CALIFORNIA
HEALTH BENEFITS REVIEW PROGRAM

Analysis of Senate Bill 174
Hearing Aids for Children

A Report to the 2003-2004 California Legislature
February 9, 2004
Revised October 8, 2004

Established in 2002 to implement the provisions of Assembly Bill 1996 (*California Health and Safety Code*, Section 127660, et seq.), the California Health Benefits Review Program (CHBRP) responds to requests from the State Legislature to provide independent analysis of the medical, financial, and public health impacts of proposed health insurance benefit mandates. The statute defines a health insurance benefit mandate as a requirement that a health insurer and/or managed care health plan (1) permit covered individuals to receive health care treatment or services from a particular type of health care provider; (2) offer or provide coverage for the screening, diagnosis, or treatment of a particular disease or condition; or (3) offer or provide coverage of a particular type of health care treatment or service, or of medical equipment, medical supplies, or drugs used in connection with a health care treatment or service.

A small analytic staff in the University of California's Office of the President supports a task force of faculty from several campuses of the University of California, as well as Loma Linda University, the University of Southern California, and Stanford University, to complete each analysis within 60 days, usually before the Legislature begins formal consideration of a mandate bill. A certified, independent actuary helps estimate the financial impacts, and a strict conflict-of-interest policy ensures that the analyses are undertaken without financial or other interests that could bias the results. A National Advisory Council, made up of experts from outside the state of California and designed to provide balanced representation among groups with an interest in health insurance benefit mandates, reviews draft studies to ensure their quality before they are transmitted to the Legislature. Each report summarizes sound scientific evidence relevant to the proposed mandate but does not make recommendations, deferring policy decision making to the Legislature. The state funds this work though an annual assessment of health plans and insurers in California. All CHBRP reports and information about current requests from the California Legislature are available at CHBRP's Web site, www.chbrp.org.

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PREFACE

This report provides an analysis of the medical, financial, and public health impacts of Senate Bill 174, a bill to mandate coverage of hearing aids for children (younger than 18 years) by health care service plans and health insurance policies, limited to $1,000 per year. In response to a request from the California Senate Committee on Insurance on May 12, 2003, the California Health Benefits Review Program (CHBRP) undertook this analysis pursuant to the provisions of Assembly Bill 1996 (2002) as chaptered in Section 127660, et seq., of the *California Health and Safety Code*.

Susan Philip, MPP, principal analyst with CHBRP, prepared this report. Robert Cosway, FSA, MAAA, and Jay Ripps, FSA, MAAA, both of Milliman USA, provided actuarial analysis. Mark Berk, PhD, and Sreelata Kintala, both of the National Organization for Research at the University of Chicago, contributed to the literature review and medical effectiveness section. Catherine Nancarrow of the University of California Office of the President provided editorial guidance on early drafts of this report, and Katrina Mather, freelance editor, served as copy editor. In addition, a balanced subcommittee of CHBRP's National Advisory Council (see final pages of this report), reviewed the analysis for its accuracy, completeness, clarity, and responsiveness to the Legislature's request.

CHBRP gratefully acknowledges all of these contributions but assumes full responsibility for all of the report and its contents. Please direct any questions concerning this report to CHBRP:

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Revision:
October 8, 2004: Added a standard preface and appendix to appear in all CHBRP reports, identifying individual contributions to the analysis.

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Senate Bill 174 (SB 174) proposes mandating coverage of hearing aids for children, limited to $1,000. SB 174 requires health care service plans and health insurance policies to provide coverage, up to $1,000, for hearing aids to all enrollees, subscribers, and insureds under 18 years of age. The bill defines hearing aids as "any nonexperimental, wearable instrument or device designed for the ear and offered for the purpose of aiding or compensating for impaired human hearing, but excluding batteries and cords." SB 174 does not restrict plans and insurers in its contracting and reimbursement arrangements or in conducting managed care, medical necessity, or utilization review.

The language of the proposed bill, SB 174, in its current form does not specify the time period of the $1,000 benefit limit; however, California Senate staff have informed the California Health Benefits Review Program (CHBRP) that the bill will be amended to make it an annual limit. This clarification has been incorporated into the following analysis.

The California Legislature has asked CHBRP to conduct an evidence-based scientific assessment of the medical, financial, and public health impacts of the proposed legislation, as defined by Assembly Bill 1996. Details of the assessment follow in this report.

I. Medical Effectiveness

Evidence shows that the treatment of hearing loss with hearing aids is clinically effective. Although there is evidence to support the effectiveness of hearing aid use, existing literature does not conclude whether any particular type of electronics/circuitry used in the hearing aid is comparatively more effective.

II. Utilization, Cost, and Coverage Impacts

- Utilization of hearing aids by children with hearing loss is expected to increase by approximately 4% under the mandate. Current hearing aid utilization levels (approximately 61%-65%) suggest that most children with hearing impairment obtain hearing aids even though most do not have coverage for them.

- Actuarial analysis herein shows that the total expenditure for hearing aids in California (including total premiums and out-of-pocket spending for copayments and non-covered benefits) will increase by 0.02% to 0.03%. Health insurance premiums are estimated to increase on average by 0.07%. Increases in insurance premiums vary by market segment and range from approximately 0.05% to 0.09%, with the greatest impact being on the small-group health maintenance organization market.

- A substantial portion of the increase in insurance premium will be explained by insurance absorbing a portion of the benefit cost previously paid for by the insured.

III. Public Health Impacts

- Approximately 1.7% of children in the United States have hearing impairments**.** Given current hearing aid utilization rates among children with hearing impairments (exceeding 60%), the additional number of children that would obtain hearing aids after the mandate is correspondingly smaller. Children affected by the mandate, however, will likely also include those who would be able to obtain hearing aids with newer technology.

- Hearing is important for the development of language, speech, and learning skills. Effective early intervention of hearing loss can save society costs in terms of lost productivity and costs to the educational and health care systems.

INTRODUCTION

Senate Bill 174 (SB 174) will apply to health maintenance organizations that are licensed under the Knox-Keene Health Care Services Plan Act, which is part of the California Health and Safety Code. It will also apply to health insurers, which are regulated by the Department of Insurance.[1]

The current Health and Safety Code and Insurance Code do not contain coverage requirements for hearing aids. Private health plans and insurers in California do not generally cover hearing aids themselves (although they may cover a hearing assessment to determine the need for hearing aids, and medically necessary surgeries to correct hearing impairments). Medi-Cal and Healthy Families currently provide coverage to children for hearing aids.

Seven states[2] currently mandate coverage for hearing aids—all provide coverage for children, and one state[3] mandates coverage for both adults and children. The state trends have been to mandate coverage for children with some dollar benefit limit over a specified period of time. For example, Maryland mandates coverage for children limited to $1,400 per hearing aid every 36 months.

The following sections of this analysis will:

- Discuss findings on the medical effectiveness of the use of hearing aids
- Present expected utilization, cost, and coverage impacts
- Summarize the public health impacts associated with the treatment of hearing loss

I. MEDICAL EFFECTIVENESS

Analysis of the existing literature supports the conclusion that the use of hearing aids is medically effective in treating children with hearing loss. This section provides background information on hearing loss as a medical condition and the various types of hearing aids available in the market and describes findings on the medical effectiveness of using hearing aids for children with hearing loss.

Hearing Loss

Hearing loss may be conductive or sensorineural. Conductive hearing loss (usually affecting low-frequency hearing) may be caused by a foreign body, edema of the auditory canal[4], or otitis media[5]. Sensorineural hearing loss (usually affecting high-frequency hearing) occurs when there is damage to

[1] The proposed legislation will not apply to "Medicare supplement, vision-only, dental-only, or CHAMPUS-supplement insurance, or to hospital indemnity, accident-only or specified disease insurance that does not pay benefits on a fixed benefit, cash payment only basis."
[2] Connecticut, Kentucky, Louisiana, Maine, Maryland, Missouri, and Oklahoma.
[3] Kentucky.
[4] Edema refers to the presence of an abnormally large amount of fluid in intercellular tissue spaces, such as the auditory canal.
[5] Otitis media is referred to as a middle ear infection or inflammation and is often accompanied by a common cold, flu, or other respiratory tract infection.

the inner ear hair cells or a damaged hearing nerve. Sensorineural hearing loss can be caused by noise, injury, certain medications, tumors, birth defects, or problems with blood circulation. The most common cause of hearing loss among children is ear infections.

Hearing loss can range from "mild" to "profound." The following table describes the levels of hearing loss.

Table 1. Levels of Hearing Loss

Level of Hearing Loss	Decibel Level	Description
Mild	15-40 dB	Cannot hear a whispered conversation in a quiet atmosphere at close range.
Moderate	40-60 dB	Cannot hear normal conversation in a quiet atmosphere at close range.
Severe	60-90 dB	CANNOT HEAR SPEECH; CAN ONLY HEAR LOUD NOISES SUCH AS A VACUUM CLEANER OR LAWN MOWER AT CLOSE RANGE.
Profound	over 90 dB	Cannot hear speech; may only hear extremely loud noises such as a chain saw at close range or the vibrating component of loud sound.

Source: American Academy of Otolaryngology-Head and Neck Surgery Foundation, Inc., 2002.

Types of Hearing Aids Available in the Market

There are four different styles of hearing aids for people with hearing loss.

- In-the-Ear (ITE) hearing aids are used for mild-to-severe hearing loss. A tough plastic case holds the components of the hearing aid. ITE aids accommodate technical mechanisms such as a telecoil, a small magnetic coil used in hearing aids that can improve hearing during telephone calls. ITE hearing aids can be damaged by earwax and ear drainage. Because they are small, they can also cause problems resulting from growth changes and unwanted feedback. ITE aids are not usually worn by children because the casings need to be replaced as the ear grows, and children grow rapidly.
- Behind-the-Ear (BTE) hearing aids are worn behind the ear and are connected to a plastic mold that fits inside the ear. The hearing aid components are held in a case behind the ear. Sound travels through the mold into the ear. BTE aids are used by people of all ages for mild-to-profound hearing loss. Poorly fitting BTE ear molds may cause disturbing feedback, such as a whistle sound caused by the fit of the hearing aid or by build-up of earwax or fluid. BTE aids are used regularly in children.
- Canal aids fit into the ear canal and are available in two different sizes. In-the-Canal (ITC) hearing aids are customized to fit the size and shape of the ear canal and are used

for mild or moderately severe hearing loss. Completely-in-Canal (CIC) hearing aids are largely concealed in the ear canal and are used for mild-to-moderately severe hearing loss. Their small size makes canal aids difficult to adjust, remove, and hold additional technical devices, such as a telecoil. Because canal aids can also be damaged by earwax and ear drainage, they are not typically recommended for children.

- Body aids are used by people with profound hearing loss. The aid is attached to a belt or a pocket and connected to the ear by a wire. Its large size enables the aid to hold additional technical devices and have other signal-processing options. Although suitable for children or adults, body aids are usually used only when other types of aids cannot be used or are not effective.

The following table summarizes the two styles of hearing aids that are suitable for children, depending on the level of hearing loss:

Table 2. Hearing Aids Suitable for Children

Style of Hearing Aid	Level of Hearing Loss
Behind-the-Ear (BTE)	Mild to profound
Body	Profound

Hearing aids also vary by the type of circuitry or electronics used within. The type of circuitry or electronics, rather than the type of hearing aid, is what influences the total price of the hearing aid. There are three types of circuitry/electronics used within hearing aids:

- Analog/adjustable aids allow the audiologist to determine the volume and other specifications needed and then a separate laboratory builds the aid according to the audiologist's specifications. The audiologist has some flexibility in making adjustments to the aid. These are the least expensive hearing aids.
- Analog/programmable aids allow the audiologist to use a computer to program the hearing aid. The mechanisms behind analog/programmable hearing aids accommodate more than one environmental setting. If the aid is equipped with a remote control device, the wearer can change the program to accommodate a given listening environment. Analog/programmable circuitry can be used in all styles of hearing aids.
- Digital/programmable aids use a microphone, receiver, battery, and computer chip. The audiologist programs digital hearing aids with a computer. The sound quality and response time can be adjusted on an individual basis. Digital hearing aids allow the audiologist to be flexible in making adjustments to the hearing aids. Digital circuitry can be used in all styles of hearing aids and are the most expensive (National Institute on Deafness and Other Communication Disorders, 2001).

The expected life span of a hearing aid is generally three to five years (Anstett, 2002). Wear-and-tear caused by earwax, general use, and ear growth will impact the life span of a hearing aid. Because these factors apply to children, the estimated life span of a hearing aid for children is two years (Mercer Risk, Finance & Insurance Consulting, Inc., and Maine Bureau of Insurance, 2003).

Medical Effectiveness of Using Hearing Aids for Children with Hearing Loss

A review of the existing literature demonstrates that hearing aids make a difference for people with hearing impairments. The U.S. Preventive Services Task Force 2001 report showed observational and anecdotal evidence to support that early childhood detection and intervention of hearing impairment improve speech and language development. The greatest improvement results when detection and intervention are accomplished before a child is three years old (Wallace and Laurenzo, 1996). One study that reviewed the existing literature on hearing loss among children found that early identification (prior to 6 months of age) followed by immediate intervention would result in better language, speech, social, and emotional development (Sininger, 1999). Another study showed that early intervention programs, which include parent training and early use of hearing aids, allow hearing-impaired children to maximize their auditory potential and possibly generate language skills more similar to their hearing peers and much greater than hearing-impaired children without early intervention (McConnell and Liff, 1975). The same study demonstrated the importance of hearing aids in greater long-term educational achievement of hearing-impaired children. Anecdotal information suggests other long-term effects include increased social interaction, less stress, and better social and familial relationships (American Academy of Audiology, 2001b).

Studies have demonstrated that hearing aid use is effective in improving the hearing capacity of people with hearing impairments, but few studies have compared the efficacy of different hearing aid circuits. One specific study looked at the efficacy of the three circuits described above (Larson et al., 2000). Patients wore all three hearing aid circuits for a period of three months each. Each circuit improved patients' speech recognition and verbal communication. Some test results demonstrated that the digital circuits provided increased benefits to the users. However, researchers concluded that access to any type of hearing aid is more important than the marginal differences between the aids.

Another treatment modality for individuals with severe-to-profound hearing loss is surgery. During surgery a cochlear implant, a device that sends signals to the auditory nerve when a sound is detected, is implanted into the inner ear. Currently, cochlear implants are not recommended for children younger than 18 months and are considered in circumstances where a hearing aid does not prove useful (American Academy of Otolaryngology-Head and Neck Surgery Foundation, Inc., 2002). However, implant technology is developing rapidly, and related studies demonstrate potential benefits for profoundly hearing-impaired children who undergo surgery between the ages of two and five (Geers and Moog, 1991; Osberger et al., 1991). A study by the Project HOPE Center for Health Affairs found that cochlear implantation may be the only medical intervention that restores hearing to people who are severely and profoundly hearing impaired but may not be appropriate, psychologically or medically, for all of those people (Blanchfield et al., 1999). The 2001-2002 Gallaudet University (a university for deaf, hard of hearing, and hearing students) annual survey showed that 7.4% of students receiving educational services related to their deafness or hearing impairment have had a cochlear implant, 90.4% of which were still being used (Gallaudet Research Institute, 2003).

II. UTILIZATION, COST, AND COVERAGE IMPACTS

Although few insurers provide hearing aid coverage, the use of hearing aids among children with hearing impairment is estimated to be 61% for those without coverage. A cost-impact analysis

suggests that mandating coverage of hearing aids will increase health care costs by 0.02% to 0.09%, increase utilization rates by 4%, and create some shifts in payment from self-pay to private insurance.

By addressing the specific questions raised by Assembly Bill 1996 (the legislation requesting the University of California to conduct a mandate impact analysis), this section will detail mandate impacts on utilization, cost, and coverage. A discussion of the current or baseline levels precedes presentation of the mandate impacts.

Baseline (Pre-mandate) Utilization, Cost, and Coverage

1. Current utilization levels and cost of the mandated benefit (Section 3(h))

Utilization Levels

Current hearing-aid utilization rates for children who have hearing impairments are greater than 60%. A study by the Gallaudet Research Institute's *Regional and National Summary of Data from the 2001-2002 Annual Survey of Deaf and Hard of Hearing Children and Youth* indicates approximately 63% of children who have hearing loss use hearing aids (Gallaudet Research Institute, 2003). Because this 63% includes children who have and do not have coverage specifically for hearing aids, CHBRP estimates an approximately 65% rate of utilization for children who have coverage for hearing aids and approximately 61% for children without such coverage.

An informal telephone survey by the Listen Up organization found that about 1% of respondents cited costs as a barrier to obtaining a hearing aid for a child with hearing impairment. An approximately 61% utilization level among hearing-impaired children not covered for hearing aids may occur for a few reasons:

- **Families make other sacrifices to obtain hearing aids for children**. A general supposition is that families forgo expenditures on other items to obtain hearing aids for their hearing-impaired children. In addition, there is anecdotal evidence to suggest that individuals without coverage may purchase hearing aids but will opt for the less expensive versions using older technology (National Academy on an Aging Society, 1999).
- **Charities exist**. There are organizations that provide hearing aids for free or at a drastic discount, based on specified qualifications. The Miracle-Ear Children's Foundation provides hearing aids to children, 16 years or younger, whose families are low income but do not qualify for public support (Miracle-Ear Children's Foundation, 2004). A national hearing aid bank, called Hear NOW, provides new and reconditioned hearing aids for people who meet financial and medical qualifications (SOS Community Services, 2001).
- **Health plans and insurers provide discounts to members or subscribers.** Although health plans and insurers generally do not cover hearing aids, some have relationships with vendors to provide a discount to their members or subscribers. For example, PacifiCare arranges with Newport Audiology Centers to provide members with a discount applicable towards the purchase of a hearing aid.

Despite this estimated 61% rate of utilization among hearing-impaired children without coverage, not every child with hearing impairment is likely to use hearing aids. Reasons for this include the following:

- **Hearing aids take patience and time to learn**. Using a hearing aid takes time and adjustment, for example the molding may be uncomfortable at first. It also takes time for the user to become accustomed to new sounds and environments not previously perceived.
- **Not everyone can be helped with hearing aids.** Some children with profound levels of hearing loss will not be helped by the use of a hearing aid. For a portion of this population, surgery may be a more effective vehicle to improve hearing-loss symptoms. Children who experience mild symptoms may have their hearing loss either go undetected or choose to go without a hearing aid.
- **Children intent on conforming may not wish to distinguish themselves from their peers by wearing an appliance.**

Another potential reason for not using hearing aids is that the deaf community at large views deafness as a characteristic of cultural identity rather than a disability (Kudlick, 2004; Deaf Association of New Zealand, 2001). Deaf parents who do not interpret deafness as a disability may not want their children to have hearing aids. However, Gallaudet Research Institute's Annual Survey indicates that only 6.2% of deaf or hard-of-hearing children have both parents who are deaf or hard-of-hearing, so the projected likelihood of this reason for not using hearing aids is assumed to be similarly low. (Gallaudet Research Institute, 2003).

Per-unit Cost

The prices of hearing aids vary dramatically, depending on the type of circuitry/electronics used within the aid. Hearing aids purchased from retailers typically cost $600 to $5,000 per hearing aid, depending on the type of hearing aid (analog or digital) purchased. Disposable hearing aids are typically $40 to $70 per aid, or $1,800 for a five-year supply (Anstett, 2002). The American Academy of Audiology states that hearing aids are initially cheaper when purchased by mail order or through budget clubs. But in the long run, costs may be the same as or higher than the cost of purchasing aids through an audiologist, because mail-order purchases may require more follow-up care (American Academy of Audiology, 2001a). The estimated average cost of a hearing aid is $3,000 for the purposes of this analysis.

As previously mentioned, the expected life span of a hearing aid is generally three to five years (Anstett, 2002). Wear-and-tear caused by earwax, general use, and ear growth will impact the life span of a hearing aid. Because most of these factors apply to children, the life span of a child's hearing aid is two years (Mercer Risk, Finance & Insurance Consulting, Inc., and Maine Bureau of Insurance, 2003).

2. Current coverage of the mandated benefit (Section 3(i))

Private health plans and insurers in California do not generally cover hearing aids themselves (although some cover a hearing assessment to determine the need for hearing aids and medically necessary surgeries to correct hearing impairments).

Private health care services plans and insurers do offer large groups the option of purchasing coverage of hearing aids for children, and approximately 10% of children insured through the large-group market are estimated to have such coverage. Those large groups that offer their employees

coverage of hearing aids typically have benefit limits in place.[6] For example, the Califonia Public Employees' Retirement System (CalPERS) limits the hearing aid benefit to $1,000 for every 36 months (California Public Employees' Retirement System, 2004). Based on conversations with health plan representatives and insurers, it appears that coverage of hearing aids is not generally available in the small-group and individual market segments. Therefore, the coverage rates in those markets are estimated to be 0%. Coverage levels are summarized in Table 3.

Medi-Cal and Healthy Families cover hearing aids for children.[7] Medi-Cal, which covers 23% of children in California, provides hearing aids as a covered benefit, subject to utilization controls. Medi-Cal requires that the hearing aid coverage be prescribed by a physician, licensed audiologist, or licensed hearing aid dispenser acting within the scope of practice. Healthy Families, which provides coverage to approximately 5% of children in California, also covers hearing aids. The program provides coverage for hearing aids at no charge every 36 months.

[6] Milliman USA estimate based on conversations with major health service plans and insurers in California.

[7] Source: California Medi-Cal State Plan, Attachment 3.1-A, page 14; Medi-Cal provider manual: Allied Health, Audiology and Hearing Aids, Hearing Aids, page 1; Healthy Families regulations: California Code of Regulations Title 10, Chapter 5.8, Section 2699.6700(a)(2)(B).

Table 3. Distribution of Coverage by Market Segment and Plan Type

	Large Group				Small Group				Individual
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS	
Population Currently Under Age 65	5,692,000	1,538,000	1,433,000	54,000	2,325,000	1,103,000	775,000	40,000	1,538,000
Population Currently Under Age 18	1,975,124	533,686	497,251	18,738	806,775	382,741	268,925	13,880	265,000
Population Currently Under Age 18 with Hearing Impairments	33,577	9,073	8,453	319	13,715	6,507	4,572	236	4,505

Source: California Health Interview Survey, 2001, and National Institute on Deafness and Other Communication Disorders. All counts are estimates. FFS indicates fee-for-service; HMO, health maintenance organization; POS, point of service; PPO, preferred provider organization.

3. Public demand for coverage (Section 3(j))

The National Institute on Deafness and Other Communication Disorders estimates indicate that approximately 1.7% of children have hearing impairments. Of those children, approximately 46,000 are privately insured and are unlikely to be covered for hearing aids. Most of these children obtain hearing aids despite the lack of insurance coverage.

Among the privately insured market segments, only large groups have offered the option of purchasing a hearing aid benefit. An estimated 10% of the large-group market is covered by large groups that have exercised the option to purchase hearing aids. CalPERS is one large group that purchases the benefit for subscribers and their dependents.

Medi-Cal and Healthy Families already cover hearing aids for children, so a significant portion of unsatisfied public demand in the publicly insured market is unlikely. To the extent that Medi-Cal reimbursement rates for hearing aids are below the estimated average $3,000 cost (Medi-Cal fee-for-services reimbursement rate is $883), a portion of the cost presumably is absorbed by the provider or the beneficiary's choice of hearing aids is constrained.

Post-mandate Impacts on Utilization Cost and Coverage

4. How will changes in coverage related to the mandate affect the benefit of the newly covered service and the per-unit cost? (Section 3(a))

The per-unit cost of hearing aids is estimated to remain the same after the mandate. The $1,000 annual benefit acts as a subsidy, and members may respond by purchasing a more expensive hearing aid. Although such a subsidy may put some inflationary pressures on the per-unit cost, health plans and insurers can be expected to use their purchasing power to obtain discounts from manufacturers and wholesale distributors in the same way they may obtain discounts on durable medical equipment, prostheses and orthotic items, and pharmaceuticals.

5. How will utilization change as a result of the mandate? (Section 3(b))
Utilization rates for children who are not currently covered for hearing aids are estimated to increase from a current rate of 61% to 65%. As mentioned above (under Item 1), the estimated utilization rate increase is limited because of the following:

- Children who are profoundly hearing impaired may not receive significant benefits by using a hearing aid.
- Some children may have hearing loss that is so mild that their hearing loss goes undetected, or they choose to not to use a hearing aid.
- Cost does not appear to be a strong access barrier.

As previously discussed, because the life span of a child's hearing aid is expected to be two years, the mandated benefit is expected to be used once every two years per affected child.

6. To what extent does the mandate affect administrative and other expenses? (Section 3(c))
Administrative expenses may include the cost of setting up contracts with hearing aid dispensers or building financial arrangements for currently contracted hearing aid dispensers. Some health plans currently have existing arrangements with hearing aid dispensers to provide a discount to members. For example, Kaiser Permanente has such a relationship with HearUSA in Southern California.

Health care plans include a component for administration and profit in their premiums. In estimating the impact of this mandate on premiums, actuarial analysis (see Appendix C) assumes that health plans will apply their existing administration and profit loads to the increase in health care costs produced by the mandate. Therefore, although there may be administrative costs associated with the mandate, administrative costs *as a portion of premium* would not change.

7. The impact of the mandate on total health care cost (Section 3(d))
The impact of the hearing aid benefit mandate on premiums in California will be less than 0.10%. Based on estimates, total costs (including total premiums and out-of-pocket spending for copayments and non-covered benefits) will increase by a range of 0.02% to 0.03%. For privately insured individuals, health insurance premiums will increase by approximately 0.05% to 0.09%, depending on their coverage segment, with the greatest impact being on the small-group health maintenance organization (HMO) segment (see Table A). A substantial portion of the increase in insurance premiums will be due to insurance absorbing a portion of the benefit's cost previously paid for by the insured. This transfer effect is discussed under Item 9, below.

8. Costs or savings for each category of insurer resulting from the benefit mandate (Section 3(e))
For privately insured individuals, health insurance premiums will increase by approximately 0.05% to 0.09%, depending on their coverage segment. As previously mentioned, the greatest impact is estimated to be on the small-group HMO segment (see Table A). Given that the small-group market is not currently offering the option to purchase hearing aid coverage as a benefit, this impact may be explained by the effects of increased coverage rates (from 0% coverage to 100% coverage). In the large-group market, the increase in coverage rates will increase from 10% to 100%, and the resulting premium impact is will range from 0.05% to 0.08%.

The individual market is estimated to face increases in premiums of approximately 0.06%. Given that health plans and insurers may underwrite to mitigate risk, increases in premiums will be smaller for adult contracts and larger for policies that cover children, and specifically children with hearing loss.

CalPERS currently provides coverage for hearing aids to subscribers and their dependents, limited to $1,000 every 36 months. Because SB 174 mandates coverage at the same dollar amount, but for a 12-month rather than a 36-month period, CalPERS will have to provide a richer benefit for dependents under the age of 18. However, because children who use hearing aids would use this benefit an estimated once every two years (given the expected life span of a child's hearing aid), the premium impact on CalPERS is expected to range from virtually nonexistent to 0.08% (the same as the impact on the large-group HMO segment).

9. Current costs borne by payers (both public and private entities) in the absence of the mandated benefit (Section 3(f))

Impact on Public Programs

Medi-Cal and Healthy Families are among the few payers that cover hearing aids for children. Few Medi-Cal beneficiaries have private coverage, and Healthy Families enrollees cannot have private coverage per federal law. Consequently, cost shifting to the public sector absent the benefit mandate is estimated to be limited.

No cost shifting is expected to occur from the public programs to the privately insured market if the benefit is mandated. SB 174 will apply to health plans and insurers who provide coverage to Healthy Families and Medi-Cal managed care enrollees. Because the current coverage of these programs is similar to or exceeds the mandated benefit, the impact on them will be minimal. Healthy Families already covers the total cost of hearing aids and ancillary items, following a hearing assessment, every 36 months. Medi-Cal also covers hearing aids through designated hearing aid dispensers following a hearing assessment.

Impact on Privately Insured Members' Out-of-Pocket Expenditures

The largest portion of the shift in benefit expenditures will be from privately insured individuals' out-of-pocket expenses to third parties. For example, in the large-group HMO market, $0.12 of the out-of-pocket expenses (measured as per member per month costs) would be expected to shift to the health plan or insurer. These shifts in expenditures are estimated to result in an average increase of total premiums by 0.03% that would be paid for by the employer and the insured.

Because the benefit mandate is limited to $1,000 and does not cover ancillary costs, including batteries and cords, the user would continue to incur cost at the point of purchase. However the benefit mandate would absorb approximately 30% of the cost burden. In other words, enrollees will continue to pay out-of-pocket costs, but those costs would be reduced by approximately 30%.

10. Impact on access and health service availability (Section 3(g))

As previously discussed, the mandate will increase access for individuals for whom the cost of a hearing aid was a barrier to access and for whom a $1,000 annual benefit amount is sufficient to eliminate that barrier. Based on the expected changes in utilization, the mandate would increase access to approximately 4% of children with hearing impairments.

III. PUBLIC HEALTH IMPACTS

Effective intervention to treat hearing loss is associated with decreased costs to the educational system (especially special education) and increased productivity later in life. Because there is no direct evidence regarding public health impacts for providing hearing aid coverage per the provisions of SB 174 (i.e., with a $1,000 annual benefit limit), this section focuses on the general public health impacts of covering hearing aids for children with hearing impairment.

Population Impact

To determine the population-based public health impact of covering hearing aids for children with hearing loss, the prevalence of hearing loss as a condition among children needs to be ascertained. Prevalence rates reported in the literature vary, depending on how hearing loss is defined. One study, following children from ages 6 to 19 during 1988-1994 found that the prevalence of low-frequency, mild-to-moderate hearing loss was 1.4%, and severe-to-profound hearing loss was 0.3%. The prevalence of high-frequency, mild-to-moderate hearing loss was 2.6%, and severe-to-profound hearing loss was 0.4% (Niskar et al., 1998). Another study estimates that approximately 5% of children under 18 years of age have hearing loss (U.S. Department of Health and Human Services, 1991). The U.S. Public Health Service estimated that more than 1 million children (approximately 1.3% of children) in the United States have hearing loss (U.S. Public Health Service, 1990). The estimate from the National Institute on Deafness and Other Communication Disorders indicating that approximately 1.7% of U.S. children are affected by hearing loss is the percentage used for purposes of this mandate analysis (National Institute on Deafness and Other Communication Disorders, 2001). This estimate was used because it is consistent with and within the range of findings of the Niskar study; it is consistent with the U.S. Public Health Service estimate; and the Maine Bureau of Insurance also used this estimate to assess the impact of mandating coverage for hearing aids in Maine (Mercer Risk, Finance & Insurance Consulting, Inc., and Maine Bureau of Insurance, 2003).

If the mandate were enacted, approximately 50,000 children will use the benefit once every two years (see Table B). Considering that there are approximately 9.2 million children in California, the mandate would affect 0.5% of the population under 18 years of age (California Health Interview Survey, 2001).

A number of children who would gain coverage would have obtained hearing aids anyway. Because estimates show a greater than 60% rate of utilization *prior* to the mandate, an estimated 3,200 additional children would obtain hearing aids after the mandate. However, it is likely that those children who had obtained hearing aids prior to coverage might obtain hearing aids with better technology, given that the $1,000 benefit would act as a subsidy.

Of the total number of individuals in the United States who have mild to total loss of hearing, approximately 5% to 8% are under 18 years of age (Blanchfield et al., 1999; National Academy on an Aging Society, 1999). Since this mandate is targeted specifically to children, the mandate would not affect the remaining portion of the California population that has hearing loss and is not covered for hearing aids.

Public Health Impact of Effective Early Intervention

There is general consensus that hearing is important for children to develop language, speech, and learning skills. Qualitative literature, based on observational data, shows that effective intervention for the treatment of hearing loss has long-term effects, including improved communication skills. In addition, untreated hearing impairments cost society in terms of lost productivity, special education, and medical care.

The U.S. Preventive Services Task Force's 2001 report shows, based on observational and anecdotal evidence, that early childhood detection of hearing loss and intervention are associated with improving communication skills that are essential in early development (U.S. Preventive Services Task Force, 2001).

Undetected and untreated hearing loss in children may result in various costs to the educational system, especially if schools are unequipped to effectively address these children's learning needs. For example, children with hearing loss may be misplaced in the educational system with children having mental or learning disabilities.

Researchers of one study, which examined data taken from the 1994 National Health Interview Survey of Disability, Phase I, found that hearing loss is associated with lost productivity and poorer health (National Academy on an Aging Society, 1999). They found that 67% of the hearing-impaired population was employed compared with 75% of the hearing population. While this is a survey of adults, the findings may inform potential public health impacts for children with hearing loss if left untreated. The same study found an association between self-reported poorer health status and individuals of all ages with untreated hearing loss

APPENDIX A

Literature Review

As part of the analysis related to Senate Bill 174, CHBRP contracted with the National Organization for Research at the University of Chicago (NORC). CHBRP selected NORC to review the relevant literature because NORC has a proven ability to conduct high-quality, policy-relevant research.

NORC was asked to review and synthesize existing evidence in the literature about whether providing a $1,000 annual benefit for hearing aid technologies when medically indicated is effective. In its assessment of the literature, NORC was asked to provide evidence for the following issues:

- Prevalence and incidence of hearing impairment among 18-year-olds in California (or, if those figures were unavailable, nationally)
- Which types of hearing impairments can be helped by different types of hearing aid technologies; their likely cost when purchased in bulk; and the length of their useful lives
- Nonfinancial barriers to access for children who are prescribed appropriate hearing aids and who encounters them
- Expected utilization rates of a hearing aid benefit (if mandated) for children

NORC's review and analysis is an integral part of this report.

APPENDIX B

Cost Analysis and Estimates Used in This Report

Cost Estimation Approach – General Assumptions

The process of estimating the cost impact of a mandate involves developing assumptions regarding the current levels of health care coverage in place and then simulating the impact of the mandate on costs, premium levels, and benefit coverage. Four different "model" plans were selected: health maintenance organization (HMO), preferred provider organization (PPO), point-of-service (POS), and fee-for-service (FFS), along with three insured types (large group, small group, and individual) to represent typical insured plan benefits in California.

Coverage of mandated benefits in each model plan was estimated by surveying the seven largest California health insurers. Although this information is reflected in the modeling, each of these carriers offers a range of plan options, and it is impractical to summarize actual current coverage levels overall. Based on general knowledge of today's health insurance marketplace and information received from California insurers, the model plans are designed to be a reasonable representation of the average plans offered in California today.

The model plans used in the analysis are as follows:

- Large-Group HMO
- Large-Group PPO
- Large-Group POS
- Large-Group FFS
- Small-Group HMO
- Small-Group PPO
- Small-Group POS
- Small-Group FFS
- Individual (HMO and PPO)

The commercial market was divided into large-group (51 or more employees), small-group (2 to 50 employees), and individual coverage. Each of these markets is subject to different regulations and market forces.

Four model plans were selected, representing the four general plan types that are commonly available in today's market. These plan types vary in terms of the benefit structure, the limitations on choice of providers (i.e., physicians and hospitals), and the level of managed care restrictions imposed by the health insurer. Standard descriptions of these plan types are as follows:

- **HMO** – A health maintenance organization is a "closed-panel" plan that limits coverage to those providers in a designated panel (other than in emergency situations). The plan member is typically required to select one of the panel's primary care physicians, who serves as the referral point to specialty care. The primary care physician, by agreeing to participate in the

HMO's network, agrees to abide by the utilization management requirements and the fee schedules or other reimbursement approaches specified by the HMO.

The HMO coverage is broader than fee-for-service coverage, meaning it has lower member cost sharing and includes certain preventive care services that are not generally covered under an FFS or PPO plan. The model HMO plan used in this analysis is assumed to be moderately managed in terms of the degree of managed care, meaning that the plan uses some management protocols and standards, with moderate conformity to such standards.

- **PPO** – A preferred provider organization uses a fee-for-service approach to paying providers. The plan designates a preferred network of providers; members must use providers in the network in order to receive the highest level of benefit coverage. If a member chooses to use a non-network provider, the services are covered but the member must pay a substantially greater level of cost sharing. The model PPO plan used in this analysis is assumed to be loosely managed with respect to all services.

- **POS** – A point-of-service plan has a closed panel that is similar to an HMO plan, but it also allows members to go outside the panel, subject to paying a significantly higher level of cost sharing. The level of coverage for "in-network" benefits, meaning services within the closed panel, is similar to HMO coverage and has the same primary care physician role. The model POS plan used for this analysis is assumed to be moderately managed with respect to in-network coverage and loosely managed for out-of-network coverage.

- **Fee-for-Service (FFS)** – The fee-for-service plan is a traditional indemnity plan with minimal focus on managed care (referred to as "loosely managed"). Members can seek care from the providers of their choice.

The following information was estimated for each of the model plans:

Population Younger Than Age 65 Currently Covered

The data for these analyses were obtained from multiple sources. The California Health Interview Survey (CHIS), 2001 was used to identify the demographic characteristics and estimate the insurance coverage of the population in the state. CHIS is a random telephone survey of more than 55,000 households that is conducted in multiple languages by the University of California at Los Angeles Center for Health Policy Research. CHIS is the first state-level survey of its kind to provide detailed information on demographics and health insurance coverage as well as health status and access to care, including representative samples of non–English-speaking populations. CHIS insurance coverage estimates were cross-validated with administrative or other data sources.

To obtain estimates of the percentage of employees by size of firm and type of health plan, this analysis used the 2001 Health Research and Educational Trust (HRET) survey of California employers. Conducted annually for the Kaiser Family Foundation (KFF) of representative samples of small and large employers, these data provide estimates of numbers of employees working in such firms and their types of coverage. Coverage categories include conventional FFS, PPOs, POS, and HMOs. Furthermore, the HRET/KFF survey also provides information on whether each health plan is self-insured or underwritten. The latter two data points were used to complement CHIS data,

because CHIS does not provide details on PPO and POS or self-insured coverage. The HRET/KFF survey also contains data on health insurance premium costs of individual and family plans as well as the proportion of premiums that are paid by the employee and the firm for each type of health plan.

The percentages of workers with employment-based coverage obtained from CHIS data were inflated to reflect children and non-working individuals with this type of coverage. The final numbers of individuals with each type of coverage used in the analysis included only those covered under insured policies.

Baseline PMPM Costs – Insured Premiums

For large and small groups, the single and family premium rates from the HRET/KFF data were converted to per member per month (PMPM) rates by assuming 44% of covered employees had single coverage and 56% had family coverage. Employees with family coverage were assumed to have 2.21 dependents on average. These demographic assumptions were based on Milliman USA research.

For individual coverage, PMPM premium information was obtained through a survey of the largest insurers and HMOs in California.

The historical PMPM premium information discussed above was inflated by a rate of 12% per year to estimate premiums for calendar year 2004.

An actuarial cost model was constructed for each plan type, breaking down the observed premiums into administration costs and detailed health care service categories. The current utilization and average cost per service were estimated for each service category. The starting point for cost estimates in the analysis was the *Milliman Health Cost Guidelines* (HCGs), July 2003 edition. The HCGs are Milliman USA's proprietary information base that show how the components of per capita medical claim costs vary with benefit design, demographic composition, location, provider reimbursement arrangements, degree of managed care delivery, and other factors. In most instances, HCG cost assumptions are based on an evaluation of several data sources and are not specifically attributable to a single data source. The HCGs are used by Milliman USA client insurance companies, HMOs, and other organizations, primarily for pricing and evaluating health insurance products.

Adjustment factors from the HCGs were used to modify utilization and unit cost assumptions specifically for the state of California. The resulting cost estimates were then compared with the average premium rate information for the State of California from Milliman USA's *2003 HMO Intercompany Rate Survey* and to the premium rate survey discussed above to ensure the reasonableness of the estimates of the overall health care cost and premium levels.

Baseline PMPM Costs – Average Portion of Insured Premium Paid by Employer/Employee

Most employers require employees to pay a portion of the health premium through monthly contributions. The calendar year 2002 data from HRET/KFF 2002 included the average single and family monthly employee contribution rates. The residual between the total premium and the employee contribution rates was assumed to be the portion of the premium paid by the employer.

Note that the employee costs in this value are just the monthly contribution rates; member cost sharing at the point of service is calculated separately.

Covered Benefits Paid by Member

This value varies by the plan type. Using the actuarial cost models described above, an estimate was made for the PMPM value of the deductibles and copays paid by plan members/insured as a percentage of total PMPM health care costs for each plan type:

	Member Cost Sharing As a Percent of Total Health Care Costs
Large-Group HMO	4%
Large-Group PPO	14%
Large-Group POS	7%
Large-Group FFS	21%
Small-Group HMO	6%
Small-Group PPO	16%
Small-Group POS	9%
Small-Group FFS	23%
Individual	20%

Benefits Not Covered

For each mandate, an estimate was made for the cost of services that are now being paid for directly by patients, exclusive of deductible and cost sharing for benefits that would be covered by insurance under the mandate.

Administrative/Profit Component of Premiums

Estimates are expressed as the percent change in premiums. These same percent changes would also apply separately to the benefit costs and the administrative expenses of health insurers. It was estimated that insurers' administrative expenses would change proportionately to the underlying change in benefit costs, reflecting the expected impact on claims-processing costs, utilization management costs, and other administrative functions.

The following table contains the assumed administrative/profit component of premium, expressed as a percentage of total premiums. These assumptions are general, and may not reflect the assumptions used by any particular insured plan in California.

	Administrative/Profit Expenses As a Percent of Total Insured Premiums
Large-Group HMO	15%
Large-Group PPO	17%
Large-Group POS	16%

Large-Group FFS	17%
Small-Group HMO	20%
Small-Group PPO	22%
Small-Group POS	21%
Small-Group FFS	22%
Individual	30%

Cost Estimation Approach – Mandate Impact Methodology

Once the current baseline PMPM health care costs and premiums are determined, the next step is to estimate the increase in these PMPM costs and premiums due to the mandate.

Step 1: Estimate the change in health care costs covered by insurance

For services that are newly required by the mandate, the PMPM health care cost of these services that are already covered and being paid for under insurance plans was determined first. Note that these are the total costs for insured benefits, including the amounts paid by the insurer and amounts paid by the member through cost sharing. For a given plan type, this is calculated as follows:

(Percentage of members currently covered for the service), X
(Percentage of currently covered members expected to use the service in a year), X
(The cost per person who uses the service)

These costs are assumed to be included in the baseline costs estimated above.

Next is determined the cost of these mandated services covered under insurance plans after the mandate. For a given plan type, this is calculated as follows:

(Percentage of members covered for the service (assumed to be 100%)), X
(Percentage of current and newly covered members expected to use the service in a year), X
(The cost per person who uses the service)

The difference between the PMPM insured health care costs of newly mandated services before and after the mandate is the change in the *direct* health care costs covered by insurance.

In some cases, the increase in cost due to the newly covered services is offset by a decrease in the cost for other health care services.

The total change in health care costs covered by insurance is equal to the change in the *direct* health care costs covered by insurance less the value of the offset due to decreases in other health care costs.

Step 2: Allocate the change in health care costs covered by insurance between amounts paid by member cost sharing and amounts paid by the insurer

The portion of new health care costs that is paid by member cost sharing, “Covered Benefits Paid by Member,” is estimated based on the above table, “Member Cost Sharing as a Percent of Total Health

Care Costs." This is modified if the impact of the mandate is to modify the cost-sharing provisions as opposed to adding new covered benefits.

The portion of new health care costs not paid by member cost sharing is defined as the increase in the health care component of insured premiums.

Step 3: Estimate the change in insured premiums

The change in insured premiums is equal to the increase in the health care component of insured premiums, from Step 2, plus the increase in the administration and profit expense of the insurer. The administration and profit portion of the increase in insured premiums is based on the above table, "Administrative/Profit Expenses as a Percent of Total Insured Premiums."

The total of the increase in the health care and administrative/profit components of premium is added to the baseline PMPM premiums to estimate the PMPM premiums after the mandate.

Step 4: Allocate the change in health care premiums between amounts paid by the employer and amounts paid by the employee

The PMPM premium after the mandate is allocated between the portions paid by the employer and employee by assuming employers will continue to pay the same percentage of health care costs as before the mandate.

Step 5: Estimate the health care costs for newly mandated services that are currently paid by individuals due to lack of insurance coverage

For services that are newly required by the mandate, the PMPM health care cost of these services that are not currently covered but are being paid out of pocket by individuals is determined. For a given plan type, this is calculated as follows:

(Percentage of members currently not covered for the service), X
(Percentage of currently not-covered members expected to use the service in a year), X
(The cost per person that uses the service)

Step 6: Estimate the health care costs for newly mandated services that will be paid by individuals due to lack of insurance coverage after the mandate

This value is assumed to be zero.

Step 6: Estimate the impact on total expenditures for the insured population

The impact on total expenditures is equal to the total change in insured premiums, plus the change in the Covered Benefits Paid by Member, plus the change in the Benefits not Covered. Note that this

amount is typically less than the impact on Insured Premiums, because some of the increase in Insured Premiums is offset by decreases in the Covered Benefits Paid by Member and Benefits not Covered. Also, the analysis assumes the estimated net change in actuarial costs translates fully into expenditure changes.

General Caveats and Assumptions

The California Health Benefit Review Program conducted the cost analysis presented in this report. Per the provisions of AB 1996 (*California Health and Safety Code* Section 127660 *et seq*.), the analysis includes input and data from an independent actuarial firm, Milliman, U.S.A.

A variety of external data sources was used in preparing the cost estimates for this report. Although this data was reviewed for reasonableness, it was used without independent audit. The *Milliman Health Cost Guidelines* were used extensively to augment the specific data gathered for this mandate. The HCGs are updated annually and are widely used in the health insurance industry to estimate the impact of plan changes on health care costs.

Unless otherwise noted in the report, the estimated net changes in actuarial costs are not the same as economic costs associated with the mandate because actuaries and economists define "costs" differently. While actuarial costs are net expenditures as just described, estimates of economic costs would typically include the value of the alternative uses of resources associated with the mandate.

The expected costs in this report are not predictions of future costs. Instead, they are estimates of the costs that would result if a certain set of assumptions were exactly realized. Actual costs will differ from these estimates for a wide variety of reasons, including:

- Prevalence of mandated benefits already covered different from analysis assumptions
- Utilization of mandated services before and after the mandate different from analysis assumptions
- Assumptions used by health plans to price the mandated benefits different from analysis assumptions
- Random fluctuations in the utilization and cost of health care services

Additional assumptions that underlie the cost estimates presented here are as follows:

- Cost impacts are shown only for people with insurance.
- The projections do not include people covered under self-insurance employer plans, as those employee benefit plans are not subject to state-mandated minimum benefit requirements.
- Employers and employees will share proportionately (on a percentage basis) in premium rate increases resulting from the mandate. In other words, the distribution of premium paid by the subscriber (or employee) and the employer will by unaffected by the mandate.

There are other variables that may affect costs but were not considered in the cost projections presented in this report. Such variables include, but are not limited to, the following:

- Population Shifts by Type of Health Insurance Coverage. If a mandate increases health insurance costs, then some employer groups or individuals may elect to drop their coverage. Employers may also switch to self-funding to avoid having to comply with the mandate.

- Changes in Benefit Plans. To help offset the premium increase resulting from a mandate, members or insured may elect to increase their overall plan deductibles or copayments. Such changes will have a direct impact on the distribution of costs between the health plan and the insured person, and may also result in utilization reductions (i.e., high levels of patient cost sharing result in lower utilization of health care services). The effects of such potential benefit changes in its analysis were not included.

- Adverse Selection. Theoretically, individuals or employer groups who had previously foregone insurance may now elect to enroll in an insurance plan because they perceive that it is to their economic benefit to do so.

- Medical Management. Health plans may react to the mandate by tightening their medical management of the mandated benefit. This would tend to dampen cost estimates in the analysis. The dampening would be more pronounced on the plan types that previously had the least effective medical management (i.e., FFS and PPO plans).

- Variation in Existing Utilization and Costs, and in the Impact of the Mandate, by Geographic Area and Delivery System Models. Even within the plan types modeled (HMO, PPO, POS, and FFS) there are variations in utilization and costs within California. One source of difference is geographic. Utilization differs within California due to differences in provider practice patterns, the level of managed care, and possibly the underlying health status of the local commercial population. The average cost per service varies due to different underlying cost levels experienced by providers and the market dynamic in negotiations between health plans and providers.

- Non-Covered Benefits. Non-covered benefits for this analysis means the out-of-pocket spending for hearing aids beyond the benefit limit (i.e., $1,000). It does not include out-of-pocket spending for accessories such as cords and batteries.

Both the baseline costs prior to the mandate and the estimated cost impact of the mandate could vary within the state due to geographic and delivery system differences. For purposes of this analysis, however, the impact has been estimated on a statewide level.

Table A
Analysis of the Mandate for Hearing Aids for Children
PMPM Cost and Use Summary Table, California, Calendar Year 2004

	Large Group				Small Group				Individual	Total
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS		
Population Currently Covered and Insured Under Age 65 (3)	5,692,000	1,538,000	1,433,000	54,000	2,325,000	1,103,000	775,000	40,000	1,538,000	14,498,000
Baseline PMPM Costs (1)										
A. Insured Premiums										
Total Premium	$218.00	$314.73	$251.73	$319.70	$225.89	$317.75	$246.57	$331.59	$188.19	$3,472,330,000
Average Portion of Premium Paid by Employer	$169.13	$256.17	$185.92	$276.33	$168.18	$269.65	$194.56	$276.96	$0.00	$2,488,310,000
Average Portion of Premium Paid by Employee	$48.87	$58.56	$65.80	$43.37	$57.71	$48.11	$52.01	$54.63	$188.19	$984,020,000
Total Premium	$218.00	$314.73	$251.73	$319.70	$225.89	$317.75	$246.57	$331.59	$188.19	$3,472,330,000
B. Covered Benefits Paid by Member (Deductibles, Copays, etc.)	$7.72	$42.52	$15.92	$70.54	$11.53	$47.21	$19.26	$77.26	$32.93	$283,530,000
C. Total Cost of Covered Benefits	$225.72	$357.25	$267.64	$390.24	$237.42	$364.96	$265.83	$408.85	$221.12	$3,755,860,000
D. Benefits Not Covered (2)	$0.44	$0.44	$0.44	$0.44	$0.45	$0.45	$0.45	$0.45	$0.22	$6,060,000
E. Total Expenditures	$226.15	$357.69	$268.08	$390.68	$237.87	$365.41	$266.28	$409.30	$221.35	$3,761,910,000

Table A (cont'd)
Analysis of the Mandate for Hearing Aids for Children
PMPM Cost and Use Summary Table, California, Calendar Year 2004

	Large Group				Small Group				Individual	Total
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS		
Estimated PMPM Costs After Mandate										
A. Insured Premiums										
Total Premium	$218.16	$314.90	$251.90	$319.88	$226.09	$317.96	$246.77	$331.80	$188.30	$3,474,840,000
Average Portion of Premium Paid by Employer	$169.26	$256.31	$186.05	$276.48	$168.33	$269.82	$194.72	$277.13	$0.00	$2,490,130,000
Average Portion of Premium Paid by Employee	$48.91	$58.59	$65.85	$43.40	$57.76	$48.14	$52.05	$54.67	$188.30	$984,710,000
Total Premium	$218.16	$314.90	$251.90	$319.88	$226.09	$317.96	$246.77	$331.80	$188.30	$3,474,840,000
B. Covered Benefits Paid by Member (Deductibles, Copays, etc.)	$7.73	$42.55	$15.93	$70.58	$11.54	$47.24	$19.28	$77.30	$32.95	$283,720,000
C. Total Cost of Covered Benefits	$225.89	$357.45	$267.82	$390.45	$237.63	$365.20	$266.05	$409.10	$221.26	$3,758,560,000
D. Benefits Not Covered (2)	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.16	$4,390,000
E. Total Expenditures	$226.21	$357.77	$268.14	$390.77	$237.95	$365.52	$266.37	$409.42	$221.41	$3,762,940,000

Table A (cont'd)
Analysis of the Mandate for Hearing Aids for Children
PMPM Cost and Use Summary Table, California, Calendar Year 2004

	Large Group				Small Group				Individual	Total
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS		
PMPM $ Impact of Mandate										
A. Insured Premiums										
Total Premium	$0.17	$0.17	$0.17	$0.17	$0.20	$0.20	$0.20	$0.20	$0.11	$2,510,000
Average Portion of Premium Paid by Employer	$0.13	$0.14	$0.13	$0.15	$0.15	$0.17	$0.16	$0.17	$0.00	$1,820,000
Average Portion of Premium Paid by Employee	$0.04	$0.03	$0.04	$0.02	$0.05	$0.03	$0.04	$0.03	$0.11	$690,000
Total Premium	$0.17	$0.17	$0.17	$0.17	$0.20	$0.20	$0.20	$0.20	$0.11	$2,510,000
B. Covered Benefits Paid by Member (Deductibles, Copays, etc.)	$0.01	$0.02	$0.01	$0.04	$0.01	$0.03	$0.02	$0.05	$0.02	$190,000
C. Total Cost of Covered Benefits	$0.18	$0.20	$0.18	$0.21	$0.21	$0.24	$0.22	$0.25	$0.13	$2,700,000
D. Benefits Not Covered (2)	-$0.12	-$0.12	-$0.12	-$0.12	-$0.13	-$0.13	-$0.13	-$0.13	-$0.06	($1,670,000)
E. Total Expenditures	$0.06	$0.08	$0.06	$0.09	$0.08	$0.10	$0.09	$0.12	$0.07	$1,030,000
Percentage Impact of Mandate										
A. Insured Premiums	0.08%	0.06%	0.07%	0.05%	0.09%	0.06%	0.08%	0.06%	0.06%	0.07%
E. Total Expenditures	0.03%	0.02%	0.02%	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%

(1) All values include all health care benefits, except "Benefits not Covered," which includes only benefits covered by the mandate.
(2) Cost of mandated benefits only. For hearing aids, includes the cost in excess of any maximum covered benefit.
Source: California Health Benefits Review Program, 2003 (see Appendix B for data sources); National Institute on Deafness and other Communication Disorders; National Institutes of Health information on hearing prevalence.
FFS indicates fee-for service; HMO, health maintenance organization; PMPM, per member per month; POS, point of service; PPO, preferred provider organization.

Table B
Analysis of the Mandate for Hearing Aids for Children
Assumed Utilization and PMPM Costs of Mandated Services, California, Calendar Year 2004

	Large Group				Small Group				Individual	Total
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS		
Population Currently Under Age 65	5,692,000	1,538,000	1,433,000	54,000	2,325,000	1,103,000	775,000	40,000	1,538,000	14,498,000
Population Currently Under Age 18	1,975,124	533,686	497,251	18,738	806,775	382,741	268,925	13,880	265,000	4,762,120
Population Currently Under Age 18 with Hearing Impairments	33,500	9,100	8,500	300	13,700	6,500	4,600	200	4,500	81,000
Utilization Before Mandate										
Percentage of hearing-impaired children with existing hearing aid coverage prior to mandate	10%	10%	10%	10%	0%	0%	0%	0%	0%	0%
Maximum covered benefit for children with existing hearing aid coverage prior to mandate	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Percentage of hearing-impaired children **with coverage** that use hearing aid	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Percentage of hearing-impaired children **without coverage** that use hearing aid	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%
Number of hearing-impaired children **with coverage** that will use hearing aids after mandate	2,183	590	549	21	-	-	-	-	-	3,342
Number of hearing-impaired children **without coverage** that will use hearing aids after mandate	18,434	4,981	4,641	175	8,366	3,969	2,789	144	2,748	46,246
Average number of years of expected life span of hearing aids	2	2	2	2	2	2	2	2	2	2
Average annual number of **covered** hearing aid purchases	1,091	295	275	10	-	-	-	-	-	1,671
Average annual number of **uncovered** hearing aid purchases	9,217	2,490	2,320	87	4,183	1,985	1,394	72	1,374	23,122
Average Cost Per Hearing Aid	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Estimated PMPM Expenditures for Hearing Aids										
Portion covered by insurance (assumed to be in baseline premium costs)	$0.02	$0.02	$0.02	$0.02	$0.00	$0.00	$0.00	$0.00	$0.00	
Portion paid by member	$0.44	$0.44	$0.44	$0.44	$0.45	$0.45	$0.45	$0.45	$0.22	
Total	$0.45	$0.45	$0.45	$0.45	$0.45	$0.45	$0.45	$0.45	$0.22	

Table B (con't)
Analysis of the Mandate for Hearing Aids for Children
Assumed Utilization and PMPM Costs of Mandated Services
California, Calendar Year 2004

	Large Group				Small Group				Individual	Total
	HMO	PPO	POS	FFS	HMO	PPO	POS	FFS		
Utilization After Mandate										
Maximum covered benefit for children with hearing aid coverage after the mandate	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Percentage of hearing-impaired children with coverage that use hearing aid after mandate	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Number of hearing-impaired children with coverage that will use hearing aids after mandate	21,825	5,897	5,495	207	8,915	4,229	2,972	153	2,928	52,621
Average number of years of expected life span of hearing aids	2	2	2	2	2	2	2	2	2	2
Average annual number of **covered** hearing aid purchases	10,913	2,949	2,747	104	4,457	2,115	1,486	77	1,464	26,312
Average annual number of **uncovered** hearing aid purchases	0	0	0	0	0	0	0	0	0	0
Average Cost Per Hearing Aid	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Estimated PMPM Expenditures for Hearing Aids										
Portion covered by insurance	$0.16	$0.16	$0.16	$0.16	$0.16	$0.16	$0.16	$0.16	$0.08	
Portion paid by member	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.32	$0.16	
Total	$0.48	$0.48	$0.48	$0.48	$0.48	$0.48	$0.48	$0.48	$0.24	
PMPM Impact of Mandate (on Claims Costs)										
Portion covered by insurance	$0.14	$0.14	$0.14	$0.14	$0.16	$0.16	$0.16	$0.16	$0.08	
Portion paid by member	($0.12)	($0.12)	($0.12)	($0.12)	($0.13)	($0.13)	($0.13)	($0.13)	($0.06)	
Total	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.01	

Source: California Health Benefits Review Program, 2003 (see Appendix B for data sources); National Institute on Deafness and other Communication Disorders; National Institutes of Health information on hearing prevalence.
FFS indicates fee-for-service; HMO, health maintenance organization; PMPM, per member per month; POS, point of service; PPO, preferred provider organization.

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A group of faculty and staff undertakes most of the analysis that informs reports by the California Health Benefits Review Program (CHBRP). The CHBRP **Faculty Task Force** comprises rotating representatives from six University of California (UC) campuses and three private universities in California. In addition to these representatives, there are other ongoing contributors to CHBRP from UC. This larger group provides advice to the CHBRP staff on the overall administration of the program and conducts much of the analysis. The CHBRP **staff** coordinates the efforts of the Faculty Task Force, works with Task Force members in preparing parts of the analysis, and coordinates all external communications, including those with the California Legislature. The level of involvement of members of CHBRP's Faculty Task Force and staff varies on each report, with individual participants more closely involved in the preparation of some reports and less involved in others.

As required by CHBRP's authorizing legislation, UC contracts with a certified actuary, Milliman USA, to assist in assessing the financial impact of each benefit mandate bill. Milliman USA also helped with the initial development of CHBRP's methods for assessing that impact.

The **National Advisory Council** provides expert reviews of draft analyses and offers general guidance on the program to CHBRP staff and the Faculty Task Force. CHBRP is grateful for the valuable assistance and thoughtful critiques provided by the members of the National Advisory Council. However, the Council does not necessarily approve or disapprove of or endorse this report. CHBRP assumes full responsibility for the report and the accuracy of its contents.

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