Analysis Methodology

Cost Impact Analysis and Research Approach

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The California Health Benefits Review Program (CHBRP) is charged by the California Legislature with estimating the medical effectiveness, public health, and cost implications of proposed health insurance benefit mandates and other health insurance-related legislation.[1] To estimate projected cost impacts, CHBRP developed and maintains an actuarial model; the California Cost and Coverage Model (referred to elsewhere as the "Cost Model"). This document describes CHBRP's cost impact analytic approach and use of the Cost Model.

Additional information about CHBRP's cost impact analytic approach is available on the **Cost Impact Analysis Methodology** page on CHBRP's website, including:[2]

- *Cost Analysis Data Sources, Caveats, and Assumptions*
- *Sources of Health Insurance in California*
- *Pharmacy Benefit Coverage in State-Regulated Health Insurance*
- *Deductibles in State-Regulated Health Insurance*
- *Uninsured: Criteria and Methods for Estimating the Impact of Mandates on the Number of Individuals Who Become Uninsured in Response to Premium Increases*
- *Actuarial Value: Criteria and Methods for Estimating the Impact of Benefit Mandates on Actuarial Value*
- *Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health*

Background

Health insurance benefit mandates impose specific requirements on benefit coverage, often requiring coverage for specific tests, treatments, or services. *Benefit mandates* may also impact terms and conditions of coverage, such as provider type, cost sharing or other administrative or reimbursement requirements. Benefit mandates may impact both public and commercial health insurance. *Benefit mandate repeals* can revoke requirements to cover certain tests, treatments, services, or other health insurance requirements.

The cost impacts that CHBRP estimates include factors such as the effect on premiums, enrollee out-of-pocket expenses such as cost sharing, and utilization of health care services. The model has proven to be rigorous yet flexible; it can be used under a rapid timeline for a variety of health insurance-related topics.[3]

[1] CHBRP's authorizing statute is available at https://www.chbrp.org/about.
[2] Available at: https://www.chbrp.org/about/analysis-methodology/cost-impact-analysis.
[3] CHBRP's completed analyses are available at http://chbrp.org/completed_analyses/index.php

Broadly speaking, the mandates CHBRP examines are usually benefit mandates that require health insurers to cover specific services. Generally, changes to health insurance benefits fall into one of the four categories of benefits change, in which the mandated benefit is:

1. *Already covered for a portion of the insured population* = the mandate is expanding existing benefit coverage to a broader population;

2. *Currently available but only as a noncovered service* = the mandate is expanding coverage to a service that is currently paid out-of-pocket;

3. Newly available service; or;

4. An existing benefit for which coverage will no longer be mandated; benefit coverage will become optional.

The majority of bills that CHBRP has analyzed fall into the first two categories: expanding existing coverage to a broader population or expanding coverage for a previously non-covered benefit that enrollees previously paid for out of pocket. CHBRP also frequently analyzes bills that affect the terms and conditions of already covered benefits.

Benefit Coverage, Utilization and Cost as Discussed in CHBRP Reports

The CHBRP authorizing statute requests that CHBRP provide certain estimated financial impacts to assist the Legislature's consideration of proposed health insurance benefit mandates, including estimates of baseline (without the mandate in place) benefit coverage, utilization, and cost as well as projected postmandate change within the first year of implementation. These estimates represent the same time period, but represent the cost impacts without versus with a mandate in place.

Benefit coverage is defined as the extent to which the services relevant to a benefit mandate are covered by state-regulated health insurance.

Utilization is defined as the frequency or volume of use of a test, treatment or service relevant to a proposed health insurance benefit bill.

For CHBRP's purposes, **cost** is defined as the aggregate expenditures for health care services. In evaluating cost, CHBRP includes:

- Insurance premiums (paid by employers, government, and enrollees)
- Enrollee cost-sharing (copayments, deductibles, co-insurance)
- Non-covered health expenses (paid by enrollees who have health insurance, but whose insurance does not cover specified services)

Table 1 describes the type of benefit coverage, utilization, and cost information that is typically discussed within CHBRP analyses.

Table 1. Benefit Coverage, Utilization, and Cost Information Included in the CHBRP Analyses

Baseline	Postmandate
• Current benefit coverage for the test/treatment/service in state-regulated health insurance markets • Current utilization of the test/treatment/service • Unit cost of the test/treatment/service • Current costs borne by insurers, relevant to the test/treatment/service • Grandfathered vs. nongrandfathered plans	• Changes in benefit coverage for the test/treatment/service if the proposed mandate is enacted • Changes in utilization of the test/treatment/service • Changes in the per unit cost of the test/treatment/service borne by insurers • Changes in administrative costs • Impact on total health care costs • Costs or savings by market segment • Impact on access and availability of tests/treatments/services

Source: California Health Benefits Review Program, 2024.

CHBRP's California Cost and Coverage Model

CHBRP has developed the Cost Model to produce baseline and projected postmandate financial impacts of a proposed bill, were it to pass into law. CHBRP's Cost Model is primarily an actuarial forecasting model which estimates the proposed impact of a bill in its first year of implementation. It uses data from a variety of sources, including CHBRP's surveys of health plans and insurers, administrative payer data, the California Health Interview Survey (CHIS), the KFF Employer Health Benefits Survey, and the California Simulation of Insurance Markets (CalSIM). Each year, economists and researchers from a number of University of California, along with Milliman (CHBRP's contracted actuarial firm) and CHBRP staff, update and refine CHBRP's Cost Model.

Baseline Model of Insured Population in California (Not Bill-Specific)

To estimate levels of coverage, utilization, and expenditures for the mandated services, CHBRP uses a baseline cost and coverage model using data from several primary data sources. Annually, CHBRP reviews and publishes a companion document that discusses the estimation methods, data sources, caveats, and assumptions applicable to CHBRP's cost impact analyses. The *Cost Analysis Data Sources, Caveats, and Assumptions* document is available on CHBRP's website and is generally published by February each year.[4] Additionally, detailed description of the model is presented elsewhere.[5] This model is updated annually.

To establish baselines figures, CHBRP determines:

- **Enrollment:** number of Californians that will be enrolled in state-regulated health insurance- health care service plans regulated by DMHC and health insurance policies regulated by CDI at the time a newly passed benefit mandate law would take effect; and
- **Premiums:** premiums paid by or for enrollees in state-regulated health insurance.

CHBRP relies on the California Simulation of Health Insurance Markets (CalSIM),[6] the California Health Interview Survey (CHIS), administrative data, as well as CHBRP's Annual Enrollment and Premium (AEP) survey of the state's eight largest (by enrollment) health plans and insurers. Because some proposed mandates would have differing effects on

[4] Available at: https://www.chbrp.org/about/analysis-methodology/cost-impact-analysis.
[5] See Kominski, G. F., Ripps, J. C., Laugesen, M. J., Cosway, R. G., & Pourat, N. (2006). The California Cost and Coverage Model: analyses of the financial impacts of benefit mandates for the California legislature. Health Serv Res, 41(3 Pt 2), 1027-1044. doi:10.1111/j.1475-6773.2006.00518.x
[6] A microsimulation model used to estimate the continuing effects of ACA implementation on health insurance enrollment, developed by the UC Berkeley Center for Labor Research and Education and UCLA Center for Health Policy Research. *Methodology & Assumptions, California Simulation of Insurance Markets (CalSIM) Version 1.8,* March 2013. Available at http://www.healthpolicy.ucla.edu/pubs/files/calsim_methods.pdf. Accessed November 5, 2014.

grandfathered and nongrandfathered plans and policies, CHBRP's AEP survey ask the state's largest (by enrollment) health plans and insurers to include data for both grandfathered[7] and nongrandfathered plans and policies.

Market Segments

CHBRP's Cost Model includes two market segments of health insurance which are regulated by two different state agencies, the California Department of Managed Health Care (DMHC) [8] and the California Department of Insurance (CDI)[9]:

1. DMHC-regulated health care service plans - these include HMOs, POS plans, and certain PPOs
2. CDI-regulated health insurance policies - these include PPOs and FFS health insurance products

These segments are divided by size:

- Large group (101 or more employees),
- Small group (two to 100 employees), and
- Individual market (direct purchase).

Additionally, the cost model also considers publicly financed sources of health insurance coverage such as Medi-Cal, CalPERS and Covered California, the state's health insurance marketplace.

Bill-Specific Baseline

Benefit Coverage

For each proposed mandate CHBRP is asked to analyze, CHBRP surveys the state's eight largest (by enrollment) health plans and insurers regarding current coverage for the tests, treatments, and services relevant to the mandate. These mandate-specific surveys allow CHBRP to estimate baseline benefit coverage. For state-regulated health insurance, benefit coverage would change based on the details of proposed legislation. This information is displayed as the percent and number of enrollees with health insurance subject to the bill with baseline benefit coverage.

Utilization and unit cost

To determine how frequently a relevant test, treatment, or service is used—whether or not an enrollee has benefit coverage—and how much each unit of the test, treatment, or service costs, CHBRP uses a variety of sources, including the Milliman Consolidated Health Cost Guidelines Sources Database (CHSD), academic literature related to health costs, and other sources.

Use of the CHSD Claims Database

The Milliman Consolidated Health Cost Guidelines Sources Database (CHSD) is the primary source for medical and pharmacy claims-level data used to complete detailed analysis that requires utilization and/or average cost per unit for specific services. It is an internal Milliman database with data for about 30 million commercial covered lives, about 3 million Medicaid lives, and is nationally representative.[10] The database provides a large, credible, and detailed dataset, which contains the standard medical codes and other data elements necessary to identify specific medical services, medical devices, pharmaceuticals, and/or medical conditions that may be impacted by proposed mandates.

Once CHBRP has examined the services and/or conditions impacted by the mandate, a set of criteria for identifying the mandate-impacted services and/or population are developed in consultation with subject matter experts. In addition to

[7] A grandfathered health plan is defined as: "A group health plan that was created — or an individual health insurance policy that was purchased — on or before March 23, 2010. Grandfathered plans are exempted from many changes required under the ACA. Plans or policies may lose their "grandfathered" status if they make certain significant changes that reduce benefits or increase costs to consumers." For more information, see www.healthcare.gov/glossary/grandfathered-health-plan/ accessed on November 5, 2014.
[8] DMHC was established in 2000 to enforce the Knox-Keene Health Care Service Plan of 1975; see Health and Safety Code (H&SC) Section 1340.
[9] CDI licenses "disability insurers." Disability insurers may offer forms of insurance that are not health insurance. CHBRP considers only the impact of benefit mandates on health insurance policies, as defined in Insurance Code (IC) Section 106(b) or subdivision (a) of Section 10198.6.
[10] More information on CHSD is available at: https://us.milliman.com/en/health/life-sciences/data-assets.

demographic considerations, the criteria typically include the specific diagnosis codes, procedure codes, or national drug codes associated with the mandated coverage.

Data is extracted from CHSD using the specified criteria and summarized to produce information related to the mandated coverage, such as prevalence rates, utilization rates, unit costs, and per capita costs. CHBRP will generally limit the data to California, but will consider including other states when the services or conditions in question are very rare. CHBRP makes adjustments to the baseline data as appropriate to reflect the California market as a whole, including differences in types of coverage, benefit levels, and provider reimbursement levels.

In cases where CHSD data is not available for a specific service or condition, CHBRP looks to research literature, subject matter experts, and other credible sources to establish benchmarks for the key baseline utilization and cost metrics used in its estimates.

Postmandate Impacts: Marginal Change in 1st Year

Once CHBRP has estimated baselines for benefit coverage, utilization, and unit cost, CHBRP must then estimate how the volume of utilization would change if a benefit mandate were enacted. CHBRP focuses on the marginal change within the first year of implementation of legislation, should it be signed into law.

Changes in utilization of health care services are driven by many factors, including changes in any or all of the following: levels and details of benefit coverage; levels of cost-sharing; enrollee demand and awareness of benefit coverage; provider practice patterns; and level of health care utilization management policies, such as prior authorization and step therapy. CHBRP takes these factors into account when developing estimates. Similarly, CHBRP must also determine the unit cost for each unit of the proposed mandate, and whether that would change postmandate, if demand for the test, treatment, or service would be expected to change. Together, CHBRP's estimates of changes in utilization and cost provide an estimate of the incremental change a specific proposed mandate would have on total expenditures for health care services associated with state-regulated health insurance.

Categories of marginal change

Benefit Coverage. CHBRP assumes that health insurers will comply fully with new benefit coverage mandates, and that benefit coverage will reach 100% for the specific benefit required by the effective date of the mandate.

Utilization. The key assumption in estimating the impact of a proposed mandate is determining how much utilization will change. CHBRP makes assumptions about the potential change in use of the relevant tests, treatment and/or service using peer-reviewed literature when available. If relevant literature is not available, analysis of claims data or other sources may be used.

Per-Unit Costs. Changes in per-unit costs of mandated benefits are estimated from the CHSD and from information gathered from the literature review conducted separately by the CHBRP Medical Effectiveness Team regarding how a mandated benefit may change the mix of services provided to members. For example, some mandates may produce a reduction in utilization of inpatient hospitalization as a result of more effective outpatient treatment or earlier diagnosis. In those cases and where evidence supports such offsets, CHBRP estimates the potential offsets related to reduced utilization.

Administrative and Other Expenses. Milliman's analysis of the CHSD is the primary source for estimating the portion of insurance premiums related to administrative expenses. CHBRP assumes that increases in the underlying costs of insurance related to utilization increases also produce an increase in administrative expenses.

Total Health Care Costs. Impacts on total health care costs are calculated as the change in per member per month (PMPM) premiums, including both the employer and employee share of premiums, the out-of-pocket expenditures by employees for copayments and deductibles, expenditures for individually-purchased insurance coverage, and enrollee

expenses for noncovered benefits. Each year, CHBRP and its contracted actuary consider medical cost trend (the rate of growth of medical costs) which influences annual premium increases.

Impacts by Market Segment. Based on distribution of California's insured population, CHBRP produces separate expenditure estimates for:

- Purchaser premiums: employer-sponsored, CalPERS employer, and Medi-Cal managed care plans
- Enrollee premiums: enrollees in individually purchased insurance including outside and through Covered California, and enrollees in employer-sponsored group insurance
- Enrollee out-of-pocket expenses: cost sharing for covered benefits (deductibles, copayments, etc.), and expenses for noncovered benefits

When relevant, CHBRP produces costs or savings estimates for Medi-Cal beneficiaries enrolled in County Organized Health Systems (COHS).

Table 2 describes the key data sources and a high level overview of the methods used to calculate the baseline and postmandate benefit coverage, utilization and cost.

Table 2. Overview of Data and Methods Used to Calculate Baseline and Postmandate Utilization, Cost, and Coverage Impacts

Utilization, Cost, and Benefit Coverage Components (Varies by Mandate)	Data Sources
Baseline (without mandate)	
1. Current coverage of the mandated benefit, including out of pocket charges, referral requirements, visit or dollar limits	• Largest health insurers, representing majority of enrollees, are queried about their benefit coverage policies • Evidence of Coverage (EOC) documents and other health plan and insurer documents • Laws or regulations, for public programs
2. Current utilization levels, and costs of the mandated benefit	• The Milliman Consolidated Health Cost Guidelines Sources Database (CHSD) • Prevalence of disease estimates for utilization • Public health or population data estimates of prevalence
3. Current costs borne by payers (both public and private entities) in the absence of the mandated benefit	• Milliman analysis of the CHSD to estimate current out-of-pocket spending, other research as needed.
Postmandate (with mandate)	
1. Utilization changes	• The Milliman Consolidated Health Cost Guidelines Sources Database (CHSD) • Population surveys and prevalence • Research on utilization changes for the service or similar services following coverage • Utilization in plans with full coverage

	• Behavioral assumptions based on standard economic theory relating to consumer price and demand
2. Unit cost of the affected services	• The Milliman Consolidated Health Cost Guidelines Sources Database (CHSD), other research as needed.
3. Impact on administrative and other expenses	• The Milliman Consolidated Health Cost Guidelines Sources Database (CHSD)
4. Impact of the mandate on total health care costs in percentage change and dollars	• Total change in costs = change in premiums + change in out-of-pocket expenditures
5. Costs or savings by market segment	• Percent and dollar changes in premiums for each market segment, including public sector

Source: California Health Benefits Review Program, 2024.

Other Important Considerations

Long-term impacts

CHBRP has focused its impact analysis to a one-year horizon for several reasons: 1) CHBRP cost impacts model for premium and total expenditure estimates mimics most insurers' internal processes for determining premiums changes in a given year; 2) CHBRP has limited capacity for modeling the long-term cost and health consequences of benefit mandates. To conduct such analyses usually requires disease-specific simulation models that permit analysis of the progression of a disease (and the disease treatment's technological advancement) over the course of individual lifetimes, and allows for individual variability in disease progression, health outcomes, and subsequent costs; 3) Given the specific nature of most bills analyzed by CHBRP, the long-term cost or public health impact as a result of the mandate are not necessarily addressed in the literature. Should evidence exist to support differing impacts in the 2nd year postmandate, CHBRP will present these estimates.

CHBRP comments qualitatively on any expected long-term expenditure and utilization impacts.

Impact on the Number of Uninsured Individuals

CHBRP considers a proposed mandate's potential impact on the number of uninsured individuals. CHBRP estimates that a 1% increase in private insurance premiums overall will lead to a 0.42 percentage point increase in the number of uninsured (about 10,000 more uninsured individuals) in California during 2017. However, a 1% premium increase in the individual market would have a different aggregate impact due to the availability of subsidies for low to middle-income individuals and the potential for some individuals to face much higher premiums. The elasticity of demand varies by individual characteristics and/or risks. Also the decision to purchase insurance, enroll in public programs, or become uninsured varies based on the effective premium faced by each Californian. Therefore, the impact of any specific benefit mandate will vary depending on the market segment. CHBRP will continue to use the established minimum threshold increase of 1% in premiums before it will produce estimates of a proposed mandate's impact on the number of uninsured. CHBRP will estimate the impact of increase in premiums on specific population subgroups or market segments when possible, using CalSIM and CHIS data.

Conclusions

The California Cost and Coverage Model represents a comprehensive effort by CHBRP's faculty, health services researchers, staff, and actuaries to develop a model to estimate the effects of health insurance benefit mandates for different types of insurers and for different market segments. The goals of this model are to provide accurate and timely

estimates of health insurance benefit mandates and other benefit-related bills to legislatures, and to make those estimates as transparent and reflective of the real world as possible. As more states become interested in evaluating the financial impacts of mandates, actuarial models such as the one described here can be developed in a timely manner so that researchers and stakeholders can assess the quality of the data and assumptions used to estimate the impacts of benefit mandates.

About the California Health Benefits Review Program (CHBRP)

Drawing on the experience and assistance of multi-disciplinary faculty, researchers, and analysts based at the University of California, CHBRP provides the California Legislature with timely, independent, and rigorous evidence-based analyses of introduced health insurance benefits-related legislation. Most frequently, CHBRP analyzes proposed health insurance benefit mandates (e.g., mandates to cover a test, treatment, or service, such as continuous glucose monitors). For more about CHBRP's 60-day analysis process, see the resource **Academic Rigor on a Legislature's Timeline**.

To read any of the 200+ bill analyses CHBRP has completed, see the **Completed Analysis** page on **CHBRP's website**. In addition to analysis of introduced legislation, CHBRP produces **other publications** including several annually updated resources, as well as issue briefs and explainers.