



## Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health

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The California Health Benefits Review Program (CHBRP) must report on the cost and public health impacts of health benefits mandate legislation, per provisions included in statute (California Health and Safety Code, Section 127660). However, the statute does not specify a time-period for considering these impact analyses.

The reports produced by CHBRP during 2003-2005 produced cost and public health estimates with a one-year time horizon post-mandate. In certain circumstances, when a specific health insurance mandate has clear long-term public health and cost impacts, CHBRP has summarized the literature to provide the legislature context on these potential impacts.

For example, in analyzing SB 576 (Ortiz, 2005), a bill that would mandate coverage of Tobacco Cessation treatment, CHBRP recognized that while there are a few effects that can be realized within one year (e.g., reduction in low-birthweight babies of pregnant women who quit smoking, reduction in the risk of myocardial infarction), many of the impacts affecting lung disease, cancer and premature death are realized over a much longer period of time. To address this important point, CHBRP reported that:

“Medical care makes up the largest proportion of the direct costs of smoking. The CDC reports that men who smoke incur \$15,800 (in 2002 dollars) more in lifetime medical expenses than non-smokers, and women who smoke incur \$17,500 more than non-smokers (Fellows et al., 2002). According to the California Department of Health Services, in 1999, the state spent \$8,564,623 in total health care costs directly attributable to smoking, including \$4,016,568 in hospital care, \$2,060,234 in outpatient care, and \$1,133,432 for prescriptions (Max et al., 2002). A 1995 study by Wagner and colleagues estimates that tobacco cessation resulted in significant decreases in use of outpatient and inpatient health care services (Wagner et al., 1995).”

“Due to the multiple effects of smoking on the body, a significant proportion of the death and disease burden of smoking will not be evident until many years after smoking is initiated. Indirect costs in terms of loss of productivity, quality of life, and life years lost are difficult to estimate for outcomes that may develop over a 30-year time period. California’s Department of Health Services reports that in 1999, 12.4 years of potential life were lost due to smoking-related disease, with an associated \$5,175,678 in lost productivity for men and \$2,019,478 in lost productivity for women (Max et al., 2002). A recent study by Mulder and colleagues estimates that smokers who successfully quit report improved quality of life relative to current smokers (Mulder et al., 2001). Another study, by Taylor and colleagues, estimates the life extension achieved by tobacco cessation. Cessation at an early age (35 years old) resulted in an additional seven to eight years of life for men and an additional six to seven years of life for women. Cessation at a later age (65 years old), although resulting in significantly



fewer life years gained, one to two for men and two to three for women, illustrates the benefits of cessation at any age.”

CHBRP has limited its post-mandate analysis to one-year time horizon in the past 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. In general, insurers would determine what benefit design changes (resulting from market, statutory or regulatory forces) would occur in the next contract year and how these changes would impact utilization, costs and, the resulting affect on premium rates for their various large group, small group and individual product lines.
2. CHBRP has limited capacity for modeling the long-term cost and health consequences of benefit mandates. To conduct such analyses usually requires sophisticated, disease-specific simulation models that permit analysis of the progression of a disease over the course of individual lifetimes, and allows for individual variability in disease progression, health outcomes, and subsequent costs. For example, it is common in studies reporting on the cost-effectiveness of medical interventions to analyze the lifetime costs and benefits of specific technologies, including devices, surgical procedures, pharmaceuticals, and diagnostic tests. However, it is essentially impossible to construct such models within the 60-day time frame allotted for CHBRP analyses by the legislature.
3. Given the specific nature of most mandates analyzed by CHBRP, the long-term cost impacts or public health impacts that are *a result* of the mandate are not necessarily addressed in the literature. In addition, the longer the time horizon, the greater the uncertainty due to compounding factors including changing technology, changing demographics, changes in the practice, organization and delivery of medical care, and changes in the economy. In order for CHBRP to estimate the long-term cost implications for a mandate, for example, the literature would need to provide the following information:
  - whether and the extent to which a mandated benefit or services impacts mortality/morbidity and the time frame for realizing specific health outcomes.
  - the associated services (e.g. substitute services, services that may be avoided due to increased use of the mandate, or additional services incurred due to increased use of the mandate)
  - the costs and cost-savings associated with avoided or newly-incurred services (or the frequency/volume and per-unit cost of these services so that CHBRP can estimate the costs or cost-savings).

All of these data elements may not necessarily be addressed in the literature and therefore limit CHBRP’s ability to make long-term quantitative estimates of cost impacts.

Nevertheless, some benefit mandates analyzed by CHBRP involve diseases or conditions with significant long-term health consequences and costs are well-documented in the literature—screening, other preventive and disease management services are good examples. Ignoring these long-term consequences because of time constraints may result in analyses that substantially underreport the health benefits and possible cost savings associated with a proposed mandate.

Therefore, CHBRP now follows these guidelines and criteria when examining the potential long-term impacts of a proposed mandate:

1. During the initial assessment of a proposed mandate, the CHBRP analytic team will determine if there are likely to be long-term health impacts and cost savings based on consultation with the appropriate content experts identified to assist in the analysis of that mandate.
2. The faculty lead for the mandate analysis will work with the medical effectiveness, public health and cost teams and the medical librarian, to determine search terms and parameters that will help identify key literature on the possible long-term cost and public health impacts of the proposed mandate, including cost-effectiveness studies, which typically analysis lifetime health benefits and costs, as well as longitudinal epidemiological cohort studies. The medical effectiveness team will provide a summary of the long-term costs and health benefits associated with the proposed mandate to the public health and cost teams.
3. Per the provisions of CHBRP's authorizing legislation, the public health section is to address the "economic loss associated with the disease." Therefore, the public health team lead independently conducts a literature review to summarize existing studies. To the extent that this literature search yields articles on the long-term cost and long-term health impacts of a specific mandate, the public health team will share those with the analytic team.
4. The cost team lead will work to review relevant literature, including cost-effectiveness studies that may have modeled long-term costs. The cost team will then identify relevant long-term cost impacts, including net savings, associated with the proposed mandate, and summarize those long-term cost impacts in a narrative manner in the cost section of CHBRP's report on the mandate. If estimates of long-term costs and savings can be quantified and incorporated into the cost analysis. The source of these long-term costs and savings should be explicitly stated. All long-term costs should be appropriately adjusted (i.e., deflated) and expressed in current dollars (i.e. present value).

CHBRP analyzed the long-term cost and health outcomes for Senate Bill 1245 (Figueroa, 2006) a bill that was enacted in September, 2006. This bill requires insurers and health plans to cover the test for the human papilloma virus (HPV) for cervical cancer screening. While CHBRP did not estimate any cost or public health impact specifically as a result of the mandate, the analysis offered an alternative scenario in the case that the mandate would spur increased utilization (by 1 percentage point) as a result of a public awareness campaign and providers continued to adopt the new guidelines regarding HPV testing and Pap screenings.

Based on existing cost-effectiveness models, CHBRP was able to report the following:

"It is estimated that 7.6 million women are in health insurance plans affected by this mandate. Therefore, a hypothesized 1 percentage point increase in HPV triage screening would result in 76,000 more women shifting from lifetime conventional Pap tests to lifetime HPV triage screening. A shift from lifetime conventional Pap screening to HPV triage would result in a 29% reduction in lifetime cervical cancer risk and a 9% increase in lifetime costs. In this scenario, for each increase by 1 percentage point in the rate of women screened for cervical cancer using the HPV triage screening strategy (compared to lifetime conventional

Pap tests), over the lifetime of the 76,000 women newly subject to this screening strategy, this would result in a reduction in cervical cancer cases from 290 to 205 with an associated cost increase of 14.3 million dollars.

It is estimated that 6.0 million women age 30 or older are in health plans affected by this mandate. Therefore, a hypothesized 1 percentage point increase in HPV primary screening would result in 60,000 more women shifting from lifetime conventional Pap tests to HPV/Pap primary screen at age 30 and older. A shift in the rate of HPV/Pap primary screening in women ages 30 and older (compared to lifetime conventional Pap tests) would result in a 39% reduction in lifetime cervical cancer risk and a 45% increase in lifetime costs. For each increase by 1 percentage point in the rate of women screened for cervical cancer with Pap and HPV concurrent screening (compared to lifetime conventional Pap tests) over the lifetime of the 60,000 women newly subject to this screening strategy, this would result in a reduction in cervical cancer cases from 224 to 137 with an associated cost increase of 57.6 million dollars.”

Taking the total lifetime projected costs, a present day value was calculated and included in an alternative estimate on impacts to premiums and total expenditures. This was presented in a table that maybe found in Appendix C of *Analysis of Senate Bill 1245: Health Care Coverage: Cervical Cancer Screening Test*.

## References

California Health Benefits Review Program (CHBRP). *Analysis of Senate Bill 576 Health Care Coverage: Tobacco Cessation Services*. Report to Calif. State Legislature. Oakland, CA: CHBRP; 2005. 05-07.

California Health Benefits Review Program (CHBRP). *Analysis of Senate Bill 1245: Health Care Coverage: Cervical Cancer Screening Test*. Report to Calif. State Legislature. Oakland, CA: CHBRP; 2006. 06-04