce costs by increasing cost-effective choices in health care (Buntin et al., 2005).

HDHPs are one type of CDHP and are typically defined as those plans having a deductible (the amount the consumer is expected spend before coverage begins) that is $1000 or over for an individual and $2000 and over for a family.[8] Compared to increased copayments, deductibles offer the most direct method to increase the consumer's share of health care costs (Claxton, Gil, et al., 2005). In this kind of cost-sharing arrangement consumers would be expected to be more careful about how they spend their first $1000 dollars on health care. The concept behind many HDHP products is that, paired with a savings account that ideally has the funds to pay for the deductible, they offer consumers flexibility and cost savings.

[7] This figure is estimated from data collected for this CHBRP analysis from a survey of the eight largest insurers and health plans in California with HDHPs. It does not include individuals covered by self-insured plans, which are regulated under ERISA by U.S. Department of Labor and are not subject to state mandates, and, therefore, who are not analyzed in this report.

[8] Although deductibles, in general, have been increasing, HDHPs are emerging as a distinct type of insurance product.

HDHPs and Health Savings Accounts (HSAs)

HDHPs have become the most common type of CDHP, nationally, because the Medicare Modernization Act of 2003 changed the federal tax code to provide federal income tax incentives for designated savings accounts, called Health Savings Accounts (HSAs), that are paired with qualified HDHPs. The minimum deductible amount and the maximum out-of-pocket expense to qualify as an HDHP are indexed to inflation. For 2006, the United States Department of Treasury, Internal Revenue Service (IRS) defines HDHPs as having a deductible of $1,050 or more for an individual or $2,100 or more for a family. In addition, the plan cannot have an out-of-pocket maximum greater than $5,100 for an individual and $10,200 for a family (CDI 2006). California does not offer state income tax incentives for HSAs. HSAs are owned by the individual (and are portable) and are designed to help individuals save for qualified health expenses that they or dependents may incur. They allow funds to be placed in a tax-deductible account by an employer, or individual, and the account earns interest tax-free. Unspent HSA funds can be rolled over into future years, allowing an accumulation of funds to pay for health care services. Withdrawals for "qualified expenses" are not taxable. Qualified expenses include payments made for over-the-counter drugs, copayments, and health care expenses subject to a deducible.[9]

The Growth of HDHPs and HSAs

Although HDHPs have a small market share currently, studies and surveys consistently predict a growth in HDHPs (Buntin et al., 2005; CDI, 2006; Claxton, Gil, et al., 2005). In an annual survey of employers, researchers report that in 2003, 5% of employers offered an HDHP, 10% in 2004, and 20% in 2005 (Claxton, Gil, et al., 2005). Of those firms that do not currently offer an HSA-qualified HDHP, 25% reported that they are somewhat likely or very likely to in the next year (Claxton, Gil, et al., 2005). Another national large employer survey found that 8% of employers offered HSAs in 2005 and 36% expected to offer them by the end of 2006 (Fronstin and Collins, 2005). Not all HDHPs in the group market are associated with an employer-sponsored HSA. Approximately one-third of employers who offered an HSA-qualified HDHP did not contribute to the employee's HSA[10] (Claxton, Gil, et al., 2005).

There is little data on how many individuals covered by an HDHP, either in the individual or group markets, actually have an HSA, or whether not there are funds in the HSA if they do. HSAs were authorized in 2003 and the IRS did not issue guidelines until mid-2004. The majority of Californians with HDHPs are in the individual market (see Table 2 below), meaning that the majority of HDHP holders in California must open and fund their own HSAs. Many HDHP plans offered in California predate the HSA legislation. CHBRP estimates that a majority of Californians currently in HDHPs do not have an HSA. A recent online national survey of consumers found that of individuals covered by private health insurance, 1% had an HDHP with a savings account and 9% had HDHPs with no account (Fronstin and Collins, 2005).[11]

[9] A table of preventive services that considered "qualified expenses" that can reimbursed from the HSA can be found in Appendix F.
[10] Individuals can also make their own HSA contributions.
[11] It is not known how many of the respondents in the survey are in the individual market.

Table 2: California HDHP enrollees in privately insured market, January 1, 2006

Market segment	HDHP enrollees	Share of HDHP market	Privately insured enrollees	HDHP share of privately insured market
Individual	1,109,000	64%	2,014,000	55%
Small Group	549,000	31%	3,808,000	14%
Large Group	88,000	5%	10,064,000	1%
Total	1,380,000	100%	15,886,000	11%

Source: California Health Benefits Review Program, 2006. Data derived from CHBRP survey of the eight largest health plans and insurers offering HDHP and publicly available pre-enrollment information.

Potential Impacts of HDHPs on the Health Care Market

The growth of HDHPs is in its early stages, and there is uncertainty as to their impact on health care quality and costs (Buntin et al., 2005). One concern regarding HDHPs is whether they will discourage patients from seeking medically necessary health care services, including preventive services (Buntin et al., 2005; Fronstin and Collins, 2005). These plans may also result in further segmentation of risks within the overall insurance pool. If young and healthy individuals disproportionately elect or purchase HDHPs, this may result in a higher concentration of older and less healthy individuals in other health plans (GAO, 2005; CDI 2006). In addition, concerns have been raised about the long-term costs for individuals in HDHPs if they fail to obtain medically needed care or if they accumulate large medical debts resulting from a high-cost illness (Davis et al., 2005)

Other state laws on HDHPs

At the end of 2005, New Jersey enacted legislation (P.L. 2005, c. 248) that requires large group HDHPs that are used with HSAs to provide coverage for preventive services not subject to the deductible.[12] New Jersey also limits individual deductibles for in-network costs to $2,500 and requires individual maximum out-of-pocket limits to be no more than $5,000 for network services.

Regulatory Framework of HDHPs in California

In California, regulation of health insurance is the responsibility of two state departments: the Department of Managed Health Care (DMHC) and the California Department of Insurance (CDI). DMHC regulates health maintenance organizations (HMOs) and managed care plans according to a basic framework established by the Knox-Keene Health Care Service Plan Act of 1975. Health care service plans must obtain a Knox-Keene license from DMHC prior to operating in California. Statutory provisions of the Act, as well as regulations promulgated by the DMHC, are codified in the California Health and Safety Code. In California, 820,000

[12] This requirement was already contained in existing New Jersey law (N.J.A.C. 11:22-5.3(a)3. Personal communication, Gale Simon, Assistant Commissioner, Life & Health New Jersey Department of Banking & Insurance, April 5, 2006.

enrollees in Knox-Keene licensed plans (or 7.9% of total enrollees in these plans) are in HDHPs, as of January, 2006.

The Health and Safety Code, as well as DMHC regulations include requirements regarding preventive services that must be covered. These are listed in Table 3 below. In addition, as a result of the regulation of the DMHC and the managed care market in California, these plans usually include copayments (as opposed to coinsurance rates) for preventive services. The *Utilization, Cost and Coverage section* discusses the current regulatory framework and market of Knox-Keene licensed plans and shows the impacts of the preventive services provisions of AB 2281 are expected to be modest.

In contrast, CDI has jurisdiction over insurers providing coverage for defined benefits related to the health. They obtain a certificate of authority from the Insurance Commissioner for the specific line(s) of business they intend to offer prior to conducting insurance business in the state. In California, 577,000 enrollees in CDI-regulated policies (13.1 percent of total enrollees in these policies) are in HDHPs, as of Jan, 2006.

The Insurance Code contains fewer mandates for benefits than are included in the Health and Safety Code and DMHC regulations. Table 3 lists the preventive services currently mandated under state law. CDI policies have considerable flexibility in the services they cover and whether or not those services are subject to a deductible—especially in the individual market. The Insurance Code does not prescribe cost-sharing limits. CDI policies also have considerable variation in terms of coinsurance rates for various benefits and out-of-pocket (OOP) maximums. Under AB 2281, HDHPs under CDI would be required to limit co-insurance to 30% and OOP maximums to $5,000/10,000. Therefore, the combined requirements of excluding covered preventive services from the deductible and limiting cost sharing would have a larger impact on policies regulated by the CDI than those regulated by the DMHC.

Table 3. Preventive Services: Mandated Compared to USPSTF Recommended

	DMHC regulated plans	CDI regulated policies
Currently Mandated	• Child immunizations* • Adult immunizations* • Screening for obesity and counseling/interventions* • Mammography* • Cervical cancer screening* • Colorectal cancer screening* • Screening for hypertension and lipid disorders* • Screening for pregnant women (asymptomatic bacteriuria, hepatitis B, neural tube defects, anemia, pre-eclampsia with blood pressure monitoring, Down syndrome, Rh(D) blood typing and antibody testing, and hemoglobinopathies)* • Screening for sexually transmitted diseases (chlamydia, gonorrhea, syphilis, HIV)* • Screening for tuberculosis* • Screening and counseling for alcohol misuse*± • Behavioral counseling to promote a healthy diet* • Newborn screening (congenital hypothyroidism, phenylketonuria)* • Screening for blood lead levels (children)* • Vision screening (children under age 5 years)* • Screening for diabetes* • Preventive health exams • Routine prenatal care • Well-child care • Screening for hepatitis C • Clinical breast exam • Prostate cancer screening • Newborn screening (hearing loss)	• Child immunizations* • Mammography* • Cervical cancer screening* • Colorectal cancer screening* • Screening and counseling for alcohol misuse*± • Newborn screening (congenital hypothyroidism, phenylketonuria)* • Screening for blood lead levels (children)* • Vision screening (children under age 5 years)* • Preventive health exams for children • Well-child care for children • Clinical breast exam • Prostate cancer screening • Newborn screening (hearing loss)

Table 3. Preventive Services: Mandated Compared to USPSTF Recommended (con't)

	DMHC regulated plans	CDI regulated policies
Currently NOT Mandated	• Screening for tobacco use and tobacco cessation interventions* • Screening for depression* • Screening for osteoporosis*	• Adult immunizations* • Screening for tobacco use and tobacco cessation interventions* • Screening for obesity and counseling/interventions* • Screening for hypertension and lipid disorders* • Screening for pregnant women (asymptomatic bacteriuria, hepatitis B, neural tube defects, anemia, pre-eclampsia with blood pressure monitoring, Down syndrome, Rh(D) blood typing and antibody testing, and hemoglobinopathies)* • Screening for STDs (chlamydia, gonorrhea, syphilis, HIV)* • Screening for tuberculosis* • Screening for depression* • Behavioral counseling to promote a healthy diet* • Screening for osteoporosis* • Screening for diabetes*

Source: Compiled from USPSTF, 2005; Compiled from Health and Safety Code Sections 1365, 1367; California Code of Regulations Section 1300.67; Insurance Code Section 10123.
Notes: * Services recommended as effective by the USPTSF. See Appendix E for more detail on specific services and subpopulations recommended for preventive care.
± Mandated offering.

AB 2281—Bill Description and Intent

Assembly Bill 2281 aims to provide consumer protections to HDHP policyholders by limiting out-of-pocket expenses, providing new reporting requirements, and excluding coverage of preventive services from the deductible. The bill's intent is to level the playing field for currently mandated preventive services while maintaining choice of policies available in the market—especially within the individual market.

Specifically, AB 2281 would require Knox-Keene licensed plans and health insurance policies[13] that are considered HDHPs to do the following:

[13] Health care service plans, commonly referred to as health maintenance organizations, are regulated and licensed by the California Department of Managed Care (DMHC), as provided in the Knox-Keene Health Care Services Plan Act of 1975. The Knox-Keene Health Care Services Plan Act is codified in the California Health and Safety Code. Health insurance policies are regulated by the California Department of Insurance and are subject to the California Insurance Code.

Limit on out-of-pocket expenses:

- Limit annual out-of-pocket expenses (including deductibles, copayments, and coinsurance) to $5,000 for an individual and $10,000 for a family;
- Limit copayments and coinsurance rates to not more than 30% of the negotiated rate for services. If the service is provided by a non-network provider that does not have a negotiated rate with the healthcare plan, the copayment or coinsurance is limited to 30% of the plan's allowed amount for the service;

Disclose consumer information:

- Inform enrollees about costs that apply to the deductible, potential charges for out-of-network services, and actual spending on health care services as a percentage of premiums;
- Provide quarterly reporting on a member's remaining deductible;
- Provide comparative information such as quality ratings for providers within the plan's provider network;
- Require the DMHC and the CDI to jointly produce a consumer guide on HDHPs by July 2007.

Require covered preventive services be exempt from the deductible:

- Exempt currently covered preventive services from the deductible. AB 2281 bases the list of preventive services that may be excluded from the deductible on federal guidance on HDHP/HSAs "Safe Harbor Preventive Services." These include but are not limited to: periodic health evaluations, routine prenatal and well-child care, immunizations, tobacco cessation programs, obesity weight-loss programs, and preventive screening services for a variety of conditions such as cancer, and vision and hearing disorders.
- The Office of Wilma Chan, author of AB 2281, indicated that the clause "routine monitoring and management of chronic diseases, such as asthma, diabetes, hypertension, heart disease, and depression, and tests and diagnostic procedures ordered in connection with those evaluations" would be deleted in an amended version of AB 2281, and, therefore, this analysis does not address that provision.
- In addition, legislative staff indicated that the bill was not intended to mandate coverage of preventive services by HDHPs, but instead, it requires that those preventive services that are currently covered not be applied to the deductible.

Finally, AB 2281 would also require that an insurer also offer a policy with a lower deductible and cost-sharing amount than allowed for high deductible products.

<u>CHBRP's Analytic Approach of AB 2281</u>

This analysis differs from a standard CHBRP analysis in two ways. First, the authorizing statute gives CHBRP 60 days to complete its analyses; however, to be available for hearings on AB 2281, CHBRP completed this analysis in 40 days. This tightened deadline necessitated that CHBRP modify its standard analysis.

Second, AB 2281 is not a typical mandate bill in that it does not mandate coverage for a specific benefit or service. Instead, it alters the cost-sharing requirements for a set of services, mandates

disclosure requirements, and sets limits on out-of-pocket costs. Consequently, CHBRP adjusted its methods to address the issues unique to AB 2281. For example, CHBRP reports typically include a medical effectiveness analysis that summarizes the literature on the medical effectiveness of mandated services. However, given the shorter time frame for this report and the nature of requirements specified under AB 2281, CHBRP did not review the large body of literature on the effectiveness of individual preventive services. Instead this report relies on the reviews of the United States Preventive Services Task Force (USPSTF) regarding the effectiveness of specific preventive services and assesses those preventive services for which there is strong evidence of a positive effect on health and well-being. In addition, this report summarizes the literature on the extent to which cost sharing affects consumers' access and utilization of preventive services. The cost impact analysis presented in the *Utilization, Cost, and Coverage Impacts* section also varies from a typical CHBRP analysis that assesses the impact of a new mandate for a benefit or services. The detailed cost analysis presented in this report focuses on one of the four AB 2281 provisions that are expected to have an affect on HDHP costs and premiums, namely the preventive services provisions. This report examines two potential market responses to preventive services provisions of AB 2281: (1) a scenario in which a portion of HDHPs would continue to cover the preventive services they currently cover and carve them out of the deductible or, (2) a scenario in which a portion of HDHPs would drop coverage for preventive services that are not mandated by current law, with the exception of prenatal care. The public health impact analysis discusses the potential impacts of AB 2281 on the health of Californians. Given the possible range of market responses, however, it is difficult to estimate the public health impact.

Three other provisions of AB 2281 were determined to have an effect on utilization, cost, and coverage for HDHP plans:

- limit annual out-of-pocket expenses to no more than $5,000 for individuals and $10,000 for families;
- limit copayments or coinsurance to no more than 30% of the negotiated rate of payment for the service (if the service is provided by a non-network provider that does not have a negotiated rate with the healthcare plan, the copayment or coinsurance is limited to 30% of the plan's allowed amount for the service); and
- require additional disclosure and administrative tasks.

These provisions are discussed qualitatively in the report. Because these provisions were difficult to model using the standard CHBRP cost methods, they were not reported in the quantitative analyses in this report.

There are additional limitations of this analysis:

- There is a body of literature that addresses whether and how consumers use information to make decisions about coverage. However, this report does not analyze the impacts of the disclosure requirements as currently introduced under AB 2281 due to time constraints and because these provisions are subject to change.

- Information regarding services covered currently under the package of "preventive services" by the various HDHPs is limited. This analysis relies on responses to CHBRP's

survey of the largest eight health plans and insurers in California that offer HDHPs and a review of publicly available pre-enrollment information for individual and small group plans.

- While CHBRP recognizes the rapidly increasing number of HDHPs and HSAs in the market we do not address the potential utilization impact of HSAs on preventive services for several reasons:
    - Knowledge and awareness of the availability of HSAs, especially in the individual market, are likely low given that they are a fairly new product.
    - Data limitations of HSA enrollment in all markets, but particularly the individual market.
    - Lack of any reliable studies of the effect of HSAs on the utilization of healthcare services. The extent to which account holders will treat funds in their HSAs as monies they wish to save or spend on qualifying medical expenses is unknown—especially for preventive services for which there is no immediate health care need.

- AB 2281 would require that an insurer that offers an HDHP also offer a policy with a lower deductible and cost-sharing amount than allowed for high deductible products. Because CHBRP limits its survey to the largest plans and insurers in California, this analysis does not report on the market share or proliferation of carriers that only offer HDHP in the California insurance market; nor do we report on the potential impacts of AB 2881 on these carriers.

I. LITERATURE ANALYSIS ON THE IMPACTS OF COST SHARING ON USE OF PREVENTIVE SERVICES

Focus of the review

As discussed earlier, this analysis relies on the recommendations of the United States Preventive Services Task Force (USPSTF), which has determined that many preventive services improve health and well-being. CHBRP relies on the USPSTF's recommendations because they are based on rigorous and systematic reviews of the scientific evidence of medical effectiveness, and because many experts consider them to be the "gold standard" for preventive services (USPSTF, 2005, p. v-vi). The USPSTF recommends only those services for which there is evidence that potential benefits outweigh potential harms. (See Appendix E for a list of preventive services recommended by the USPSTF.) Use of preventive services recommended by the USPSTF enables people to lead longer and more productive lives. In some cases, most notably immunizations, preventive services prevent debilitating and potentially fatal illnesses. In other cases, such as screening tests for cancer and risk factors for cardiovascular disease, preventive services facilitate early diagnosis and treatment of diseases and chronic conditions. Early diagnosis and treatment can often cure illness, improve control of symptoms, or avert more severe illness (e.g., controlling hypertension reduces risk for cardiovascular disease).

Instead of assessing medical effectiveness, this section of the report addresses the impact of cost sharing on use of preventive services recommended by the USPSTF and/or mandated under current California law. Cost sharing can affect use of preventive services directly and indirectly (Solanki and Schauffler, 1999; Solanki, et al., 2000). Use of preventive services may be directly affected by deductibles, coinsurance, and copayments for these services. Cost sharing for outpatient visits may indirectly affect the use of preventive services because many preventive services are provided as part of an office visit and because providers refer patients to obtain preventive services that are provided separately (e.g., mammography). AB 2281 may directly affect use of preventive services, because it would require HDHPs to provide coverage of preventive services exempt from the deductible. This legislation may also indirectly affect use of preventive services because it would limit coinsurance and copayment rates for other services, including outpatient care, to no more than 30% of a plan's allowable rate for a service.

No studies have examined the effect of high deductible health plans (HDHPs), as they exist currently and would be defined in AB 2281, on use of recommended preventive services. However, studies have assessed the effects of cost sharing in general on utilization by persons enrolled in conventional types of health plans, such as health maintenance organizations (HMOs), preferred provider organizations (PPOs), and fee-for-service (FFS) plans. These studies can be grouped into two major categories. One category consists of studies that investigate the effects of specified levels of cost sharing or coverage for preventive services. For example, such studies may compare persons who have coverage for a specific preventive service to persons who do not have coverage for that service. Alternatively, they may compare persons who face different levels of deductibles, coinsurance, and copayments for a service. A second category is comprised of studies that evaluate the effects of enrollment in different types of health plans in which the amount of cost sharing generally differs, although the exact amount of the cost sharing may not be specified in these studies. Most of these studies compare persons enrolled in HMOs

to persons enrolled in PPOs or FFS plans. Some studies refer to PPOs and FFS plans collectively as indemnity plans. Traditionally, persons enrolled in FFS plans and PPOs have paid a deductible before their coverage starts. Once coverage begins, they must pay a percentage of the cost of the medical services they receive, called coinsurance. In contrast, HMOs do not charge a deductible and enrollees pay only a small copayment for most services.

Literature search methods

Studies of the impact of cost sharing on use of preventive services were identified through searches of the PubMed, Cochrane, and CINAHL databases. The search was limited to abstracts of peer-reviewed studies of children and non-elderly adults enrolled in commercial health insurance plans in the United States that were published from 1980 to the present. The review did not address studies of the effects of cost sharing on the use of disease management services, such as blood pressure monitoring for persons with hypertension, because AB 2281 is being amended to remove provisions that address treatments for chronic illness.

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 may be found in Appendix A: Literature Review Methods. A table that presents detailed findings for each outcome measure appears in Appendix B: Summary of Findings on the Effects of Copayments, Coinsurance, and Deductibles on Use of Preventive Services.

Services addressed
Twenty-seven studies of the effects of cost sharing on utilization of preventive services were retrieved. The studies assessed the following services addressed in AB 2281:

- Periodic health examinations[14]
- Well-child care
- Childhood and adult immunization
- Tobacco cessation programs
- Screening services for
  - Breast, cervical, colorectal, and prostate cancer
  - Risk factors for heart and vascular disease (i.e., hypertension and elevated cholesterol)
  - Tuberculosis
  - Vision impairment

The USPSTF recommendations address specific preventive services that should be provided as part of periodic health examinations, well-child visits, or other outpatient visits. All of the services listed above are recommended by the USPSTF, except for clinical breast exams and prostate cancer screening (USPSTF, 1996; USPSTF, 2005). These two services are included because Knox-Keene licensed health plans regulated under the Health & Safety Code, and health insurance policies regulated under the Insurance Code are required to cover well-child care, clinical breast exams, and prostate cancer screening. The Health and Safety Code also mandates coverage for periodic health examinations for adults.

[14] See footnote #4 for a definition of this term.

Characteristics of studies

Eight studies analyze data from randomized controlled trials. Six of these examined data from the RAND Health Insurance Experiment, the largest and most rigorous randomized trial of the effects of cost sharing on expenditures and utilization of health care services and health status.[15] In addition, 19 observational studies examined data from surveys and/or health plans. Three review articles that synthesized literature regarding the effects of cost sharing on preventive services were also included in the review (Phillips et al., 2000; Rice and Morrison, 1994; Schauffler and Rodriguez, 1993).

The observational studies have at least two important limitations that need to be considered when evaluating their findings. First, some studies rely on self-reported data on level of cost sharing and use of preventive services. Self-reported data on cost sharing and use of services may not be as accurate as data obtained from health plans' descriptions of terms and conditions of coverage, insurance claims for preventive services, or medical records. People may not know whether a service is covered or not, may not remember receiving a particular service, or may not accurately recall when the service was provided.

Second, the observational studies are vulnerable to selection bias. Persons included in observational studies are not randomly assigned to different levels of cost sharing or different types of health plans. Studies that do not randomly assign persons to particular levels of cost sharing or types of health plans may not adequately control for differences in the characteristics of individuals in the groups being compared, which may affect their use preventive services. For example, one group may have a higher average income than the group to which it is compared. This difference between the groups could affect the results because persons with higher incomes generally use more health care services regardless of the type of health insurance they have. Likewise, people who care more about using preventive services may choose plans that offer better coverage of such services. Although the authors of the observational studies discussed in this review use widely accepted methods to control for potential selection bias, these methods are not as effective as randomly assigning subjects.

Generalization across studies is difficult because the studies assess persons enrolled in different types of health plans. For example, the RAND Health Insurance Experiment compares persons who received free care to persons enrolled in FFS plans with unlimited choice of providers. Although such plans were quite common when the RAND experiment was conducted, few people in California are enrolled in them today. Some studies examine the impact of having coverage for a preventive service, whereas others evaluate the effect of making coverage subject to a deductible, coinsurance, or copayment, or the effect of variation in the amount of cost sharing. Some of these studies compare people in HMOs to people in PPOs or FFS plans. Other

[15] A detailed description of the RAND Health Insurance Experiment and its major findings can be found in Newhouse, 1993. The experiment was conducted in the late 1970s and early 1980s at six sites in Massachusetts, Ohio, South Carolina, and Washington. Families who participated in the experiment were randomly enrolled into a plan that provided free care or into 1 of 13 FFS plans in which they faced different levels of coinsurance and different limits on out-of-pocket expenditures. In addition, some participants in Washington were enrolled in a group/staff model HMO.

studies combine people in HMOs and PPOs, and compare them to people in FFS plans. Due to the high variability in the design of these studies, CHBRP has decided to report ranges rather than point estimates of the effect of cost sharing on use of preventive services.

Findings

The findings from the literature review regarding hospital admissions, outpatient visits, and use of prescription drugs are presented first. They are followed by a discussion of the findings regarding use of preventive services, which are addressed in the order in which preventive services are listed in AB 2281. The overall finding for each service is presented at the end of the summary of the literature on that service. The overall findings are based on the pattern of evidence across all studies that address a particular service. The findings are characterized as effects of lower cost sharing on use of preventive services because AB 2281 would require plans to provide coverage for these services not subject to the deductible. However, as discussed in the Utilization, Cost, and Coverage Impacts section, AB 2281 could lead to greater cost sharing for some persons, if HDHPs respond to the legislation by dropping coverage for preventive services that are not mandated under the Health and Safety Code or the Insurance Code.

Hospitalization and outpatient care

Only one peer-reviewed study has assessed the impact of high deductible health plans on utilization of health care services. Parente and colleagues (2004) assessed utilization by persons who obtained health insurance through a large firm that offered a choice of an HDHP, an HMO, and a PPO. This study found that persons enrolled in an HDHP had fewer outpatient visits and filled fewer prescriptions than persons enrolled in the HMO, but had more visits and filled more prescriptions than persons enrolled in the PPO. The HDHP enrollees also had more hospital admissions than HMO and PPO enrollees. All three findings were statistically significant.

Although Parente and colleagues' (2004) study is path breaking, its results should be interpreted with caution. The study examines employees of a single firm who may not be representative of persons enrolled in HDHP plans in California. Second, it is an observational study that may not fully control for differences in the characteristics of persons in the three types of plans, which may have affected the results. Finally, the size of the deductible did not directly affect the use of preventive services because persons enrolled in this HDHP had coverage for these services exempt from the deductible. Greater cost sharing for outpatient visits may have indirectly influenced use of preventive services by persons enrolled in the HDHP, because the high deductible may have led them to make fewer outpatient visits than persons enrolled in the HMO. As a consequence, they may have missed opportunities to receive preventive services typically provided during office visits or referrals for such services. However, the study's authors do not test this hypothesis.

Periodic health examinations[16]

The RAND Health Insurance Experiment and three observational studies assessed the effects of cost sharing on the probability that adults will obtain periodic health examinations. A study that analyzed data from the RAND Health Insurance Experiment found that lower cost sharing was associated with a statistically significant increase of 47% in the number of outpatient visits that adults had per year for preventive services (Lillard et al., 1986). Faulker and Schauffler (1997) found that men and women who had coverage for all or most preventive services were more likely to have had periodic health examinations within the previous two years and that the difference was statistically significant. Cherkin and colleagues (1990) reported a $5 copayment had a statistically significant effect on the likelihood of having had a periodic health examination during the previous year. Adults who were not subject to a copayment were more likely to have had a periodic health examination within the previous year. Wang and Pauly (2003) found that adults enrolled in HMOs were more likely to have had a periodic health examination within the previous three years than adults enrolled in FFS plans and that the difference was statistically significant. Although this last study did not evaluate the effects of a specific level of cost sharing or coverage for specific services, the findings can be interpreted to suggest that lower cost sharing is associated with greater likelihood of having a periodic health examination, because persons enrolled in HMOs generally face lower cost sharing than persons enrolled in FFS plans. Among studies for which sufficient data were available to calculate percentage differences, the effect of lower cost sharing on the probability of having a periodic health examination ranged from 22% to 25%. *The findings from these studies suggest that lower cost sharing has favorable effects on receipt of periodic health examinations.*

Routine prenatal care and well-child care

Routine prenatal care. No studies of the effects of cost sharing on receipt of routine prenatal care were found.

Well-child care. Three studies reported results from the RAND Health Insurance Experiment regarding the effects of cost sharing on the probability that children would obtain well-child visits. Leibowitz and colleagues (1985) and Lillard and colleagues (1986) reported a statistically significant difference in well-child visits per year between children who received free care and children enrolled in FFS plans under which their parents were required to pay a deductible plus 25% to 95% of the cost of well-child visits and other health care services. Children who had free care had more well-child visits per year than children enrolled in plans that required cost sharing. Valdez and colleagues (1989) found that children enrolled in a group/staff model HMO had more well-child visits per year than children enrolled in FFS plans and that the difference was statistically significant. As discussed previously, this finding from Valdez and colleagues' study (1989) can be interpreted as favoring lower cost sharing, because persons in HMOs generally face lower cost sharing than persons in FFS plans. The results of these studies are especially compelling because the RAND Health Insurance Experiment is the best designed study of the effects of cost sharing on use of health care services. In these three studies, the effect of lower cost sharing on the number of well-child visits ranged from 31% to 47%. *These findings indicate*

[16] See footnote #4 for a definition of this term.

that lower cost sharing has favorable effects on the number of well-child visits that children receive.

Child and adult immunization

Three studies assessed the impact of cost sharing on childhood immunizations. One study based on the RAND Health Insurance Experiment reported that cost sharing had a statistically significant effect on probability of having had one or more immunizations in the previous three years (Lurie et al., 1987). Children who received free care were more likely to have had one or more immunizations than children enrolled in FFS plans under which their parents were required to pay a deductible plus 25% to 95% of the cost of immunizations. Another study based on the RAND experiment found that cost sharing had a statistically significant effect on receipt of specific immunizations (Valdez et al., 1989). The authors reported that children enrolled in a group/staff model HMO were more likely to have had a polio booster and a tetanus booster than children enrolled in FFS plans that required cost sharing (Valdez et al., 1989). An observational study of children enrolled in a group/staff model HMO found that infants whose parents were not required to make a copayment were no more likely to receive their first and second diphtheria-pertussis-tetanus (DPT) immunizations and measles-mumps-rubella (MMR) immunizations than children whose parents had to make a copayment (Cherkin et al., 1990). In this study, five-year olds who were not subject to a copayment were more likely to receive a DPT booster, but the difference was not statistically significant. In these three studies, the effect of lower cost sharing on the percentage of children immunized ranged from 0% to 20%. *Overall, these studies suggest a pattern toward favorable effects of lower cost sharing on receipt of childhood immunizations.*

One randomized trial and three observational studies analyzed the effects of cost sharing on adult immunizations. A study that analyzed data from the RAND Health Insurance Experiment reported that non-elderly adults who received free care were more likely to have had an immunization within the previous three years than persons in the same age group who were enrolled in FFS plans that required cost sharing (Lurie et al., 1987). The difference was statistically significant for adults aged 45–65 years, but not for adults aged 17–44 years. Hahn and Olson (1999) found that non-elderly adults enrolled in an HMO were more likely to have had a tetanus immunization in the previous 10 years than non-elderly adults enrolled in FFS plans and that the difference was statistically significant. Two studies reported statistically significant differences in receipt of influenza immunizations by non-elderly adults enrolled in HMOs and PPOs. Non-elderly adults enrolled in HMOs were more likely to have had an influenza immunization in the previous year than non-elderly adults enrolled in PPOs and indemnity plans (Reschovsky et al., 2000; Tu et al., 1999). In these four studies, the effect of lower cost sharing on the percentage of adults immunized ranged from 0% to 70%. *Overall, these studies suggest a pattern toward favorable effects of lower cost sharing on receipt of adult immunizations.*

Tobacco cessation programs

Six studies investigated the impact of cost sharing on receipt of tobacco cessation services. Two randomized trials reported statistically significant differences that favor full coverage for tobacco cessation treatments. One trial reported that smokers enrolled in HMOs who had full coverage

for nicotine replacement therapy (NRT) (gum and patch) and behavioral counseling were more likely to use NRT than smokers enrolled in the same HMOs who did not have coverage for tobacco cessation services (Schauffler et al., 2001). The authors found no difference in use of behavioral counseling. One trial reported that adult smokers who received free nicotine gum or paid a lower price ($6 versus $20 per box) were more likely to obtain gum and used more gum (Hughes et al., 1991). An observational study of adult smokers enrolled in a group/staff model HMO found that smokers who received full coverage for both NRT and behavioral counseling were more likely to use these services than smokers who had 50% coinsurance for behavioral counseling and full coverage for NRT or full coverage for behavioral counseling and 50% coinsurance for NRT and that the differences were statistically significant (Curry et al., 1998). The study also found that smokers who had 50% coinsurance for behavioral counseling and full coverage for NRT were more likely to use these services than consumers who had 50% coinsurance for both services. Another observational study reached opposite conclusions. Boyle and colleagues (2002) reported that smokers enrolled in multiple types of health plans found that smokers who had coverage for bupropion and NRT were no more likely to use these products than smokers who did not have coverage for them. Similarly, two observational studies about provision of advice regarding the health risks of smoking in HMOs reached opposite conclusions. A national study found that smokers enrolled in HMOs who had at least one physician visit in the previous year were no more likely to report receiving advice about tobacco cessation than smokers who were enrolled in other types of health plans (Tu et al., 1999). Conversely, a study of Californians conducted during the same time period found that non-elderly adult smokers who were enrolled in HMOs were more likely to receive advice about tobacco cessation than non-elderly adult smokers in PPOs and that the difference was statistically significant (Schauffler and McMenamin, 2001). In these six studies, the effect of lower cost sharing on the percentage of smokers receiving tobacco cessation services ranged from 0% to 79%. *Overall, these studies, particularly the randomized trials, suggest a pattern toward favorable effects of lower cost sharing on use of tobacco cessation services.*

Obesity weight-loss programs

No studies of the effects of cost sharing on use of obesity weight-loss programs were found.

Cancer screening

Studies have evaluated the effect of cost sharing on five cancer screening tests: clinical breast examination, mammography, cervical cancer screening (i.e., Pap smear), colorectal cancer screening, and prostate cancer screening.

Breast cancer screening. Four observational studies investigated the impact of cost sharing on receipt of clinical breast examinations. Faulkner and Schauffler (1997) found that women who had coverage for all or most recommended preventive services were more likely to have had a clinical breast exam within the previous year than women who had no coverage for recommended preventive services. This finding was statistically significant. A study of women enrolled in a group/staff model HMO found that women who were charged a $5 copayment were no less likely to obtain a clinical breast examination in the previous year than women who did not face such a copayment (Cherkin et al., 1990). Potosky and colleagues (1998) found that

women enrolled in managed care plans (including both HMOs and PPOs) were no more likely to have had a clinical breast examination than women enrolled in FFS plans. Schauffler and McMenamin (2001) reported that women who were enrolled in HMOs were less likely to have had a clinical breast examination within the past year than women enrolled in PPOs, but the difference was not statistically significant. *Overall, the evidence of the effects of cost sharing on receipt of clinical breast exams is ambiguous.*

Fourteen observational studies have examined the effects of cost sharing on receipt of mammography. Faulkner and Schauffler (1997) found that women who had coverage for all recommended preventive services were more likely to have had a mammogram within the previous two years than women in the same age group who did not have coverage for any recommended preventive services. This difference was statistically significant. Two studies compared women who had coverage for outpatient visits to women who did not have coverage for outpatient visits. One study found that women who had coverage for outpatient visits were more likely to have had a mammogram within the previous two years and that the difference was statistically significant (Friedman et al., 2002). The other study did not find a statistically significant difference, but this may be due to small sample size in the group without outpatient coverage (Gordon et al., 1998).

Two studies used different methods to analyze data from the same national survey on the impact of variation in the size of deductibles, coinsurance, and copayments on receipt of mammography within the previous two years. Both found that the amount of cost sharing had no effect on receipt of mammography (Liang et al., 2004; Tye et al., 2004). Another study found a statistically significant and negative association between the coinsurance rate (10% vs. 20%) and the probability of having had a mammogram in the previous two years (Friedman et al., 2002). Two studies that analyzed data from a survey of persons enrolled in health plans sponsored by seven large employers in California found that women who were not charged deductibles, coinsurance, or copayments for mammography were more likely to be screened within the previous two years (Solanki and Schauffler, 1999; Solanki et al., 2000). Both studies reported that the difference was statistically significant for women enrolled in PPO and indemnity plans, but the study that used more sophisticated methods reported that the difference was not significant for women enrolled in HMOs.

Eight studies have compared utilization of mammography in different types of health plans that generally require different levels of cost sharing. Potosky and colleagues (1998) compared women enrolled in HMOs and PPOs to women enrolled in FFS plans. They reported that women enrolled in HMOs and PPOs were no more likely to have had a mammogram within the previous two years than women enrolled in FFS plans. Seven studies compared women enrolled in HMOs to women enrolled in PPOs and/or FFS plans. Three of these studies found statistically significant differences between women enrolled in any type of HMO and women enrolled in PPOs or FFS plans. Women enrolled in any type of HMO were more likely to have had a mammogram within the previous two years than women enrolled in PPOs and/or FFS plans (Hsia et al., 2000; Schauffler and McMenamin, 2001; Tu et al., 1999; Wang and Pauly, 2003). Wang and Pauly (2003) found a statistically significant increase for women aged 40–49 years but no difference for women aged 30–39 years or women aged 50–64 years. One study found that

women enrolled in closed-panel or open-panel[17] HMOs were no more likely to have had a mammogram in the previous two years than women enrolled in PPO or indemnity plans **(**Reschovsky et al., 2000). Two studies reported that women enrolled in group/staff model HMOs were more likely to have had a mammogram within the previous two years than women enrolled in FFS plans and that the difference was statistically significant (Gordon et al., 1998; Hahn and Olson, 1999).

Among the 10 studies of the impact of cost sharing on mammography utilization for which data on the percentage of women screened were available, the effect of lower cost sharing on the percentage of women who had a mammogram ranged from 0% to 20%. *Nevertheless, the overall pattern of findings from all studies of mammograms is favorable and suggests that women who face lower cost sharing for mammograms are more likely to receive them.*

Cervical cancer screening. Three studies that analyzed data from the RAND Health Insurance Experiment and 11 observational studies have assessed the impact of cost sharing on utilization of Pap smears, the test used to screen women for cervical cancer. One of the studies from the RAND Health Insurance Experiment stated that the percentage of women who had a Pap smear within the previous year was not different for women receiving free care and women enrolled in FFS plans that had coinsurance rates ranging from 25% to 95% (Lohr et al., 1986). A second RAND study found that women who received free care were more likely to have had a Pap smear in the previous year than women enrolled in the FFS plans, but the difference was not statistically significant (Lohr et al., 1986). A third study RAND study reported that women who received free care were more likely to have had a Pap smear in the previous three years and that the difference was statistically significant (Lurie et al., 1987). The discrepancy in these findings may be due to differences in the time period examined (one year vs. three years), samples (women at all six study sites vs. four sites), and/or analytic methods (logistic regression vs. analysis of variance).

Six observational studies examined the effects of different levels of coverage for cervical cancer screening. Faulkner and Schauffler (1997) found that non-elderly women who had coverage for all or most recommended preventive services were more likely to have had a Pap smear within the previous two years than non-elderly women who did not have coverage for any recommended preventive services. This finding was statistically significant. Two studies found that women who had coverage for outpatient visits were more likely to have had a Pap smear within the previous three years than women who did not have coverage for outpatient visits. One study found that the difference was statistically significant (Friedman et al., 2002) but the other did not (Gordon et al., 1998). Friedman and colleagues (2002) also reported a statistically significant and negative relationship between the coinsurance rate (10% versus 20%) and the probability of having a Pap smear in the previous three years. Two studies that analyzed data from a survey of persons enrolled in health plans sponsored by seven large employers in

[17] Closed-panel HMOs are HMOs that provide coverage only for services furnished by physicians and other providers who belong to the HMO's staff, medical group, or network. Open-panel HMOs are HMOs that provide coverage for services furnished by providers who are in their networks as well as providers outside their networks. Cost sharing for services provided by "in-network" providers is typically much lower than cost sharing for "out-of-network" providers. Such plans give enrollees financial incentives to obtain care from "in-network" providers but give them the option of using "out-of-network" providers if they are willing to pay a larger share of costs.

California found that non-elderly women who were not charged deductibles, coinsurance, or copayments for mammography were more likely to be screened within the previous two years (Solanki and Schauffler 1999; Solanki et al., 2000). Both studies reported that the difference was statistically significant for women enrolled in group/staff HMOs, PPOs and indemnity plans, but the study that used more sophisticated methods reported no difference for women enrolled in mixed HMO/IPA/POS[18] plans. One study found that women enrolled in a group/staff HMO who were charged a $5 copayment for office visits were no less likely to be screened than women who were not required to make a copayment (Cherkin et al., 1990). The difference between the findings of this study and the other studies suggests that the effect of cost sharing on receipt of cervical cancer screening may vary with the amount of cost sharing required. In other words, a $5 copayment may have less effect on screening for cervical cancer than deductibles and coinsurance rates, which usually require greater out-of-pocket expenses.

Six studies have compared receipt of Pap smears in different types of health plans that generally require different levels of cost sharing. Potosky and colleagues (1998) compared women who were enrolled in HMOs and PPOs to women enrolled in FFS plans. They reported that women enrolled in HMOs and PPOs were no more likely to have had a Pap smear within the previous three years than women enrolled in FFS plans. Five studies compared women enrolled in HMOs to women enrolled in PPOs and/or FFS plans. Two studies found that women enrolled in any type of HMO were more likely to have had a Pap smear within the previous two years than women enrolled in PPOs and/or FFS plans and that the difference was statistically significant (Hsia et al., 2000; Wang and Pauly, 2003). Two studies reported that women enrolled in group/staff model HMOs were more likely to have had a Pap smear within the previous two years than women enrolled in FFS plans (Gordon et al., 1998; Hahn and Olson, 1999). The findings of both of these studies are statistically significant. One study reported no difference in receipt of Pap smears by women enrolled in HMOs and PPOs (Schauffler and McMenamin, 2001).

Among the 10 studies of the impact of cost sharing on cervical cancer screening for which data on the percentage of women screened were available, the effect of lower cost sharing on the percentage of women screened ranged from 0% to 27%. *Nevertheless, the overall pattern of findings is favorable and suggests that women who face lower cost sharing for cervical cancer screening are more likely to be screened.*

Colorectal cancer screening. Tests used to screen asymptomatic persons for colon cancer include fecal occult blood tests, double contrast barium enemas, sigmoidoscopy, colonoscopy, and virtual colonoscopy. Two studies that analyzed data from the RAND Health Insurance Experiment and eight observational studies have assessed the impact of cost sharing on screening for colorectal cancer. One of the RAND Health Insurance Experiment studies found that non-elderly adults who received free care were no more likely to have had fecal occult blood screening within the previous year than non-elderly adults who were enrolled in FFS plans that

[18] IPAs are independent practice associations. The first HMOs, such as Kaiser Permanente, furnished medical care through physicians who belonged to the HMO's medical group or staff, During the 1990s, health insurance companies began to develop a new type of HMO in which medical care was provided by independent physicians who joined with one another to form IPAs that contracted with HMOs on behalf of member physicians. POS are point-of-service plans. They are synonymous with the open-panel HMO plans described in footnote #14.

required cost sharing (Lohr et al., 1986). The other study found that adults who received free care were more likely to have had a rectal examination within the previous two years, but that the difference was not statistically significant (Keeler et al., 1987). Although the RAND study is better designed than any other study of the impact of cost sharing on utilization of health care services, the results regarding colorectal cancer screening should be interpreted with caution. Both studies analyzed screening rates for adults aged 18–64 years. The USPSTF only recommends colorectal cancer screening for asymptomatic persons aged 50 years or older because the potential benefits of testing do not outweigh harms for younger persons who are not symptomatic. In addition, the USPSTF does not recommend rectal examination as a method for screening for colorectal cancer.[19]

Four observational studies examined the effect of cost sharing on fecal occult blood screening. Gordon and colleagues (1998) found that adults who were enrolled in an indemnity plan that covered outpatient services were more likely to have had a fecal occult blood test than adults who were enrolled in health plans that did not cover outpatient services, but the difference was not statistically significant. Another study found that women who were required to pay a $5 copayment for office visits were no less likely to have had a fecal occult blood test than women who were not charged a copayment (Cherkin et al., 1990). Potosky and colleagues (1998) found that adults enrolled in HMOs and PPOs were more likely to have a fecal occult blood test than adults enrolled in FFS plans and that the difference was statistically significant. Two studies compared adults enrolled in group/staff model HMOs to adults enrolled in PPOs or FFS plans. Both found that adults enrolled in group/staff model HMOs were more likely to have had a fecal occult blood test and that the difference was statistically significant (Gordon et al., 1998; Hahn and Olson, 1999).

Four observational studies assessed the impact of cost sharing on sigmoidoscopy. Gordon and colleagues (1998) found that adults enrolled in an indemnity plan that covered outpatient services were less likely to have had a sigmoidoscopy than adults who were enrolled in health plans that did not cover outpatient services, but that the difference was not statistically significant. Potosky and colleagues (1998) reported that adults enrolled in HMOs or PPOs were no more likely to have had a sigmoidoscopy than adults in the same age group who were enrolled in FFS plans. Two studies reported that adults enrolled in group/staff model HMOs were more likely to have had a sigmoidoscopy than persons enrolled in FFS plans. In one study, the difference was statistically significant (Hahn and Olson, 1999), and in the other, it was not (Gordon et al., 1998).

Five observational studies evaluated the effect of cost sharing on the receipt of one or more types of colorectal cancer screening tests. One study found that coverage for colorectal cancer screening tests had a statistically significant effect on the likelihood that adults would be screened. Persons who were enrolled in private health plans that covered colorectal cancer screening tests were more likely to have been screened than persons whose private health plans did not cover colorectal cancer screening (Zapka et al., 2002). Varghese and colleagues (2005)

[19] Rectal examinations are also used to screen men for prostate cancer, but the prostate cancer screening antigen test has been found to be more effective. The USPSTF does not recommend for or against using either test to screen asymptomatic men for prostate cancer because there is insufficient evidence to conclude that the potential benefits of these tests outweigh potential harms (USPSTF, 2005, p. 43-45).

found that coverage for outpatient visits had a statistically significant effect on the probability of having one of several colorectal cancer screening tests. Adults enrolled in a PPO that covered outpatient visits were more likely to have had a colorectal screening test than adults in the same age group who were enrolled in a FFS plan that did not cover office visits. This study also reported a statistically significant and negative association between the coinsurance rate (80% versus 90%) and the probability of being screened for colorectal cancer. Three studies that compared persons enrolled in HMOs to persons enrolled in PPOs and/or FFS plans had mixed findings. Hsia and colleagues (2000) reported that persons in HMOs were more likely to be screened for colorectal cancer and that the difference was statistically significant. Two studies found that persons in HMOs were no more likely to be screened for colorectal cancer than persons in PPOs and/or FFS plans (Schauffler and McMenamin, 2001; Zapka et al., 2002).

Among the six studies of the impact of cost sharing on colorectal cancer screening for which data on the percentage of adults screened were available, the effect of lower cost sharing on the percentage of adults screened ranged from 0% to 43%. *Nevertheless, the overall pattern of findings is favorable and suggests that adults who face less cost sharing for colorectal cancer screening tests are more likely to receive them.*

Prostate cancer screening. One observational study examined the effect of cost sharing on prostate cancer screening (Liang et al., 2004). Men aged 50 years or older who had deductibles from $0 to $250 dollars and men who faced copayments from $0 to $10 were more likely to have been screened for prostate cancer in the previous two years than men in the same age group who had higher deductibles or copayments. These findings were statistically significant. However, the study also found that men aged 50 or older who had a coinsurance rate of 0% to 19% were no more likely to obtain a prostate screening test than men in the same age group who faced higher coinsurance rates. These findings suggest that lower cost sharing is associated with greater utilization of prostate cancer screening tests, but that the effects may differ by type of cost sharing.

Overall, the findings from all studies of the effect of cost sharing on utilization of cancer screening tests suggest that lower cost sharing has a pattern toward favorable effects on screening for breast cancer, cervical cancer, colorectal cancer, and prostate cancer.

Heart and vascular disease screening

Studies have assessed the impact of cost sharing on two services used to screen for risk factors for heart and vascular disease: blood pressure screening for hypertension and blood testing for elevated cholesterol.

Blood pressure screening. Five observational studies have investigated the effects of cost sharing on blood pressure screening. Faulkner and Schauffler (1997) reported a statistically significant difference in receipt of blood pressure screening by non-elderly adults enrolled in health plans that covered all or most recommended preventive services and by non-elderly adults who did not have coverage for preventive services. The authors found that non-elderly adults who had coverage for all or most recommended preventive services were more likely to have been screened for hypertension within the previous two years. Two studies that analyzed data

from a survey of persons enrolled in health plans sponsored by seven large employers in California found that adults who were not charged deductibles, coinsurance, or copayments for blood pressure screening were more likely to be screened within the previous two years, but the difference was not statistically significant, with the exception of group model HMOs (Solanki and Schauffler, 1999; Solanki et al., 2000). For adults in that type of health plan, cost sharing had no effect on receipt of screening. One study found that adults enrolled in HMOs were more likely to have been screened for hypertension than adults enrolled in PPOs and that the difference was statistically significant (Schauffler and McMenamin, 2001). Another study found a statistically significant difference in receipt of blood pressure screening by adults in HMOs and FFS plans that favored HMOs (Wang and Pauly, 2003). Among the three studies that reported data on the percentage of adults screened for hypertension, the effect of lower cost sharing on the percentage screened ranged from 1% to 10%.

Cholesterol screening. Three observational studies have examined the impact of cost sharing on cholesterol screening. Faulkner and Schauffler (1997) reported a statistically significant difference in receipt of cholesterol screening by non-elderly adults enrolled in health plans that covered all or most recommended preventive services and by non-elderly adults who did not have coverage for preventive services. The authors found that non-elderly adults who had coverage for all or most recommended preventive services were more likely to have been screened for elevated cholesterol within the previous two years. Two studies that compared adults enrolled in HMOs to adults enrolled in other types of health plans reached opposite conclusions. Hahn and Olson (1999) reported a statistically significant difference in the provision of cholesterol screening to adults enrolled in a group/staff HMO and FFS plans. Persons enrolled in the group/staff HMO were more likely to have been screened for elevated cholesterol within the previous five years than persons enrolled in FFS plans. Schauffler and McMenamin (2001) found that adults enrolled in HMOs were less likely to have been screened for elevated cholesterol in the previous five years, but the difference was not statistically significant. In the two studies that reported data on the percentage of adults screened for elevated cholesterol, the effect of lower cost sharing on the percentage screened ranged from -5% to 26%.

Overall, these studies suggest a pattern of favorable effects of lower cost sharing on screening for hypertension and high cholesterol, two major risk factors for heart and vascular disease.

Infectious disease screening

One study that analyzed data from the RAND Health Insurance Experiment examined the effect of cost sharing on screening for tuberculosis (Lohr et al., 1986). The authors found that children and non-elderly adults who received free care were no more likely to have had a tuberculosis skin test in the previous year than persons in the same age groups who were enrolled in health plans that required cost sharing. *This study suggests that cost sharing has no effect on screening for tuberculosis.*

No studies on the effects of cost sharing on screening for other infectious diseases were found.

Screening for mental health conditions

No studies of the effects of cost sharing on screening for mental health conditions were found.

Substance abuse screening

No studies of the effects of cost sharing on screening for substance abuse were found.

Screening for metabolic, nutritional, and endocrine conditions

No studies of the effects of cost sharing on screening for metabolic, nutritional, and endocrine conditions were found.

Screening for musculoskeletal disorders

No studies of the effects of cost sharing on screening for musculoskeletal disorders were found.

Screening for obstetric and gynecological conditions

No studies of the effects of cost sharing on screening for obstetric and gynecological conditions were identified aside from the studies of cervical cancer screening that were discussed in the sub-section on cancer screening.

Screening for pediatric conditions

No studies of the effects of cost sharing on screening for pediatric conditions were found. Studies of well-child visits, which may include screening for some pediatric conditions, are discussed in the sub-section on well-child visits.

Vision and hearing disorder screening

The RAND Health Insurance Experiment found that for persons aged 14–61 years who had vision impairment, those who received free care were more likely to have an eye examination than those who were enrolled in health plans that required cost sharing (Lurie et al., 1989). The percentage of persons screened in the free care group was 18% greater than the percentage screened in the cost sharing group. This finding was statistically significant. *This study suggests that lower cost sharing has a favorable effect on receipt of vision screening.*

Summary of findings

- Cost sharing may affect use of preventive services directly through deductibles, coinsurance, or copayments for *preventive services*, or indirectly through cost sharing for *outpatient visits*.

- Only one peer-reviewed study has explicitly addressed the impact of high deductible health plans as they exist currently and would be defined for purposes of AB 2281 on use of health care services.

- This study did not analyze use of preventive services.

- However, the study found that persons enrolled in an HDHP had fewer outpatient visits than persons enrolled in an HMO, but more visits than persons enrolled in a PPO, which may have indirectly affected use of preventive services.

- Studies have assessed the effects of cost sharing in general on use of recommended preventive services by persons enrolled in conventional types of health plans, such as HMOs, PPOs, and fee-for-service (FFS) plans.

- Most studies of cost sharing in conventional types of health plans (i.e., plans that are not the recently developed high deductible health plans) have found that lower cost sharing is associated with greater use of preventive services.

  - Findings were uniformly favorable with respect to the effect of cost sharing on the use of periodic health examinations,[20] well-child care, and eye examinations.

  - There was a pattern toward favorable findings with respect to the effect of cost sharing on the use of childhood and adult immunizations, tobacco cessation programs, mammography, Pap smears, colorectal cancer screening, prostate cancer screening, blood pressure screening, and cholesterol screening.

  - The only study of the effect of cost sharing on the use of tuberculosis screening found that cost sharing had no effect on the probability of obtaining a tuberculosis skin test.

  - The evidence of the effect of cost sharing on the use of clinical breast examinations is ambiguous.

[20] See footnote #4 for a definition of this term.

II. UTILIZATION, COST, AND COVERAGE IMPACTS

Four provisions of AB 2281 were determined to have an effect on utilization, cost, and coverage for HDHP plans:

- require covered preventive services be exempt from the deductible;
- limit annual out-of-pocket expenses to no more than $5,000 for individuals and $10,000 for families;
- limit copayments or coinsurance to no more than 30% of the negotiated rate of payment for the service (if the service is provided by a non-network provider that does not have a negotiated rate with the healthcare plan, the copayment or coinsurance is limited to 30% of the plan's allowed amount for the service); and
- require additional disclosure and administrative tasks.

The detailed cost analysis and tables presented in this report focuses on the first of these AB 2281 provisions, namely the preventive services provisions. These other three provisions are discussed qualitatively in the section. The limits on annual out-of-pocket expenses and copayments or coinsurance are discussed below. Because these provisions were difficult to model using the standard CHBRP cost methods, they were not included in the quantitative estimates included in this report.

Present Baseline Cost and Coverage

Current Utilization Levels and Per-Unit Costs

To determine current utilization levels for preventive services and to conduct analysis on the potential impact of AB 2281 on utilization, the array of preventive services must be grouped per available data. CHBRP uses national commercial claims data derived from Milliman's Health Cost Guidelines (HCGs), used by health plans and insurers in determining premium amounts associated with the costs of such a package of services. For the remainder of this section, the preventive services package is presented under these specific HCG categories as displayed in Table 4.[21]

[21] See Appendix C for more detail on Milliman claims data.

Table 4. Regrouping of preventive services specified by AB 2281 under Milliman Health Cost Guideline Categories

Preventive Services Specified in AB 2281[22]	Milliman Health Cost Guidelines: Category of Services	Preventive Services Included in each Milliman Category of Services
Periodic health exam; screening services (heart and vascular diseases; infectious diseases; mental health conditions; substance abuse; metabolic, nutritional, and endocrine conditions; musculoskeletal disorders)	Adult Physical Exam	Routine examinations of adults and children age two and over; includes cost of laboratory and radiology services associated with the exam
Adult immunizations	Adult Immunizations	Professional services and materials (serum, syringes, etc.) associated with administering immunizations
Screening services – vision disorders	Adult Vision Exams	Provides for eye exams conducted by a licensed ophthalmologist or optometrist; coverage limited to one exam per year
Screening services – hearing disorders	Adult Hearing Exams	Provides for hearing and speech exams
Screening services – cancer; obstetric and gynecological conditions; infectious diseases	Cervical Cancer Screening	Includes cost of Pap smears and the associated OB/Gyn office visits
Screening services – cancer	Mammography Screening	Includes screening mammography
Screening services – cancer	Prostate Cancer Screening	Includes annual benefits for diagnostic tests used in the detection of prostate cancer, and prostate specific antigen (PSA) test
Routine prenatal care	Routine Prenatal Care	Includes prenatal visits and associated tests. This includes approximately eight visits per pregnancy.[23]
Routine well-child care; screening services – pediatric conditions	Child Physical Exam	Normal, periodic examinations for children 2-18
Child immunizations	Child Immunizations	Professional services and materials (serum, syringes, etc.) associated with administering immunizations
Screening services – vision disorders	Child Vision Exams	Provides for eye exams conducted by a licensed ophthalmologist or optometrist; coverage limited to one exam per year

[22] AB2281 does not specify which individual cancer screening services are covered. According to the USPSTS, colorectal cancer screening is recommended for adults age 50 and above (see Appendix E), and, therefore, it is likely to be covered under existing state mandates for generally medically accepted cancer screening. CHBRP has not included colorectal cancer screening in this analysis but since existing coverage of colon cancer screening is similar to the other cancer screening procedures covered in this report, exclusion of colon cancer screening is not likely to have a material impact on the results of this analysis.

[23] Typically, routine prenatal care is included as part of maternity benefits (i.e. delivery) and paid for under a global fee, if covered. For this analysis, prenatal visits are separated from maternity benefits.

Table 4. Regrouping of preventive services specified by AB 2281 under Milliman Health Cost Guideline Categories (cont)

Preventive Services Specified in AB 2281	Milliman Health Cost Guidelines: Category of Services	Preventive Services Included in each Milliman Category of Services
Screening services – hearing disorders	Child Hearing Exams	Provides for hearing and speech exams for children to 18 years of age
Routine well-child care; screening services – pediatric conditions	Well Baby Exams	Normal, periodic examinations of well children under two years of age
Tobacco cessation programs	Smoking Cessation Programs	Includes personal counseling and prescription and over-the-counter tobacco cessation medications approved by the FDA. Limited to two "quit" attempts per twelve-month period
Obesity weight-loss programs	Obesity Weight Loss Programs	Includes weight loss nutritional counseling for patients diagnosed as morbidly obese.

Source: AB 2281, Milliman HCG Claims Data

Current Utilization

Utilization of preventive services was modeled using the Milliman Health Cost Guidelines, adjusted to reflect statewide California experience and a moderate level of healthcare management. Current utilization rates vary by: (1) whether the preventive service is subject to the deductible, and (2) the level of copayments and coinsurance for the preventive service based on the type of plan (e.g., large-group HMO, individual PPO).

For those enrollees in HDHP with preventive services exempt from the deductible, each service is estimated to have the highest utilization rates. Utilization rates would vary based on the required cost sharing paid by the member—those with higher coinsurance rates would be estimated to have lower utilization rates. Those in HDHP HMOs with preventive services exempt from the deductible, but who have predetermined (and thus predictable) copayment amounts, have slightly higher utilizations levels than those in PPOs who are responsible for a coinsurance amount as a percentage of the cost of the service. Those with coverage for a preventive service that is subject to the deductible are estimated to have lower rates of utilization. Finally, those insured under HDHPs but without coverage for certain preventive benefits are estimated to have the lowest utilization rates. CHBRP modeled utilization by dividing all individuals who currently have HDHPs into one of the four following types of coverage for preventive services:

- those in DMHC plans with preventive services exempt from the deductible,
- those in DMHC plans with preventive care subject to the deductible,
- those in CDI policies, with preventive services exempt from the deductible, and
- those in CDI policies with preventive care subject to the deductible.

Then the utilization rates were adjusted to account for different cost-sharing requirements based on information from the Milliman Health Cost Guidelines and published literature.

Thus, we arrived at the utilization rates by plan type, by preventive services (see Table 6):

- those in large-group DMHC plans;
- those in large-group CDI policies;
- those in small-group DMHC plans;
- those in small-group CDI policies;
- those in individual DMHC plans; and
- those with individual CDI policies.

Current per-unit costs for preventive services

The per-unit costs reported in Table 6 are not projected to depending on whether preventive services are subject to the deductible or not. CHBRP assumes that the per-unit costs are the same for those in HDHPs with preventive services subject or exempt from deductibles because service rates are negotiated between the health plan and the provider regardless of patient co-insurance amounts. Those insured, but not covered for specific preventive services may pay higher per-unit costs than the negotiated rates. However, it is feasible and likely that these individuals will seek out private or public providers that provide these services at discounted rates similar to the plan negotiated rates (for example, health clinics).

Current Coverage of the Mandated Benefit

Using data from the California Health Interview Survey and a CHBRP survey of the eight largest insurers and health plans with an HDHP product (which cover about 95% of California's privately insured population in 2005), the analysis finds that approximately 1,746,000 enrollees are in Knox-Keene licensed HDHPs and CDI-regulated insurance HDHP policies.[24] This total includes those enrolled in HDHPs offered by small and large employer groups and individual purchased plans. The majority of these enrollees are enrolled in individual plans (64%) or in small groups (31%), with very few (5%) in large firms. No HDHPs are available to the publicly insured market, namely, Cal-PERS, Medi-Cal, or Healthy Families enrollees.

The CHBRP survey of health plans also identified the scope of coverage of the preventive services package subject to AB 2281. The coverage of these services was found to be fairly broad, because coverage of many preventive services under HDHPs is already mandated by existing California law. (See Table 7 for a summary of existing mandates grouped by Milliman's categories of preventive services.) These mandates are henceforth referred to as "the mandate floor."

Current coverage of AB 2281 benefits is displayed in Table 8. Three categories of enrollees are identified: (1) those with coverage for AB 2281 benefits exempt from the deductible, (2) those with coverage for AB 2281 benefits where the benefits are subject to the deductible, and (3) those with no coverage for AB 2281 benefits. Coverage that is exempt from the deductible

[24] These estimates from data collected for this CHBRP analysis from a survey of the eight largest insurers and health plans in California with HDHPs. It does not include individuals covered by self-insured plans, which are regulated under ERISA by U.S. Department of Labor and are not subject to state mandates, and, therefore, who are not analyzed in this report.

varies by individual, small-group, and large-group policies as well as HMO and PPO types of coverage, although these differences are typically concentrated around certain benefits, including those not currently mandated (for example, prenatal care for PPO plans).

Assumptions and caveats regarding coverage estimates

CHBRP notes that the current coverage assumptions in Table 8, although based on information provided by carrier surveys, are approximations. There are a wide variety of HDHP plans in California, and a precise determination of the coverage provisions of these plans are difficult to ascertain.

CHBRP assumes an average copayment amount of $10 for preventive services under HMO policies and a 20% coinsurance amount under PPO policies. When preventive benefits are subject to high deductibles, the cost-sharing paid by the individual depends on whether they have met their deductible at the time of receiving the service. In these analyses, CHBRP allocates the value of the deductible proportionately across all health care services, both preventive and acute.

The Extent to which Costs Resulting from Lack of Coverage are Shifted to Other Payers, Including both Public and Private Entities.

In the absence of AB 2281, individuals would incur out-of-pocket expenses for preventive services subject to the deductible, if they seek those preventive services. This is more likely to occur for HDHP in the individual CDI market. For certain services, such as prenatal care, qualifying individuals may obtain such services through the California Access for Infants and Mothers program. Under the Cancer Detection Programs provided by the Department of Health Services, qualifying individuals may obtain certain services, such as breast cancer screening, and the Pap test for free. Qualifying individuals include those who meet clinical guidelines, are low income, and either have health insurance that does not cover these services or have insurance that have a high insurance deductible or co-payment. In the absence of AB 2281 it is possible that these public programs incur costs; however, because of data and time constraints, CHBRP is unable to estimate the actual shift in costs.

Public Demand for Coverage

As a way to determine whether public demand exists for the proposed mandate (based on criteria specified under AB 1996 [2002]), 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. Given that these types of plans continue to rapidly increase in terms of market share and enrollment, there is indication that HDHPs are seeking to fulfill a market need for low-premium plans. However, CalPERS does not currently offer an HDHP plan to its employees or retirees. In addition, based on discussions with unions, they are not currently demanding an HDHP option for their members.

Impacts of AB 2281 on Utilization, Cost and Coverage Mandated

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

No effect on per-unit cost of the benefit or the service is expected. This is because this legislation does not directly impact the number of enrollees in HDHPs, nor does it directly mandate coverage of preventive services. The primary impact of this legislation is on the amount of cost-sharing by enrollees with current coverage of these benefits in their policies.

How Will Utilization Change as a Result of the Mandate?

As discussed in the *Literature Analysis on the Impacts of Cost Sharing on the Use of Preventive Services*, little evidence is available from scientific studies of the impact of HDHPs on utilization of preventive services. This is due to the relatively recent surge in growth of these types of health plans and the lag in publications reflecting such effects. Estimates of the impact of cost sharing on utilization of preventive services by CHBRP are based on the best existing evidence from studies of conventional health plans (not high deductible) and the RAND Health Insurance Experiment. The evidence indicates that as cost sharing by the enrollee decreases, utilization of services increases. A similar effect is found on the impact of cost sharing on utilization of the majority of preventive services subject to AB 2281.

As discussed in the *Background and Introduction* section, insurers and health plans offering HDHPs may have variable responses to AB 2281. Some may maintain the level of preventive services currently covered and exempt those services from the deductible, if they are not already doing so (Scenario #1). Alternatively, HDHPs may drop all preventive services that are not mandated by law and are currently subject to the deductible (Scenario #2). One exception to this, under Scenario #2 is that carriers that currently cover maternity services (e.g. delivery) subject to a deductible would be expected to retain this benefit, but then exempt prenatal benefits from the deductible. HDHPs may have this market response to avoid a significant rise in their premiums and a potential loss of enrollees. CHBRP considers these two scenarios to provide the upper and lower bound estimates for the HDHP market subject to AB 2281. It is likely that the actual market response may fall somewhere in between the two scenarios outlined here; however, no reliable evidence is available to determine what that might be.[25]

Current rates of coverage for the preventive services included in AB 2281 are broad due to the extensive number of existing benefits mandates. Many of the covered preventive services are also exempt from the deductible, but least often under individual policies. Under AB 2281, the coinsurance limit of 30% and the requirement to exempt covered preventive services from the deductible are expected to increase utilization of preventive services most often for enrollees with individual CDI policies. Furthermore, the provision limiting coinsurance rates to 30% is

[25] Another theoretical scenario might be that an increased in coverage for preventive services by HDHPs but CHBRP considers this scenario highly unlikely because plans or insurers have no financial incentives to expand coverage.

most likely to increase out-of-network utilization under these CDI policies. This is discussed further below.

Generalizing from the evidence summarized in the *Literature Analysis* section, the change in utilization of the proposed package of preventive services is expected to vary based (1) the degree to which preventive services are exempt from the deductible and (2) the types of plan (e.g. PPO, HMO). Under Scenario #1, where HDHPs maintain the status quo in coverage of benefits, but exempts all preventive services from the deductible, utilization is expected to remain the same for DMHC plans in all individual and group policies (Table 9). Utilization of the proposed package of benefits under CDI policies will increase in individual policies by modest amounts. For example, utilization is estimated to increase by 1% for adult and child physical exams, and by 4% for prenatal care. These average increases are small because many of these preventive benefits are already exempt from the deductible. For a specific HDHP that currently covered adult physical exams subject to a deductible, the utilization rates, following the passage of AB 2281 are estimated to increase from 176 per 1,000 insured to 196 per 1,000 insured. For the population without current coverage for these preventive services, utilization is expected to remain unchanged because AB 2281 does not mandate coverage of any additional preventive service beyond what is currently required under law.

Under Scenario #2 (in which HDHPs drop coverage of those preventive services that are not currently mandated and are subject to the deductible, with the exception of prenatal services) the utilization of those preventive services is expected to decline to the same level as individuals without current coverage. For example, for adult periodic physical exams for members in CDI policies that lose coverage, utilization is estimated to decrease from 176 per 1,000 insured to 167 per 1,000 insured.

<u>To What Extent Does the Mandate Affect Administrative and Other Expenses?</u>

The mandate is expected to increase the administrative expenses for HDHPs to account for several unique reporting requirements of AB 2281. Reporting requirements include:

(1) Providing the rates and potential charges enrollees and subscribers can expect to pay participating and nonparticipating providers for services or procedures covered under the plan contract and that count toward satisfying the deductible amount, the quality ratings for the providers who are available to the enrollee and subscriber, and other information that will assist them in selecting high quality, cost-effective providers. Section 1326.19(b) (4)(d)(1).

(2) The ratio of the amount of prepaid or periodic charge revenue received by the plan to the amount it paid for health care services during its preceding fiscal year under the same high deductible health plan contract for both individual and group contracts. This information shall be included in all marketing materials for the HDHP contract, including those transmitted in an electronic format, such as the health care service plan's Internet Web site or the Internet Web sites of solicitors or agents marketing the high deductible health plan contract. Section 1326.19(b)(4)(d)(2).

(3) On at least a quarterly basis, and upon request by the subscriber or enrollee, the health care service plan shall provide information on the health care expenses incurred by the enrollees or subscribers that count toward satisfying the deductible amount under the HDHP contract and the specific dollar amount remaining before the deductible amount is satisfied. Upon request by the enrollee or subscriber, the plan shall inform him or her of the total out-of-pocket costs incurred under the high deductible health plan contract to date in the current contract year. Section 1326.19(b) (4)(e).

For standard CHBRP analyses, it is assumed that the administrative cost impact is proportionate to the increase in the expected healthcare costs paid by the insurer (See Appendix C for standard assumptions). Most insurers treat administrative and profit amounts as a percentage load to expected health care costs when calculating premiums. For standard analyses, therefore, CHBRP does not assume a change in the percentage of administrative expense associated with most mandate bills. The premium impacts shown in the report tables retain this assumption.

However, based on the survey responses of the major carriers offering HDHPs, it is reasonable to estimate that the administrative provisions under AB 2281 would require significant up-front investment and ongoing cost. In response to CHBRP's carrier survey, for example, one carrier estimated these reporting requirements would cost "millions of dollars" because the carrier would have to revise and reprint their marketing materials to comply with AB 2281. In addition, information, such as quality ratings of providers, may not currently exist.

CHBRP expects that any increased administrative costs are passed on by health plans and insurers to purchasers (e.g. large group, small group, and individual purchasers) as premium increases. These increases would most likely be reflected in premiums for HDHPs directly affected by AB 2281. However, increases may be spread over premiums of all enrollees in all health plans or insurance policies, given that carriers may adopt some of the mandated administrative items (such as providing information about the cost and quality of specific providers) to enrollees of plans other than those in the HDHPs. These costs are likely to be significant and can have further impacts on market dynamics, impacts that beyond the scope of this analysis.

Impact of the Mandate on Total Health Care Costs

AB 2281 cost impacts are estimated both as the change in the expenditures and premiums for individuals who currently have HDHPs, and the change in expenditures and premiums for all commercial health plans in the state. These estimates show the impact of AB 2281 on the HDHP market in particular and on the privately insured market sector in general.

Impact of AB 2281 on HDHP Total Health Care Costs

Under Scenario #1, in which HDHP plans cover preventive services exempt from the deductible, total HDHP net expenditures (including total premiums and out-of-pocket expenditures) are estimated to increase by approximately 0.053%. The impact of AB 2281 is minimal on DMHC plans since coverage for preventive services, exempt from the deductible, is extensive and no changes in plan behavior or utilization levels of enrollees are expected. Thus, the impact of AB

2281 is concentrated on the CDI policies. The impact varies from 0.126% for individual CDI policies, to 0.071% for the small-group CDI market, and 0.000% for the large-group market (Table 11). These expenditures translate to a $2,055,000 annual increase in total costs. Premiums are expected to increase by $5,180,000 and constitute a $0.46 PMPM increase in the individual market premiums, a $0.36 PMPM increase in the small-group market premiums, and a $0.00 PMPM increase in the large-group market premiums.

Under Scenario #2, in which HDHP plans drop preventive services that are not currently mandated and subject to a deductible, total HDHP net expenditures (including total premiums and out-of-pocket expenditures) are estimated to increase by approximately 0.026%. Once again, this impact is concentrated on the CDI policies. The impact varies by insurance category from 0.056% for individual CDI policies, to 0.043% for the small group CDI policies, and 0.000% for the large group markets (Table 11). These expenditures translate to a $990,000 total annual increase in costs. Premiums are expected to increase by $2,665,000 and constitute a $0.21 PMPM increase in the individual CDI polices' premiums, a $0.25 PMPM increase in the small-group CDI market premiums, and a $0.00 PMPM increase in the large-group CDI policies' premiums.

Impact of AB 2281 on Privately Insured Market—Total Health Care Costs

Under Scenario #1, total commercial net expenditures (including total premiums and out-of-pocket expenditures) are estimated to increase by approximately 0.004% (Table 11). The impact varies by insurance category: 0.073% for individual CDI policies, 0.011% for the small-group CDI policies, and 0.00% for the large-group CDI policies (Table 11). These expenditures translate to a $2,055,000 total annual increase in costs and constitute a $0.30 PMPM increase in for individual CDI policies, a $0.01 PMPM increase for the small-group CDI policies, and a $0.00 PMPM increase in the large-group CDI market.

Under Scenario #2, total commercial net expenditures (including total premiums and out-of-pocket expenditures) are estimated to increase by approximately 0.002%. The impact varies by insurance category, from 0.032% for individual CDI market, to 0.007% for the small-group CDI market, and 0.000% for the large-group CDI market (Table 11). These expenditures translate to a $990,000 total annual increase in costs and constitute a $0.1362 PMPM increase in the individual CDI market, a $0.0674 PMPM increase in the small-group CDI market, and a $0.0000 PMPM increase in the large-group CDI market.

The Potential Effects of AB 2281 on the Growth of Low-Premium HDHPs

Although CHBRP estimates that under Scenarios #1 and #2 AB 2281 would not have a large impact on total health expenditures or premiums, the proposed legislation may have an effect of discouraging lower-cost (i.e. those with low monthly premiums) HDHPs from being offered in the California market. According to CHBRP's survey of California health plans and insurers, while there is variation, most currently offer HDHPs with coverage for many of the preventive services identified in AB 2281 and exempt those services from the deductible. For example, if AB 2281 were not to pass into law, and an insurer was interested in offering a minimal-coverage HDHP with only those preventive services currently mandated under California law, and with all

those preventive services subject to a deductible, there would be a reduction in premiums associated with this kind of HDHP. CHBRP estimates that the potential reduction in premiums would range from $4.05 to $4.80 PMPM, depending on the type of market and insurer. CHBRP also estimates that the difference in premiums between minimal-coverage HDHPs with preventive services *subject* to a deductible and minimal-coverage HDHP with preventive services *exempt* from the deductible. The premium difference ranges from $0.87 to $4.13 PMPM, depending on the type of market and insurer. Therefore, AB 2281 may discourage insurers from offering lower-cost HDHPs with less extensive coverage for preventive services in the future, and the impact of AB 2281 on such low-cost health insurance products would be greater than the impact on "average" health insurance products offered currently. See Appendix C, Table C-1 for a summary of how these estimates were calculated.

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

Potential cost savings or offsets in the short term

A number of preventive services are associated with short-term cost savings. These include child and adult immunizations, tobacco cessation for pregnant women and men at risk of coronary heart disease, prenatal care for low income women, and so forth. For example, tobacco cessation has been linked to reductions in health expenditures related to inpatient stays and ambulatory care visits as a result low birth-weight deliveries, reductions in the incidence of stroke, and a reduction in acute myocardial infarction, or heart attacks (California Health Benefits Review Program, 2005; Lightwood & Glantz, 1997)

The long-term offsets associated with use of preventive services are the gains in healthy years of life, and the economic benefit of increased productivity associated with the gain in healthy life years. Calculations of long-term savings in medical expenditures for the total long-term savings as a result of AB 2281 is not feasible given the various services included in AB 2281, and the uncertainty of the market response to AB 2281.

Impact on Access and Health Service Availability

Change in access under Scenarios #1 and #2

The available benefits package would likely change access to the package of preventive services. Under Scenario #1, where HDHPs are assumed to maintain the status quo in coverage, access to the proposed package of preventive services is expected to increase proportionally because covered preventive services that were subject to the deductible would now be exempt from the deductible. According to the existing evidence summarized in the *Literature Analysis* section, coverage that is exempt from the deductible and low cost-sharing would result in increased utilization of services and, therefore, increase access to care. Under Scenario #2, where HDHPs are assumed to drop coverage for preventive services to the current mandate floor, access is estimated to be reduced proportionally, because the evidence suggests that increases in cost-sharing will reduce use of services.

Potential impacts on premium increases on the number of uninsured and access to health coverage

When estimating the premiums and cost impacts, CHBRP assumes that the number of insured in each market segment remains stable. However, we consider the secondary impact of increases in premiums on the number of insured dropping coverage when premium increases exceed 1%. For most market segments, no measurable change in the number of uninsured is projected to occur as a result of AB 2281 because *on average*, premiums are not estimated to increase by more than 1%. The estimated increase in premium amounts are least likely to impact access in group policies because such increases are divided proportionally between the employer and the employee. However, in the individual market any premium increases are directly born by the purchaser. In addition, some subgroups within the individual insurance market who have purchased low-cost policies (e.g., young adults, low-income self-employed), especially under Scenario #1, may experience premium increases greater than 1%. For these subgroups, there may be a reduction in access to care due to drop in insurance coverage entirely. CHBRP is unable to provide more detailed estimates of these impacts within the individual market due to a lack of sufficient data on subgroups within individual insurance market.

Potential impacts on access to care as a result of use of Health Savings Accounts

HDHPs may be accompanied by HSAs or Health Reimbursement Accounts (HRAs), which are designed to mitigate the burden of cost-sharing and subsequent reductions in access to care for the enrollee. However, due to the recent development of HSAs and HRAs, the magnitude of their impact on cost-sharing and on utilization and access is not well known. National data show that 20% of all firms with three or more employees offer HDHP plans to their employees, but only 4% of all firms offer HDHPs accompanied by an HSA, an HRA, or both (Claxton, Gabel, et al., 2005). In California, 20% of all firms with three or more employees offer HDHPs, and about 5% of all firms offer HDHPs coupled with HSAs or HRAs (based on CHBRP's analysis of California HealthCare Foundation/Community Tracking Survey California Employer Survey). CHBRP does not include the potential mitigating impact of HRAs and HSAs in the analysis of AB 2281. However, for individuals with HSA and HRA options, and with coverage for preventive services that are subject to the deductible, utilization and access are expected to be similar to those of individuals with coverage for such services exempt from the deductible. Because CHBRP does not have good information on the percentage of HDHPs in the individual market that have HSAs, our analyses have assumed the percentage is the same as in the employment-based insurance market.

<u>Additional Provisions in AB 2281 that would Impact the HDHP Market</u>

AB 2281 limits on annual out-of-pocket expenses and copayments or coinsurance

Two other provisions could have a significant impact on premiums and coverage for existing HDHP members. Under AB 2281, every HDHP after July 1, 2007 would be required to:

- limit copayments or coinsurance to no more than 30% of the negotiated rate of the service. If the service is provided by a non-network provider that does not have a

negotiated rate with the healthcare plan, the copayment or coinsurance is limited to 30% of the plan's allowed amount for the service.

- limit annual out-of-pocket expenses to no more than $5,000 for individuals and $10,000 for families

Coinsurance Limit of 30 Percent: There is substantial variation in coinsurance structure for services provided by HDHPs. Based on CHBRP's survey of health plans and insurers and information publicly available we are able to provide a generalized summary of whether HDHPs currently meet the coinsurance rate provision of AB 2281. The following table summarizes current HDHP coinsurance coverage rates as they compare to the 30% limit.

	In-Network	Out-of-Network
DMHC-regulated plans	Most meet 30%	Most that cover out-of-network benefits fail 30%
CDI regulated policies	Most meet 30%	Most fail 30%

As this table indicates, the in-network benefit for most existing plans meets the AB 2281 requirement. Those that do not would have to drop their in-network coinsurance to 30%, causing an increase in premium for that policy. The most significant impact of this provision of AB 2281 would be on the out-of-network coinsurance provisions of HDHP plans. Health plans and insurers have an interest in encouraging members to use network providers. Network providers have met the plan's quality requirements and have usually agreed to contractual reimbursement at favorable rates. Health plans encourage members to use network providers by charging lower copayments or coinsurance for in-network services. For example, an HDHP that charges 30% coinsurance for in-network services might charge 50% for out-of-network services.

Under AB 2281, this HDHP would have to do one of the following to meet this requirement of AB 2281:

- Lower the out-of-network coinsurance to 30%. This could significantly increase the plan's premiums. To determine the actual premiums impacts, an impact analysis would need to account for the shift from in-network utilization to out-of-network utilization and the subsequent increase in per-unit costs for the benefits or services provided.
- Lower the out-of-network coinsurance to 30%, and also lower the in-network coinsurance from 30% to 10% or 20%, to retain the incentive for the member to use network providers. This may mitigate out-of-network utilization but there may be significant increases in premiums, resulting from increased per-unit and total cost of out-of-network services to offset the lower in-network utilization rates.
- Restrict the ability of members to use out-of-network providers that are currently subject to higher levels of coinsurance. Such actions would reduce the choice of and number of providers available to enrollees.
- No longer offer the HDHP for purchase to groups or individuals.

The potential impact in premiums resulting from a 30% coinsurance maximum is dependent on:

- The breadth of the plan's or insurer's provider network. Plans with large networks are less at-risk for large increases in out-of-network utilization.

- The difference between the plan's negotiated payments to in-network providers and the payments to out-of-network providers.

Out-of-pocket limt of $5,000 for individual and $10,000 for families. Under AB 2281, "out-of-pocket limits are defined to, "include deductibles, copayments, coinsurance, and other amounts the insured is required to pay, except for premium payments."

As with coinsurance rates, there is substantial variation in out-of-pocket limit structures for HDHPs. Based on CHBRP's survey of health plans and insurers and information publicly available we are able to provide a generalized summary of whether HDHPs currently meet the out-of-pocket limit provision of AB 2281. The following table summarizes current HDHP out-of-pocket limits as they compare to the $5,000/$10,000 limit.

	In-Network	Out-of-Network
DMHC-regulated plans	HMOs meet limit; Few individual PPO-type plans fail limit	Most that cover out-of-network benefits fail limit
CDI regulated policies	Some individual plans fail limit	Most fail limit

As this table indicates, some individual HDHPs' out-of-pocket limits would not comply with this requirement of AB 2281 for services provided in-network. Those plans that fail to meet this requirement would have to lower their out-of-pocket limits to $5,000/$10,000, resulting in an increase in premium for that policy. HDHPs' out-of pocket limits for out-of-network services are often set higher than those provided in-network and most would not meet this requirement under AB 2281. Out-of-pocket limits vary among HDHPs. For example, many insurers set higher out-of-pocket limits for plans with higher deductibles. In these cases, out-of-pocket limits are often defined to exclude the deductible so that only coinsurance/copayments "count" towards the out-of-pocket limit. In addition, many HDHPs have higher out-of-pocket limits for out-of-network services than for in-network services. This is another way that plans encourage members to use in-network providers.

Under AB 2281, an HDHP with an out-of-network/out-of-pocket limit of over $5,000 for a single enrollee would have to do one of the following to meet this requirement of AB 2281:

- Lower the out-of-network out-of-pocket limit to $5,000. This could significantly increase the plan's premiums. To determine the actual premiums impacts, an impact analysis would need to account for any shifts from in-network utilization to out-of-network utilization and the subsequent increase in per-unit costs for the benefits or services provided.
- Lower the out-of-network out-of-pocket limit to $5,000, and also lower the in-network out-of-pocket limit below $5,000 to retain the incentive for the member to use network providers. This may mitigate out-of-network utilization but there may be significant increases in premiums, resulting from the increased carrier liability for in-network claims over the reduced out-of-pocket limit.

- Restrict the ability of members to use out-of-network providers that are currently subject to higher levels of coinsurance. Such actions would reduce the choice of and number of providers available to enrollees.
- No longer offer the HDHP for purchase to groups or individuals.

Consequently, these two provisions may have a significant effect on existing HDHP plan designs in California. AB 2281 would impact some HDHPs, especially those that cover out-of-network services. Amending these plan provisions could cause premium increases or termination of some plans. Since some of these plans are among the lowest-cost, in terms of premiums, some currently insured Californians may choose to drop coverage due to premium increases or lose coverage due to plan termination.

III. PUBLIC HEALTH IMPACTS

This section reviews the demographic characteristics of those that have selected high deductible health plans (HDHPs), and discusses the potential public health implications of the preventive health care provisions in AB 2281.

Demographic Characteristics of Population that Enrolls in HDHPs

A literature review was conducted to examine the demographic characteristics of persons who are insured through HDHPs, including those plans with an attached tax-free spending account such as HSAs. The use of HDHPs as an alternative to traditional health insurance plans has recently rose in prominence as a policy option for addressing the issues of rising health insurance costs. Although the existing literature on HDHPs is growing, at this point it is fairly limited.

Studies from three experiences with HDHPs dominate the literature. Employees of Humana Inc., the University of Minnesota, and the federal government were given the option of an HDHP with an attached tax-free account to use for health benefits (Christianson et al., 2004; Fowles et al., 2004; GAO, 2006; Parente et al., 2004; Tollen et al., 2004). In addition to these studies, national survey data of insured adults (Fronstin and Collins, 2005) lend insight into the population who selects HDHPs over traditional insurance.

Table 5 details the demographic characteristics of persons who selected HDHPs in the three studies and data from a national survey data by the Employee Benefit Research Institute (EBRI) and Commonwealth Fund. HDHP enrollees were found to be significantly younger at Humana Inc. and for the federal employees. In contrast, the EBRI/Commonwealth survey data found that HDHP enrollees were statistically significantly less likely to be under age 35 compared to traditional options. Humana Inc. and the federal studies also found statistically significant gender differences with more males choosing HDHPs compared to other plans.

Two studies examined racial differences. Although the EBRI/Commonwealth data did not find statistically significant differences, the Humana Inc. study found that HDHP enrollees were less likely to be black. All three studies found that those with higher incomes were statistically significantly more likely to select HDHPs, and the national survey data also found that HDHP enrollees were more highly educated. Finally, those with individual coverage were statistically significantly more likely to select HDHPs compared to family coverage in the Humana Inc. and federal employee studies.

Table 5. Demographic Characteristics of Persons with High Deductible Health Plans

Characteristic	Humana Inc.	University of Minnesota	Federal Employees	National Survey EBRI/Commonwealth
Age	Slightly younger	NSD	Younger	Less likely to be under age 35 years
Gender	Less likely female	NSD	More likely male	NSD
Race	Less likely black	NA	NA	NSD
Health Status	More likely to have excellent health	NSD	NA	More likely to have good or excellent health
Income	Higher incomes	Higher incomes	Higher incomes	More likely to make > $150,000
Education	NSD	NA	NA	Higher education
Individual vs. Family Coverage	Individual more likely	NSD	Individual more likely	NA
References	Fowles et al, 2004; Tollen et al., 2004	Christianson et al., 2004; Parente et al., 2004	GAO, 2006	Fronstin and Collins, 2005

NSD: no statistically significant difference reported
NA: not applicable, not examined in this study

It is important to note that the studies discussed in Table 5 examine enrollees of HDHPs with attached HSAs or similar accounts. Enrollees in these plans may vary substantially from enrollees that opt for HDHPs without an attached account. However, no research was identified that described the demographics of HDHP enrollees in general.

Researchers have stated concerns about the potential long-term effects of the growth of HDHPs, including a change in the risk pool for traditional insurance with younger, healthier, and wealthier enrollees opting for HDHPs, leaving other types of plans with an older and sicker population, resulting in higher premiums (Davis, 2004). Although AB 2281 could slow the growth of HDHPs in California and this might have long-term health impacts, the empirical literature on the effects of HDHPs is too new to make projections regarding long-term impacts due to HDHPs in general. Instead, the focus of this report is on the public health implications of AB 2281 on the use of preventive care among Californians. The public health impacts described below could have particular implications for subpopulations that are more likely to enroll in HDHPs such as younger, female, and higher-income individuals.

Impact of the Proposed Mandate on Public Health

The *Literature Analysis on the Impacts of Cost Sharing on Use of Preventive Services* section reviewed the literature on the impact of cost sharing on access and utilization of preventive services. Overall, most studies found that lower cost sharing is associated with greater use of preventive services, particularly for immunizations, tobacco cessation programs, periodic health exams, well-child visits, eye exams, mammography, Pap smears, colorectal cancer screening, prostate cancer screening, and blood pressure screening. As a result, it is expected that persons

enrolled in HDHPs, where preventive costs are subject to the deductible, would use fewer of these preventive health services compared to persons in traditional insurance plans. Additionally, enrollees of HDHPs may also use fewer of other preventive services not examined in the literature with regards to cost sharing (e.g., screenings for sexually transmitted diseases).

Whether AB 2281 will result in preventive services costs not being subject to the deductible depends on the current mandates in California law. Where current California regulations require that health insurance plans cover specific preventive health services, AB 2281 is estimated to result in an increase in utilization. For example, periodic health exams are expected to increase among the HDHP enrollees due to AB 2281 because they are a mandated benefit under Knox-Keene plans and mandated for children age 16 years and under for plans regulated by CDI.

In determining the effectiveness of the numerous preventive services listed in AB 2281, this report relies on the US Preventive Services Task Force (USPSTF) recommendations. Appendix E lists the preventive services that were reviewed, deemed effective, and recommended by the USPSTF in primary care settings and distinguishes between those preventive services that are currently mandated or not currently mandated in HDHPs regulated by Knox-Keene and the California Insurance Code.

For the preventive services that are currently recommended by the USPSTF and are mandated by law listed in Table 3 in the *Background and Introduction*, it is expected that the exclusion of preventive services costs from the deductible will lead to increased utilization among HDHP enrollees, based on the findings reported in the *Literature Analysis on the Impacts of Cost Sharing on Use of Preventive Services* section and the anticipated increases in utilization projected in the *Utilization, Cost, Coverage* section. Additionally, since the USPSTF recommends these preventive services as effective in preventing disease, disability, and premature death, subsequent improvements in the public's health are expected as a result of increased utilization for the health conditions these services address.

As explained in the *Utilization, Cost, Coverage* section, two possible scenarios are presented that estimate how utilization will change for the preventive services that are not currently mandated by law. In the first scenario, HDHPs would maintain coverage of preventive services and since costs would no longer be subject to the deductible, utilization would increase and there would be corresponding health benefits. In the second scenario, HDHPs would drop coverage for preventive services not currently mandated in order to reduce preventive services costs. Therefore, even if the HDHP enrollee reached their deductible, they would not be covered for these preventive services. As such, it is expected that utilization of these services would decrease and there would likely be negative health consequences.

The medical effectiveness assessments of preventive services not listed in Appendix E are either deemed not effective according to USPSTF (e.g., prostate cancer screening) or have not been reviewed by USPSTF and therefore the effectiveness is unknown for the purposes of this report. A similar projected utilization pattern is expected for the preventive services not listed in Appendix E, where an increase in utilization is expected for preventive services that are currently mandated by California law and utilization changes for non-mandated health services depend on whether insurance companies retain or drop coverage altogether. Since the medical effectiveness

for these services is either unknown or deemed ineffective, it is not known whether changes in utilization will result in substantial consequences for the public's health.

An important distinction in Table 3 is whether or not the HDHP is regulated under Knox-Keene or by CDI. There are many more preventive services currently mandated for Knox-Keene plans than those regulated by CDI. Additionally, a review of current Knox-Keene regulated plans found that these plans typically provide coverage for preventive services exempt from the deductible. Therefore, AB 2281 is likely to have more of an impact on utilization and subsequent health outcomes for the approximately 968,000 persons enrolled in CDI-regulated HDHPs compared to the approximately 412,000 persons enrolled in Knox-Keene regulated HDHPs.

Unfortunately, it is not possible to clearly predict whether the net effect of AB 2281 on the public's health will be positive or negative. The overall health effect will depend on whether insurance companies respond to AB 2281 by retaining or dropping coverage for preventive services that are not currently mandated under law. Additionally, the overall effect depends on the magnitude of effect for each preventive service on numerous health outcomes for the populations that select HDHPs. Examining the magnitude of effect for each preventive service is not possible for this analysis given the limited time frame.

Impact on Community Health Where Gender and Racial Disparities Exist

A literature review was conducted to determine whether there are gender or racial disparities associated with the utilization of preventive services. Several preventive health services are gender-specific such as mammograms and cervical cancer screening for women, and prostate cancer screening for men. For non–gender-specific preventive services, there is mixed evidence on gender disparities. Benjamins et al. (2004) report that males are less likely than females to obtain blood pressure and cholesterol screenings whereas Flocke and Gilchrist (2005) report that males are more up-to-date on preventive counseling and immunizations.

A substantial amount of research has examined racial and ethnic disparities in the utilization of preventive services. Overall, disparities for preventive services are specific to the particular service. Racial and ethnic minorities have been found to have lower utilization rates for a number of preventive services, including immunizations, blood pressure screening, and prenatal care (Benjamins et al., 2004; Chu et al., 2004; Kelley et al., 2005; Lees et al., 2005). In contrast, minorities have been found to have higher utilization rates of other preventive services such as mammograms and cervical and colorectal cancer screening (Potosky et al., 1998; Zapka et al., 2002; Benjamins et al., 2004; Kelley et al., 2005).

Two particularly relevant studies compared the effect of managed care on the utilization of preventive services for specific racial and ethnic groups. Haas et al. (2002) found that even though managed care enrollees had lower cost sharing for preventive services, utilization rates for blacks and Asian enrollees in managed care were not found to be higher than under FFS. Higher utilization rates were found, however, for Hispanics and whites managed care enrollees (Haas et al., 2002). Similarly, DeLaet et al. (2002) found greater managed care/FFS differences in preventive services utilization for Hispanic and whites compared to blacks. These findings

suggest that AB 2281 could have a differential effect on utilization of preventive services by racial and ethnic group.

As stated previously in this section, the limited literature on the demographics of the population that select HDHPs indicates that females are less likely than males to opt for HDHPs (GAO, 2006; Tollen et al., 2004). Additionally, one study found that blacks were less likely than whites to select HDHPs (Fowles et al., 2004).

It is not clear at this time if AB 2281 will have an impact on gender or racial disparities. The effect that AB 2281 will have on disparities depends on how insurance companies respond to coverage of non-mandated preventive services, the magnitude of the health effects of specific preventive services, and the differential response of racial and ethnic groups to cost-sharing arrangements.

Table 6. Utilization Rates of Selected Preventive Services per 1000 Insured in High Deductible Plans and Average Per-Unit Costs

	Utilization Rates per 1000 Insured with Different Levels of Coverage of Preventive Services (1)				Current Utilization Rates per 1000 Insured by Plan Type (2)							
					Large Group		Small Group		Individual			
	Exempt from High Deductible - DMHC Plans	Exempt from High Deductible - CDI Policies	Subject to High Deductible (DMHC and CDI Policies)	No Coverage for Preventive Service (DMHC and CDI Policies)	DMHC Plans	CDI Policies	DMHC Plans	CDI Policies	DMHC Plans	CDI Policies	All HD Members	Average Per-Unit Cost
Adult Physical Exam	206	196	176	167	206	196	206	196	206	195	200	$123
Adult Immunizations	118	115	94	89	118	115	118	100	118	89	103	$16
Adult Vision Exams	165	155	146	137	165	155	165	142	165	137	149	$44
Adult Hearing Exams	24	22	21	20	24	22	24	21	24	20	22	$40
Cervical Cancer Screening	225	213	201	191	225	213	225	213	225	213	218	$68
Mammography Screening	88	83	78	76	88	83	88	83	88	83	85	$62
Prostate Cancer Screening	53	50	43	41	53	50	53	50	53	50	51	$91
Routine Prenatal Care	176	167	158	149	176	167	176	160	176	154	164	$52
Child Physical Exam	125	119	107	102	125	119	125	119	125	119	121	$85
Child Immunizations	428	419	397	378	428	419	428	419	428	418	422	$23
Child Vision Exams	50	47	45	42	50	47	50	47	50	46	48	$43
Child Hearing Exams	41	39	37	35	41	39	41	39	41	38	39	$32
Well Baby Exams	105	103	92	87	105	103	105	103	105	103	104	$51
Smoking Cessation Programs	10	10	6	6	8	7	6	6	6	6	6	$296
Obesity Weight Loss Programs	5	5	3	3	3	3	3	3	3	3	3	$208

Source: California Health Benefits Review Program, 2006.

Notes: (1) Utilization is assumed to differ based on the required cost sharing paid by the member. (2) Each of the 6 types of plans (large group DMHC, Large group CDI, Small group DMHC, Small group CDI, Individual DMHC, and Individual CDI) shown here have a different mix of required member cost sharing. The values under "Current Utilization Rates per 1000 Insured by Plan Type" are composites of the values shown under, "Utilization Rates per 1000 Insured with Different Levels of Coverage of Preventive Services." These are weighted by each plan types' distribution of members in the 4 types of coverage for preventive services.

Table 7. Preventive Services That Are Currently Mandated by Law Grouped by Milliman's Category of Preventive Services

	Large Group		Small Group		Individual	
Milliman Category of Preventive Services	DMHC	CDI	DMHC	CDI	DMHC	CDI
Adult Physical Exam	Y	N	Y	N	Y	N
Adult Immunizations	Y	N	Y	N	Y	N
Adult Vision Exams	N	N	N	N	N	N
Adult Hearing Exams	N	N	N	N	N	N
Cervical Cancer Screening	Y	Y	Y	Y	Y	Y
Mammography Screening	Y	Y	Y	Y	Y	Y
Prostate Cancer Screening	Y	Y	Y	Y	Y	Y
Routine Prenatal Care	Y	N	Y	N	Y	N
Child Physical Exam	Y	Y	Y	Y	Y	N
Child Immunizations	Y	Y	Y	Y	Y	N
Child Vision Exams	Y	Y	Y	Y	Y	N
Child Hearing Exams	Y	Y	Y	Y	Y	N
Well Baby Exams	Y	Y	Y	Y	Y	N
Smoking Cessation Programs	N	N	N	N	N	N
Obesity Weight Loss Programs	N	N	N	N	N	N

Source: Compiled from Health and Safety Code Sections 1365, 1367; CA Code of Regulations Section 1300.67; Insurance Code Section 10123. Note: This table present information in a different format that the information presented in Table 3 in the *Background and Introduction* in that the preventive services included here are labeled according to the category of services available in Milliman's national claims data.

Table 8. Current Coverage of Preventive Services in HDHPs, California, 2006

	Large Group Plans					
	DMHC Plans			CDI policies		
	Exempt from High Deductible	Subject to High Deductible	No Coverage for Preventive Service	Exempt from High Deductible	Subject to High Deductible	No Coverage for Preventive Service
Adult Physical Exam	100%	0%	0%	100%	0%	0%
Adult Immunizations	100%	0%	0%	100%	0%	0%
Adult Vision Exams	100%	0%	0%	100%	0%	0%
Adult Hearing Exams	100%	0%	0%	100%	0%	0%
Cervical Cancer Screening	100%	0%	0%	100%	0%	0%
Mammography Screening	100%	0%	0%	100%	0%	0%
Prostate Cancer Screening	100%	0%	0%	100%	0%	0%
Routine Prenatal Care	100%	0%	0%	100%	0%	0%
Child Physical Exam	100%	0%	0%	100%	0%	0%
Child Immunizations	100%	0%	0%	100%	0%	0%
Child Vision Exams	100%	0%	0%	100%	0%	0%
Child Hearing Exams	100%	0%	0%	100%	0%	0%
Well Baby Exams	100%	0%	0%	100%	0%	0%
Smoking Cessation Programs	60%	0%	40%	25%	0%	75%
Obesity Weight Loss Programs	0%	0%	100%	0%	0%	100%
	Small Group Plans					
Adult Physical Exam	100%	0%	0%	100%	0%	0%
Adult Immunizations	100%	0%	0%	25%	75%	0%
Adult Vision Exams	100%	0%	0%	25%	0%	75%
Adult Hearing Exams	100%	0%	0%	25%	0%	75%
Cervical Cancer Screening	100%	0%	0%	100%	0%	0%
Mammography Screening	100%	0%	0%	100%	0%	0%
Prostate Cancer Screening	100%	0%	0%	100%	0%	0%
Routine Prenatal Care	100%	0%	0%	25%	75%	0%
Child Physical Exam	100%	0%	0%	100%	0%	0%
Child Immunizations	100%	0%	0%	100%	0%	0%
Child Vision Exams	100%	0%	0%	100%	0%	0%
Child Hearing Exams	100%	0%	0%	100%	0%	0%
Well Baby Exams	100%	0%	0%	100%	0%	0%
Smoking Cessation Programs	0%	0%	100%	0%	0%	100%
Obesity Weight Loss Programs	0%	0%	100%	0%	0%	100%

Table 8. Current Coverage of Preventive Services in HDHPs, California, 2006 (cont.)

	Large Group Plans					
	DMHC Plans			CDI policies		
	Exempt from High Deductible	Subject to High Deductible	No Coverage for Preventive Service	Exempt from High Deductible	Subject to High Deductible	No Coverage for Preventive Service
	Individual Plans					
Adult Physical Exam	100%	0%	0%	95%	5%	0%
Adult Immunizations	100%	0%	0%	0%	0%	100%
Adult Vision Exams	100%	0%	0%	0%	0%	100%
Adult Hearing Exams	100%	0%	0%	0%	5%	95%
Cervical Cancer Screening	100%	0%	0%	95%	5%	0%
Mammography Screening	100%	0%	0%	95%	5%	0%
Prostate Cancer Screening	100%	0%	0%	95%	5%	0%
Routine Prenatal Care	100%	0%	0%	0%	60%	40%
Child Physical Exam	100%	0%	0%	95%	5%	0%
Child Immunizations	100%	0%	0%	95%	5%	0%
Child Vision Exams	100%	0%	0%	65%	5%	30%
Child Hearing Exams	100%	0%	0%	65%	5%	30%
Well Baby Exams	100%	0%	0%	95%	5%	0%
Smoking Cessation Programs	0%	0%	100%	0%	0%	100%
Obesity Weight Loss Programs	0%	0%	100%	0%	0%	100%

Source: California Health Benefits Review Program, 2006. Data derived CHBRP survey of the eight largest health plans and insurers offering HDHP and publicly available pre-enrollment information.

Table 9. Estimated Change in Utilization Rates per 1000 Insured in HDHP Due to AB 2281, California, 2006

	Scenario 1						
	Large Group		Small Group		Individual		
	DMHC Plans	CDI Policies	DMHC Plans	CDI Policies	DMHC Plans	CDI Policies	All High Deductible Insured
Adult Physical Exam	0%	0%	0%	0%	0%	1%	0%
Adult Immunizations	0%	0%	0%	16%	0%	0%	3%
Adult Vision Exams	0%	0%	0%	0%	0%	0%	0%
Adult Hearing Exams	0%	0%	0%	0%	0%	0%	0%
Cervical Cancer Screening	0%	0%	0%	0%	0%	0%	0%
Mammography Screening	0%	0%	0%	0%	0%	0%	0%
Prostate Cancer Screening	0%	0%	0%	0%	0%	1%	0%
Routine Prenatal Care	0%	0%	0%	4%	0%	4%	2%
Child Physical Exam	0%	0%	0%	0%	0%	1%	0%
Child Immunizations	0%	0%	0%	0%	0%	0%	0%
Child Vision Exams	0%	0%	0%	0%	0%	0%	0%
Child Hearing Exams	0%	0%	0%	0%	0%	0%	0%
Well Baby Exams	0%	0%	0%	0%	0%	1%	0%
Smoking Cessation Programs	0%	0%	0%	0%	0%	0%	0%
Obesity Weight Loss Programs	0%	0%	0%	0%	0%	0%	0%
	Scenario 2						
Adult Physical Exam	0%	0%	0%	0%	0%	0%	0%
Adult Immunizations	0%	0%	0%	-4%	0%	0%	-1%
Adult Vision Exams	0%	0%	0%	0%	0%	0%	0%
Adult Hearing Exams	0%	0%	0%	0%	0%	0%	0%
Cervical Cancer Screening	0%	0%	0%	0%	0%	0%	0%
Mammography Screening	0%	0%	0%	0%	0%	0%	0%
Prostate Cancer Screening	0%	0%	0%	0%	0%	1%	0%
Routine Prenatal Care	0%	0%	0%	4%	0%	4%	2%
Child Physical Exam	0%	0%	0%	0%	0%	0%	0%
Child Immunizations	0%	0%	0%	0%	0%	0%	0%
Child Vision Exams	0%	0%	0%	0%	0%	0%	0%
Child Hearing Exams	0%	0%	0%	0%	0%	0%	0%
Well Baby Exams	0%	0%	0%	0%	0%	0%	0%
Smoking Cessation Programs	0%	0%	0%	0%	0%	0%	0%
Obesity Weight Loss Programs	0%	0%	0%	0%	0%	0%	0%

Source: California Health Benefits Review Program, 2006. Data derived CHBRP survey of the eight largest health plans and insurers offering HDHP and publicly available pre-enrollment information.

Notes: (1) These services are currently required to be covered, but may be subject to a deductible. Under AB 2281 these services must be covered exempt from the deductible. This would result in an increase in utilization for these services under Scenario 2.

Table 10. Baseline (Current) Per Member Per Month Premium and Expenditures, California, 2006

	Large Group		Small Group		Individual			
	HMO	PPO	HMO	PPO	HMO	PPO	All Plans	Total Annual
All Insured								
Population Currently Covered	8,237,000	1,827,000	2,593,000	1,215,000	984,000	1,030,000	15,886,000	15,886,000
Average Portion of Premium Paid by Employer	$202.76	$292.75	$189.45	$235.81	$0.00	$0.00	$187.76	$35,792,975,000
Average Portion of Premium Paid by Employee	$62.47	$77.87	$74.62	$49.58	$257.58	$137.75	$82.20	$15,670,303,000
Total Premium	$265.23	$370.62	$264.07	$285.39	$257.58	$137.75	$269.96	$51,463,277,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$9.39	$50.08	$15.90	$42.40	$15.68	$32.14	$19.52	$3,721,743,000
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.00	$0.00	$0.02	$0.17	$0.09	$0.79	$0.07	$13,940,000
Total Expenditures	$274.62	$420.70	$279.99	$327.96	$273.35	$170.68	$289.56	$55,198,960,000
HDHP Only								
Population Currently Covered	46,929	41,177	216,492	332,690	435,500	673,704	1,746,492	1,746,492
Average Portion of Premium Paid by Employer	$172.83	$223.72	$153.91	$132.52	$0.00	$0.00	$54.24	$1,136,771,000
Average Portion of Premium Paid by Employee	$53.24	$59.51	$60.62	$27.86	$184.82	$121.09	$108.45	$2,272,929,000
Total Premium	$226.07	$283.23	$214.53	$160.38	$184.82	$121.09	$162.69	$3,409,700,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$8.01	$38.27	$12.92	$23.83	$11.25	$28.25	$20.96	$439,317,000
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.11	$0.16	$0.20	$0.62	$0.20	$1.21	$0.67	$13,940,000
Total Expenditures	$234.18	$321.65	$227.65	$184.83	$196.27	$150.55	$184.32	$3,862,956,000

Source: California Health Benefits Review Program, 2006.

Note: The population includes individuals and dependents in California who have private insurance (group and individual). Since CalPERS, Medi-Cal, or Healthy Families do not offer HDHPs, they are not included in this analysis. Employees and their dependents who receive their coverage from self-insured firms are excluded because these plans are not subject to mandates. All population figures include enrollees aged 0–64 years and enrollees 65 years or older covered by employment-based coverage.

Table 11. Impacts of AB 2281 on Per Member Per Month and Total Expenditures by Insurance Plan Type, California, Calendar Year 2006

	Large Group		Small Group		Individual			
	HMO	PPO	HMO	PPO	HMO	PPO	All Plans	Total Annual
Scenario 1 - All Insured								
Population Currently Covered	8,237,000	1,827,000	2,593,000	1,215,000	984,000	1,030,000	15,886,000	15,886,000
Average Portion of Premium Paid by Employer	$0.0000	$0.0000	$0.0000	$0.0819	$0.0000	$0.0000	$0.0063	$ 1,195,000
Average Portion of Premium Paid by Employee	$0.0000	$0.0000	$0.0000	$0.0172	$0.0000	$0.3021	$0.0209	$ 3,985,000
Total Premium	$0.0000	$0.0000	$0.0000	$0.0992	$0.0000	$0.3021	$0.0272	$ 5,180,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$0.0000	$0.0000	$0.0000	-$0.0634	$0.0000	-$0.1779	-$0.0164	$ (3,123,000)
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$ -
Total Expenditures	$0.0000	$0.0000	$0.0000	$0.0357	$0.0000	$0.1242	$0.0108	$ 2,056,000
Percentage Impact of Mandate								
Insured Premiums	0.000%	0.000%	0.000%	0.035%	0.000%	0.219%	0.010%	0.010%
Total Expenditures	0.000%	0.000%	0.000%	0.011%	0.000%	0.073%	0.004%	0.004%
Scenario 1 - HDHP Only								
Population Currently Covered	46,929	41,177	216,492	332,690	435,500	673,704	1,746,492	1,746,492
Average Portion of Premium Paid by Employer	$0.0000	$0.0000	$0.0000	$0.2993	$0.0000	$0.0000	$0.0570	$ 1,195,000
Average Portion of Premium Paid by Employee	$0.0000	$0.0000	$0.0000	$0.0629	$0.0000	$0.4619	$0.1901	$ 3,985,000
Total Premium	$0.0000	$0.0000	$0.0000	$0.3622	$0.0000	$0.4619	$0.2472	$ 5,180,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$0.0000	$0.0000	$0.0000	-$0.2317	$0.0000	-$0.2719	-$0.1490	$ (3,123,000)
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$ -
Total Expenditures	$0.0000	$0.0000	$0.0000	$0.1305	$0.0000	$0.1899	$0.0981	$ 2,056,000
Percentage Impact of Mandate								
Insured Premiums	0.000%	0.000%	0.000%	0.226%	0.000%	0.381%	0.152%	0.152%
Total Expenditures	0.000%	0.000%	0.000%	0.071%	0.000%	0.126%	0.053%	0.053%

Table 11. Impacts of AB 2281 on Per Member Per Month and Total Expenditures by Insurance Plan Type, California, Calendar Year 2006 (cont.)

	Large Group		Small Group		Individual			
	HMO	PPO	HMO	PPO	HMO	PPO	All Plans	Total Annual
Scenario 2 - All Insured								
Population Currently Covered	8,237,000	1,827,000	2,593,000	1,215,000	984,000	1,030,000	15,886,000	15,886,000
Average Portion of Premium Paid by Employer	$0.0000	$0.0000	$0.0000	$0.0557	$0.0000	$0.0000	$0.0043	$ 812,000
Average Portion of Premium Paid by Employee	$0.0000	$0.0000	$0.0000	$0.0117	$0.0000	$0.1362	$0.0097	$ 1,854,000
Total Premium	$0.0000	$0.0000	$0.0000	$0.0674	$0.0000	$0.1362	$0.0140	$ 2,665,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$0.0000	$0.0000	$0.0000	-$0.0697	$0.0000	-$0.2069	-$0.0187	$ (3,573,000)
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.0000	$0.0000	$0.0000	$0.0238	$0.0000	$0.1254	$0.0100	$ 1,897,000
Total Expenditures	$0.0000	$0.0000	$0.0000	$0.0215	$0.0000	$0.0547	$0.0052	$ 990,000
Percentage Impact of Mandate								
Insured Premiums	0.000%	0.000%	0.000%	0.024%	0.000%	0.099%	0.005%	0.005%
Total Expenditures	0.000%	0.000%	0.000%	0.007%	0.000%	0.032%	0.002%	0.002%
Scenario 2 - HDHP Only								
Population Currently Covered	46,929	41,177	216,492	332,690	435,500	673,704	1,746,492	1,746,492
Average Portion of Premium Paid by Employer	$0.0000	$0.0000	$0.0000	$0.2033	$0.0000	$0.0000	$0.0387	$ 812,000
Average Portion of Premium Paid by Employee	$0.0000	$0.0000	$0.0000	$0.0427	$0.0000	$0.2082	$0.0885	$ 1,854,000
Total Premium	$0.0000	$0.0000	$0.0000	$0.2460	$0.0000	$0.2082	$0.1272	$ 2,665,000
Covered Benefits Paid by Member (Deductibles, copays, etc)	$0.0000	$0.0000	$0.0000	-$0.2544	$0.0000	-$0.3163	-$0.1705	$ (3,573,000)
Benefits Not Covered and Paid by Member (self-pay amounts)	$0.0000	$0.0000	$0.0000	$0.0870	$0.0000	$0.1917	$0.0905	$ 1,897,000
Total Expenditures	$0.0000	$0.0000	$0.0000	$0.0787	$0.0000	$0.0836	$0.0472	$ 990,000
Percentage Impact of Mandate								
Insured Premiums	0.000%	0.000%	0.000%	0.153%	0.000%	0.172%	0.078%	0.078%
Total Expenditures	0.000%	0.000%	0.000%	0.043%	0.000%	0.056%	0.026%	0.026%

Source: California Health Benefits Review Program, 2006.

Note: The population includes individuals and dependents in California who have private insurance (group and individual). Since CalPERS, Medi-Cal, or Healthy Families do not offer HDHPs, they are not included in this analysis. Employees and their dependents who receive their coverage from self-insured firms are excluded because these plans are not subject to mandates. All population figures include enrollees aged 0–64 years and enrollees 65 years or older covered by employment-based coverage.

APPENDICES

Appendix A: Literature Review Methods

Appendix A describes the methods used in the literature review for AB 2281. This literature review included meta-analyses, systematic reviews, randomized controlled trials, controlled clinical trials, and observational studies. The PubMed, Cochrane, CINAHL, and EconLit databases were searched.

The search for medical effectiveness literature initially focused on articles in peer-review journals that evaluated the impact of cost sharing on use of preventive health services. The search was limited to preventive services that are recommended by the United States Preventive Services Task Force and/or are mandated under current California law. (See Appendix E for a list of these services.) The search was further limited to articles written in English and to studies of children and non-elderly adults, defined as subjects aged 0–64 years, which were conducted in the United States and had publication dates from 1980 to present. Studies conducted outside the United States were excluded because health care systems differ widely across nations. Studies of elderly adults and studies of persons enrolled in Medicaid (Medi-Cal in California) were excluded because AB 2281 would not apply to Medicare or Medicaid. In addition, studies of the effects of cost sharing on the use of screening services to monitor persons with chronic illness, such as blood pressure monitoring for persons with hypertension, were excluded because AB 2281 is being amended to remove provisions that address treatment for chronic illness.

At least two reviewers screened the title and abstract of each citation returned by the literature search to determine eligibility for inclusion. Full text articles were obtained and reviewers reapplied the initial eligibility criteria.

The literature review for AB 2281 retrieved 114 abstracts. Eighty-seven documents were not included in the analysis of AB 2281 because the articles: (1) were not published in peer review journals, (2) did not report research results (e.g., commentaries), (3) did not address cost sharing (e.g., studies of trends in enrollment in HDHPs), or (4) did not address utilization of preventive services (e.g. examined overall utilization of health care services, examined hospitalization).

A total of 27 studies were included in the review. Eight studies analyze data from randomized controlled trials. Six of these studies analyzed data from the Rand Health Insurance Experiment, the largest and most rigorous randomized trial of the effects of cost sharing on expenditures and utilization of health care services and health status. Nineteen studies were observational studies that examined data from surveys and/or health plans. Three review articles that synthesized literature regarding the effects of cost sharing on preventive services were also included in the review.

To "grade" the evidence for all outcome measures, the CHBRP effectiveness team uses a system[26] with the following categories:

1. Favorable (statistically significant effect): Findings are uniformly favorable, and many or all are statistically significant.
2. Pattern[27] toward favorable (but not statistically significant): Findings are generally favorable, but there may be none that are statistically significant.
3. Ambiguous/mixed evidence: Some findings are significantly favorable, and some findings with sufficient statistical power show no effect.
4. Pattern toward no effect/weak evidence: Studies generally find no effect, but this may be due to a lack of statistical power.
5. No effect: There is statistical evidence of no clinical effect in the literature with sufficient statistical power to make this assessment.
6. Unfavorable: No findings show a statistically significant benefit, and some show significant harms.
7. Insufficient evidence to make a "call": There are very few relevant findings, so that it is difficult to discern a pattern.

The search terms used to locate studies relevant to the AB 2281 were as follows:

The search terms used for searching PubMed and Cochrane Library were as follows:

Medical Subject Headings (MeSHs)

Acquired Immunodeficiency Syndrome/diagnosis/prevention and control
Alcoholism/diagnosis/prevention and control
Child Health Services/utilization
Chlamydia Infections/diagnosis/prevention and control
Consumer Participation
Communicable Diseases/diagnosis/prevention and control
Comparative Study
Congenital Hypothyroidism
Cost-Benefit Analysis
Explode Cost Sharing (including Deductibles and Coinsurance, Medical Savings Accounts)
Costs and Cost Analysis
Counseling
Delivery of Health Care/economics/utilization
Dementia/diagnosis/prevention and control
Depression/diagnosis/prevention and control
Diabetes, Gestational
Explode Diabetes Mellitus/diagnosis

[26] The foregoing system was adapted from the system used by the US Preventive Services Task Force, available at http:www.ahcpr.gov/clinic/3rduspstf/ratings.htm. The medical effectiveness team also considered guidelines from the Centers for Medicare & Medicaid Services (available at htttp://www.cms.hhs.gov/FACA/downloads/recommendations.pdf) and guidelines from the Blue Cross and Blue Shield Association (available at http://www.bcbs.com/tec/teccriteria.html).

[27] In this report, the word "trend" may be used synonymously with "pattern."

Diagnostic Services/utilization
Down Syndrome/diagnosis/prevention and control
Fees and Charges
Fee for Service Plans
Gonorrhea/diagnosis/prevention and control
Health Benefit Plans, Employee/economics
Health Services/utilization
Health Status
Hearing Loss/diagnosis/prevention and control
Explode Heart Diseases/diagnosis/prevention and control
Hemoglobinopathies/diagnosis/prevention and control
Hepatitis B/diagnosis/prevention and control
Hepatitis C/diagnosis/prevention and control
HIV Infections/diagnosis/prevention and control
Hypertension/diagnosis/prevention and control
Immunization
Insurance Benefits
Insurance Coverage
Insurance, Health/economics
Lead Poisoning/diagnosis/prevention and control
Mass Screening
Mental Disorders/diagnosis/prevention and control
Metabolic Diseases/diagnosis/prevention and control
Medical Savings Accounts
Explode Neoplasms
Neural Tube Defects/diagnosis/prevention and control
Nutrition
Obesity
Osteoporosis/diagnosis/prevention and control
Outcome Assessment (Health Care)
Phenylketonurias/diagnosis/prevention and control
Pre-Eclampsia/diagnosis/prevention and control
Prenatal Care/economics
Preventive Health Services/economics/utilization
Scoliosis/diagnosis/prevention and control
Smoking/prevention and control
Smoking Cessation
Substance-Related Disorders/diagnosis/prevention and control
Suicide/diagnosis/prevention and control
Syphilis/diagnosis/prevention and control
Explode Tuberculosis/diagnosis/prevention and control
Treatment Outcome
Vaginosis, Bacterial/diagnosis/prevention and control
Explode Vascular Diseases/diagnosis/prevention and control
Explode Vision Disorders/diagnosis/prevention and control
Weight Loss

Keywords:

An asterisk (*) indicates truncation.

Effect*, impact*, high deductible, consumer driven health plan*, Rand health insurance experiment, fee for service*, out of pocket cost*, co-payment, coinsurance, cost sharing, cost effective*, insurance coverage, insurance benefit*, insurance health, medical savings accounts, fees for service plan*, mass screening, preventive care, preventive health service*, child health services, well child care, anemia, preeclampsia, lead poisoning, infectious disease*, gonorrhea, HIV, AIDS, hiv infections, chlamydial infection*, hepatitis B, hepatitis C, syphilis, gonorrhea, down syndrome, asthma, diabetes, hypertension, (heart or vascular) disease*, coronary calcium, lipid disorder*, metabolic disease*, depression, suicide, dementia, prenatal care, prenatal screening, neonatal screening, neural tube defect*, serum alpha fetoprotein test, hemoglobinopath*, congenital hypothyroidism, phenyldetonuria, immunization*, tobacco cessation, smoking cessation, obesity, weight loss, cancer, neoplasms, cancer screening, infectious disease*, mental health, mental disorder*, substance-related disorder*, substance abuse, alcohol abuse, Alcoholism, nutritional counseling, musculoskeletal disorder*, vision disorder*, hearing disorder*, hearing loss, osteoporosis, scoliosis, bacterial vaginosis, gestational diabetes, Rh D blood typing and antibody test*, treatment outcome, health status,

Publication Types:

Clinical Trial
Meta-Analysis
Multicenter Study
Randomized Controlled Trial

Subset (PubMed):

Systematic Reviews

The search terms used for searching OVID CINAHL were as follows:

CINAHL Subject Headings:

Acquired Immunodeficiency Syndrome/diagnosis/prevention and control
Alcohol Abuse/diagnosis/prevention and control
Anemia/diagnosis/prevention and control
Cancer Screening
Child Health Services
Chlamydia Infections/diagnosis/prevention and control
Clinical Trials
Communicable Diseases/diagnosis/prevention and control
Comparative Studies
Consumer Participation
Explode Costs and Cost Analysis
Dementia/diagnosis/prevention and control
Depression/diagnosis/prevention and control
Explode Diabetes Mellitus/diagnosis/prevention and control
Diabetes Mellitus, Gestational/diagnosis/prevention and control
Down Syndrome/diagnosis/prevention and control
Explode Fees and Charges
Genetic Screening
Gonorrhea/diagnosis/prevention and control
Health Screening
Health Status
Explode Hearing Disorders/diagnosis/prevention and control
Hearing Screening
Explode Heart Diseases/diagnosis/prevention and control
Hemoglobinopathies/diagnosis/prevention and control
Hepatitis B/diagnosis/prevention and control
Hepatitis C/diagnosis/prevention and control
HIV Infections
Hypothyroidism
Immunization
Insurance, Health
Lead Poisoning/diagnosis/prevention and control
Explode Mental Disorders/diagnosis/prevention and control
Mental Health Screening
Metabolic diseases/diagnosis/prevention and control
Neural Tube Defects/diagnosis/prevention and control
Obesity
Osteoporosis/diagnosis/prevention and control
Outcomes (Health Care)
Phenylketonuria/diagnosis/prevention and control
Pre-eclampsia/diagnosis/prevention and control

Prenatal Care
Preventive Health Care
Random Assignment
Scoliosis/diagnosis/prevention and control
Smoking/prevention and control
Smoking Cessation
Substance Abuse//diagnosis/prevention and control
Explode Suicide/diagnosis/prevention and control
Syphilis/diagnosis/prevention and control
Systematic Review
Tuberculosis/diagnosis/prevention and control
Treatment Outcomes
Vaginosis, Bacterial/diagnosis/prevention and control
Explode Vascular Diseases/diagnosis/prevention and control
Explode Vision Disorders/diagnosis/prevention and control
Vision Screening
Weight Loss

Keywords:

A dollar sign ($) indicates truncation.

Effect$, impact$, high deductible, consumer driven health plan$, Rand health insurance experiment, fee for service$, out of pocket cost$, co-payment, coinsurance, cost sharing, cost effective$, insurance coverage, insurance benefit$, insurance health, medical savings accounts, fees for service plan$, mass screening, preventive care, preventive health service$, child health services, well child care, anemia, preeclampsia, lead poisoning, infectious disease$, gonorrhea, HIV, AIDS, hiv infections, chlamydial infection$, hepatitis B, hepatitis C, syphilis, gonorrhea, down syndrome, asthma, diabetes, hypertension, (heart or vascular) disease$, coronary calcium, lipid disorder$, metabolic disease$, depression, suicide, dementia, prenatal care, prenatal screening, neonatal screening, neural tube defect$, serum alpha fetoprotein test, hemoglobinopath$, congenital hypothyroidism, phenyldetonuria, immunization$, tobacco cessation, smoking cessation, obesity, weight loss, cancer, neoplasms, cancer screening, infectious disease$, mental health, mental disorder$, substance-related disorder$, substance abuse, alcohol abuse, Alcoholism, nutritional counseling, musculoskeletal disorder$, vision disorder$, hearing disorder$, hearing loss, osteoporosis, scoliosis, bacterial vaginosis, gestational diabetes, Rh D blood typing and antibody test$, treatment outcome, health status, randomized controlled trial$

Publication Type:

Clinical Trial
Meta-Analysis

EconLit (Economic Literature)

EconLit Subject Headings:

Cost Sharing
Health Status
Preventive Health Care
Screening
Treatment Effect

Keywords:

An asterisk (*) indicates truncation.

copayment, coinsurance, high deductible, out of pocket, preventive (care or service*)
Insurance

Appendix B: Summary of Findings on the Effects of Copayments, Coinsurance, and Deductibles on Use of Preventive Services

Appendix B presents detailed information on the findings regarding the impact of copayments, coinsurance, and deductibles on use of the types of preventive services specified in AB 2281.

Table B-1 is a summary of the published studies on these topics. The table includes study citations and descriptions of the types of studies, intervention and control groups, populations studied, locations in which studies were conducted, and findings.

Full bibliographic information can be found in the list of references at the end of this report.

Table B-1. Summary of Published Studies on the Effects of Copayments, Coinsurance, and Deductibles on Use of Preventive Services

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
Boyle et al., 2002	Tobacco cessation—medication (bupropion and nicotine replacement therapy)	Observational study—nonequivalent comparison group	Coverage for tobacco cessation medications vs. no coverage	2,327 persons who received employer-sponsored health insurance coverage through a group/staff model HMO or a network-based insurer	United States—Minnesota	Coverage not associated with greater probability of utilizing bupropion or nicotine replacement therapy
Cherkin et al., 1990	Periodic health examination, childhood immunization, clinical breast exam, Pap smear, and fecal occult blood screening	Observational study—nonequivalent comparison group	State employees enrolled in a group/staff model HMO who became subject to a $5 copayment requirement for office visits vs. federal employees enrolled in the HMO who were not subject to a copayment requirement	52,048 persons who received health insurance through state or federal government agencies who were not eligible for Medicare and who were continuously enrolled in the HMO during the study period. (analyses for breast exam, fecal occult blood screening, and Pap smear calculated only for women age 40—63	United States—Washington State	No copayment associated with greater probability of utilization—significant: periodic health exams;[28] not significant: DPT[29] immunizations for 5 year olds Copayment had no effect on probability of utilization: DPT and MMR[30] immunizations for infants, clinical breast exams, Pap smears, and fecal occult blood tests for women

[28] See footnote #4 for a definition of the term "periodic health examination".
[29] DPT = diphtheria-pertussis-tetanus.
[30] MMR = measles-mumps-rubella.

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
				years)		
Curry et al., 1998	Tobacco cessation—behavioral intervention plus medication	Observational study—two analyses: (1) 3-group pre/post design, (2) 2-group post design	Analysis 1: comparison of 3 groups based on coverage for tobacco cessation: (1) 100% coverage for behavioral intervention and nicotine replacement therapy (NRT), (2) 100% coverage for behavioral intervention and 50% coverage for NRT, and (3) 50% coverage for behavioral intervention and 100% coverage for NRT Analysis 2: comparison of 2 groups based on coverage for tobacco cessation: (1) 50% coverage for behavioral intervention and 100% coverage for NRT, and (2) 50% coverage for behavioral intervention and 50% coverage for NRT	90,005 adults enrolled in a group/staff model HMO	United States—Washington State	More coverage associated with greater probability of utilization of behavioral counseling and nicotine replacement therapy (NRT)—significant: 100% coverage for both vs. 50% coverage for behavioral counseling and 100% coverage for NRT, and 100% coverage for counseling and 50% coverage for NRT vs. 50% coverage for counseling and 100% coverage for NRT; not significant: 50% coverage for behavioral counseling and 100% coverage for NRT vs. 50% coverage for both
Faulkner and Schauffler, 1997	Periodic health evaluation, clinical breast exam,	Observational study—survey data	Comparison of 4 groups of subjects based on level of	53,981 adults aged 18-64 years	United States—47 states and the District of	Coverage for all or most preventive services associated with greater probability of

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
	mammography, Pap smear, blood pressure screening, and cholesterol screening.		health insurance coverage for preventive services: (1) all services covered, (2) most services covered, (3) some services covered, and (4) no services covered		Columbia	utilization—significant: periodic health exams, clinical breast exams, mammograms, Pap smears, blood pressure screening, and cholesterol screening
Friedman et al., 2002	Mammography and Pap smear	Observational study—claims data	PPO vs fee-for-service (FFS) where PPO provided more generous coverage for outpatient visits	Pap smear analysis: 139,294 women aged 21–64 years; Mammography analysis: 56,544 women aged 52–64 years; All subjects received health insurance through General Motors	United States—multiple sites	Coverage for office visits associated with greater probability of utilization—significant: mammography and Pap smears Lower coinsurance rate for office visits associated with greater probability of utilization—significant: mammography and Pap smears
Gordon et al., 1998	Mammography, Pap smear, fecal occult blood screening, and proctoscopic examination	Observational study—survey data	Comparison of 4 groups of subjects based on type of health insurance: (1) group/staff model HMO, (2) independent practice association HMO, (3) indemnity (FFS or PPO), and (4) no insurance for outpatient services	Adults aged 20–64 years	United States—California	HMOs associated with greater probability of utilization than indemnity plans—significant: mammography, Pap smears, and fecal occult blood screening for group/staff model HMOs; not significant: mammography, Pap smears, and fecal occult blood screening and for sigmoidoscopy for women in IPA model HMOs No difference in probability of utilization between HMOs and indemnity plans sigmoidoscopy for men in IPA

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
						model HMOs HMOs associated with lower probability of utilization than indemnity plans—not significant: fecal occult blood screening for men in IPA model HMOs Indemnity plan associated with greater probability of utilization than no outpatient coverage—not significant: mammography, Pap smears, fecal occult blood tests, sigmoidoscopy for women Indemnity plan associated with lower probability of utilization than no outpatient coverage—not significant: sigmoidoscopy for men
Hahn and Olson, 1999	Tetanus immunization, mammography, Pap smear, fecal occult blood screening, sigmoidoscopy, and cholesterol screening	Observational study—billing data	Group/staff HMO vs. FFS	75,621 adults who received care from a large physician-owned health care delivery system	United States—Dane County, Wisconsin	HMO associated with greater percentage of persons utilizing service—significant: adult tetanus booster, mammography, Pap smears, fecal occult blood screening, sigmoidoscopy, and cholesterol screening
Hsia et al., 2000	Mammography, Pap smear, and fecal occult blood screening or flexible sigmoidoscopy	Observational study—longitudinal cohort study	Comparison of 4 groups of subjects based on type of health insurance: (1) prepaid (e.g., HMO), (2) FFS, (3) other insurance, and (4) no insurance	55,278 women aged 50–64 years recruited through 40 clinical centers	United States—multiple states	Prepaid health plans associated with greater probability of utilization—significant: mammography, Pap smears, and fecal occult blood screening or flexible sigmoidoscopy

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
Hughes et al., 1991	Tobacco cessation—brief advice and medication	Randomized controlled trial	Comparison of 3 groups of subjects based on cost sharing for nicotine gum: (1) free, (2) $6 per box, and (3) $20 per box	106 adults recruited from rural family practices	United States—rural Vermont	Lower cost sharing associated with greater probability of using nicotine gum and using more gum—significant
Keeler et al., 1987	Pap smear and rectal examination	Randomized controlled trial	Free care vs. FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to $1,000 to 95% coinsurance with out-of-pocket maximum of 15% of income up to $1,000)	1,679 women aged 18–61 years at time of enrollment in the study (Pap smear) and 1,057 adults aged 40–61 years at enrollment (rectal exam)	United States— six sites in Massachusetts, Ohio, South Carolina, Washington	Free care associated with greater percentage of subjects utilizing service—not significant: Pap smears and rectal examinations
Leibowitz et al., 1985	Well-child care	Randomized controlled trial	Free care vs. FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to $1,000 to 95% coinsurance with out-of-pocket maximum of 15% of income up to $1,000)	children aged 0–13 years (# of children not reported)	United States—Dayton, Ohio	Free care associated with more well-child visits per year—significant
Liang et al., 2004	Mammography and prostate cancer screening	Observational study—survey data	Assessed the effects of three types of cost sharing: (1) copayment of $11+ vs. none or $1–$10, (2) coinsurance rate of 20%+ vs. 0%–19%, and (3) deductible of $251+	13,534 adults with private health insurance	United States—nationally representative sample	Lower deductible and lower copayment associated with greater probability of utilization—significant: prostate cancer screening Coinsurance rate not associated with probability of utilization— mammography

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
			vs. $0–$250			and prostate cancer screening Deductible and copayment not associated with probability of utilization—mammography
Lohr et al., 1986	Pap smear, fecal occult blood screening, and tuberculosis skin test	Randomized controlled trial	Free care vs. FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to $1,000 to 95% coinsurance with out-of-pocket maximum of 15% of income up to $1,000)	1,988 women aged 14-61 years at time of enrollment in the study (Pap smear), 3,696 adults aged 14-61 at enrollment (fecal occult blood test), and 5,554 persons aged 0-61 years at enrollment (tuberculosis skin test)	United States—six sites in Massachusetts, Ohio, South Carolina, Washington	Cost sharing had no effect on percentage of persons receiving Pap smears, fecal occult blood tests, and tuberculosis skin tests
Lurie et al., 1987	Childhood and adult immunization and Pap smear	Randomized controlled trial	Free care vs. FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to $1,000 to 95% coinsurance with out-of-pocket maximum of 15% of income up to $1,000)	3,823 children, adolescents, and adults	United States—four sites in Massachusetts, Ohio, Washington	Free care associated with greater probability of utilization—significant: childhood immunization, adult immunization for ages 45–65 years, and Pap smears; not significant: adult immunization for ages 17–44 years
Lurie et al., 1989	Vision screening	Randomized controlled trial	Free care vs. FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to $1,000 to 95%	2,399 adolescents and adults aged 14-61 years at enrollment who had natural vision impairment	United States — six sites in Massachusetts, Ohio, South Carolina, Washington	Free care was associated with greater probability of having an eye exam—significant

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
			coinsurance with out-of-pocket maximum of 15% of income up to $1,000)			
Potosky et al., 1998	Clinical breast exam, mammography, Pap smear, fecal occult blood screening, digital rectal exam, and procto-sigmoidoscopy	Observational study—survey data	Comparison of 4 groups based on type of health insurance: (1) managed care, (2) private fee-for-service, (3) Medicaid fee-for-service, and (4) no health insurance coverage	9,455 adults—women age 18 years or older and men age 40 years or older	United States—national sample	Managed care plans associated with greater percentage of subjects utilizing service — significant: fecal occult blood screening and digital rectal examination Managed care not associated with percentage of persons receiving: clinical breast exam, mammography, Pap smear, and procto-sigmoidoscopy
Reschovsky et al., 2000	Influenza immunization, advice about tobacco cessation, mammography	Observational study—survey data	Comparison of 4 groups based on type of health insurance: (1) closed-model HMO, (2) open-model HMO, (3) PPO, and (4) indemnity/FFS	21,911 adults aged 18–64 years	United States—60 randomly selected communities across the nation	Closed model HMOs associated with greater utilization than open model HMO—significant: mammography Closed and open model HMOs associated with greater utilization than PPO and indemnity plans—significant: influenza immunization No difference in utilization: influenza immunization (closed HMO vs. open HMO, open HMO vs. PPO, PPO vs. indemnity), advice about tobacco cessation (closed HMO vs. open HMO open HMO vs. PPO, PPO vs. indemnity, closed and open

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
						HMO vs. PPO and indemnity), mammography (open HMO vs. PPO, PPO vs. indemnity, closed and open HMO vs. PPO and indemnity)
Schauffler and McMenamin, 2001	Advice regarding smoking, clinical breast exam, mammography, Pap smear, colorectal cancer screening, blood pressure screening, and cholesterol screening	Observational study—survey data	HMOs vs. PPOs	1,834 adults enrolled in HMOs or PPOs	United States--California	HMOs associated with greater percentage of persons utilizing service—significant: advice about smoking, mammography, and blood pressure screening No difference in percentage of persons utilizing service: Pap smears and colorectal cancer screening HMOs associated with lower percentage of persons utilizing service —not significant: clinical breast exams and cholesterol screening
Schauffler et al., 2001	Tobacco cessation intervention consisting of group behavioral counseling, over-the-counter (OTC) nicotine replacement therapy, and a self-help kit	Randomized controlled trial	Group behavioral counseling, OTC nicotine replacement therapy, and self-help kit vs. self-help kit	1,204 persons enrolled in two large independent practice association model HMOs	United States--California	Full coverage for tobacco cessation program associated with greater probability of utilization—significant: nicotine replacement therapy Full coverage for tobacco cessation program not associated with probability of utilization— behavioral counseling
Solanki and Schauffler, 1999	Mammography, Pap smear, and blood pressure screening	Observational study—survey data	Assessment of the effects of 2 types of cost sharing (copayment and deductible/coinsurance) and 3 types of	10,872 adults aged 18–64 years who were employees of seven firms that had more than 2,000 employees	United States—California	No coinsurance and deductible associated with greater probability of utilization—significant: mammography and Pap smears in HMOs, PPOs, and IPA/Network/POS

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
			health plans (group/staff model HMOs, IPA/network model HMO/POS plans, and PPO/ FFS plans)			plans; not significant: blood pressure screening in PPOs No copayment associated with greater probability of utilization—significant: mammography and Pap smears in group/staff HMOs, PPOs, and IPA/Network/POS plans; not significant: blood pressure screening in group/staff model HMOs Copayment not associated with probability of utilization—blood pressure screening in IPA/Network/POS plans, and PPOs
Solanki et al., 2000	Mammography, Pap smear, and blood pressure screening	Observational study—survey data	Assessment of the effects of 2 types of cost sharing (copayment and deductible/coinsurance) and 3 types of health plans (group/staff model HMOs, IPA/network model HMO/POS plans, and PPO/FFS plans)	10,872 adults aged 18–64 years who were employees of seven firms that had more than 2,000 employees	United States--California	No coinsurance and deductible associated with greater probability of utilization—significant: mammography for PPO/indemnity plans, Pap smears for PPO/indemnity plans, and blood pressure screening for mixed HMO/IPA/POS plans; not significant: blood pressure screening for PPO/indemnity plans No copayment associated with greater probability of utilization—significant: Pap smears for group model HMOs, and blood pressure screening for mixed

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
						HMO/IPA/POS plans; not significant: mammography for group/staff model HMOs and mixed HMO/IPA/POS plans Copayment not associated with utilization—Pap smears in mixed HMO/IPA/POS plans and blood pressure screening in group/staff model HMOs
Tu et al., 1999	Influenza immunization, advice about tobacco cessation, mammography	Observational study—survey data	HMOs vs. other types of health plans	28,956 adults aged 18–64 years	United States—60 randomly selected communities across the nation	HMOs associated with greater percentage of persons utilizing service—significant: influenza immunization, mammography No difference in percentage of persons utilizing service—advice about smoking cessation among smokers who had at least one physician visit in the previous year
Tye et al., 2004	Mammography	Observational study—survey data	Assessed the effects of three types of cost sharing measured as continuous variables: (1) copayment, (2) coinsurance, and (3) deductible	2,909 women aged 40 years or older with private health insurance	United States—nationally representative sample	Amount of deductible, coinsurance rate, and copayment amount not associated with utilization of mammography
Valdez et al., 1989	Preventive visits	Randomized controlled trial	3 intervention groups: (1) free care, (2) group/staff model HMO, and (3) FFS with cost sharing (ranged from 25% coinsurance with out-of-pocket maximum of 5% of income up to	693 children aged 0–13 years	United States—Seattle, Washington	Group model HMO associated with more well-child visits per year—significant: FFS plans that require cost sharing Free care vs. group model HMO—no difference HMO associated with greater utilization of polio and tetanus

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
			$1,000 to 95% coinsurance with out-of-pocket maximum of 15% of income up to $1,000) vs. control group composed of children enrolled in the group/staff model HMO			boosters—significant
Varghese et al., 2005	Colorectal cancer screening tests	Observational study—claims data	PPO vs. FFS where PPO provided more generous coverage for outpatient visits	264,504 adults aged 50–64 years who received health insurance through General Motors	United States—multiple sites	Coverage for office visits associated with greater probability of utilization—significant: colorectal cancer screening Lower coinsurance rate associated with greater probability of utilization—significant: colorectal cancer screening
Wang and Pauly, 2003	General physical examination, mammography, Pap smear, and blood pressure screening	Observational study—survey data	HMO vs. FFS	11,454 adults	United States—national sample	HMOs associated with greater probability of utilization—significant: periodic health exams, mammography for women aged 40-49 years, Pap smears, and blood pressure screening No difference in probability of utilization—mammography for women aged 30-39 years and 50-64 years
Zapka et al., 2002	Colorectal cancer screening tests	Observational study—survey data	Comparison of 7 groups of subjects based on health insurance status and cost sharing: (1) private HMO—pays	1,002 adults aged 50 or older (separate analyses for ages 5–64 years and 65 years or older)	United States—Massachusetts	Coverage for colorectal cancer screening tests associated with greater probability of utilization—significant. No difference in utilization by

Citation	Type of Preventive Service	Type of Study	Intervention vs. Control Group	Population Studied	Location	Findings
			for one or more tests, (2) private HMO—does not pay for tests, (3) private non-HMO—pays for one or more tests, (4) private non-HMO—does not pay for tests, (5) Medicaid and/or Medicare/other—pays for one or more tests, (6) Medicaid and/or Medicare/other—does not pay for tests, and (7) uninsured			persons enrolled in private HMOs and private non-HMO plans

Appendix C: Cost Impact Analysis: Caveats and Assumptions

This appendix describes caveats and assumptions used in conducting the cost impact analysis, including those presented in Appendix C. For additional information on the cost model and underlying methodology, please refer to the CHBRP Web site, http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php

The cost analysis in this report was prepared by Milliman and University of California, Los Angeles (UCLA), with the assistance of CHBRP staff. 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. In preparing cost estimates, Milliman and UCLA relied on a variety of external data sources. The *Milliman Health Cost Guidelines* (HCG) were used 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. Although this data was reviewed for reasonableness, it was used without independent audit.

General Caveats and Assumptions

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 before and after the mandate different from our assumptions.
- Utilization of mandated services before and after the mandate different from our assumptions.
- Random fluctuations in the utilization and cost of health care services.

Additional assumptions that underlie the cost estimates presented here are:

- Cost impacts are only shown for people with insurance.
- The projections do not include people covered under self-insurance employer plans because 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 be unaffected by the mandate.

There are other variables that may affect costs, but which Milliman 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 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, enrollees or insured 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). Milliman 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 postmandate 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 our cost estimates. 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 we modeled (HMO/POS and PPO/FFS), there are variations in utilization and costs within California. One source of difference is geographic. Utilization 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, we have estimated the impact on a statewide level.

Other Hypothetical Scenarios to Consider as Market Responses to AB 2281:
Summary of Other Preventive Services Findings: Scenarios #3 and #4

Scenarios #1 and #2 in the analysis show the upper and lower bounds of projected impact of AB 2281 based on how insurers might respond specifically to this legislation. But AB 2281 may have other impacts on the types of HDHP plans offered that are not captured by these Scenarios #1 and #2. CHBRP has modeled these other impacts using Scenarios #3 and #4. Scenario #3 shows the difference in PMPM premiums between current HDHPs and a hypothetical minimal-coverage HDHP that offers only currently mandated preventive services and subject to the deductible (i.e., the pre-mandate floor). This scenario can be interpreted as the potential savings in premiums achievable by HDHPs if AB 2281 was not enacted. Scenario #4 shows the difference in PMPM premiums between the floor mandated by AB 2281 (Scenario #2) and the pre-mandate floor. This scenario can be interpreted as the potential savings attributable solely to subjecting preventive services to the deductible, or conversely, the cost of requiring coverage for preventive services exempt from the deductible, if an insurer offered no coverage exempt from the deductible. Both Scenarios #3 and #4, in contrast to Scenarios #1 and #2, are hypothetical, because they do not represent actual HDHPs currently offered in the California market.

Although CHBRP estimates that under Scenarios #1 and #2 AB 2281 would not have a large impact on total health expenditures or premiums, the proposed legislation may have an effect of discouraging lower-cost (i.e. those with low monthly premiums) HDHPs from being offered in the California market. According to CHBRP's survey of California health plans and insurers,

while there is variation, most currently offer HDHPs with coverage for many of the preventive services identified in AB 2281 and exempt those services from the deductible. For example, if AB 2281 were not to pass into law and an insurer was interested in offering a minimal-coverage HDHP with only those preventive services currently mandated under California law and with all those preventive services subject to a deductible, there would be a reduction in premiums associated with HDHP that offer these types of plans. CHBRP estimates that the potential reduction in premiums would range from $4.05 to $4.80 PMPM, depending on the type of market and insurer. CHBRP also estimates that the difference in premiums between minimal-coverage HDHPs with preventive services *subject* to a deductible and minimal-coverage HDHP with preventive services *exempt* from the deductible. The premium difference range from $0.87 to $4.13 PMPM, depending on the type of market and insurer. Therefore, AB 2281 may discourage insurers from offering lower-cost HDHPs with less extensive coverage for preventive services in the future, and the impact of AB 2281 on such low-cost health insurance products would be greater than the impact on "average" health insurance products offered currently. See Table C-1 for a summary of how these estimates were calculated.

Table C-1. Impacts of Different Levels of Coverage for Preventive Services and Different Levels of Deductibles on PMPM Premiums, by Type of Market and Type of Insurance Product

	Large Group		Small Group		Individual	
Level of Coverage for Preventive Services and Deductible	**HMO**	**PPO**	**HMO**	**PPO**	**HMO**	**PPO**
1. Plans Reduce Coverage to Only Mandated Preventive Services with All Preventive Services Subject to Annual Deductible (Floor Without AB 2281)	$2.66	$1.61	$2.66	$1.61	$2.66	$0.75
2. Plans Reduce Coverage to Only Mandated Preventive Services with No Deductible (Floor Under AB 2281) (Scenario #2)	$6.79	$3.50	$6.79	$3.50	$6.79	$1.62
3. Current Coverage (CHBRP estimate based on survey of health plans)	$7.46	$6.37	$7.31	$5.66	$7.31	$5.07
4. Plans Expand Coverage to All Preventive Services with No Deductible (Maximum Coverage)	$7.63	$6.58	$7.63	$6.58	$7.63	$6.58
Scenario #3: Difference Between Current Coverage and Floor Without AB 2281 (= #3 - #1)	$4.80	$4.76	$4.65	$4.05	$4.65	$4.32
Scenario #4: Difference Between Floor Under AB 2281 and Floor Without AB 2281 (= #2 - #1)	$4.13	$1.89	$4.13	$1.89	$4.13	$0.87

Source: California Health Benefits Review Program, 2006.

Appendix D: Information Submitted by Outside Parties for Consideration for CHBRP Analysis

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.

No information was submitted directly by interested parties for this analysis.

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

Appendix E: AB 2281 Provisions for Preventive Services, US Preventive Services Task Force Recommendations (USPTF), and Preventive Services Mandated Under Current Law

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
Periodic health evaluations, annual physicals Health & Safety Code 1374.19(b)(2)(A) Insurance Code 10238.2(b)(1)	No general recommendations; only for specific services included in a periodic health examination.	Yes	Yes – DMHC (reg. 1300.67) requirement for "preventive health services" includes "reasonable health appraisal examinations on a periodic basis"	Yes – for children 16 and under in *group policy* (IC 10123.5). Mandated *offering* for age 17 and 18 in *group policy* (IC 10123.55)
Routine prenatal care Health & Safety Code 1374.19(b)(2)(B) Insurance Code 10238.2(b)(2)	No general recommendations for prenatal care – see section on obstetric and gynecological conditions for recommendations regarding specific screening tests.	Not applicable	Yes – DMHC (reg. 1300.67) requirement for "preventive health services" includes "prenatal care"	No
Well-child care Health & Safety Code 1374.19(b)(2)(B) Insurance Code 10238.2(b)(2)	No general recommendations for children – see section on vision and hearing disorders for recommendations regarding specific screening tests	Not applicable	Yes – assumed under Knox-Keene (HSC 1365) requirement for "basic health care services"	Yes – mandated benefit of "comprehensive preventive care" for children age 16 and under in *group policy* per American Academy of Pediatric guidelines (IC 10123.5); mandated *offering* for age 17 and 18 in *group policy* (IC 10123.55)
Immunizations: Child	DPT, oral poliovirus, MMR, influenza, hepatitis A, hepatitis B, varicella,	Yes – DPT, oral poliovirus, MMR, conjugate haemophilus influenza	Yes – DMHC (reg. 1300.67) requirement for "preventive health services" includes immunizations for	Yes – mandated benefit for "comprehensive preventive care" for children 16 and under in *group*

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
Health & Safety Code 1374.19(b)(2)(C) Insurance Code 10238.2(b)(3)	and pneumococcal vaccine[31]	type b, hepatitis B, and varicella – all children Hepatitis A, pneumococcal and influenza vaccines –children at high risk	children per the American Academy of Pediatrics	*policy* (IC 10123.5). Should be consistent with American Academy of Pediatrics, American Academy of Family Physicians, unless State Department of Health says otherwise within 45 days of published schedule. Mandated *offering* for 17 and 18 in *group policy* (IC 10123.55).
Immunizations: Adult Health & Safety Code 1374.19(b)(2)(C) Insurance Code 10238.2(b)(3)	Influenza, hepatitis A, hepatitis B, varicella, pneumococcal, tetanus-diphtheria, Bacille Calmette-Guérin (BCG) (tuberculosis vaccine), rubella	Yes – Tetanus/diphtheria – all adults with periodic boosters Pneumococcal and influenza vaccines – all adults age 65 or older and younger adults at high risk Rubella – nonpregnant women of child-bearing age Hepatitis A, varicella, BCG (tuberculosis) - adults at high risk Hepatitis B – young adults not previously immunized	Yes – DMHC (reg. 1300.67) requirement for "preventive health services" includes adult immunizations per the U.S. Public Health Service	No
Tobacco cessation programs Health & Safety Code	Screening for tobacco use	Yes – adults No – children (due to lack of evidence)	No	No

[31] In addition to the immunizations recommended by the USPSTF, the American Academy of Pediatrics recommends that all children receive meningococcal conjugate vaccine, and that hepatitis A and pneumoccoccal conjugate vaccine be administered to all children not just those at high risk.

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
1374.19(b)(2)(D) Insurance Code 10238.2(b)(4)	Tobacco cessation interventions	Yes – adults No – children (due to lack of evidence)	No	No
Obesity weight-loss programs Health & Safety 1374.19(b)(2)(E) Insurance Code 10238.2(b)(5)	Screening for obesity	Yes – adults	Yes – assumed covered by DMHC (reg. 1300.67) requirement for "health appraisal examinations on a periodic basis"	No
	Intensive counseling and behavioral intervention to achieve and maintain weight loss	Yes – obese adults No – overweight adults	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services", which includes "health education services"	No
Screening: Cancer[32] Health & Safety Code 1374.19(b)(2)(F)(i) Insurance Code 10238.2(b)(6)(A)	Cancer screening, general	Not applicable; only issues recommendations on specific tests	Yes – for *generally medically accepted* cancer screening (HSC 1367.665)	Yes – for *generally medically accepted* cancer screening (IC 10123.8)
	Clinical breast exam	No	Yes – breast cancer benefits (HSC 1367.6)	Yes – breast cancer benefits (IC 10123.8)
	Mammography	Yes – women age 40 or older, every 1 to 2 years	Yes – specific mandate (HSC 1367.65)	Yes – specific mandate (IC 10123.81)
	Cervical cancer screening	Yes – sexually active women under age 65 who have not had a total hysterectomy for benign disease and older women at high risk for cervical cancer	Yes – specific mandate for annual screening (HSC 1367.66)	Yes – specific mandate for annual screening that applies if a plan covers treatment/surgery for cervical cancer (IC 10123.18)
	Colorectal cancer screening[33]	Yes – adults age 50 or older	Yes – assumed benefit (HSC 1367.665)	Yes – assumed benefit (IC 10123.8)
	Prostate cancer screening	No	Yes – specific mandate (HSC 1367.64)	Yes – specific mandate (IC 10123.83)
	Bladder cancer screening	No – adults	No – assumed	No – assumed
	Lung cancer screening	No	No – assumed	No – assumed

[32] Cancer screening tests that are recommended by USPSTF are assumed to be mandated under the requirement for coverage of "generally medically accepted" cancer screening (HSC 1367.665); others are assumed to not be mandated unless there is a separate specific mandate.

[33] Note that this is a general recommendation for colorectal cancer screening and not a specific recommendation for colonoscopy. This version of the USPSTF does not endorse any specific screening test but instead discusses the advantages and disadvantages of all of them.

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
	Oral cancer screening	No	No – assumed	No – assumed
	Ovarian cancer screening	No	No – assumed	No – assumed
	Pancreatic cancer screening	No	No – assumed	No – assumed
	Skin cancer screening	No	No – assumed	No – assumed
	Testicular cancer screening	No	No – assumed	No – assumed
Screening: Heart and vascular disease Health & Safety Code 1374.19(b)(2)(F)(ii) Insurance Code 10238.2(b)(6)(B)	Screening for hypertension	Yes – adults	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" (including services for the detection of asymptomatic disease)	No
	Screening for lipid disorders	Yes – all men aged 35 or older and all women aged 45 or older; and men aged 20 to 35 and women aged 20 to 45 who have other risk factors for coronary heart disease	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" (incl. services for the detection of asymptomatic disease)	No
	Routine screening for coronary stenosis or coronary heart disease	No	No – assumed	No
Screening: Infectious disease Health & Safety Code 1374.19(b)(2)(F)(iii) Insurance Code 10238.2(b)(6)(C)	Screening for asymptomatic bacteriuria	Yes – pregnant women No – women who are not pregnant; and men	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" including "prenatal care"	No
	Screening for chlamydial infection	Yes – all sexually active women age 25 or younger and older women at increased risk of infection	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" including "venereal disease tests"	No
	Screening for syphilis	Yes – pregnant women and persons at increased risk of infection No – persons who are not pregnant or at high risk	Yes – assumed benefit under Knox-Keene (reg. 1300.67) requirement for "preventive health services" includes "venereal disease tests"	No

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
	Screening for gonorrhea	Yes – women at high risk	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" includes "venereal disease tests"	No
	Screening for HIV	Yes – persons at increased risk	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" includes "venereal disease tests"	No
	Screening for tuberculosis	Yes – persons at increased risk	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services"	No
	Screening for hepatitis B	Yes – pregnant women No – persons other than pregnant women	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" including "venereal disease tests"	No
	Screening for hepatitis C	No	Yes – assumed benefit under DMHC (reg. 1300.67) requirement for "preventive health services" including "venereal disease tests"	No
Screening: Mental health Health & Safety Code 1374.19(b)(2)(F)(iv) Insurance Code 10238.2(b)(6)(D)	Screening for depression	Yes – adults No – children and adolescents (due to insufficient evidence)	No	No
	Routine screening for suicide risk	No	No	No
	Routine screening of older adults for dementia	No	No	No
Screening: Substance abuse Health & Safety Code 1374.19(b)(2)(F)(v) Insurance Code 10238.2(b)(6)(E)	Screening and behavioral counseling regarding alcohol misuse	Yes – adults No – adolescents (due to insufficient evidence)	Yes – assumed covered under mandated *offering* for treatment of alcoholism (HSC 1367.2) and health education (reg. 1300.67)	Yes – assumed covered under mandated *offering* for treatment of alcoholism (IC 10123.6)

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	Specific Preventive Service Assessed by USPSTF	USPSTF Recommendation on Specific Preventive Service	Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?	Mandated in the California Insurance Code (IC)?
Screening: Metabolic, nutritional, and endocrine condition Health & Safety Code 1374.19(b)(2)(F)(vi) Insurance Code 10238.2(b)(6)(F)	Behavioral counseling to promote a healthy diet	Yes – adults with hyperlipidemia and other risk factors for cardiovascular disease or other diet related disease No – general population	Yes – assumed covered under DMHC (reg. 1300.67) requirement for "preventive health services", which includes "health education services"	No
	Screening for diabetes	Yes – adults with hypertension or hyperlipidemia No – general population	Yes – assumed covered for subpopulation under DMHC (reg. 1300.67) requirement for "preventive health services"	No
Screening: Musculoskeletal disorder screening Health & Safety 1374.19(b)(2)(F)(vii) Insurance Code 10238.2(b)(6)(G)	Routine screening for osteoporosis	Yes – women aged 65 or older and women 60 to 64 years at increased risk for osteoporotic fractures No – women under age 60 and women 60 to 64 years who are not at increased risk	No – specific mandate is for osteoporosis management only (HSC 1367.67)	No – specific mandate for osteoporosis management only (IC 10123.185)
	Screening asymptomatic adolescents for idiopathic scoliosis	No	No – assumed not mandated because of lack of recommendation.	No – assumed not mandated because of lack of recommendation.
Screening: Obstetric and gynecological Health & Safety Code 1374.19(b)(2)(F)(viii) Insurance Code 10238.2(b)(6)(H)	Screening for neural tube defects	Yes – Recommended for all pregnant women	Yes – specific mandate for coverage of expanded alpha fetoprotein prenatal testing (HSC 1367.54)	Yes – specific mandate for coverage of expanded alpha fetoprotein prenatal testing (IC 10123.184)
	Screening for anemia	Yes – pregnant women	Yes – assumed covered under the DMHC (reg. 1300.67) requirement for "preventive health services" which includes "prenatal care"	No
	Screening for preeclampsia with blood pressure monitoring	Yes – pregnant women	Yes – assumed covered under the DMHC (reg. 1300.67) requirement for "preventive health services" which includes "prenatal care"	No

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
	Screening for Downs syndrome	Yes – pregnant women especially age 35 or older	Yes – assumed covered under the DMHC (reg. 1300.67) requirement for "preventive health services" which includes "prenatal care"	No
	Rh (D) blood typing and antibody testing	Yes – pregnant women	Yes – assumed covered under the DMHC (reg. 1300.67) requirement for "preventive health services" which includes "prenatal care"	No
	Screening for hemoglobinopathies	Yes – pregnant women	Yes – assumed covered under the DMHC (reg. 1300.67) requirement for "preventive health services" which includes "prenatal care"	No
	Screening pregnant women for bacterial vaginosis	No	No – assumed not mandated because of lack of recommendation.	No
	Routine screening of pregnant women for gestational diabetes	No	No – assumed not mandated because of lack of recommendation.	No
Screening: Pediatric conditions Health & Safety Code 1374.19(b)(2)(F)(ix) Insurance Code 10238.2(b)(6)(I)	No general recommendations for children; specific recommendations for vision and hearing screening discussed below	Not applicable	Yes – DMHC (reg. 1300.67) assumed benefit for "preventive health services"	Yes – assumed benefit under mandate for "comprehensive preventive care" for children age 16 in *group policy* per American Academy of Pediatric guidelines (IC 10123.5). Mandated *offering* for ages 17 and 18 in *group policy*
	Screening for congenital Hypothyroidism	Yes – newborn infants	Yes – DMHC (reg. 1300.67) assumed benefit for "preventive health services"	Yes – assumed benefit under mandate for "comprehensive preventive care" for children age 16 in *group policy* per American Academy of Pediatric guidelines (IC 10123.5). Mandated *offering* for ages 17 and 18 in *group policy*
	Screening for phenylketornuria	Yes – newborn infants	Yes – specific mandate (HSC 1374.56)	Yes – specific mandate (IC 10123.89)

Type of Preventive Service Listed in AB 2281 *Proposed* code section additions	**Specific Preventive Service Assessed by USPSTF**	**USPSTF Recommendation on Specific Preventive Service**	**Mandated in California Health and Safety Code (HSC) (i.e., Knox-Keene Plans)?**	**Mandated in the California Insurance Code (IC)?**
	Screening for blood lead levels	Yes – children at high risk	Yes – mandated *offering* for screening for blood lead levels (HSC 1367.3(b)(2)(D))	Yes – mandated *offering* for screening for blood lead levels (IC 10119.8)
	Not addressed	Not applicable	Yes – mandated *offering* for prenatal genetic testing (HSC 1367.7)	Yes – mandated *offering* for prenatal genetic testing (IC 10123.9)
Screening: Vision and hearing disorder Health & Safety Code 1374.19(b)(2)(F)(ix) Insurance Code 10238.2(b)(6)(I)	Screening children under age 5 for amblyopia, strabismus, and defects in visual acuity	Yes	Yes – DMHC definition (reg. 1300.67) of "preventive health services" covers vision testing for children through age 16	Yes – assumed under the mandate for coverage of "comprehensive preventive care" for children age 16 or under in *group policy* per American Academy of Pediatric guidelines (IC 10123.5); mandated *offering* for ages 17 and 18 for *group policy* (IC 10123.55)
	Routine screening of newborns for hearing loss	No	Yes – assumed covered under DMHC definition (reg. 1300.67) of "preventive health services" covers hearing testing for children through age 16	Yes – assumed under the mandate for coverage of "comprehensive preventive care" for children age 16 or under in *group policy* per American Academy of Pediatric guidelines (IC 10123.5); mandated *offering* for ages 17 and 18 for *group policy* (IC 10123.55)

Source: Compiled from Health and Safety Code Sections 1365, 1367; CA Code of Regulations Section 1300.67; Insurance Code Section 10123.

Appendix F: Summary of the Internal Revenue Code Provisions on HDHP's Offering of Preventive Services

This appendix provides background information regarding federal provisions related to HDHPs and their coverage of preventive services. Section 1201 of the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003, Pub. L. No. 108-173 added section 223 to the Internal Revenue Code to permit individuals who meet certain eligibility criteria to establish Health Savings Accounts (HSAs) beginning January 1, 2004.

The federal tax code *permits* HDHPs to cover preventive services outside of the deductible but does not *require* that they do so. In addition, HDHPs are not mandated by federal requirement to cover preventive services. State laws may, however, mandate that preventive services not apply to the deductible so far as the services fall within the general set of preventive services that are listed below. These services are called "Safe Harbor Preventive Care," and the preventive services specified in AB 2281 reflect these categories of services.

Table F-1: Safe Harbor Preventive Care
Preventive care for purposes of section 223(c)(2)(C) includes, but is not limited to, the following: • Periodic health evaluations, including tests and diagnostic procedures ordered in connection with routine examinations, such as annual physicals. • Routine prenatal and well-child care. • Child and adult immunizations. • Tobacco cessation programs. • Obesity weight-loss programs. • Screening services (see below). However, preventive care does not generally include any service or benefit intended to treat an existing illness, injury, or condition.
Safe Harbor Preventive Care Screening Services
Cancer Screening
Breast Cancer (e.g., Mammogram)
Cervical Cancer (e.g., Pap Smear)
Colorectal Cancer
Prostate Cancer (e.g., PSA Test)
Skin Cancer
Oral Cancer
Ovarian Cancer
Testicular Cancer
Thyroid Cancer

Safe Harbor Preventive Care Screening Services (cont.)
Heart and Vascular Diseases Screening
Abdominal Aortic Aneurysm
Carotid Artery Stenosis
Coronary Heart Disease
Hemoglobinopathies
Hypertension
Lipid Disorders
Infectious Diseases Screening
Bacteriuria
Chlamydial Infection
Gonorrhea
Hepatitis B Virus Infection
Hepatitis C
Human Immunodeficiency Virus (HIV) Infection
Syphilis
Tuberculosis Infection
Mental Health Conditions and Substance Abuse Screening
Dementia
Depression
Drug Abuse
Problem Drinking
Suicide Risk
Family Violence
Metabolic, Nutritional, and Endocrine Conditions Screening
Anemia, Iron Deficiency
Dental and Periodontal Disease
Diabetes Mellitus
Obesity in Adults
Thyroid Disease
Musculoskeletal Disorders Screening
Osteoporosis
Obstetric and Gynecologic Conditions Screening
Bacterial Vaginosis in Pregnancy
Gestational Diabetes Mellitus
Home Uterine Activity Monitoring
Neural Tube Defects
Preeclampsia
Rh Incompatibility
Rubella
Ultrasonography in Pregnancy

Safe Harbor Preventive Care Screening Services (cont.)
Pediatric Conditions Screening
Child Developmental Delay
Congenital Hypothyroidism
Lead Levels in Childhood and Pregnancy
Phenylketonuria
Scoliosis, Adolescent Idiopathic
Vision and Hearing Disorders Screening
Glaucoma
Hearing Impairment in Older Adults
Newborn Hearing

Source: Internal Revenue Bulletin: 2004-15, April 12, 2004, Notice 2004-23
Health Savings Accounts—Preventive Care. From http://www.irs.gov/irb/2004-15_IRB/ar10.html, accessed March 17, 2006.

While the guidance above states that, "preventive care does not generally include any service or benefit intended to treat an existing illness, injury, or condition," select prescription drugs that prevent disease or recurrence of disease may also be excluded from the deductible. For example prescription drugs to control asthma in children or insulin to manage diabetes help prevent a disease from reaching an acute point where emergency care or hospitalization may be required (Davis et al, 2005).

REFERENCES

Assembly Bill No. 2281. California Legislature—2005-06 Regular Session. P1-10.

Benjamins MR, Kirby JB, Bond Huie SA. County characteristics and racial and ethnic disparities in the use of preventive services. *Preventive Medicine*. 2004;39:704-712.

Boyle R, Solberg L, Magnan S, Davidson G, Alesci N. Does insurance coverage for drug therapy affect smoking cessation? *Health Affairs.* 2002;21:162-168.

Buntin MB, Damberb C, Haviland A, et al. *"Consumer-Directed" Health Plans: Implications for Health Care Quality and Cost*. Oakland, CA: Rand, California Health Care Foundation; June 2005. Available at: http://ww.chcf.org/documents/insurance/ConsumerDirHealthPlansQualityCost.pdf. Accessed April 12. 2006.

California Department of Insurance (CDI). *Dangerous Prescription: An Assessment of Health Savings Accounts and Their Impact on the Health Care System.* Report of the California Department of Insurance. January 2006. Available at: http://www.insurance.ca.gov/0400-news/0100-press-releases/0070-2006/upload/Jan_06_Dangerous_Prescriptions.pdf. Accessed April 12, 2006.

California Health Benefits Review Program (CHBRP). *Analysis of Assembly Bill 576: Health Care Coverage: Tobacco Cessation Services*. Oakland, CA: CHBRP; 2005. Available at: http://www.chbrp.org/completed_analyses/index.php Accessed April 12, 2006.

Cherkin DC, Grothaus L, Wagner EH. The effect of office visit copayments on preventive care services in an HMO. *Inquiry.* 1990;27:24-38.

Christianson JB, Parente ST, Feldman R. Consumer experience in a consumer-driven health plan. *Health Services Research.* 2004;39:1123-1139.

Claxton G, Gabel J, Gil I, et al. What high-deductible plans look like: Findings from a national survey of employers, 2005. *Health Affairs*. (Web exclusive). 2005. DOI: 10.1377/hlthaff.w5.434.

Claxton G, Gil I, Finder B, et al. *Employer Health Benefits 2005 Annual Survey*. Menlo Park, CA: Kaiser Family Foundation and Health Research and Educational Trust; 2005. Available at: http://www.kff.org/insurance/7315/upload/7315.pdf. Accessed April 12, 2006.

Chu SY, Barker LE, Smith PJ. Racial/ethnic disparities in preschool immunizations: United States, 1996-2001. *American Journal of Public Health.* 2004;94:973-977.

Curry S, Grothaus L, McAfee T, Pabiniak C. Use and cost effectiveness of smoking-cessation services under four insurance plans in a health maintenance organization. *New England Journal of Medicine.* 1998;339:673-679.

Davis K. Consumer-directed health care: Will it improve health system performance? *Health Services Research*. 2004;39:1219-1234.

Davis, K, Doty M, Ho A. How high is too high? Implications of high-deductible health plans. *Commonwealth Fund publication no. 816.* Commonwealth Fund; April 2005. Available at: http://www.cmwf.org/publications/publications_show.htm?doc_id=274007. Accessed April 12, 2006.

DeLaet DE, Shea S, Carrasquillo O. Receipt of preventive services among privately insured minorities in managed care versus fee-for-service insurance plans. *Journal of General Internal Medicine.* 2002;17:451-457.

Faulkner LA, Schauffler HH. The effect of health insurance coverage on the appropriate use of recommended clinical preventive services. *American Journal of Preventive Medicine.* 1997;13:453-458.

Flocke SA, Gilchrist V. Physician and patient gender concordance and the delivery of comprehensive clinical preventive services. *Medical Care.* 2005;43:486-492.

Fowles JB, Kind EA, Braun BL, Bertko J. Early experience with employee choice of consumer-directed health plans and satisfaction with enrollment. *Health Services Research.* 2004;39:1141-1158.

Friedman C, Ahmed F, Franks A, et al. Association between health insurance coverage of office visit and cancer screening among women. *Medical Care.* Nov 2002;40:1060-1067.

Fronstin P, Collins SR. Early experience with high-deductible and consumer-driven health plans: Findings from the EBRI/Commonwealth Fund Consumerism in Health Care Survey. *EBRI Issue Brief.* December 2005;288:4-28. Available at: http://www.ebri.org/pdf/briefspdf/EBRI_IB_12-2005.pdf. Accessed April 12, 2006.

General Accountability Office (GAO). *Federal Employee Health Benefits Program. Early Experience with a Consumer-Directed Health Plan.* Report to the Ranking Minority Member, Committee on Finance, U.S. Senate. Washington, D.C: GAO; November 2005. GAO-06-143. Available at: http://www.gao.gov/new.items/d06143.pdf. Accessed April 12, 2006.

Government Accountability Office (GAO). *Federal Employees Health Benefits Program: First-Year Experience with High-Deductible Health Plans and Health Savings Accounts.* January 2006. Washington D.C. GAO-06-271. Available at: http://www.gao.gov/new.items/d06271.pdf. Accessed April 12, 2006.

Gordon NP, Rundall TG, Parker L. Type of health care coverage and the likelihood of being screened for cancer. *Medical Care.* 1998;36:636-645.

Haas JS, Phillips KA, Sonneborn D, McCulloch CE, Liang SY. Effect of managed care insurance on the use of preventive care for specific ethnic groups in the United States. *Medical Care.* 2002;40:743-751.

Hahn DL, Olson N. The delivery of clinical preventive services: Acute care intervention. *Journal of Family Practice.* 1999;48:785-789.

Hsia J, Kemper E, Kiefe C, et al. The importance of health insurance as a determinant of cancer screening: Evidence from the Women's Health Initiative. *Preventive Medicine.* 2000;31:261-270.

Hughes J, Wadland W, Fenwick J, Lewis J, Bickel W. Effect of cost on the self-administration and efficacy of nicotine gum: A preliminary study. *Preventive Medicine.* 1991;20:486-496.

Keeler EB, Sloss EM, Brook RH, Operskalski BH, Goldberg GA, Newhouse JP. Effects of cost sharing on physiological health, health practices, and worry. *Health Services Research.* 1987;22:279-306.

Kelley E, Moy E, Stryer D, Burstin H, Clancy C. The national healthcare quality and disparities report: An overview. *Medical Care.* 2005;43(Suppl):I3-I8.

Lees KA, Wortley PM, Coughlin SS. Comparison of racial/ethnic disparities in adult immunization and cancer screening. *American Journal of Preventive Medicine.* 2005;29:404-411.

Leibowitz A, Manning WG Jr., Keeler EB, Duan N, Lohr KN, Newhouse JP. Effect of cost-sharing on the use of medical services by children: Interim results from a randomized controlled trial. *Pediatrics.* 1985;75:942-951.

Liang SY, Phillips KA, Tye S, Haas JS, Sakowski J. Does patient cost sharing matter? Its impact on recommended versus controversial cancer screening services. *American Journal of Managed Care.* 2004;10:99-107.

Lightwood JM, Glantz SA. (). Short-term economic and health benefits of smoking cessation: Myocardial infarction and stroke. *Circulation.* 1997;96:1089-1096.

Lillard LA, Manning WG, Peterson CE, Lurie N, Goldberg GA, Phelps CE. *Preventive Medical Care: Standards, Usage, and Efficacy*. Santa Monica, CA: The RAND Corporation; 1986. Document number R-3266-HCFA.

Lohr KN, Brook RH, Kamberg CJ, et al. Use of medical care in the Rand Health Insurance Experiment. Diagnosis- and service-specific analyses in a randomized controlled trial.

Medical Care. 1986;24(Suppl):S1-S87.

Lurie N, Kamberg CJ, Brook RH, Keeler EB, Newhouse JP. How free care improved vision in the health insurance experiment. *American Journal of Public Health.* 1989;79:640-642.

Lurie N, Manning WG, Peterson C, Goldberg GA, Phelps CA, Lillard L. Preventive care: Do we practice what we preach? *American Journal of Public Health.* 1987;77:801-804.

Newhouse JP, Insurance Experiment Group. *Free for all? Lessons from the Rand Health Insurance Experiment.* Cambridge, MA: Harvard University Press; 1993.

Office of Assemblywoman Wilma Chan. *AB 2281(Chan). High Deductible Health Plans: Consumer Protections* [fact sheet]. AB 2281 (As introduced on February 22, 2006).

Parente ST, Feldman R, Christianson JB. Employee choice of consumer-driven health insurance in a multiplan, multiproduct setting. *Health Services Research.* 2004;39:1091-1112.

Parente ST, Feldman R, Christianson JB. Evaluation of the effect of a consumer-driven health plan on medical care expenditures and utilization. *Health Services Research.* 2004;39:1189-1209.

Phillips K, Fernyak S, Potosky A, Schauffler H, Egorin M. Use of preventive services by managed care enrollees: An updated perspective. *Health Affairs.* 2000;19:102-116.

Potosky AL, Breen N, Graubard BI, Parsons PE. The association between health care coverage and the use of cancer screening tests: Results from the 1992 National Health Interview Survey. *Medical Care.* 1998;36:257-270.

Reschovsky JD, Kemper P, Tu H. Does type of health insurance affect health care use and assessments of care among the privately insured? *Health Services Research.* 2000;35:219-237.

Rice T, Morrison KR. Patient cost sharing for medical services: A review of the literature and implications for health care reform. *Medical Care Review.* 1994;51:235-287.

Schauffler HH, McMenamin S. Assessing PPO performance on prevention and population health. *Medical Care Research and Review.* 2001;58(Suppl 1):112-136.

Schauffler HH, McMenamin S, Olson K, Boyce-Smith G, Rideout J, Kamil J. Variations in treatment benefits influence smoking cessation: Results of a randomized controlled trial. *Tobacco Control.* 2001;10:175-180.

Schauffler HH, Rodriguez T. Managed care for preventive services: A review of policy options. *Medical Care Review.* 1993;50:153-198.

Solanki G, Schauffler HH. Cost-sharing and the utilization of clinical preventive services.

American Journal of Preventive Medicine. 1999;17:127-133.

Solanki G, Schauffler HH, Miller LS. The direct and indirect effects of cost-sharing on the use of preventive services. *Health Services Research.* 2000;34:1331-1350.

Tollen LA, Ross MN, Poor S. Risk segmentation related to the offering of a consumer-directed health plan: A case study of Humana Inc. *Health Services Research.* 2004;39:1167-1188.

Tu H, Kemper P, Wong H. Do HMOs make a difference? Use of health services. *Inquiry.* 1999;36:400-410.

Tye S, Phillips KA, Liang SY, Haas JS. Moving beyond the typologies of managed care: The example of health plan predictors of screening mammography. *Health Services Research.* 2004;39:179-206.

United States Preventive Services Task Force (USPSTF). *Guide to Clinical Preventive Services, Second Edition: Report of the U.S. Preventive Services Task Force*. Washington, DC: Agency for Healthcare Research and Quality; 1996. Available at: http://www.ahrq.gov/clinic/cpsix.htm. Accessed April 12, 2006.

United States Preventive Services Task Force (USPSTF). *The Guide to Clinical Preventive Services 2005: Recommendations of the U.S. Preventive Services Task Force.* Washington, DC: Agency for Healthcare Research and Quality; 2005. Available at: http://www.ahrq.gov/clinic/pocketgd.pdf. Accessed April 12, 2006.

Valdez RB, Ware JE Jr., Manning WG, et al. Prepaid group practice effects on the utilization of medical services and health outcomes for children: Results from a controlled trial. *Pediatrics.* 1989;83:168-180.

Varghese RK, Friedman C, Ahmed F, Franks AL, Manning M, Seeff LC. Does health insurance coverage of office visits influence colorectal cancer testing? *Cancer Epidemiology Biomarkers & Prevention.* 2005;14:744-747.

Wang YR, Pauly MV. Difference in the use of preventive services between fee-for-service plans and HMOs: Is more better? *American Journal of Managed Care.* 2003;9:293-301.

Zapka JG, Puleo E, Vickers-Lahti M, Luckmann R. Healthcare system factors and colorectal cancer screening. *American Journal of Preventive Medicine.* 2002;23:28-35.

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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 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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