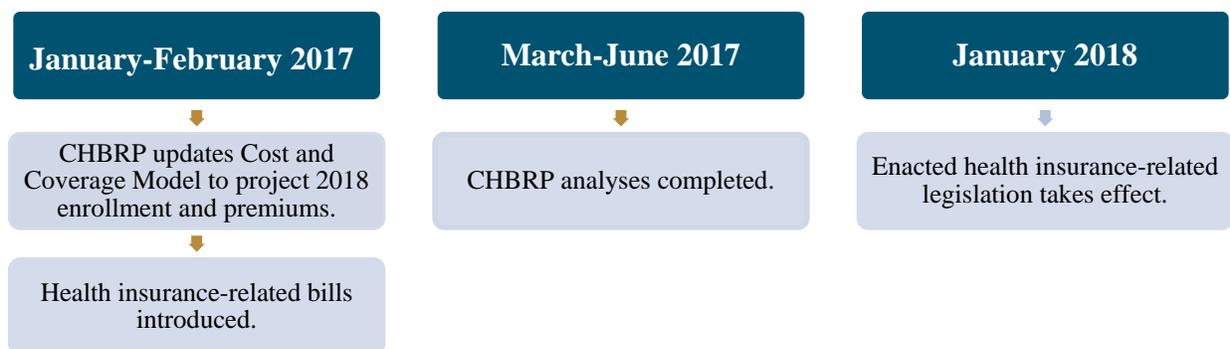# 2017 COST IMPACT ANALYSES: DATA SOURCES, CAVEATS, AND ASSUMPTIONS

The California Health Benefits Review Program (CHBRP) responds to requests from the California Legislature to analyze bills related to health insurance.[1] Annually, CHBRP updates its Cost and Coverage Model (CCM), an actuarial model of health insurance in California that can be subject to state-level benefit mandates, to estimate baseline premium and enrollment assumptions. The CCM is used as part of CHBRP's cost analysis effort to project marginal, incremental impacts on benefit coverage, utilization, and cost that would be attributable to passage of a health benefits bill. Documents available on CHBRP's website provide additional information on the CCM and on CHBRP's approach to analyzing cost impacts.[2]

This document describes the estimation methods, data sources, caveats, and assumptions applicable to CHBRP's cost impact analyses. It is a companion to CHBRP's annually updated *Estimates of Sources of Health Insurance in California*[3] and to the bill analyses CHBRP will complete in 2017.[4] Discussion of analyses-specific data sources, caveats, and assumptions are explained in each of CHBRP's bill analyses.

Figure 1 describes the analytic timeline for bill introduction, preparation for and completion of bill analyses, and effective period of legislation if the bill is enacted.

Figure 1. Analytic Timeline

January-February 2017	March-June 2017	January 2018
CHBRP updates Cost and Coverage Model to project 2018 enrollment and premiums.	CHBRP analyses completed.	Enacted health insurance-related legislation takes effect.
Health insurance-related bills introduced.		

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[1] Created in 2002, CHBRP's authorizing statue is available at http://cms3.revize.com/revize/chbrp/faqs.php.

[2] Additional information on the Cost and Coverage Model and other cost analyses are available at: http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

[3] Available at: http://chbrp.org/other_publications/index.php.

[4] Completed CHBRP analyses are available at: http://chbrp.org/completed_analyses/index.php.

Data Sources

Key data sources used by CHBRP in all analyses are listed below, in Table 1. Data sources include simulations, survey data, and administrative data.

Table 1. Data Sources

Data Source	Data Items
California Department of Health Care Services (DHCS) administrative data for the Medi-Cal program; data as of December 31, 2015	Distribution of enrollees by managed care or FFS by age: 0–17; 18–64; 65+ Medi-Cal Managed Care premiums
California Department of Managed Health Care (DMHC) data from the interactive website "Health Plan Financial Summary Report"; August–October, 2016	Distribution of DMHC-regulated plans by market segment*
California Department of Insurance (CDI) Statistical Analysis Division data; data as of December 31, 2015	Distribution of CDI-regulated policies by market segment
California Health Benefits Review Program (CHBRP) Annual Enrollment and Premium Survey of California's largest (by enrollment) health care service plans and health insurers; data as of September 30, 2016	Enrollment by: • Size of firm (1–100 as small group and 101+ as large group) • DMHC-regulated vs. CDI-regulated • Grandfathered vs. nongrandfathered Premiums for individual plans/policies by: • DMHC-regulated vs. CDI-regulated • Grandfathered vs. nongrandfathered
California Employer Health Benefits Survey, 2016 (conducted by NORC and funded by CHCF)	Enrollment by HMO/POS, PPO/indemnity self-insured, fully insured Premiums (not self-insured) by: • Size of firm (3–100 as small group and 101+ as large group) • Family vs. single • HMO/POS vs. PPO/indemnity employer vs. employee premium share
California Health Interview Survey (CHIS); data as of December 31, 2015	Total population denominator and estimates for population ages 65+. Uninsured Medi-Cal (non-Medicare) Other public Employer-sponsored insurance Individually purchased insurance,

Data Source	Data Items
California Public Employees' Retirement System (CalPERS) data; data as of October 1, 2016	CalPERS HMO and PPO enrollment • Age: 0–17; 18–64; 65+ • HMO premiums
California Simulation of Insurance Markets (CalSIM) projections for 2018	Distribution of California population ages 0-64 by insurance market, Uninsured, age: 0–17; 18–64 Medi-Cal (non-Medicare) age: 0–17; 18–64 Other public, age: 0–64 Individual market, age: 0–17; 18–64 Small group, age: 0–17; 18–64 Large group, age: 0–17; 18–64
PwC Health Research Institute: "Behind the Numbers 2017"	Medical trends influencing annual premium increases

Source: California Health Benefits Review Program, 2017.
Notes: (*) CHBRP assumes DMHC-regulated PPO group enrollees and POS enrollees are in the large group segment.
Key: CDI = California Department of Insurance; CHCF = California Health Care Foundation; CHIS = California Health Interview Survey; CMS = Centers for Medicare & Medicaid Services; DHCS = Department of Health Care Services; DMHC = Department of Managed Health Care; FFS = fee-for-service; HMO = health maintenance organization; NORC = National Opinion Research Center; POS = point of service; PPO = preferred provider organization

Types of Data

CHBRP utilizes both internal and external data to undertake cost impact analyses. Internal data are collected by CHBRP, while external data are produced by other entities and stakeholders.

Internal data

- CHBRP's Annual Enrollment and Premium Survey collects data from the six largest providers of health insurance in California (Aetna, Anthem Blue Cross of California, Blue Shield of California, Cigna, Health Net, and Kaiser Foundation Health Plan) to obtain estimates of enrollment not associated with the California Public Employees' Retirement System (CalPERS) or Medi-Cal by purchaser (large group, small group, individual market, etc.), state regulator (Department of Health Care Services [DMHC] or California Department of Insurance [CDI]), grandfathered or nongrandfathered status, and average premiums. Respondent data represent a super-majority of enrollees with health insurance potentially subject to state mandates (enrollees in non-specialty DMHC-regulated plans or CDI-regulated policies). CHBRP separately collects information regarding CalPERS and Medi-Cal.

- California Simulation of Insurance Markets (CalSIM) and market trends were applied to project 2018 health insurance enrollment in DMHC-regulated plans and CDI-regulated policies.

- CHBRP's other surveys of the largest health plans/insurers collect information on benefit coverage relevant to health insurance legislation that CHBRP analyzes. In each bill analysis, CHBRP indicates the proportion of Californians enrolled in privately funded DMHC-regulated plans or CDI-regulated policies. These data are gathered from responses to CHBRP's bill-specific coverage surveys. The proportions are derived from data provided by DMHC and CDI.

External sources

- California Department of Health Care Services (DHCS) data are used to estimate enrollment in Medi-Cal Managed Care (beneficiaries enrolled in the Two-Plan Model, Geographic Managed Care, or County Operated Health System plans), as well as enrollment in Medi-Cal Fee-For-Service (FFS). More information on DHCS data is available at: http://www.dhcs.ca.gov/dataandstats/statistics/Pages/Monthly_Trend_Report.aspx.

- California Employer Health Benefits Survey data are used to make specific estimates: premiums for employment-based enrollment in DMHC-regulated plans (primarily health maintenance organizations [HMOs] and point of service [POS] plans) and premiums for employment-based enrollment in CDI-regulated policies (primarily preferred provider organizations [PPOs]). Premiums for fee-for-service (FFS) policies are no longer available due to scarcity of these policies in California. Survey data are also used to determine the percentage of Californians enrolled in self-insured products. This annual survey is released by the California Health Care Foundation/National Opinion Research Center (CHCF/NORC) and is similar to the national employer survey released annually by the Kaiser Family Foundation and the Health Research and Educational Trust. More information on CHCF/NORC data is available at: http://www.chcf.org/publications/2016/06/employer-health-benefits.

- California Health Interview Survey (CHIS) data are used to estimate the number of Californians aged 65 and older and the number of Californians dually eligible for both Medi-Cal and Medicare coverage. CHIS data are also used to determine the number of Californians with incomes below 400% of the federal poverty level. CHIS is a continuous survey that provides detailed information on demographics, health insurance coverage, health status, and access to care. More information on CHIS is available at: http://healthpolicy.ucla.edu/chis/Pages/default.aspx.

- California Public Employees' Retirement System (CalPERS) data are used to estimate premiums and enrollment in DMHC-regulated plans (which may be subject to state benefit mandates), as well as enrollment in CalPERS' self-insured plans (which are not subject to state benefit mandates). CalPERS does not currently offer enrollment in CDI-regulated policies. Data are provided for DMHC-regulated plans enrolling non-Medicare beneficiaries. In addition, CHBRP obtains information on the current scope of benefits from evidence of coverage (EOC) documents publicly available. More information on CalPERS data is available at: http://www.calpers.ca.gov.

- California Simulation of Insurance Markets (CalSIM) estimates are used to project health insurance status of Californians aged 64 and under. CalSIM is a microsimulation model

that projects the effects of the Affordable Care Act (ACA) on firms and individuals. More information on CalSIM is available at: http://healthpolicy.ucla.edu/programs/health-economics/projects/CalSIM/Pages/default.aspx.

- MarketScan Research Databases, which reflect health care claims experience of employees and dependents covered by health benefit programs of large employers, are used to estimate utilization and unit cost. These claims data are collected from insurance companies, Blue Cross Blue Shield plans, and third-party administrators. These data represent the medical experience of insured employees, dependents of active employees, early retirees, individuals with COBRA continuation coverage, and Medicare-eligible retirees with employer-provided Medicare Supplemental plans. No data on Medicaid enrollees or workers' compensation are included. More information is available at: http://truvenhealth.com/your-healthcare-focus/analytic-research/marketscan-research-databases.

- PwC's Health Research Institute (HRI) projects medical cost trends based on HRI's analysis of medical costs in the employer insurance market, which covers about 155 million active employees. For this research, HRI interviewed industry executives, health policy experts, and health plan actuaries whose companies cover more than 100 million employer-sponsored members. HRI also analyzed results from PwC's annual Health and Well-being Touchstone survey of more than 1,100 employers from 37 industries, and PwC's national consumer survey of more than 1,000 US adults. CHBRP uses the HRI trend projections to establish baseline premiums. More information on medical premium trend is available at: http://www.pwc.com/us/en/health-industries/health-research-institute/behind-the-numbers.html

- PricewaterhouseCooper (PwC) pricing model is a proprietary, comprehensive pricing model that enables CHBRP to estimate the premium impact of certain mandates. The pricing model provides benchmark data and pricing capabilities for commercial health plans. The pricing model factors in health plan features such as deductibles, copays, out-of-pocket maximums, covered services, and the degree of health care management. The pricing model uses normative data and benefit details to produce estimates of allowed and net benefit costs. The normative benchmarking utilization metrics within the pricing model are developed from a database of commercial (under 65) health plan experience representing approximately 20 million individuals.

Projecting 2018

As noted in Figure 1, the general approach and annual efforts of CHBRP to update its Cost and Coverage Model uses data available at the end of the previous year to project the following year for analyses in the current year. For example, the 2017 Cost and Coverage Model uses data available at the end of 2016 to project 2018. It is important to emphasize that CHBRP's analyses of specific mandate bills typically addresses the *incremental* effects of a mandate—specifically, how the proposed mandate would impact benefit coverage, utilization, costs, and public health,

holding all other factors constant. CHBRP's estimates of these incremental effects are presented in the *Benefit Coverage, Utilization, and Cost Impacts* section of each bill analysis report.[5]

Baseline enrollment

Establishing baseline enrollment (i.e., how many individuals are associated with particular types of health insurance) is key to CHBRP's analyses. Only Californians enrolled in DMHC-regulated plans or CDI-regulated policies have health insurance that may be subject to state-level benefit mandates.[6] Other Californians have different types of health insurance, such as Medicare beneficiaries and enrollees in self-insured products (both may be subject to federal legislation and regulation). Projecting baseline enrollment in various market segments regulated by DMHC or CDI (large group, small group, individual market, etc.) is important since proposed mandates may have varying effects in particular market segments. To establish baseline enrollment projections for its Cost and Coverage Model, CHBRP utilizes data from the California Health Interview Survey (CHIS) and the California Simulation of Insurance Markets (CalSIM). Adjustments are made accordingly based on additional sources listed in Table 1.

Baseline premium rate development

The key premium-related components of the baseline model for utilization and expenditures are estimates of per member per month (PMPM) values for each of the following:

- Insurance premiums PMPM
- Gross claims costs PMPM
- Member cost sharing PMPM
- Health care costs paid by the health plan/insurer

For each market segment, CHBRP first obtained an estimate of the insurance premium PMPM by taking the reported premium from the aforementioned data sources and trending that value to 2018. CHBRP uses trend rates published in the PwC's HRI report, "Medical Cost Trend: Behind the Numbers 2017" as a benchmark for health care cost increases to 2018. Other considerations include published estimates of average changes in Individual product premiums offered through Covered California and information about payment rates in Medi-Cal.

The large-group market segments for each regulator (CDI and DMHC) are split into grandfathered and nongrandfathered status. For the small group and individual markets, further splits are made to indicate association with Covered California, the state's health insurance marketplace. Doing so allows CHBRP to separately calculate the impact of the ACA and of specific mandates, both of which may apply differently among these subgroups. The premium rate data received from the CHCF/NORC California Employer Health Benefits survey did not split the premiums based on grandfathered or marketplace status. However, CHBRP's Annual Enrollment and Premium (AEP) survey asked California's largest health care service plans and health insurers to provide their average premium rates separately for grandfathered and

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[5] Completed CHBRP analyses are available at: http://chbrp.org/completed_analyses/index.php.

[6] For further discussion of how many enrollees have which type of health insurance, see CHBRP's *Estimates of Sources of Health Insurance in California*, available at: http://chbrp.org/other_publications/index.php.

nongrandfathered plans. The ratios from the CHBRP survey data were then applied to the CHCH/NORC aggregate premium rates for large and small group in order to estimate premium rates for grandfathered and nongrandfathered plans that were consistent with the NORC results. For the individual market, the premium rates received from CHBRP's AEP survey were used directly.

The remaining three values were then estimated by the following formulas:

- Health care costs paid by the health plan = insurance premiums PMPM × (1 − profit/administration load)

- Gross claims costs PMPM = health care costs paid by the health plan ÷ percentage paid by health plan

- Member cost sharing PMPM = gross claims costs × (1 − percentage paid by health plan)

In the above formulas, the quantity "profit/administration load" is the assumed percentage of a typical premium that is allocated to the health plan/insurer's administration and profit. These values vary by insurance category. Under the ACA, these values are limited by the minimum medical loss ratio requirement. CHBRP estimated these values based on actuarial guidance from PwC.

In the above formulas, the quantity "percentage paid by health plan" is the assumed percentage of gross health care costs that are paid by the health plan, as opposed to the amount paid by member cost sharing (deductibles, copays, etc.). In ACA terminology, this quantity is known as the plan's "actuarial value." These values vary by insurance category. For each insurance category, PwC estimated the member cost sharing for the average or typical plan in that category. PwC then priced these plans using the PwC pricing model to estimate the percentage of gross health care costs that are paid by the carrier.

General Caveats and Assumptions

This section discusses the general caveats and assumptions relevant to all of CHBRP's bill analyses. The projected costs are estimates of costs that would result if a certain set of assumptions were realized. Actual costs will differ from these estimates for a wide variety of reasons, including:

- Prevalence of mandated benefits before and after the mandate may be different from CHBRP assumptions

- Utilization of mandated benefits (and the services covered by the benefit) before and after the mandate may be different from CHBRP assumptions

- Random fluctuations in the utilization and cost of health care services may occur

Additional assumptions that underlie the cost estimates presented in CHBRP's bill analyses are:

- Cost impacts are shown only for health plans/policies subject to state benefit mandate laws

- Cost impacts are generally only for the first year after enactment of the proposed mandate

- Employers and employees will share proportionately (on a percentage basis) in premium rate increases resulting from the mandate. In other words, the distribution of the premium paid by the subscriber (or employee) and the employer will be unaffected by the mandate.

- For state-sponsored programs for the uninsured, the state share will continue to be equal to the absolute dollar amount of funds dedicated to the program

- When cost savings are estimated, they reflect savings realized for one year. Potential long-term cost savings or impacts are estimated if existing data or literature sources are available and provide adequate detail for estimating long-term impacts.[7]

Other variables may affect costs but are not considered in the cost impact analyses. Such variables include, but are not limited to:

- Population shift by type of health insurance: If a mandate increases health insurance costs, some employer groups or individuals may elect to drop their health insurance. Employers may also switch to self-funding to avoid complying with the mandate.

- Changes in benefits: To help offset the premium increase resulting from a mandate, deductibles or copayments may be increased. Such changes would have a direct impact on the distribution of costs between health plans/insurers and enrollees. It may also result in utilization reductions (i.e., high levels of cost sharing may result in lower utilization of health care services). CHBRP did not include the effects of such potential benefit changes in its analyses.

- Adverse selection: Theoretically, persons or employer groups who had previously foregone health insurance may elect, postmandate, to enroll in a health plan/policy since they perceive it in their economic benefit to do so. For example, a person may choose to enroll in a health plan/policy only when they become ill.

- Medical management: Health plans/insurers may react to the mandate by tightening medical management of the mandated benefit. This would dampen the cost that CHBRP estimates. The dampening would be more pronounced on the types of plans/policies that previously had the least effective medical management (i.e., PPO plans).

- Geographic and delivery systems variation: Variation exists in existing utilization and costs by geographic area and by delivery system models. Even within the types of health plans/policies CHBRP had modeled (HMO [including HMO and POS plans] and non-HMO [including PPO and FFS policies]), utilization and costs are likely to vary. Utilization also differs within California due to differences in the health status of the local population, provider practice patterns, and the level of managed care available in each community. The average cost per service would also vary due to the different underlying cost levels experienced by providers throughout California and due to the market dynamic of negotiations between providers and health plans/insurers. 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 these analyses, however, CHBRP has estimated the impact on a statewide level.

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[7] For additional information see *Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health*, available at: http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

- Compliance with the mandate: For estimating the postmandate impacts, CHBRP typically assumes that plans/policies subject to the mandate will be in compliance with the benefit coverage requirements of the bill. Therefore, the typical postmandate coverage rates for persons enrolled in health insurance plans/policies subject to the mandate are assumed to be 100%.

Acknowledgements