

Evaluation of Proposed Mandated Health Insurance Services - House Bill 1145: Coverage of Hearing Aids for Adults

PREPARED FOR THE MARYLAND HEALTH CARE COMMISSION

JANUARY 9, 2024

TRACI HUGHES, FSA, MAAA
DAVE DILLON, FSA, MAAA

Table of Contents

Highlights 3

- Medical Impact 3
- Social Impact 3
- Financial Impact..... 4

Introduction 5

- Process 5
- Current vs Proposed Bill Summary 5

Medical Evaluation 6

- Background on Hearing Loss and Hearing Aids 6
- Medical Effectiveness 7
- Availability and Usage of Services..... 8

Social Evaluation 9

- Population Utilization 9
- Insurance Coverage 10
- Barriers and Disparities 10

Financial Evaluation..... 11

ASOP 41 Disclosures 16

Bibliography..... 18

Highlights

The following is a summary of the comprehensive report on the evaluation of the medical, social, and financial impact of the proposed mandated insurance coverage for adult hearing aids in proposed House Bill 1145. Lewis & Ellis, LLC (L&E) was engaged by the Maryland Health Care Commission to perform this evaluation.

MEDICAL IMPACT

- ✚ According to a report by the National Center for Health Statistics, among adults using hearing aids, 85.4% experienced no difficulty in hearing, 13% faced some challenges, while the remaining 1.6% had significant difficulties or were completely unable to hear even with the use of a hearing aid.
- ✚ Research indicates that hearing aids not only enhance auditory capabilities but also contribute to reducing several health risks and issues. They can decrease the risk of fall-related injuries, lower the likelihood of being diagnosed with anxiety or depression, reduce the number of emergency room visits or hospitalizations, and also potentially shorten the duration of hospital stays.
- ✚ Based on interviews with audiologists, it's reported that hearing aids are included in the treatment plans for approximately 85% or more of patients with sensorineural hearing loss.
- ✚ A nationwide study involving audiologists from all 50 states revealed that the number of audiologists per 100,000 population varies widely from state to state, ranging from 2.1 to 7.6. As of 2022, there were 270 audiologists employed in Maryland. This equates to an approximate rate of 4.4 audiologists per 100,000 population. However, an insurers participating network consists of a subset of the total number of audiologists.

SOCIAL IMPACT

- ✚ According to data from Johns Hopkins and the CDC, around 15% of adults aged 18 and over experience hearing loss that ranges from mild to severe. Of these adults, only about 20% actually use hearing aids. The utilization of hearing aids increases with age, therefore, when only considering adults aged 18 to 64, only about 10% with hearing loss utilize hearing aids.
- ✚ Insurance coverage for hearing aids is inconsistent, with most plans not providing hearing aid benefits. Based on information from healthcare providers and Maryland-specific data, it's estimated that only about 20-40% of insurance plans currently cover hearing aids for adults.
- ✚ According to audiologists interviewed, approximately 15% of patients are turned away because the provider is not in-network with the patient's specific insurer. Two major reasons were cited for not reaching a contractual agreement with an insurer:
 1. The parties are not able to come to an agreement regarding the allowability of balance billing. Balance billing would allow the provider to bill the insurer for the difference between the allowable hearing aid benefit and a more expensive option, if elected by the insured.

2. The insurer solely contracts with a hearing aid network vendor, such as Amplifon or TruHearing, limiting the insured’s accessibility to only the providers participating with that vendor.
- ✚ While many states mandate hearing aid coverage for children only, some states, including Arkansas, Connecticut, Illinois, New Hampshire, and Rhode Island require coverage for both children and adults.
 - ✚ The main reasons identified for patients with hearing loss not using hearing aids include the high cost of hearing aids, underestimation of the importance of hearing health, lack of awareness about how to get hearing tested or acquire hearing aids, being uninsured, and accessibility challenges, particularly in rural areas.

FINANCIAL IMPACT

- ✚ L&E leveraged data from provider interviews and publicly available sources to develop estimates for each variable that could influence cost or utilization, categorizing them into low-end, mid-range, and high-end assumptions. These ranges aren't confined to just the three scenarios of low, mid, and high illustrated; instead, they are designed to encompass the various uncertainties inherent in each assumption. This approach aims to offer a spectrum of potential outcomes.
- ✚ L&E estimated that the financial impact of the proposed House Bill 1145 is between 0.00%-0.10% of premium. The subsequent report discusses the data used to inform each assumption evaluated by L&E in detail. The table below summarizes the calculation of the financial impact.
- ✚ Cost impact estimates for similar adult hearing aid coverage mandate proposals in two states ranged from 0.00%-0.36%. L&E considered these estimates in the analysis; however, these estimates included coverage variations of hearing-aid related services and cost-sharing levels, which differ from the Maryland proposal.

SUMMARY OF THE CALCULATION OF THE FINANCIAL IMPACT OF HB 1145

Assumption	Low	Mid	High
Adult Hearing Aid Utilization Post-Mandate (a)	0.2%	0.8%	1.9%
Total Annual Cost per Utilizing Adult (b)	\$301	\$428	\$683
Adult Hearing Aid Insurer Cost-Share Pre-Mandate (c)	40%	30%	20%
Adult Hearing Aid Insurer Cost-Share Post-Mandate (d)	60%	70%	80%
Adult Hearing Aid Mandate Cost PMPY (e) = $\{[(d)-(c)]*(b)\}*(a)$	\$0.11	\$1.30	\$7.59
Maryland Projected 2024 Claim Costs PMPM^a (f)	\$615.31	\$615.31	\$615.31
Estimated 2024 Loss Ratio (g)	85%	85%	85%
Premium Cost PMPY (h)=(e)/(g)	\$0.12	\$1.53	\$8.93
Premium Cost PMPM (i)=(h)/12	\$0.01	\$0.13	\$0.74
Maryland Projected 2024 Premium PMPM (j)=(f)/(g)	\$723.89	\$723.89	\$723.89
Adult Hearing Aid Mandate Impact as a Percent of Premium (k)=(i)/(j)	0.00%	0.02%	0.10%

^a Includes the fully insured individual and group markets, as well as the State Health Plan.

Introduction

PROCESS

Pursuant to Insurance Article 15-1501 Annotated Code of Maryland, Lewis & Ellis, LLC (L&E) was engaged to address the medical, social, and financial impact of the proposed mandated insurance coverage for adult hearing aids in proposed House Bill 1145. L&E reviewed literature, analyzed statistics from public sources, interviewed providers^b, and assessed data from the Maryland All-Payer Claims Database (APCD). Each of these components were considered in the evaluation.

CURRENT VS PROPOSED BILL SUMMARY

Under the Insurance Article § 15-838 of the Annotated Code of Maryland, there is a current mandate that stipulates coverage requirements for hearing aids for minors. The mandate includes an option for similar coverage for adults. The mandate is summarized as follows and is applicable to both individual and group insurance carriers^c:

- Coverage for hearing aids for a minor child who is covered under a policy or contract if the hearing aids are prescribed, fitted, and dispensed by a licensed audiologist.
- A carrier may limit the benefit payable to \$1,400 per hearing aid for each hearing-impaired ear every 36 months.
- An insured or enrolled individual may choose a hearing aid that is priced higher than the benefit payable under this subsection and may pay the difference between the price of the hearing aid and the benefit payable, without financial or contractual penalty to the provider of the hearing aid.
- If an entity provides coverage for hearing aids to an insured or enrolled individual who is not a minor child, and if the policy or contract of the insured or enrolled individual has a dollar limit on the hearing aid benefit, the entity shall allow the individual to: (1) choose a hearing aid that is priced higher than the benefit payable under the policy or contract; and (2) pay the difference between the price of the hearing aid and the dollar limit on the hearing aid benefit.

The proposed House Bill 1145 (HB1145) aims to expand the coverage of hearing aids to include adults. It proposes this change by amending Section § 15-838 of the Annotated Code of Maryland, and adding Section § 15-838.1:

- Remove the following language from Section § 15-838:
 - If an entity provides coverage for hearing aids to an insured or enrolled individual who is not a minor child, and if the policy or contract of the insured or enrolled individual has a dollar limit on the hearing aid benefit, the entity

^b The interviews were conducted on December 18, 2023, and January 2, 2024, with four audiologists and one ENT in MD from different regions of the state, having various practice-types (i.e., single & multi-provider practices).

^c Applies to insurers and nonprofit health service plans that provide hospital, medical, or surgical benefits to individuals or groups on an expense-incurred basis under health insurance policies or contracts that are issued or delivered in the State; and HMOs that provide hospital, medical, or surgical benefits to individuals or groups under contracts that are issued or delivered in the State.

shall allow the individual to: (1) choose a hearing aid that is priced higher than the benefit payable under the policy or contract; and (2) pay the difference between the price of the hearing aid and the dollar limit on the hearing aid benefit.

- Mandate the coverage of hearing aids for adults in a newly added Section § 15-838.1 with the same terms that exist for minors in Section § 15-838.

Medical Evaluation

BACKGROUND ON HEARING LOSS AND HEARING AIDS

The Centers for Disease Control and Prevention (CDC) defines hearing loss as when any part of the ear is not functioning as it should. This definition encompasses all parts of the ear, including the outer ear, middle ear, inner ear, hearing (acoustic) nerve, and auditory system.¹

Hearing loss is categorized on a spectrum that ranges from normal to profound. This classification is determined based on the degree of hearing loss measured in decibels. The accompanying chart provides a typical mapping of hearing loss classifications.²

Degree of Hearing Loss	Hearing Loss Range (dB HL)
Normal	-10 to 15
Slight	16 to 25
Mild	26 to 40
Moderate	41 to 55
Moderately severe	56 to 70
Severe	71 to 90
Profound	91+

Hearing loss is generally categorized into two primary types: conductive hearing loss and sensorineural hearing loss.³ Additionally, these two types can coexist in the same individual, leading to a condition known as mixed hearing loss.

Conductive hearing loss occurs when sound waves are unable to pass through the outer and middle ear. This type of hearing loss is commonly addressed with medication and surgery. Sensorineural hearing loss (SNHL) arises when the small sensory cells in the inner ear, known as hair cells, are damaged. This damage can be due to various factors such as disease, certain medications, noise-induced injury, aging, and more. SNHL is the most prevalent form of permanent hearing loss, and unlike conductive hearing loss, it usually cannot be remedied through medicine or surgery. As a result, hearing aids are typically used to treat this type of hearing loss.

The evolution of hearing aids spans centuries, beginning with the use of animal horns in the 13th century as amplification devices. In the 19th century, the ear trumpet was developed, offering a more refined, though still basic, approach to correcting hearing loss.⁴ A significant

advancement occurred with the introduction of digital hearing aid technology in the 1960s. These modern devices are designed with a microphone that fits in the ear, connected by a small wire to an amplifier and battery unit typically clipped to the ear. The 1980s saw further enhancements with the introduction of digital signal processing chips, which significantly improved the performance of digital hearing aids. By the year 2000, hearing aids had advanced to the point where they could be programmed, allowing for a high degree of customization, flexibility, and fine-tuning to suit individual hearing needs.

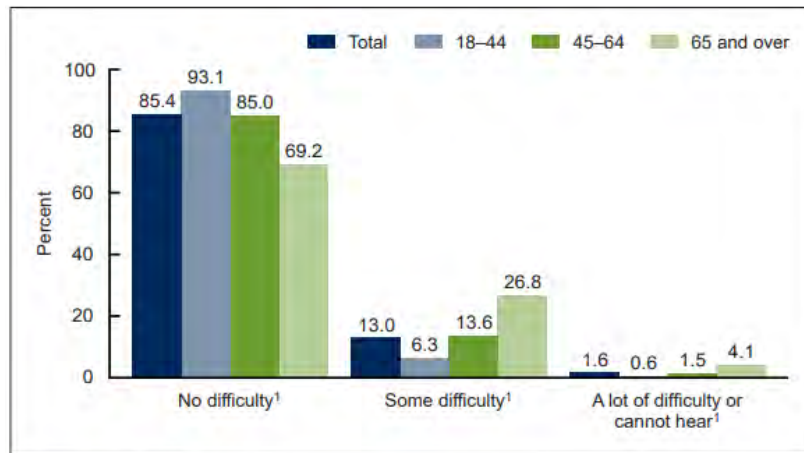
In 2022, digital hearing aids dominated the market, accounting for over 90% of revenue.⁵ Digital hearing aids function by amplifying sound vibrations entering the ear. The remaining healthy hair cells within the ear detect these enhanced vibrations and convert them into neural signals, which are then transmitted to the brain.⁶ The degree of amplification provided by the hearing aid is directly related to the severity of the hearing loss; however, there are practical limits to this amplification. Digital hearing aids are generally available in three styles: canal, behind-the-ear (BTE), and in-the-ear (ITE). Each of these styles incorporates three fundamental components: a microphone, an amplifier, and a speaker.

The BTE hearing aids held the largest share of the market revenue in 2022. These devices consist of a hard plastic case positioned behind the ear, connected to a plastic earmold that fits inside the outer ear. Following BTE in popularity are the ITE hearing aids, which are designed to fit entirely within the outer ear. Canal hearing aids, while currently holding a smaller market share, are anticipated to grow in popularity in the coming years. These come in two styles: in-the-canal (ITC) hearing aids, which are custom-made to fit the size and shape of a person's ear canal, and completely-in-canal (CIC) hearing aids, designed to be almost invisible within the ear canal.

It's important to note that hearing aids are not a cure for hearing loss. Instead, their primary function is to improve hearing ability. They are particularly effective in enhancing speech comprehension and facilitating better communication with others, making them a crucial tool for individuals with hearing impairments.

MEDICAL EFFECTIVENESS

The satisfaction rate among hearing aid users has seen a significant increase over the years, rising from 58% in 1989 to 83% in 2022.⁷ This upward trend indicates improvements in hearing aid technology and user experience. Additionally, a 2019 report from the National Center for Health Statistics revealed that 85.4% of adults aged 18 and over experienced no difficulty in hearing when using a hearing aid. However, 13% still encountered some challenges. The remaining 1.6% of users either had substantial difficulty hearing or were unable to hear at all, even with the aid of a hearing device.⁸ These statistics are visually represented in the chart below.



¹Significant quadratic trend by age ($p < 0.05$).

NOTES: Hearing limitation is based on responses to the survey question, "Do you have difficulty hearing, even when using a hearing aid? Would you say no difficulty, some difficulty, a lot of difficulty, or you cannot do this at all?" Estimates are based on household interviews of a sample of the U.S. civilian noninstitutionalized population. Access data table for Figure 1 at: <https://www.cdc.gov/nchs/data/databriefs/db414-tables-508.pdf#1>.

SOURCE: National Center for Health Statistics, National Health Interview Survey, 2019.

Studies have demonstrated that hearing aids offer benefits extending far beyond mere auditory improvement. They can significantly enhance communication skills and social functioning, thereby reducing feelings of loneliness. Furthermore, hearing aids are associated with the prevention of cognitive decline. In terms of physical health and wellbeing, they are known to decrease various risks and complications, including risk of a fall-related injury, the likelihood of diagnosis of anxiety or depression, the number of emergency room or hospitalization visits, and the number of nights in a hospital.

A study conducted by the University of Michigan revealed significant health benefits associated with first-time hearing aid use. Key findings from this study include:

1. A 13% reduction in the risk of fall-related injuries over a three-year period following the initial use of a hearing aid.
2. In older adults at higher risk of cognitive decline, the use of hearing aids slowed down the loss of cognitive functions, including thinking and memory abilities, by 48% over three years.
3. An 18% decreased likelihood of being diagnosed with Alzheimer's disease or dementia within the same three-year timeframe from the start of hearing aid use.
4. An 11% reduction in the risk of being diagnosed with anxiety or depression following the commencement of hearing aid use.^{9,10}

AVAILABILITY AND USAGE OF SERVICES

Audiologists are the primary healthcare professionals specializing in the evaluation, diagnosis, treatment, and management of hearing loss and balance disorders. They play a crucial role in assessing hearing capabilities and recommending appropriate interventions, which often include hearing aids.

Otolaryngologists, more commonly referred to as ear, nose, and throat (ENT) doctors, also treat hearing loss but with a different focus. Their specialization primarily lies in surgical interventions related to ear conditions, including procedures such as ear surgeries and the

installation of cochlear implants. While they deal with aspects of hearing loss, their approach is generally more inclined towards surgical solutions as opposed to non-surgical interventions like hearing aids.

A nationwide study involving audiologists from all 50 states revealed that the number of audiologists per 100,000 population varies widely from state to state, ranging from 2.1 to 7.6.¹¹ As of 2022, there were 270 audiologists employed in Maryland. This equates to an approximate rate of 4.4 audiologists per 100,000 population.¹² However, as discussed in the social evaluation, an insurers participating network consists of a subset of the total number of audiologists.

Based on interviews with audiologists, hearing aids are included in the treatment plans for a significant majority, approximately 85% or more, of patients with SNHL. For those SNHL patients who are not prescribed hearing aids, it's typically because their hearing loss is mild enough that they could benefit from over-the-counter hearing aids.

In August 2022, the FDA made a significant move to enhance the accessibility of hearing aids by issuing a final rule allowing them to be sold over-the-counter (OTC) without the need for a medical exam, prescription, or fitting by an audiologist. This regulatory change aimed to make hearing aids more readily available and affordable for those with mild to moderate hearing loss.¹³ Despite this increased accessibility, OTC hearing aids currently represent about 15% of the total global hearing aid market revenue.¹⁴ Additionally, consumer satisfaction with these OTC hearing aids appears to be moderate, with only about half of the users reporting satisfaction.¹⁵ Audiologists attribute this to the limited ability of consumers to effectively customize OTC hearing aids to their specific needs. Unlike devices obtained through audiologists, OTC hearing aids lack personalized adjustments. Typically, when an audiologist assists a patient, they can ensure that the hearing aid is properly molded and fitted to the individual's ear and programmed according to their unique hearing profile, leading to better performance and satisfaction.

Social Evaluation

POPULATION UTILIZATION

According to data from Johns Hopkins and the CDC, about 15% of adults aged 18 and older experience hearing loss ranging from mild to severe. The prevalence of hearing loss escalates with age, starting from less than 1% among adults in their twenties and increasing to over 60% in adults aged 70 and older.

Despite the significant incidence of hearing loss, particularly in older adults, the overall usage of hearing aids remains relatively low. Only about 20% of adults with hearing loss utilize hearing aids. The adoption of hearing aids shows a clear age-related trend: Approximately 10% of adults under the age of 60 use hearing aids, and this figure approximately triples to about 30% among adults over the age of 60.

INSURANCE COVERAGE

Insurance coverage for hearing aids varies widely, with most insurance plans not including hearing aids in their standard coverage. Some private insurance policies and Medicare Advantage plans may cover hearing exams and hearing aids, but this is not universally the case. In some instances, coverage for hearing aids is offered as a separate benefit, similar to how vision or dental coverage is handled. Based on interviews conducted with healthcare providers and Maryland specific data, it's estimated that approximately 20-40% of insurance plans provide coverage for hearing aids for adults.

According to audiologists interviewed, approximately 15% of patients are turned away because the provider is not in-network with the patient's specific insurer. Two major reasons were cited for not reaching a contractual agreement with an insurer:

1. The parties are not able to come to an agreement regarding the allowability of balance billing. Balance billing would allow the provider to bill the insurer for the difference between the allowable hearing aid benefit and the more expensive option, if elected by the insured.
2. The insurer solely contracts with a hearing aid network vendor, such as Amplifon or TruHearing, limiting the insured's accessibility to only the providers participating with that vendor.

While many states mandate hearing aid coverage for children only, Arkansas, Connecticut, Illinois, New Hampshire, and Rhode Island require coverage for both children and adults.^{16,17} Notably, three states (Arizona, Nevada, and Hawaii) include coverage of children's hearing aids in their state's "benchmark" plan for the Affordable Care Act (ACA) Exchange.¹⁸ After a state designates a "benchmark plan," all other ACA-compliant individual and small group plans must offer similar coverage. States have the option to make changes to their benchmark plan as needed.

BARRIERS AND DISPARITIES

As discussed above, of the adults with mild hearing loss or worse, a relatively low percentage of them use hearing aids. Key reasons cited include cost, underestimating hearing health importance, lack of knowledge regarding how to get hearing tested or how to get a hearing aid, being uninsured, and accessibility issues, particularly in rural areas¹⁹.

A Research Letter was completed in 2020 analyzing data from 2011 through 2018 of participants aged 70 and older.²⁰ The results found that older adults living at less than 100% of the federal poverty level (FPL) experienced an overall decrease in proportion of hearing aid ownership and use, while older adults living at 200% or above the FPL saw an overall increase in ownership and use. Further, the prevalence of hearing loss is lower among women versus men and Black versus White Americans. Black women only saw 5.8% growth in hearing aid ownership and use over the 8-year period, the smallest growth across all the studied subgroups, while White men saw a 28.7% increase in hearing aid ownership and use.

Financial Evaluation

To estimate the financial impact of the proposed mandate, L&E began the financial evaluation by thoroughly reviewing responses from provider interviews and examining publicly available sources. L&E then developed estimates for each variable that could affect cost or utilization. These estimates were categorized into three different scenarios: low-end, high-end, and mid-range assumptions. This approach allowed for a comprehensive view of the potential financial implications under varying conditions.

Once these assumptions were established for each variable, L&E used them to calculate the final estimated aggregate range. This range represents the overall potential financial impact of the proposed mandate, taking into account the various factors and uncertainties that might influence the costs associated with the mandate's implementation.

It's important to note that the range calculated is not limited to just the three scenarios of low, mid, and high that were explicitly illustrated. Instead, the resulting range is designed to encompass the various uncertainties inherent in each assumption, thereby providing a spectrum of potential outcomes. This methodology acknowledges the complexity and variability of factors that can influence the fiscal impact. By considering a wide array of scenarios and sets of assumptions, the final estimated range presented by L&E captures a multitude of possible scenarios.

Each of the following sections discuss the data used to inform each assumption evaluated by L&E.

ADULT HEARING AID UTILIZATION PRE-MANDATE

Based on data from sources such as Johns Hopkins, the CDC, and the National Institute on Deafness (NID), approximately 5-15% of adults aged 18-64 experience some level of hearing loss. Of these adults, only 5-15% utilize hearing aids. Based on the underlying data, L&E selected the following assumption range for the hearing aid utilization pre-mandate:

Assumed Adult Hearing Aid Utilization Pre-Mandate			
	Low	Mid	High
% of Insured Population That is Age 18-64^d	70%	75%	80%
Prevalence of Hearing Loss in Ages 18-64	5%	10%	15%
Hearing Aid Utilization Among those with Hearing Loss Ages 18-64	5%	10%	15%
Hearing Aid Utilization Ages 18-64 Pre-Mandate	0.2%	0.8%	1.8%

L&E highlights that the mandate impacts adults aged 18-64. Maryland already mandates hearing aid coverage for children. Additionally, adults above age 65 are assumed to be covered by Medicare. Medicare coverage is not considered within the proposed mandate.

^d The publicly insured population (i.e., Medicare, Medicaid) is not considered within this figure.

The ‘% of Insured Population That is Age 18-64’ is based on data from the Maryland All-Payer Claims Database (APCD).

MANDATE INDUCED UTILIZATION

There is very little data available regarding induced utilization^e as a result of mandated benefits for hearing aids. However, it would be unreasonable to assume that there is no potential for increased utilization as a result of the overall decrease in cost to the insured that would occur if the proposed mandate were enacted. Based on L&E’s experience, the following range was selected for the induced utilization assumption:

Assumed Adult Hearing Aid Mandate Induced Utilization		
Low	Mid	High
0.0%	1.5%	3.0%

ADULT HEARING AID COST (CAPPED AT \$1,400)

Based on publicly available data, as well as information provided by audiologists, a pair of hearing aids can cost between \$2,500 to \$8,000, or \$1,250 to \$4,000 per hearing aid. The proposed mandate would allow insurers to limit the hearing aid benefit to \$1,400 per hearing aid. While the cheapest hearing aids are below the allowable benefit limit, patients often do not choose the cheapest option. The proposed mandate specifically states that the insured should have the option to choose a higher priced hearing aid and pay the difference between the cost and the benefit without financial penalty.

Based on the information gathered, the following table shows the range of assumptions selected by L&E for the cost per hearing aid, capped at \$1,400.

Assumed Cost per Hearing Aid Capped at \$1,400		
Low	Mid	High
\$1,300	\$1,350	\$1,400

AVERAGE NUMBER OF HEARING AIDS PER UTILIZING ADULT

According to data from the National Institute on Deafness (NID), as well as input from audiologists, approximately 80-95% of persons with SNHL experience hearing loss in both

^e An increase in demand for and utilization of health care services caused by a decrease in the level of cost-sharing that insured’s are required to pay under their insurance coverage.

ears. Therefore, L&E selected the following assumptions for the average number of hearing aids per utilizing adult:

Assumed Average Number of Hearing Aids Per Utilizing Adult		
Low	Mid	High
1.85	1.90	1.95

HEARING AID LIFESPAN (YEARS)

Based on publicly available data, as well as provider interviews conducted, the lifespan of a hearing aid is between 3-8 years. While the proposed mandate does allow for the benefit to be limited to every three years, it also states that coverage should be for medically appropriate and necessary hearing aids. The audiologists interviewed stated that in a large majority of cases, a new hearing aid would not be medically necessary after 3 years. Therefore, 3 years was not included in the selected range of assumptions below.

Based on the underlying data, L&E selected the following range for the assumed lifespan of a hearing aid:

Assumed Hearing Aid Lifespan (in Years)		
Low	Mid	High
8.0	6.0	4.0

L&E notes that a longer lifespan results in a lower financial impact. Therefore, the higher number of years are listed for the mid- and low- scenarios.

INSURER COST-SHARING PRE-MANDATE AND POST-MANDATE

Due to time constraints, L&E was not able to survey insurers for this benefit mandate evaluation. While insurer input would have likely been the most helpful, L&E was able to gather information regarding current insurance coverage from the Maryland APCD, provider interviews, and research. Although coverage for adult hearing aids is not common, adult hearing aid coverage is included within a subset of specific plans offered by four out of the five major insurers in Maryland.

Regarding the level of insurer cost-share post-mandate, L&E notes that while the proposed mandate allows for a maximum benefit limit, it does not specifically require a minimum benefit level. Since there is no specific benefit minimum requirement proposed, L&E assumed that the hearing aid cost-sharing approach would follow the overarching plan cost-sharing level. Overall insurer cost-share levels for commercially marketed plans are typically between 60-80%.

Based on the information available, L&E selected the following assumptions for the Insurer Cost-Sharing Pre- and Post- Mandate:

Assumed Insurer Cost-Sharing			
	Low	Mid	High
Adult Hearing Aid Insurer Cost-Share Pre-Mandate	40%	30%	20%
Adult Hearing Aid Insurer Cost-Share Post-Mandate	60%	70%	80%

L&E notes that a higher level of pre-mandate insurer cost-share results in a lower financial impact. Therefore, the higher pre-mandate cost-share percentages are listed for the mid- and low- scenarios.

MARYLAND TOTAL CLAIMS COSTS PMPM AND PREMIUM PMPM

Total claims cost data was provided to L&E from the Maryland APCD from 2017-2022^f. L&E utilized 2022 paid claims data as the base year and trended it 2024 with an assumed paid claims trend of 6.6% per year. The 6.6% assumption is based on the average paid claims trend from 2017-2022. The projected 2024 paid claims per member per month (PMPM) is \$615.31.

Further, L&E utilized 2022 claims and premium data provided to calculate a total loss ratio of 85%. L&E assumed that the overall loss ratio would remain consistent into 2024. Therefore, the projected 2024 premium PMPM is \$723.89.

POTENTIAL FOR COST SAVINGS

As previously mentioned, research shows that untreated hearing loss is associated with other costly co-morbidities. This suggests that prompt, efficient, and effective treatment of hearing loss presents a potential for cost savings in regard to prevention of such co-morbidities. As published by the Journal of the American Medical Association (JAMA) and Johns Hopkins²¹, patients with untreated hearing loss:

- are at 17% higher risk of an emergency department visit;
- have a 47% higher rate of hospitalization;
- experience hospital stays that are 2.5 days longer on average; and
- have a 44% increased risk of hospital readmission within 30 days.

While L&E acknowledges the potential of long-term cost savings, L&E did not make an explicit cost savings assumption because:

- There is little data on the magnitude of such cost savings, especially regarding the cost savings' relationship to incremental coverage increases.
- L&E believes that the selected range of assumptions captures scenarios in which marginal cost savings could be achieved even though cost savings was not explicitly assumed.

^f Includes the fully insured individual and group markets, as well as the State Health Plan.

RESULTING FISCAL IMPACT ESTIMATE

The following table illustrates the range of assumptions selected by L&E and the resulting estimated fiscal impact range.

Assumption	Low	Mid	High
% of Insured Population That is Age 18-64^d (a)	70%	75%	80%
Prevalence of Hearing Loss Ages 18-64 (b)	5%	10%	15%
Hearing Aid Utilization Among those with Hearing Loss Ages 18-64 (c)	5%	10%	15%
Adult Hearing Aid Utilization Pre-Mandate (d)=(a)*(b)*(c)	0.2%	0.8%	1.8%
Mandate Induced Utilization (e)	0.0%	1.5%	3.0%
Adult Hearing Aid Utilization Post-Mandate (f)=(d)*(e)	0.2%	0.8%	1.9%
Adult Hearing Aid Cost [Capped at \$1,400] (g)	\$1,300	\$1,350	\$1,400
Average Number of Hearing Aids per Utilizing Adult (h)	1.85	1.90	1.95
Adjust for Average Hearing Aid Lifespan [yrs.] (i)	8.0	6.0	4.0
Total Annual Cost per Utilizing Adult (j)=[(g)*(h)]/(i)	\$301	\$428	\$683
Adult Hearing Aid Insurer Cost-Share Pre-Mandate (k)	40%	30%	20%
Adult Hearing Aid Insurer Cost-Share Post-Mandate (l)	60%	70%	80%
Adult Hearing Aid Mandate Cost PMPY (m)= {[l)-(k]}*(j)*f)	\$0.11	\$1.30	\$7.59
Adult Hearing Aid Mandate Cost PMPM (n)=(m)/12	\$0.01	\$0.11	\$0.63
Maryland Projected 2024 Claim Costs PMPM^f (o)	\$615.31	\$615.31	\$615.31
Estimated 2024 Loss Ratio (p)	85%	85%	85%
Premium Cost PMPY (q)=(m)/(p)	\$0.12	\$1.53	\$8.93
Premium Cost PMPM (r)=(q)/12	\$0.01	\$0.13	\$0.74
Maryland Projected 2024 Premium PMPM (q)=(o)/(p)	\$723.89	\$723.89	\$723.89
Adult Hearing Aid Mandate Impact as a Percent of Premium (r)=(n)/(q)	0.00%	0.02%	0.10%

L&E notes that nothing in HB1145 would prevent or limit insurers from making cost-sharing or other benefit changes to non-hearing aid benefits which could ultimately mitigate or eliminate the impact of the mandated hearing aid coverage.

OTHER FISCAL IMPACT ESTIMATES CONSIDERED

When evaluating the cost impact of proposed mandated coverage for adult hearing aids, L&E considered estimates from two states; however, L&E noted key differences in these estimates compared to the situation in Maryland. Specifically, the differences were in the inclusion of mandated coverage for hearing-aid-related services and the levels of cost-sharing. These variations mean that while the estimates from the two states provided valuable data, they could not be directly applied to Maryland's scenario without adjustments.

Estimated Adult Hearing Aid Benefit Cost Impact	
Connecticut²²	0.14%-0.36%
Kentucky²³	0.00%-0.12%

ASOP 41 Disclosures

The Actuarial Standards Board (ASB), vested by the U.S.-based actuarial organizations^g, promulgates actuarial standards of practice (ASOPs) for use by actuaries when providing professional services in the United States.

Each of these organizations requires its members, through its Code of Professional Conduct^h, to observe the ASOPs of the ASB when practicing in the United States. ASOP 41 provides guidance to actuaries with respect to actuarial communications and requires certain disclosures which are contained in the following.

Identification of the Responsible Actuary

The responsible actuaries are:

- Traci Hughes, FSA, MAAA, Vice President & Principal
- David Dillon, FSA, MAAA, Senior Vice President & Principal

These actuaries are available to provide supplementary information and explanation.

Identification of Actuarial Documents

The date of this document is January 9, 2024. The date (a.k.a. “latest information date”) through which data or other information has been considered in performing this analysis is January 9, 2024.

Disclosures in Actuarial Reports

- The contents of this report are intended for the use of the Maryland Health Care Commission. The authors of this report are aware that it may be distributed to third parties. Any third party with access to this report acknowledges, as a condition of receipt, that they cannot bring suit, claim, or action against L&E, under any theory of law, related in any way to this material.
- Lewis & Ellis, LLC is financially and organizationally independent from the health insurers and providers involved in this analysis. There is nothing that would impair or seem to impair the objectivity of the work.
- The purpose of this report is to assist the Maryland Health Care Commission in assessing the medical, social, and financial impact of proposed House Bill 1145.
- The responsible actuaries identified above are qualified as specified in the Qualification Standards of the American Academy of Actuaries.
- Lewis & Ellis has reviewed the data provided by the insurers and Maryland Health Care Commission for reasonableness, but the data has not been audited. L&E nor the responsible actuaries assume responsibility for these items that may have a material impact on the analysis. To the extent that there are material inaccuracies in,

^g The American Academy of Actuaries (Academy), the American Society of Pension Professionals and Actuaries, the Casualty Actuarial Society, the Conference of Consulting Actuaries, and the Society of Actuaries.

^h These organizations adopted identical *Codes of Professional Conduct* effective January 1, 2001.

misrepresentations in, or lack of adequate disclosure by the data, the results may be accordingly affected.

- Several of the assumptions made in this analysis are subject to uncertainty and it is not unexpected that actual results could differ from the calculated estimates.
- L&E is not aware of any subsequent events that may have a material effect on the findings.
- There are no other documents or files that accompany this report.

Actuarial Findings

The actuarial findings of the report can be found in the body of this report.

Bibliography

- ¹ “What Is Hearing Loss in Children?” *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 4 Aug. 2023, www.cdc.gov/ncbddd/hearingloss/facts.html.
- ² “Degree of Hearing Loss.” *American Speech-Language-Hearing Association*, American Speech-Language-Hearing Association, www.asha.org/public/hearing/Degree-of-Hearing-Loss/. Accessed 13 Dec. 2023.
- ³ “Types of Hearing Loss.” *American Speech-Language-Hearing Association*, American Speech-Language-Hearing Association, <https://www.asha.org/public/hearing/types-of-hearing-loss/>. Accessed 14 Dec. 2023.
- ⁴ IEEE Pulse. “Hearing Aid History: From Ear Trumpets to Digital Technology.” *IEEE Pulse*, IEEE Pulse //www.embs.org/pulse/wp-content/uploads/sites/13/2022/06/ieee-pulse-logo2x.png, 4 Mar. 2022, www.embs.org/pulse/articles/hearing-aid-history-from-ear-trumpets-to-digital-technology/.
- ⁵ “Hearing Aids Market Size, Share and Growth Report, 2030.” *Hearing Aids Market Size, Share And Growth Report, 2030*, www.grandviewresearch.com/industry-analysis/hearing-aids-market. Accessed 15 Dec. 2023.
- ⁶ “Hearing Aids.” *National Institute of Deafness and Other Communication Disorders*, U.S. Department of Health and Human Services, www.nidcd.nih.gov/health/hearing-aids. Accessed 15 Dec. 2023.
- ⁷ Powers, Thomas A., and Kate Carr. “Demographics and Perceptions of Owners and Non-Owners of Hearing Aids, PSAPs, and Implants.” *Marketrak 2022: Navigating the Changing Landscape of Hearing Healthcare*, The Hearing Review, 9 May 2022, hearingreview.com/inside-hearing/research/marketrak-2022-navigating-the-changing-landscape-hearing-healthcare.
- ⁸ *Hearing Difficulties among Adults: United States, 2019*, CDC, www.cdc.gov/nchs/data/databriefs/db414-H.pdf. Accessed 14 Dec. 2023.
- ⁹ Mahmoudi, Elham, et al. “Journal of the American Geriatrics Society.” *Can Hearing Aids Delay Time to Diagnosis of Dementia, Depression, or Falls in Older Adults?*, 4 Sept. 2019, agsjournals.onlinelibrary.wiley.com/doi/abs/10.1111/jgs.16109.

-
- ¹⁰ “Key Findings.” *ACHIEVE Study*, www.achievestudy.org/key-findings. Accessed 4 Dec. 2023.
- ¹¹ Planey, Arrianna Marie. “Audiologist Availability and Supply in the United States: A Multi-Scale Spatial and Political Economic Analysis.” *Social Science & Medicine*, Pergamon, 11 Jan. 2019, www.sciencedirect.com/science/article/abs/pii/S0277953619300152.
- ¹² “Employment of Audiologists by U.S. State 2022.” *Statista*, 30 Nov. 2023, www.statista.com/statistics/1302926/number-of-employed-audiologists-by-us-state/.
- ¹³ Office of the Commissioner. “FDA Finalizes Historic Rule Enabling Access to Over-the-Counter Hearing Aids for Millions of Americans.” *U.S. Food and Drug Administration*, FDA, 16 Aug. 2022, www.fda.gov/news-events/press-announcements/fda-finalizes-historic-rule-enabling-access-over-counter-hearing-aids-millions-americans.
- ¹⁴ “Over-the-Counter (OTC) Hearing Aids Market Report, 2030.” *Over-the-Counter (OTC) Hearing Aids Market Report, 2030*, www.grandviewresearch.com/industry-analysis/over-the-counter-hearing-aids-market-report. Accessed 15 Dec. 2023.
- ¹⁵ *Asha OTC Hearing Aid Survey*, www.asha.org/siteassets/press-room/asha-otc-hearing-aid-survey-report-2023.pdf. Accessed 19 Dec. 2023.
- ¹⁶ “State Insurance Mandates for Hearing Aids.” *American Speech-Language-Hearing Association*, American Speech-Language-Hearing Association, www.asha.org/advocacy/state/state-insurance-mandates-for-hearing-aids/. Accessed 13 Dec. 2023.
- ¹⁷ “State Insurance Mandates for Hearing Health/Hearing Aids.” *Audiology.Org*, Audiology.org, www.audiology.org/wp-content/uploads/2022/02/State-Hearing-Health-Insurance-Mandates-2022.pdf. Accessed 13 Dec. 2023.
- ¹⁸ “Key Updates to State Hearing Health Insurance Mandates.” *American Academy of Audiology*, 15 Feb. 2022, www.audiology.org/key-updates-to-state-hearing-health-insurance-mandates/.
- ¹⁹ “Reasons for Low Hearing Aid Usage in America.” *National Council on Aging*, 11 Aug. 2023, www.ncoa.org/adviser/hearing-aids/low-hearing-loss-treatment-reasons/.
- ²⁰ Reed, Nicholas S., et al. “Trends in Hearing Aid Ownership among Older Adults in the United States from 2011 to 2018.” *JAMA Internal Medicine*, JAMA Network, 1 Mar. 2021, jamanetwork.com/journals/jamainternalmedicine/article-abstract/2773785.

- ²¹ “Infographic - Hearing Loss and Healthcare Utilization.” *Johns Hopkins Bloomberg School of Public Health | Cochlear Center for Hearing and Public Health*, www.jhucochlearcenter.org/infographic-hearing-loss-and-healthcare-utilization. Accessed 19 Dec. 2023.
- ²² *AN ACT PROVIDING COVERAGE FOR HEARING AIDS*, Jan. 2021, www.chiamass.gov/assets/docs/r/pubs/2021/MBR-S597-Hearing-Aid-Final.pdf.
- ²³ “Kentucky General Assembly.” *Welcome - Legislative Research Commission*, apps.legislature.ky.gov/. Accessed 19 Dec. 2023.