



Appendix 14: Assessing the Public Health Impact of State Health Benefit Mandates, *Including* Guidelines for Estimating Impacts of Benefit Mandates on Gender and Racial Disparities

These papers summarize the methods by which the California Health Benefits Review Program (CHBRP) assesses the impact of benefit mandates on the public health of the state's population.

The first paper, "Assessing the Public Health Impact of State Health Benefit Mandates," was published in a special issue of *Health Services Research* in June, 2006, and remains an accurate summary of CHBRP's public health impact approach.

The second paper, "Guidelines for Estimating Impacts of Benefit Mandates on Gender and Racial Disparities," specifically describes CHBRP's approach to analyzing the impact of proposed benefit mandate on health disparities across gender and racial/ethnic groups.

Assessing the Public Health Impact of State Health Benefit Mandates

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Objective. To document the process used in assessing the public health impact of proposed health insurance benefit mandates in California as part of the California Health Benefits Review Program (CHBRP) to serve as a guide for other states interested in incorporating a public health impact analysis into their state mandated benefit review process.

Background. As of September 2004, of the 26 states that require reviews of mandated benefit legislation, 25 required an assessment of the cost impact, 12 required an assessment of the medical efficacy, and only 6 had language requiring an assessment of the public health impact.

Methodology. This paper presents the methodology used to calculate the overall public health impact of each mandate. This includes a discussion of data sources, required data elements, and the methods used to quantify the impact of a mandated health insurance benefit on: overall public health, on gender and racial disparities in health outcomes, on premature death, and on the economic loss associated with disease. In addition we identify the limitations of this type of analysis.

Conclusions. The approach that California has adopted to review proposed health benefit mandates represents a leap forward in its consideration of the impact of such mandates on the health of the population. The approach is unique in its specific requirements to address public health impacts as well as the attempt to quantify these impacts by the CHBRP team. The requirement to make available this information to the state government has the potential, ultimately, to increase the availability of health insurance products in California that will maximize public health.

Key Words. Mandated benefits, health insurance policy, public health impacts

In the early 1990s, when the U.S. was considering comprehensive health care reform legislation under the Clinton Administration, public health professionals rallied to demand that the public's health be a key consideration in the redesign of the system (APHA 1993; Partnership for Prevention 1993; Warner and Warner 1993; Schauffler et al. 1994). The issues and concerns of the public health community ranged from securing adequate resources to perform basic public health functions, to collecting more comprehensive data to monitor

changes in the public's health, to obtaining comprehensive coverage for preventive care to promote the public's health. The common refrain at the time was, "Where is the health in health care reform?" (Fielding and Halfon 1994).

Concerns about access and the costs of care dominated the public policy debate leaving little room for questions about the effectiveness or quality of care and little to no discussion of how the proposed reforms might affect the health of the American people. While public health advocates were successful in getting many of their proposed reforms into the health care reform bills that were considered on the floor of the U.S. Senate and House of Representatives in 1994, ultimately no comprehensive health care reform legislation was enacted (Schauffler 1997). Since this time, very little attention has been given to questions of how proposed health care reforms might affect the health of the population at the state or national level.

The enactment of state mandated benefit review laws has provided an opportunity to integrate measures of public health impacts into health care reforms. Unfortunately, few states have included comprehensive requirements to assess the impact of state benefit mandates on the public's health. Of the 26 states that require reviews of mandated benefit legislation, 25 require an assessment of the cost impact, 12 require an assessment of the medical efficacy, and only six have language requiring an assessment of the public health impact (Bellows, Halpin, and McMenamain 2006). Table 1 presents the specific requirements of these six states to address public health impacts in preparing a mandated benefit review—additional requirements to address cost and medical efficacy are not discussed in this paper. In reference to public health impacts, the Minnesota law states that the review must include the "public health impacts" of the proposed mandate, but gives no further information as to how these impacts should be defined (Minnesota Statutes, Chapter 62J, Section 26). Three of the other states (Maine, Massachusetts, and Washington) are similarly vague, requiring that the review examine the impact on the "health status" of the population (Maine Revised Statutes, Title 24A, Chapter 33, Section 2752; General Laws of Massachusetts, Title 1, Chapter 3, Section 38C; Revised Code of Washington, Title 48, Chapter 48.47,

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Table 1: Specific Language Used in Mandate Benefit Review Laws in States Where Public Health Impact Is Addressed

State	Reference	Specific Language Regarding Public Health Impacts	Quantify PH Impact in Review
CA	California Law. Health and Safety Code 127660–127665	(1) The impact on the health of the community, including the reduction of communicable disease and the benefits of prevention such as those provided by childhood immunizations and prenatal care, (2) the impact on the health of the community, including diseases and conditions where gender and racial disparities in outcomes are established in peer-reviewed scientific and medical literature, and (3) the extent to which the proposed service reduces premature death and the economic loss associated with disease	Yes
HI	Hawaii Revised Statutes. Chapter 23, Sections 51–52	(1) The social impact (including) (H). The impact of providing coverage for the treatment or service (such as morbidity, mortality, quality of care, change in practice patterns, provider competition, or related items)	No
ME	Maine Revised Statutes. Title 24A, Chapter 33, Section 2752	(C) The medical efficacy of mandating the benefit, including (1) the contribution of the benefit to the quality of patient care and the health status of the population . . .	No
MA	Massachusetts General Laws of Massachusetts. Title 1, Chapter 3, Section 38C	(2) The medical efficacy of mandating the benefit, including the impact of the benefit to the quality of patient care and the health status of the population . . .	No
MN	Minnesota Statutes. Chapter 62J, Section 26	The evaluation must include . . . public health, economic, and fiscal impacts of the proposed mandate	No reviews have been conducted
WA	Revised Code of Washington. Title 48, Chapter 48.47, Sections 005–900	(C) Evidence of health care service efficacy: (iii) To what extent will the mandated benefit enhance the general health status of the state residents?	No

Note: These are only portions of the codes that refer specifically to either the public health impacts or health status of the population. This does not imply anything on the remaining requirements of a review such as cost or medical efficacy impacts.

Sections 005–900). Hawaii requires that the review include the impact of the mandate on “morbidity, mortality, or quality of care” (Hawaii Revised Statutes, Chapter 23, Sections 51–52). A review of the completed reviews produced by these states revealed that none of them produced a public health impact analysis that attempted to translate medical efficacy into population-based outcomes.

The level of detail required for the public health impact analysis in California’s statute, Assembly Bill (AB) 1996, is much more comprehensive compared with the five approaches mentioned above. AB 1996 specifies that these reports include an analysis of the public health impacts of proposed health benefit mandates including (a) the impact on the health of the community, including the reduction of communicable disease and the benefits of prevention such as those provided by childhood immunizations and prenatal care, (b) the impact on the health of the community, including diseases, and conditions where gender and racial disparities in outcomes are established in peer-reviewed scientific and medical literature, and (c) the extent to which the proposed service reduces premature death and the economic loss associated with disease. As shown in Table 1, only the reviews conducted in California have attempted to quantify the public health impacts as part of their standard MBR process.

The goal of this paper is to describe the methods used by the California Health Benefits Review Program (CHBRP) in conducting the public health impact analysis. This will serve as a guide for other states interested in incorporating a public health impact analysis into their state mandated benefit review process. This will include a discussion of data sources, required data elements, and the methods used to quantify the impact of a mandated health benefit on: overall public health, on gender and racial disparities in health outcomes, on premature death, and on the economic loss associated with disease. In addition this paper will identify the limitations of the public health impact analysis conducted by the CHBRP program. Finally, we will conclude with a discussion of the role that a public health impact analysis can play in the health policy making process and political debate (Table 2).

METHODS

AB 1996 did not specify the methods by which any of the three analyses (cost, medical effectiveness, or public health) are to be conducted, instead relying on the researchers in the University of California schools of medicine and public

Table 2: Calculated Public Health Impact of Osteoporosis Legislation on Hip Fractures

<i>Calculated 1 Year Postmandate</i>	
Target population: privately insured women ages 50–64	1.8 million
Newly covered (89% of target pop not currently covered)	1.6 million
Rate of screening among newly covered	30%
Newly screened (#)	480,000
Number of hip fractures prevented (1 prevented/3,750 screened)	128

Source: California Health Benefits Review Program. Analysis of Assembly Bill 438: Osteoporosis Screening. A report to the 2003–2004 California Legislature, February 2004.

health to develop the appropriate methods. After conducting the first 12 reviews in 2004, the public health team drafted a template based on this experience to be used as a starting point for all of the public health impact analyses. The five components of the public health impact section of the reviews (baseline health outcomes, impact on overall community health, impact on community health where gender and racial disparities exist, and reduction of premature death and the economic loss associated with disease) are described in detail below.

Present Baseline Health Outcomes

This first section of the public health impact analysis, “Present Baseline Health Outcomes,” describes (1) the baseline prevalence and incidence of the disease and related conditions, (2) the health outcomes related to the disease or condition such as morbidity, mortality, disability, and quality of life, and (3) the health care utilization related to the disease or condition such as physician visits, hospital visits, emergency department visits, and pharmaceutical use.

A three-tiered hierarchy is used to prioritize sources of incidence and prevalence data: Tier 1, state maintained registry (i.e., census of all persons with the disease of interest); Tier 2, California-specific estimates from population-based surveys; and Tier 3, national estimates from population-based surveys (where Tier 1 is the most preferred). State-level registries are the preferred source for prevalence and incidence data as they represent the entire population of persons with a disease or condition in the state. Unfortunately, statewide registries are limited to a small number of diseases and conditions. Of the CHBRP reviews conducted in 2004 and 2005, there have been two in which state-maintained registry data have been used to estimate the incidence

and prevalence of diseases: Autism Diagnosis (SB 749) and Ovarian Cancer Screening (AB 547). Autism data were obtained from regional center intake files that were used as a proxy for a registry of persons with autism in California (CHBRP 2005a). To estimate the rates of ovarian cancer in California, the California Cancer Registry data on the prevalence and incidence of specific cancers diagnosed in California each year were used (CHBRP 2004a).

Once it has been determined that no state-level registry exists, California-specific estimates from population-based surveys (Tier 2 data) are explored. The main source of California-specific estimates of health conditions and illnesses is the California Health Interview Survey (CHIS).¹ The CHIS is conducted every 2 years by the UCLA Center for Health Policy Research and it includes questions addressing the health status, health-related behaviors, insurance coverage, access to health care, and use of health care services of California children, adolescents, and adults. In 2001 and 2003, data were collected from approximately 55,000 randomly selected households in California. Data from CHIS can be stratified by gender, age, race, and ethnicity. To the extent that CHIS does not cover a specific health outcome of interest the annual California Behavioral Risk Factor Survey (BRFS) is used.² The BRFS dataset is much smaller (based on approximately 4,000 randomly selected adults), but it contains more specific information regarding health-related behaviors that directly relate to disease and injury. BRFS data can be stratified by gender, age, race, and ethnicity. The California BRFS is conducted annually by the Survey Research Group (SRG) under the California Department of Health Services Cancer Surveillance Section. When data on a specific illness or disease are not available in either the CHIS or BRFS datasets, literature reviews are conducted to find California-specific incidence and prevalence data in peer-reviewed journals.

National data are used for conditions or illnesses where no California-specific data exist. Datasets maintained by the National Center for Health Statistics such as the National Health Interview Survey, National Health and Nutrition Examination Survey, and National Vital Statistics System are consulted for applicable data. In addition, the Centers for Disease Control and Prevention (CDC) website is searched for potential sources of data, as are websites of national associations affiliated with the disease or condition of interest. Literature searches are also conducted to find studies of national incidence and prevalence rates published in peer-reviewed journals.

The section of the CHBRP report on baseline health outcomes also presents data on health outcomes associated with the disease such as morbidity and mortality. In consultation with the medical effectiveness team and a

clinical expert, a list of relevant health outcomes for each disease is developed. Morbidity data are searched using the same procedure outlined above for incidence and prevalence data. Data on mortality rates are available through the WONDER database query system, maintained by the CDC.³ This database contains mortality data from all death certificates filed in the United States for the years 1979 through 2002. Annual data on the number of deaths and death rates are available by underlying cause of death and can be stratified by state, age, race, and gender.

In addition to baseline data on disease-specific morbidity and mortality, health care utilization data are also presented. Health care utilization data such as rates of physician visits, emergency department visits, inpatient admissions and length of stay, and prescription drug use stratified by age, gender, condition, and type of health insurance are obtained from the Milliman U.S.A. Health Cost Guidelines database.⁴ Most of these data are from traditional indemnity-style plans and PPO plans. Adjustments to account for differences in California by type of insurance, market size, and geographic location are made by Milliman U.S.A., a national actuarial firm. In addition, the CHBRP model adjusts for differences in member demographics, regional physician and hospital practice patterns, and managed care effects specific to the California health care system. Details on the methodology used to make these adjustments can be found elsewhere in this issue (Kominski et al. 2006).

Impact of the Proposed Mandate on Public Health

The four data elements needed to conduct the public health impact analysis on the overall impact on the health of the community are: baseline health status, coverage impacts of the mandate, utilization impacts of the mandate, and the medical impact of the benefit. Once these four pieces of data have been collected, the overall impact on the health of the community can be calculated using the steps outlined below. We illustrate these steps using the CHBRP analyses of Assembly Bill 438 (AB 438) on osteoporosis screening and Senate Bill 576 (SB 576) on tobacco cessation services as examples (CHBRP 2004b, 2005b).

Coverage Impacts. The first step in the analysis is to obtain the coverage impacts from the team working on the cost section of the report. To determine the coverage impacts, the population that will be directly affected by the mandate, including those who are currently covered for the benefit and the number of Californians who will be newly covered for the benefit as a result of

the mandate, are identified. The affected population may vary as a function of age, gender, prevalence of the targeted condition, and type of health insurance coverage that will be subject to the mandate, as specified in the bill. For example, legislation could apply only to enrollees in HMOs, those with all forms of private health insurance, or all covered lives in the state including those with Medicaid and Healthy Families. For each proposed benefit mandate these factors will vary. More information regarding the methods used to derive the coverage impacts can be found elsewhere in this issue (Kominski et al. 2006).

Utilization Impacts. The second step in this analysis is to calculate the number of people who will utilize the benefit as a result of the mandate. The cost team estimates the utilization impacts separately for insured Californians who are presently covered for the proposed benefit and those who will be newly covered for the benefit, postmandate. For persons newly covered by the mandate, an assumption is made about their utilization of the new benefit based on current use for those with existing coverage, as well as use of similar kinds of services for the affected population (more information regarding the methods used to derive utilization impacts can be found in Kominski et al. [2006]). For persons with current coverage of the benefit, an estimate is made regarding any potential for this utilization to change as a result of the mandate. The total number of new persons expected to utilize a benefit postmandate is calculated as follows: $(\# \text{ newly covered} \times \text{change in utilization rate}) + (\# \text{ previously covered} \times \text{change in utilization rate})$. This accounts for two factors: one, that there could be some baseline utilization rate in the population without coverage at baseline that was paid for out-of-pocket and two, that as a result of the passing of the mandate, changes in utilization could also occur in the population with current coverage.

Health Impacts. The third and final step in this analysis is to assess the overall change in health outcomes in the affected population using the estimates of changes in utilization combined with the rates of effectiveness derived from the medical impact literature review. Based on the findings from the literature review on medical effectiveness, estimates are made on the impact of utilization of the benefit on health outcomes by the medical effectiveness team. The results for each health outcome are compiled to produce an overall mean estimate that can be used to calculate the health effects of the benefit mandate. The methods used to conduct the literature search are presented in

a separate paper in this issue (Luft et al. 2006). For each specific health outcome reviewed in the literature for which there are baseline data available and a mean effect calculated, the estimated impact on each health outcome is applied to the population of new utilizers to determine the overall change in outcomes resulting from the mandate.

Example 1: Impact of Osteoporosis Screening Mandate on the Reduction of Hip Fractures

Assembly Bill 438, introduced in 2004, mandated coverage for “osteoporosis screening” in postmenopausal women in California between the ages of 50 and 64 years in private insurance plans regulated by the Department of Insurance and Department of Managed Care. The steps taken to calculate the public health impact of this mandate 1 year after implementation are shown using one health outcome of osteoporosis, hip fracture.

Step 1. Calculate the coverage impacts: the target population under the proposed osteoporosis-screening mandate (AB 438) is women ages 50–64 with private health insurance ($n = 1.8$ million). To calculate the number of newly covered individuals, the number of women in this target population was multiplied by the percentage of privately insured women ages 50–64, who currently lack coverage for the proposed benefit or treatment (89 percent). This results in 1.6 million women newly covered for screening under this mandate.

Step 2. Calculate the utilization impacts: based on the utilization data provided in the cost impact section, it was assumed that 30 percent of the newly covered women (1.6 million) would be screened for osteoporosis within the first year of implementation, for a total of 480,000 women (CHBRP 2004b). We also assumed that there would be no increase in the utilization rate for women with current coverage for osteoporosis screening. Thus, we estimated that a total of 480,000 privately insured women ages 50–64 would be newly screened for osteoporosis in the first year of passage of the benefit mandate.

Step 3. Calculate the health impacts: the review of the literature assessing the medical effectiveness of osteoporosis screening for women ages 50–64 found that for every 3,750 women screened, one hip fracture was prevented. Therefore, we estimated that osteoporosis screening in the newly covered population of 480,000 women would prevent approximately 128 hip fractures ($480,000/3,750$) among women ages 50–64 with private health insurance in California in the first year after passage of the mandate.

Table 3: Calculated Public Health Impact of Smoking Legislation on Low-Birthweight Births

<i>Calculated 1 Year Postmandate</i>	
Target population: insured pregnant smokers	40,000
Pregnant smokers newly covered for smoking cessation (30%)	12,000
Difference in quit rates between insured and uninsured	22 – 14% = 8%
New quitters = difference in quit rates × newly covered	1,000
Number of low-birthweight (LBW) births prevented = (smoker LBW rate (12%) non-smoker LBW rate (6%)) × number of new quitters (1,000)	60

Source: California Health Benefits Review Program. Analysis of Senate Bill 576: Tobacco Cessation Services. A report to the 2005–2006 California Legislature, April 2005.

Example 2: Impact of Smoking Cessation Mandate on the Reduction of Low-Birthweight Births

Senate Bill 576, introduced in 2005, mandated coverage for tobacco cessation services in public and private insurance plans regulated by the Department of Insurance and Department of Managed Care in California including smoking cessation counseling and all FDA-approved smoking cessation pharmacotherapies. The steps taken to calculate the public health impact of this mandate are shown using one health outcome of tobacco use, low-birthweight births.

Step 1. Calculate the coverage impacts: it is estimated that there are 40,000 pregnant smokers with health insurance coverage in California and that 30 percent (12,000) of these would gain coverage for smoking cessation benefits as a result of the mandate.

Step 2. Calculate the utilization impacts: based on research published in tobacco control literature it was assumed that pregnant smokers without coverage had quit rates of 14 percent and that this rate would increase to 22 percent with coverage for smoking cessation treatments—for a difference of 8 percent. This means that in the population of 12,000 pregnant smokers who would gain coverage for smoking cessation treatments, an additional 1,000 (12,000* 8 percent) would quit as a result of the mandate.

Step 3. Calculate public health impacts using medical impacts: the review of the literature assessing the medical effectiveness of quitting smoking on low-birthweight births found that among nonsmokers the rate of low-birthweight births was 6 percent compared with 12 percent among smokers (a difference of 6 percent). Thus, we estimate there will be approximately 60 fewer low-birthweight babies (1,000* 6 percent) in the first year after passage of the mandate (Table 3).

Impact on Community Health Where Gender and Racial Disparities Exist

The overall impact on the health of the community with respect to gender or racial disparities of the proposed benefit mandate is also addressed in the public health impact analysis. The first step is to conduct a literature search to determine whether the proposed mandate covers a health condition for which gender and racial disparities in outcomes are known to exist. In order to quantify the effect of the proposed mandate on gender and racial disparities the following information is needed: (1) baseline incidence or prevalence of the condition by gender and race, (2) coverage impacts by gender and race, (3) utilization impacts by gender and race, and (4) medical impacts by gender and race. Once it has been established that there is a gender or racial disparity in health outcomes and the four pieces of information mentioned above have been collected, the impact on community health can be calculated using the same steps as outlined previously for osteoporosis screening and smoking cessation services. In most cases it is not possible to obtain all four pieces of information and thus we were not able to present the impact on gender or racial disparities in a quantitative way in analyses conducted in 2004 and 2005.

For reviews where it is not possible to calculate the impact on gender and racial disparities, qualitative information is presented instead. For example, in the CHBRP review of SB 749, autism screening, it was found that there is evidence that blacks were more likely to have a diagnosis of autism compared with whites. In addition, evidence was found that indicated that blacks are diagnosed and treated for autism later compared with whites. Therefore, the review concluded that to the extent that the mandate results in earlier diagnosis and treatment for autism, this could reduce the disparities between whites and blacks in outcomes associated with later diagnosis and treatment (CHBRP 2005a).

Reduction of Premature Death and the Economic Loss Associated with Disease

The extent to which the proposed service reduces premature death and the economic loss associated with disease is also addressed in the public health impact analysis. In order to quantify the reduction in premature death the following information is needed: (1) baseline mortality data on the disease or condition of interest, (2) coverage impacts of the mandate, (3) utilization impacts of the mandate, and (4) medical impacts of the mandate where mortality is a relevant health outcome. In order to carry out a calculation of the mortality impact the following must be true: (1) mortality must be a relevant health outcome, (2) the mandate would increase coverage or utilization of the benefit, and (3) the mortality impact of the benefit has been established in the medical

effectiveness literature. In the case where it is determined that premature death is a relevant health outcome, mortality data are reviewed to determine the baseline magnitude of the problem. In addition, to the extent that reduced mortality is a health outcome reported in the medical effectiveness literature, an impact of the mandate on premature death is conducted using the methodology described previously. It has not yet been possible, in the 22 reviews that have been conducted in 2004 and 2005, to quantify the reduction of premature death. In each case the report contains an explanation of why a mortality impact was not calculated.

In order to present an estimate of the economic loss associated with disease, a literature review on the societal costs of illness is conducted. This is separate from the cost analysis, which calculates the direct cost of expanding coverage. Owing to the time constraints of the CHBRP analysis (60 days), it is not possible for the CHBRP team to quantify the indirect costs of disease for each mandate. In lieu of this, a literature review on lost productivity, absenteeism, and quality of life is conducted. In cases where the indirect cost of illness has been estimated for California, these data are presented in the report, if not, national data are presented. Where data on the economic loss associated with a disease have not been published, this is noted in the report.

In order to carry out a calculation of the reduction of the economic loss associated with disease the following must be true: (1) the mandate would increase coverage or utilization of the benefit and (2) the economic loss associated with disease has been calculated either in California or nationally. It has not yet been possible, in the 22 reviews that have been conducted in 2004 and 2005, to quantify the reduction in economic loss associated with disease, aside from mandates where we conclude that there would be no reduction in the economic loss associated with disease owing to the mandate not impacting coverage or utilization. For example in the analysis of Assembly Bill 228, which mandated coverage for organ transplants to HIV+ patients, we concluded that the bill would not result in an increase in the number of organ transplants (CHBRP 2005c). Therefore, although there was evidence that end-stage organ disease is associated with significant economic loss through lost productivity, CHBRP concluded that AB 228 would not reduce these economic losses.

LIMITATIONS

It is not always possible to present the required information to satisfy each of the elements of the public health impact analysis as mandated by AB 1996. In

instances where there is insufficient evidence, i.e., the evidence in the literature is conflicting or is not robust, this is noted in the review. In cases where no research has been published on a particular area (gender racial disparities, economic loss, etc.) this is also noted in the review. Common limitations to each of the sections in the public health impact analysis (public health impact, impact on gender and racial disparities, and economic loss, and premature death associated with the disease) are noted below.

It is not always possible to quantify the overall impact on the health of the community owing to methodological limitations of the medical effectiveness literature. These limitations include a lack of consensus within the literature on the clinical definition of the disease, lack of standards of care for treatment, inconsistent inclusion or exclusion criteria across studies, and inconsistency in the measurements of outcomes across studies. Without a quantification of the overall impact of a certain treatment or service, it is impossible to translate the impact of the treatment or service in terms of the health of the community.

In addition, the extent to which the effects of the benefit or treatment that are observed in the literature can be translated to the real world is another limitation to the calculation of the impact on the health of the community. Most of the estimated rates of medical effectiveness used in the public health impact analysis are based on the results of randomized clinical trials, where the populations participating in these trials are rarely broadly representative of the underlying populations with a specific condition. Furthermore, the study population has voluntarily elected to participate in the study and have agreed to receive the treatment. Finally, study participants are often limited to the patients receiving care in a few treatment centers or limited to a specific geographic region, and all of the treating physicians are asked to follow a standardized protocol for delivering treatment. Thus, the treatment in the trials is provided in a relatively controlled environment that does not necessarily represent the way care is usually provided in the community.

Another limitation is the lack of information on differences in treatment or outcomes of a disease by race and ethnicity. While baseline health outcome measures in California can be reported by race and ethnicity, it is rarely possible to translate the health effects that result from utilization of mandated services into population health impacts by race and ethnicity, without knowing how health care utilization, treatment practices, and medical efficacy rates vary by race and ethnicity. However, all baseline health data, where there are differences in health outcomes by race and ethnicity in California, are included in the reports prepared for the legislature. As a result, the existing

disparities are presented, even if the extent to which the disparities may be reduced as a result of the mandate cannot be assessed.

Finally, it is not always possible to present an analysis of the economic loss associated with disease. It is beyond the scope of the analysis, with a 60-day timeframe, to conduct an analysis of lost productivity and other measures of economic loss of a disease not directly related to treatment. Instead, we rely on previously published studies of lost productivity or other measures of economic loss associated with the disease. In cases where there has been no previous research estimating the economic loss associated with a particular disease, we are unable to report this information in the review.

DISCUSSION

The findings from the public health impact analysis are presented in each CHBRP report as summarized key findings in the executive summary as well as in one of the three main sections of the report (medical effectiveness, cost, and public health impacts). In addition, public health impact data and estimates are presented in tabular form at the end of each report. While the findings of the public health impact analyses of benefit mandate bills have not generated any controversy in the political debate and policy discussion over any of the 22 health benefit mandates review laws completed by CHBRP as of August 2005, the public health findings are often referred to in the legislative hearings on the bills, particularly on the part of public health advocates and consumer groups. In fact, even groups who routinely oppose all mandate bills on principle, such as the Association of California Life and Health Insurance Companies and the California Chamber of Commerce, often bow to the potential benefits of the mandated treatment or service on the affected population. In addition, the public health impacts are also often included in the bill analyses prepared by legislative staff, sometimes with entire sections of the CHBRP reports quoted in the analysis.

The only debate that has arisen from these estimates relates to the fact that projected impacts are only made for 1 year following the bill. Public health groups, in particular, have expressed concern that many health outcomes are not realized after only 1 year, specifically for many preventive services, where the health benefits are often long term. An effort will be made in future analyses to express in qualitative terms, what the long-term health benefits associated with a mandate might be.

One issue that has been a challenge for the CHBRP analyses is how to present outcomes in such a way that does not make them appear too precise

without confusing legislators and their staff. From an academic perspective, the point estimates as presented in the reports have the appearance of precision, when they are simply estimates around which there is a great deal of uncertainty. In a scientific report, one would report that uncertainty in the form of a confidence interval that illustrates the range of findings that are likely not to have occurred by chance. However, most legislators do not understand the underlying statistical analyses and how to interpret confidence intervals. Policy makers prefer point estimates, and will most likely disregard any confidence intervals presented in the report. To compensate for this, numbers presented in the public health section have been rounded so that they do not appear too precise.

To conclude, the approach that California has adopted to review proposed health benefit mandates represents a leap forward in its consideration of the impact of such mandates on the health of the population. The approach is unique in its specific requirement to address public health impacts as well as the attempt to quantify these impacts by the CHBRP team. Even though there are limitations to the analysis in this regard, the reports that are submitted to the legislature on each bill do highlight the need for these kinds of data for a more effective policy-making process. While limitations in the availability of public health and health services data constrain our ability to conduct the analyses, the work being carried out in California is important in its intent and objectives. Requiring the assessment of public health effects of health benefit mandates suggests that the California legislature, through its enactment of AB 1996, has adopted health improvement as an explicit goal for California's health care system. The requirement to make available this information to the state government has the potential ultimately to increase the availability of health insurance products in California that will maximize public health.

NOTES

1. Data can be found at www.askchis.com
2. Data can be found at www.surveymethods.com
3. Data is located at <http://wonder.cdc.gov>
4. More information on the Milliman USA Health Cost Guideline database can be found at http://www.millimanusa.com/tools_products/health_cost.aspx

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Guidelines for Estimating Impacts of Benefit Mandates on Gender and Racial Disparities

CHBRP's authorizing statute specifically requests that CHBRP assess the extent to which a mandated benefit would have an "impact on the health of the community, including diseases and conditions where gender and racial disparities in outcomes are established in peer-reviewed and scientific literature."

Health disparities include racial and gender differences in health status, mortality rates, disease prevalence, and receipt of health services. Policymakers in the United States have sought to address health inequalities and improve the health of the overall population.

This document reviews the process used by CHBRP to examine gender and racial disparities in reports to the legislature on proposed mandated health insurance benefits. A summary of CHBRP conclusions from reports through 2009 can be found in Table 1 below.

Definitions and Approach to Investigating Disparities

Several competing definitions of "health disparities" exist. CHBRP relies on the definition proposed by Braveman (2006):

"A health disparity/inequality is a particular type of difference in health or in the most important influences of health that could potentially be shaped by policies; it is a difference in which disadvantaged social groups (such as the poor, racial/ethnic minorities, women, or other groups that have persistently experienced social disadvantage or discrimination) systematically experience worse health or greater health risks than more advantaged groups."

Because health insurance benefit mandates primarily affect the insured population, it is important to examine whether there are health disparities within the insured population. Insurance status has been found to be an important factor in health disparities, particularly in explaining racial health disparities (Kirby et al., 2006; Lillie-Blanton and Hoffman, 2005).

Among the insured population aged 18 to 64 in California in 2007, blacks, Hispanics, and other minorities reported worse overall health status compared to non-Hispanic whites (CHIS, 2007). This finding is consistent with much of the academic literature and policy reports that document racial and ethnic disparities in overall health status and disparities within specific health conditions (e.g., CDC, 2007; Ren and Amick, 1996).

In contrast to racial and ethnic disparities, no major gender differences in self-reported health status were found among the California insured adult population (CHIS, 2007). Of course, some diseases and conditions primarily affect only one gender (e.g., breast cancer, prostate cancer) and others have a greater prevalence in one gender (e.g., lupus is more common among females).

When possible, CHBRP reports detail differences in disease prevalence, health services utilization, and health outcomes by gender and race/ethnicity. This baseline information can help legislators assess the potential for differential impact of a mandate bill across different groups.

Four steps are used to assess whether disparities exist and whether the proposed mandate would have an impact on gender and/or racial disparities.

Step 1: Conduct Literature Review

In establishing baseline information, the first step is reviewing the peer-reviewed literature for evidence of gender and racial disparities related to the mandate. The specific keywords used for the literature search will vary according to the characteristics of the particular mandate. Using the keywords, the academic literature is searched for gender and racial/ethnic differences by (1) prevalence of relevant health conditions or diseases, (2) utilization of relevant health services, and (3) relevant health outcomes.

Using AB 8 (2004)—a bill that would have required a minimum length of stay after a mastectomy or lymph node dissection for the treatment of breast cancer—as an example, the sample keywords used for the literature review were:

- Breast cancer + prevalence + race
- Breast cancer + prevalence + gender
- Breast cancer + prevalence + ethnicity
- Breast cancer + race + outcomes
- Breast cancer + race + mortality
- Mammography + race
- Mastectomy + disparities + race
- Mastectomy + race
- Mastectomy + ethnicity
- Mastectomy + length of stay
- Mastectomy + length of stay + race
- Mastectomy + race + inpatient
- Mastectomy + race + outpatient
- Mastectomy + coverage + race
- Lymph node dissection + race

In addition to conducting this review of the literature, the medical effectiveness literature review is also reviewed for any articles that have information on gender or racial disparities.

Step 2: Review Data Sources

The next step in establishing baseline disparities is to identify data sources that will allow for the examination of relevant prevalence, health utilization, and outcomes measures by gender and race/ethnicity. California-specific data are preferred; however, when California data are not available, national data sources are used. The following data sources are reviewed for this information:

- California state maintained registries
- California Health Interview Survey
- California Behavioral Risk Factor Survey

- National Health Interview Survey
- National Health and Nutrition Examination Survey
- National Vital Statistics System
- WONDER database maintained by CDC

In addition to these data sources, CHBRP attempts to identify any other relevant data sources. The content expert is also consulted for this purpose.

Step 3: Determine Whether a Qualitative Assessment Regarding Disparities Can Be Stated

Frequently, steps 1 and 2 identify disparities with regards to the health conditions and outcomes related to the proposed mandate; however, there is not always information on disparities with respect to the specific elements of the proposed mandate. For example, in analyzing the mandate on the pediatric asthma education bill Assembly Bill (AB) 264 (Chan, 2006), the literature and data sources revealed that minority children have more severe asthma symptoms and receive fewer preventive medications compared with white children. No racial disparities were identified, however, with regards to asthma education services that would be required under AB 264. As a result, the AB 264 CHBRP report concluded that the mandate would not impact racial disparities.

There are three main conclusions regarding the potential for mandates to impact gender or racial disparities: (1) no evidence to suggest that the mandate would result in a decrease in disparities, (2) the mandate may result in a decrease in disparities, and (3) CHBRP cannot conclude whether the mandate would result in a decrease in disparities.

The following scenarios are ones where CHBRP states that there is *no evidence to suggest* that the mandate would result in a decrease in disparities:

- No gender and/or racial disparities are reported in the literature or found in relevant data sources.
- The mandate is not expected to result in any changes in utilization.
- The medical effectiveness review does not suggest that an increase in utilization of the benefit would result in improved health outcomes.

The following scenarios are ones where the mandate *may* result in a decrease in disparities:

- There is a documented disparity in prevalence and/or utilization, the benefit is considered effective in improving health outcomes, and the benefit is expected to result in increased utilization
- The benefit is more effective for traditionally disadvantaged gender and/or racial groups or is deemed effective and more acceptable by disadvantaged groups.

The following scenario is one where CHBRP *cannot conclude* whether the mandate would result in a decrease in disparities:

- There state of the medical effectiveness literature is not of the necessary caliber to make conclusions with regards to the effectiveness of the mandated benefit. An example of this scenario is the analysis of the chiropractic care bill, AB 1185 (Koretz, 2005).
- The proposed legislation does not lend itself to a typical CHBRP analysis and therefore the medical effectiveness or utilization sections cannot be used to determine the possible impact of the mandate on health disparities. Previous examples include the CHBRP reports on mental health parity (AB 244, 2009) and high-deductible health plans (AB 2281, 2006).

Step 4: Determine Whether a Change in Disparities Can Be Quantified

Ideally, when a reduction in disparities is deemed possible, CHBRP reports would be able to quantify the effect of the proposed mandate on gender and racial disparities. In order to accomplish this, the following information is needed:

- Baseline incidence or prevalence of a condition by gender and/or race within the insured population
- Coverage impacts by gender and/or race—the gender and/or racial breakdown of the population affected by the specific mandate
- Utilization impacts by gender and/or race—the gender and/or racial breakdown of increased use of the benefit due to the mandate
- Medical impacts by gender and/or race—gender- and/or race-specific calculations of the effectiveness of the benefit in improving health outcomes

In most cases, it is not possible to obtain the necessary information to quantify the impact of a proposed mandate on gender or racial disparities. For example, the CHBRP review of SB 749, which required coverage for autism screening, found that blacks were more likely to have a diagnosis of autism and were treated for autism later compared to whites. Therefore, the review concluded that to the extent that the mandate results in earlier diagnosis and treatment for autism, this bill could reduce the disparities between whites and blacks associated with later diagnoses and treatment. The potential benefits, however, could not be quantified because it was not possible to examine the diagnosis and outcomes of autism by race within the insured population.

Table 1. Summary of CHBRP Conclusions Regarding Gender and Racial Disparities

CHBRP report	Conclusion	Justification
2005		
AB 8: Mastectomies and Lymph Node Dissections (Cohn)	No effect	Lack of evidence on effectiveness of longer stays on health outcomes.
AB 213: Health Care Coverage for Lymphedema (Liu)	No effect	No baseline data or literature on gender and race.
AB 228: Transplantation Services: Human Immunodeficiency Virus (Koretz)	No effect	Mandate not expected to increase number of transplants to HIV+ persons.
SB 573: Prohibiting Health Insurance Policies from Excluding Coverage of Losses Sustained While Insured Individuals Are Intoxicated or Under the Influence of Controlled Substances (Romero)	No effect	No problem identified.
SB 415: Prescription Drugs for Alzheimer's Drugs (Alquist)	No effect	No anticipated increase in utilization of AD drugs due to mandate.
SB 572: Mental Health Benefits (Perata)	Cannot conclude	Analysis restricted to summary due to nature of the bill.
SB 749: Diagnosis of Autism (Speier)	Possible reduction in racial disparities	Disparities identified; cannot quantify due to lack of estimates within insured population.
SB 913: Biological Medications for Rheumatic Diseases (Simitian)	No effect	No expected increases in utilization of drugs.
AB 1185: Chiropractic Services (Koretz)	Cannot conclude	The quality of the examined studies was not sufficient to make a medical effectiveness determination.
2006		
AB 264: Pediatric Asthma Self-Management Training and Education Services (Chan)	No effect	No evidence of differences regarding receipt of education services.
SB 1223: Hearing Aids for Children (Scott)	No effect	No evidence of differences regarding receipt of hearing aids.
SB 1508: Use of Propofol for Colonoscopies (Bowen)	No effect	No expected changes in utilization in colonoscopies or screening.
SB 1245: Cervical Cancer Screening Test (Figueroa)	No effect	Mandate not expected to change utilization of screening.
SB 2012: Orthotic and Prosthetic Devices	No effect	No impact on health outcomes.

(Emmerson)		
AB 2281: High Deductible Health Care Coverage (Chan)	Cannot conclude	Impact on utilization is unknown.
2007		
AB 30: Health Coverage: Inborn Errors of Metabolism (Evans)	No effect	Mandate not expected to increase utilization of medical nutrition therapy.
AB 54: Acupuncture (Dymally)	Possible reduction in racial disparities	Women and Asians are more likely to use acupuncture and would benefit from a reduced financial burden of paying for acupuncture out-of-pocket.
AB 368: Mandate to Offer Coverage for Hearing Aids for Children (Carter)	Cannot conclude	Although male children and Hispanic children have higher prevalence of hearing problems compared to females and non-Hispanics respectively, no literature was found to indicate that they receive hearing aids at different rates.
AB 423: Mental Health Services (Beall)	Cannot conclude	The mandate has the potential to reduce gender and racial disparities in mental health treatment, but the exact impact is unknown.
AB 1429: Human Papillomavirus Vaccination (Evans)	Cannot conclude	Blacks and Hispanics have higher mortality rates from cervical cancer compared to other racial/ethnic groups. Providing coverage for vaccination may be one way to reduce these racial and ethnic disparities. It is unknown, however, the extent to which this mandate would reduce these disparities.
AB 1461: Alcohol and Drug Abuse Exclusion (Krekorian)	No effect	Mandate not expected to change physician practice patterns in terms of screening and counseling for alcohol and substance abuse or treatment for illness and injuries sustained in conjunction with alcohol or substance abuse.
SB 24: Tobacco Cessation (Torlakson)	Cannot conclude	Racial and ethnic disparities in smoking prevalence are also apparent in California. The extent to which SB 24 would modify these disparities is unknown.
2008		
AB 1774: Gynecological Cancer Screening Tests (Lieber)	No effect	Mandate not expected to increase utilization of effective screening tests.
AB 1887: Mental Health Services (Beall)	No effect	There is no evidence that AB 1887 would reduce gender and racial disparities in mental health treatment.
AB 1894: HIV testing (Krekorian)	No effect	Mandate not expected to alter coverage or utilization of HIV testing.
AB 1962: Maternity Services (De La Torre)	No effect	There is no evidence that AB 1962 would make an impact on prenatal care utilization rates among black women to reduce disparities in health outcomes among babies born to black women.
AB 2174: Amino Acid–Based Elemental Formulas (Laird)	No effect	Mandate not expected to increase utilization of amino acid-based elemental formula.
AB 2234: Breast Conditions	Cannot	The quality of the examined studies on

(Portantino)	conclude	BMRI was not sufficient to make a medical effectiveness determination.
SB 1198: Durable Medical Equipment (Kuehl)	No effect	Mandate not expected to impact utilization of DME.
SB 1634: Cleft Palates (Steinberg)	Cannot conclude	There is insufficient evidence to determine if SB 1634 would impact differences in gender or racial disparities in the use of orthodontia in the treatment of oral clefts.
2009		
AB 56: Mammography (Portantino)	Possible reduction in racial disparities	To the extent that notification increases mammography screening among non-white women, there is the potential for AB 56 to reduce the racial/ethnic disparities in screening rates and health outcomes associated with breast cancer.
AB 98: Maternity Services (De La Torre)	No effect	There is no evidence that AB 98 would make an impact on prenatal care utilization rates among black women to reduce the disparities in health outcomes among babies born to black women.
AB 163: Amino Acid–Based Elemental Formula (Emmerson)	No effect	Mandate not expected to impact utilization of amino acid-based elemental formula for EGID.
AB 214: Durable Medical Equipment (Chesbro)	No effect	Mandate not expected to impact racial and ethnic health disparities.
AB 244: Mental Health Services (Beall)	No effect	Mandate not expected to impact gender and racial disparities in mental health treatment.
AB 513: Breast-Feeding (de Leon)	No effect	Mandate not expected to impact utilization of lactation consultations or use of electric breast pumps.
SB 158: Human Papillomavirus Vaccination (Wiggins)	Cannot conclude	Over time as researchers are able to assess differences in the vaccination rates across racial and ethnic groups, the potential for the HPV vaccine to reduce disparities in health outcomes related to HPV infection will be clearer.
SB 161: Chemotherapy Treatment (Wright)	Possible reduction in racial disparities	To the extent that the mandate reduces out-of-pocket costs, there is a potential to reduce the financial burden faced by groups with higher rates of cancer such as women being treated for breast cancer and non-Hispanic black cancer patients.

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