Evaluation of Scalp Cooling Systems Coverage

PREPARED FOR THE MARYLAND HEALTH CARE COMMISSION

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

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Highlights

Lewis & Ellis, LLC (L&E) was engaged by the Maryland Health Care Commission (MHCC) to conduct a comprehensive evaluation of the medical, social, and financial impacts of requiring health insurers, nonprofit health service plans, and health maintenance organizations to include coverage for Scalp Cooling Systems, which are intended for use in preserving hair during chemotherapy treatment.

MEDICAL IMPACT

- Scalp cooling works by lowering scalp temperature to reduce blood flow—and thus the delivery of chemotherapy agents—to hair follicles in order to prevent chemotherapy-induced hair loss, also known as chemotherapy induced alopecia (CIA).
- Automated scalp cooling, as the only FDA-approved type of scalp cooling, is approved for chemotherapy-induced hair loss related to solid tumor cancers, not blood cancers.
- Several studies conducted between 2017-2024 show that scalp cooling has 40-80% effectiveness at reducing or eliminating hair loss from chemotherapy.
- A 2021 survey of 600 oncology providers found that while the majority (62%) were generally supportive of scalp cooling, many oncologists expressed reservations about recommending it to patients. The most frequently cited reason was financial concerns (58%). The survey also indicated that providers with greater familiarity and direct experience using scalp cooling were more likely to view the therapy favorably.
- Although the exact percentage of chemotherapy treatment locations offering automated scalp cooling remains uncertain, available information suggests that approximately 40–60% may currently provide access to this therapy. In addition, responses from L&E's carrier survey of Maryland insurers indicated that carriers do not face challenges contracting with oncologists to ensure adequate availability of oncology services for their members.

SOCIAL IMPACT

- CIA is one of the most feared side effects of chemotherapy treatment, particularly for women. Although this issue has not been examined in recent years, studies conducted between 2014 and 2019 suggest that up to 8–10% of women may consider refusing chemotherapy or opting for a less effective treatment regimen to avoid CIA.
- Information gathered by L&E suggests that most utilizers of scalp cooling are female, and about half of female chemotherapy patients elect to utilize scalp cooling. These findings are further supported by evidence that breast cancer patients—who are primarily women—represent the largest group utilizing scalp cooling.
- The responses from the L&E carrier survey to Maryland insurers conveyed that insurers do not currently cover scalp cooling treatment, including for self-funded employer groups. One insurer explained that coverage is excluded on the basis that the treatment is not deemed medically necessary (i.e., cosmetic in nature).
- Medicare began covering scalp cooling in 2022 with a one-time benefit of up to $1,850. In July 2025, Medicare proposed adding scalp cooling reimbursement to the Physician Fee Schedule, which would take effect in January 2026. If finalized, it would provide

reimbursement of $1,897 for 7 scalp cooling treatments cycles (approximately the average number of treatment cycles per patient).

- While scalp cooling is considered effective in reducing chemotherapy-induced alopecia it remains costly, typically ranging from $1,000 to $3,000 out-of-pocket without insurance, limiting access particularly for underserved populations. To address this disparity, some nonprofit organizations provide financial support to help patients access the treatment and promote equity in care.

FINANCIAL IMPACT

- L&E used data from provider interviews and publicly available sources to develop estimates of cost and utilization variables. These were categorized into low, mid, and high assumptions to reflect potential variation. The ranges are not limited to the three scenarios presented but are designed to capture the uncertainty inherent in each assumption and illustrate a spectrum of possible outcomes.
- L&E estimated that the financial impact ranges from 0.00%-0.05% of premium. This report provides a detailed discussion of the data and assumptions underlying that estimate. The table below summarizes the financial impact calculation, which also accounts for potential savings associated with avoided hair prosthesis costs.
- New York is the first state to mandate commercial insurance coverage for scalp cooling, with the requirement taking effect in January 2026 for the large group market. L&E was unable to identify any publicly available fiscal impact analysis prepared by New York in connection with this mandate.

SUMMARY OF THE CALCULATION OF THE FINANCIAL IMPACT

Assumption	Low	Mid	High
Chemotherapy Treatment Utilization Rate (a)	0.1%	0.2%	0.3%
Chemotherapy Patient Scalp Cooling Uptake Rate Pre-Mandate (b)	20%	30%	40%
Mandate Induced Utilization (c)	0%	30%	60%
Chemotherapy Patient Scalp Cooling Utilization Rate Post-Mandate (d) = (a)*(b)*[1+(c)]	0.0%	0.1%	0.2%
Average Annual Cost per Scalp Cooling Patient (e)	$1,000	$2,000	$3,000
Scalp Cooling Insurer Cost-Sharing (f)	60%	70%	80%
Potential Savings PMPY (g)	$0.00	$0.02	$0.10
Scalp Cooling Coverage Claim Cost PMPY Net of Savings (h) = [(d)*(e)*(f)]-(g)	$0.16	$1.03	$4.42
Scalp Cooling Coverage Claim Cost PMPM Net of Savings (i) = (h)/12	**$0.01**	**$0.09**	**$0.37**
Maryland Estimated 2026 Claims Costs PMPM (j)	$808.61	$808.61	$808.61
Loss Ratio (k)	85%	85%	85%
Premium Cost PMPY Net of Savings (l)=(h)/(k)	$0.19	$1.21	$5.20
Premium Cost PMPM Net of Savings (m)=(l)/12	**$0.02**	**$0.10**	**$0.43**
Maryland Estimated 2026 Premium PMPM (n)=(j)/(k)	$951.31	$951.31	$951.31
% Impact to Premium Net of Savings (o)=(m)/(n)	**0.00%**	**0.01%**	**0.05%**

Introduction

PROCESS

Lewis & Ellis, LLC (L&E) was engaged by the Maryland Health Care Commission (MHCC) to analyze the potential impact of requiring health insurers, nonprofit health service plans, and health maintenance organizations to provide coverage for Scalp Cooling Systems used to reduce hair loss associated with chemotherapy treatment.

Insurance Article §15–1501, Annotated Code of Maryland, requires that the MHCC annually assess the medical, social, and financial impact of proposed mandated health insurance services that failed to pass during the preceding legislative session, or as requested by a Legislator or Legislative Committee by July 1 of each year. The assessment reports are due to the General Assembly annually by December 31.

To conduct this analysis, L&E reviewed literature, gathered statistics from public sources, interviewed a pertinent provider[1], conducted insurer surveys[2], and analyzed data from the Maryland All-Payer Claims Database (APCD). Each of these components was incorporated into evaluation.

Medical Evaluation

BACKGROUND ON SCALP COOLING SYSTEMS

In 1980, a pioneering patent was granted for a scalp cooling cap designed to reduce chemotherapy-induced hair loss.[3] Chemotherapy targets rapidly dividing cells, which include both malignant cancer cells and healthy hair follicle cells. As a result, patients often experience hair loss, a condition known as chemotherapy-induced alopecia (CIA).[4]

The cap works by lowering scalp temperature to reduce blood flow—and thus the delivery of chemotherapy agents—to hair follicles. This process, also known as scalp hypothermia, involves patients wearing a silicone cold cap connected to a cooling system that maintains scalp temperatures between 64°F and 72°F. By limiting follicular exposure to chemotherapy, scalp

[1]The interview was on August 5, 2025, with Dr. Kate Tkaczuk, a practicing Maryland Oncologist.

[2]Five carriers were surveyed and responded: Aetna, CareFirst, Cigna, Kaiser, and UnitedHealthcare.

[3] CrioBella. First Cap. 1980 Patent. CrioBella. https://www.criobella.com/en/first-cap-1980-patent/. Accessed August 27, 2025.

[4] SHAREing & CAREing. Cold Caps & Scalp Cooling Therapy: A Breakthrough for Cancer Patients. SHAREing & CAREing. https://shareing-careing.org/cold-caps-scalp-cooling-therapy-a-breakthrough-for-cancer-patients/. Published February 11, 2025. Accessed August 27, 2025.

cooling can help prevent or reduce hair loss during treatment.[5] This development represented a meaningful advancement in oncology, providing patients with a practical yet compassionate option to help preserve their identity and dignity throughout therapy.

There are two primary approaches to scalp cooling: automated and manual.

AUTOMATED SCALP COOLING SYSTEMS

These systems use FDA-regulated machines that circulate a cooled liquid through a specially designed cap, maintaining a consistent low temperature throughout treatment. There are three such systems that are currently approved for use in patients: *DigniCap*, *Paxman*, and *Amma*. Their automated nature ensures precise temperature control and ease of use in clinical settings. Notably, automated cold caps (as the most utilized type of scalp cooling) are only approved for chemotherapy-induced hair loss related to solid tumor cancers, not blood cancers.

To receive treatment, a patient is fitted for a cap that the patient keeps and brings to each chemotherapy treatment at a treatment center that houses an automated scalp cooling system. With assistance from a healthcare provider, the patient wears the cap which is then hooked up to the scalp cooling system to run the cooling treatment both before and after the chemotherapy treatment. The recommended scalp cooling treatment time is 30-45 minutes before, and 20-90 minutes after, chemotherapy treatment.[6]

MANUAL SCALP COOLING

The manual scalp cooling method involves the use of frozen gel caps that must be pre-chilled using dry ice or a freezer. Because these caps begin to warm upon application, with no system to keep them temperature-regulated, the cap must be replaced approximately every 30 minutes to maintain effectiveness. While manual cooling is generally less costly, it is not FDA-approved.

[5] American Cancer Society. Cold Caps and Scalp Cooling. American Cancer Society. https://www.cancer.org/cancer/managing-cancer/side-effects/hair-skin-nails/hair-loss/cold-caps.html. Published July 28, 2025. Accessed August 27, 2025.

[6] Paxman. Training Manual: Treatment Operation Guide – US Digital. Paxman Scalp Cooling. https://paxmanscalpcooling.com/wp-content/uploads/2025/04/Training-Manual_Treatment-Operation-Guide_US-DIGITAL.pdf. Published April 2025. Accessed August 27, 2025.

MEDICAL EFFECTIVENESS

The risk of CIA varies greatly, from 10% to more than 80%, depending on the type of cancer, stage, and administered chemotherapy regimen.[7,8] There are 5 grades of alopecia, ranging from 0 (no hair loss) to 4 (very severe hair loss).[9]

One study published in 2017, focusing on breast cancer, found that successful hair preservation (grade 0 or grade 1, <50% hair loss) was achieved for 50% of women using scalp cooling compared with 0% of women in the control group.[10] In 2023, a meta-analysis published on breast cancer treatment was performed across eight studies, revealing a 43% reduction in the risk of CIA after the use of a scalp cooling system.[11] Yet another, more recent, breast cancer study published in 2024 found that the prevention of alopecia greater than grade 1 was seen in 81% of patients using scalp cooling.[12] The most common adverse event was headache (19%). Another meta-analysis found that scalp cooling had a patient satisfaction rate of almost 80%.[13] Manual scalp cooling has demonstrated comparable outcomes in terms of effectiveness.[14]

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[7] Lemieux J. Reducing Chemotherapy-Induced Alopecia With Scalp Cooling. *Hematology & Oncology*. https://www.hematologyandoncology.net/archives/october-2012/julie-lemieux-md-msc/. Published October 2012. Accessed August 27, 2025.

[8] Çelik A, Çınar D, Öztürk Çetin A, Ünal OÜ. The effect of chemotherapy-induced alopecia on distress and quality of life in male patients with cancer. *Oncol Nurs Forum*. 2025;52(2):126–136. https://www.ons.org/pubs/article/82356/preview-download. Accessed August 27, 2025.

[9] Understand Alopecia Areata. Assessing Severity. UnderstandAlopeciaAreata.com. https://www.understandalopeciaareata.com/assessing-severity. Accessed August 27, 2025.

[10] Nangia J, Wang T, Osborne C, et al. Effect of a Scalp Cooling Device on Alopecia in Women Undergoing Chemotherapy for Breast Cancer: The SCALP Randomized Clinical Trial. *JAMA*. 2017;317(6):596-605. doi:10.1001/jama.2016.20939

[11] Contreras Molina M, Álvarez Bueno C, Cavero Redondo I, et al. Effectiveness of Scalp Cooling to Prevent Chemotherapy-Induced Alopecia in Patients Undergoing Breast Cancer Treatment: A Systematic Review and Meta-analysis. *Cancer Nurs*. 2024;47(4):319-326. doi:10.1097/NCC.0000000000001234. Accessed August 27, 2025.

[12] Mekha M, Joshi A, Maniar V, et al. The Efficacy of Paxman Scalp Cooling System in Preventing Hair Loss in Breast Cancer Patients Receiving Chemotherapy in Western India - Multi-centre Retrospective Cohort Study. *Indian J Dermatol*. 2024;69(1):16-23. doi:10.4103/ijd.ijd_345_23. Accessed August 27, 2025.

[13] Lambert KA, Albright BB, Anastasio MK, et al. Scalp hypothermia to reduce chemotherapy-induced alopecia: A systematic review and meta-analysis. https://www.gynecologiconcology-online.net/article/S0090-8258(24)00327-5/abstract. Accessed August 27, 2025.

[14] Weaver D, Pershing ML, Golden B, Hammel L, Kefalas Russ P, Cripe M, et al. Retrospective evaluation of Penguin Cold Caps for chemotherapy-induced alopecia. *Supportive Care in Cancer*. 2024;32:225. doi:10.1007/s00520-024-08393-7

Consistent with research found, the provider L&E interviewed testified that most patients did not have adverse side effects and that most patients provided positive feedback regarding scalp cooling therapy. Further, the cap does not degrade over time, so no replacement is typically necessary except in rare cases for which there is a specific repair needed.

AVAILABILITY AND USAGE OF SERVICES

Survey results published in 2021 given to a random sample of 600 oncology providers found that while 62% of providers were in favor of scalp cooling treatment, only 26% reported initiating discussions about scalp cooling treatment with their patients 'always' or 'most of the time'.[15] Financial concerns were the most cited reason (58%) for not discussing the option of scalp cooling therapy, followed by concerns about efficacy (31%), staffing or facility limitations (24%), and safety (15%).[16] The study results also indicated that greater familiarity and more experience with scalp cooling therapy among oncology providers increased their support for the therapy.

Although the percentage of chemotherapy treatment locations offering automated scalp cooling system treatment remains uncertain, L&E found some information suggests the percentage may be approximately 40-60%.[16,17,18] Responses from the L&E carrier survey of Maryland insurers indicated that they do not face challenges contracting with oncologists in order to provide adequate availability of oncology services for insured members.

Social Evaluation

POPULATION UTILIZATION

The interviewed provider indicated that most patients who are interested in scalp cooling treatment are women, and that about half of the provider's mostly female patients elect scalp cooling treatment. Regarding the ~50% uptake overall, the provider indicated that scalp cooling treatments are brought up at the time chemotherapy is discussed but can be declined by the patient due to financial burden, time requirements for treatment, or prioritizing attention to other chemotherapy side effects. The overall uptake and gender distribution mentioned by the provider are both consistent with one study L&E found showing that chemotherapy patient uptake for scalp cooling treatment was 49%, however, 91% of the patients in the study were female.[17]

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[15] Madison Novice et al. Identifying Barriers and Facilitators to Scalp Cooling Therapy Through a National Survey of the Awareness, Practice Patterns, and Attitudes of Oncologists. JCO Oncol Pract 18, e225-e234(2022). DOI:10.1200/OP.21.00273. Accessed August 27, 2025.

[16] Rugo HS, Melin SA, Voigt J. Scalp cooling with adjuvant/neoadjuvant chemotherapy for breast cancer and the risk of scalp metastases: systematic review and meta-analysis. *Breast Cancer Res Treat*. 2017;163(2):199-205. doi:10.1007/s10549-017-4185-9. Accessed August 27, 2025.

[17] Maher, W. et al. The uptake, patient satisfaction and efficacy of scalp cooling among patients receiving chemotherapy in an Irish oncology day ward. doi:

Data from nearly 7,000 patients who used scalp cooling using the *Paxman* device were reviewed for the years 2017 through 2020.[18] Patients with breast cancer were the most common users of scalp cooling (78%), followed by gynecology (12%), gastrointestinal (3%), lung (1%), and genitourinary (1%). Most of the patients were between the ages of 45-65 (55%), followed by 65+ (23%). The average number of scalp cooling cycles completed was 6.5 (with a range of 4.5-12 average number of cycles), and our provider interview indicated there could be as many as 16 cycles, with each chemotherapy treatment requiring a scalp cooling treatment cycle.

Over 900 locations in the U.S., including 59 (out of 106) National Comprehensive Cancer Network (NCCN) and National Cancer Institute (NCI)-designated centers, offer scalp cooling by *Paxman* and *Dignitana* (*DigniCap* maker).[19,20,21] Two cancer centers in Maryland hold one or both of these designations. There is public information verifying the availability of scalp cooling treatment at one of these centers, though similar information was not located confirming treatment availability for the other center.[22] Notably, a cancer center does not need to be NCCN or NCI designated in order to offer scalp cooling treatment. While the exact number of cancer treatment centers in Maryland is unknown, it is estimated to be around 150.[23] Sales data from both *Dignitana* and *Paxman* reflect that 19,893 patients received 127,437 scalp cooling treatment

10.1093/annonc/mdz265.083. https://www.annalsofoncology.org/article/S0923-7534(19)59968-9/fulltext. Accessed August 27, 2025.

[18] Williams NO, Paxman R, Thornhill E, et al. Real-world data on usage of scalp cooling for chemotherapy associated alopecia in the United States. In: Proceedings of the American Society of Clinical Oncology Annual Meeting; 2025; Chicago, IL. Abstract 339197. https://paxmanscalpcooling.com/medicare-physician-fee-schedul. Accessed August 27, 2025.

[19] OncoDaily. Paxman: Scalp cooling and the future of supportive cancer care. OncoDaily. https://oncodaily.com/blog/paxman168175. Published April 2025. Accessed August 27, 2025.

[20] National Comprehensive Cancer Network (NCCN). Member Institutions. NCCN. https://www.nccn.org/home/member-institutions. Accessed August 27, 2025.

[21] National Cancer Institute. NCI-Designated Cancer Centers. Office of Cancer Centers. https://cancercenters.cancer.gov/. Accessed August 27, 2025.

[22] University of Maryland Greenebaum Comprehensive Cancer Center. Cold Cap Therapy. https://www.umms.org/umgccc/patients-visitors/for-patients/cancer-support-services/cold-cap. Accessed September 22, 2025.

[23] POI Data. Cancer Treatment Centers in Maryland. POIData. Accessed October 1, 2025. https://www.poidata.io/report/cancer-treatment-center/united-states/maryland?utm_

cycles between January 1, 2021, and September 30, 2023.[24] This reflects an average of 6.4 cycles per patient, consistent with the research discussed above.

INSURANCE COVERAGE

The responses from the L&E carrier survey to Maryland insurers conveyed that insurers do not currently cover scalp cooling treatment, including for self-funded employer groups. One insurer explained that coverage is excluded on the basis that the treatment is not deemed medically necessary (i.e., cosmetic in nature).

Medicare started covering scalp cooling in 2022 with a one-time benefit of up to $1,850. As of July 2025, Medicare proposed including reimbursement for scalp cooling in the Medicare Physician Fee Schedule.[25] If finalized, this would take effect in January 2026. In the proposed fee schedule, CMS assigned preliminary payment rates as follows:

CPT Code and Description	Proposed CY2026 Medicare Physician Fee Schedule Rate	Example for 7 Scalp Cooling Treatment Cycles
9XX01 – Initial Cap Fitting and Patient Education	$1,701	$1,701
9XX02 – Pre-cooling period	$10 per treatment	$70
9XX03 – Post-infusion cooling, per each 30-minute period	$6 per unit, per treatment	$126 (assuming a 90-minute post-infusion colling per treatment)
Total		**$1,897**

New York is the first state to mandate commercial insurance coverage for scalp cooling; however, the mandate will be effective January 2026 only for certain large group policies.[26]

BARRIERS AND DISPARITIES

[24] Kapoor DA, Camel M, Eagle D, et al. Physician practice affiliation drives site of care cost differentials: an opportunity to reduce healthcare expenditures. *J Mark Access Health Policy*. 2025;13(3):36. doi:10.3390/jmahp13030036. Accessed August 27, 2025.

[25] Paxman Scalp Cooling. Medicare Physician Fee Schedule Proposed Rule Assigns 2026 Payment Rates to Three New CPT Codes for Mechanical Scalp Cooling. Paxman Scalp Cooling. https://paxmanscalpcooling.com/medicare-physician-fee-schedule-proposed-rule-assigns-2026-payment-rates-to-three-new-cpt-codes-for-mechanical-scalp-cooling/. Published July 2025. Accessed August 27, 2025.

[26] New York State Senate. Assembly Bill A430: Requires certain large group health insurance policies and contracts to cover scalp cooling systems for the preservation of hair during cancer chemotherapy treatment. New York State Senate. https://www.nysenate.gov/legislation/bills/2025/A430. Accessed August 27, 2025.

CIA is one of the most feared side effects of chemotherapy treatment, particularly for women. Although based on older studies (2014–2019), evidence suggests that up to 8–10% of women may consider refusing chemotherapy or opting for a less effective treatment regimen in an effort to avoid CIA.[27,28]

Although scalp cooling is generally considered effective in reducing or preventing CIA, its high-cost limits access, particularly for underserved populations. As previously mentioned, financial concern is a highly cited reason for why providers may choose not to discuss scalp cooling treatment with their patients. The cost of treatment varies based on the location of service and number of treatment cycles; however, the total cost of treatment is typically between $1,000 to $3,000 on a patient self-pay basis (i.e., no insurance coverage).[29,30,31] In an effort to decrease the financial disparity, some nonprofit organizations have stepped in to help fund scalp cooling and promote equitable access to care.

Financial Evaluation

To estimate the financial impact of requiring coverage for scalp cooling systems, L&E analyzed data from the Maryland All-Payer Claims Database (APCD), insurer survey responses, provider interview responses, and publicly available sources. Using this information, L&E developed low-, mid-, and high-range assumptions for each variable that could influence cost or utilization. The ranges for each variable were then used to calculate the final estimated aggregate range for the financial impact.

While L&E selected specific assumptions to develop a range of estimated fiscal impact, the range is not intended to represent only the three low-, mid-, and high- scenarios illustrated. Each range is intended to capture the various uncertainties inherent in each assumption and to provide an estimated range of potential outcomes. Therefore, the final estimated range captures many scenarios and sets of assumptions.

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[27] Ross M, Fischer-Cartlidge E, et al. Scalp Cooling A literature review of efficacy, safety, and tolerability for chemotherapy-induced alopecia. doi: 10.1188/17.CJON.226-233. https://www.ons.org/pubs/article/21631/preview-download. Accessed August 27, 2025.

[28] Goncalves R, O'Donoghue N, Harries M, Asfour L. Oncological therapies and hair disorders: a narrative approach on permanent chemotherapy-induced alopecia. *Br J Dermatol*. 2024;191(Suppl 1):i155–i156. https://academic.oup.com/bjd/article/191/Supplement_1/i155/7698808. Accessed August 27, 2025.

[29] Healthline Editorial Team. Scalp Cooling Benefits: Procedure and Cost. Healthline. https://www.healthline.com/health/scalp-cooling-benefits. Accessed August 27, 2025.

[30] Paxman Scalp Cooling. Reimbursement for Scalp Cooling Treatment. Paxman Scalp Cooling. https://paxmanscalpcooling.com/reimbursement-for-scalp-cooling-treatment/. Accessed August 27, 2025.

[31] Iowa Cancer Specialists. Scalp Cooling. Iowa Cancer Specialists. https://www.iacancer.com/scalp-cooling/. Accessed August 27, 2025.

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

CHEMOTHERAPY TREATMENT UTILIZATION RATE

Based on data from publicly available sources, including the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC), L&E selected the following range for the chemotherapy treatment utilization rate[32,33,34,35]:

	Low	Mid	High
Chemotherapy Treatment Utilization Rate	0.1%	0.2%	0.3%

CHEMOTHERAPY PATIENT SCALP COOLING UPTAKE RATE PRE-MANDATE

Based on data from publicly available sources[14] and conducted provider interview, L&E selected the following range for the chemotherapy patient scalp cooling uptake rate – that is, the percentage of chemotherapy patients who elect to use scalp cooling prior to a coverage mandate:

	Low	Mid	High
Chemotherapy Patient Scalp Cooling Uptake Rate Pre-Mandate	20%	30%	40%

L&E notes that this uptake rate reflects the full chemotherapy population, including male patients, who are less likely to elect scalp cooling treatment.

COVERAGE CHANGE INDUCED UTILIZATION

There is limited data available on induced utilization[36] due to introducing insurance coverage for scalp cooling treatment. However, it would be unreasonable to assume that there is no potential for increased utilization if coverage for scalp cooling treatment is mandated. Given the research demonstrating the extent to which hair loss is feared as a side effect of chemotherapy—

[32] National Institutes of Health (NIH). Cancer. National Institutes of Health. https://www.nih.gov/about-nih/impact-nih-research/improving-health/cancer. Accessed September 9, 2025.

[33] Chang J, Sen A. Rising share of chemotherapy services provided in outpatient departments is associated with higher costs for patients and payers. Health Care Cost Institute. https://healthcostinstitute.org/hcci-originals-dropdown/all-hcci-reports/rising-share-of-chemotherapy-services-provided-in-outpatient-departments-is-associated-with-higher-costs-for-patients-and-payers. Published March 28, 2023. Accessed September 9, 2025.

[34] Centers for Disease Control and Prevention (CDC). U.S. Cancer Statistics Public Use Database. Centers for Disease Control and Prevention. https://www.cdc.gov/united-states-cancer-statistics/public-use/index.html. Published May 29, 2025. Accessed September 9, 2025.

[35] Wilson F. Chemotherapy statistics. Mesothelioma.com. https://www.mesothelioma.com/treatment/chemotherapy/statistics/. Published March 2023. Accessed September 9, 2025.

[36] An increase in demand for and utilization of health care services caused the introduction of insurance coverage.

particularly among women—the increase in utilization could be significant. Based on the research reviewed, together with L&E's healthcare experience and actuarial judgment, the following range was selected for the induced utilization assumption:

	Low	Mid	High
Mandate Induced Utilization	0%	30%	60%

AVERAGE ANNAL COST PER SCALP COOLING PATIENT

Based on the publicly available research[21,25,26,27], L&E selected the following assumptions for the average annual cost per scalp cooling patient. The assumed range of cost includes the average amount of scalp cooling treatment cycles, as discussed above.

	Low	Mid	High
Average Annual Cost per Scalp Cooling Patient	$1,000	$2,000	$3,000

INSURER COST-SHARING

Based on the information from insurers surveys as well as L&E's knowledge of typical healthcare cost sharing and actuarial judgement, L&E selected the following assumption range for the insurer cost-sharing:

	Low	Mid	High
Scalp Cooling Insurer Cost-Sharing	60%	70%	80%

MARYLAND TOTAL CLAIMS COSTS PMPM AND PREMIUM PMPM

Claimant and member data was provided to L&E from the Maryland APCD from 2019-2023.[37] L&E utilized the 2023 APCD paid claims data as the base year and trended it to 2026 with an assumed paid claims trend of 9.5% per year. The 9.5% assumption is based on the average paid claims trend from 2019-2023. The projected 2026 paid claims per member per month (PMPM) is $808.61.

Further, L&E assumed a total average loss ratio of 85% based on information provided by Maryland insurers surveyed. L&E does not expect the introduction of coverage for scalp cooling treatment to have any material impact on retention (i.e., non-claims costs). Therefore, the projected 2026 premium PMPM is $951.31.

POTENTIAL FOR COST SAVINGS

Maryland currently mandates insurers, with the exception of the small group market, to provide coverage for hair prothesis where an insured has had hair loss resulting from chemotherapy or

[37] Includes the fully insured individual and group markets, as well as the State Health Plan.

radiation cancer treatment, for up to a $350 benefit[38]. To the extent that coverage of scalp cooling treatment results in higher prevention of hair loss from chemotherapy, there is potential for cost savings from decreased utilization of hair prothesis. However, such savings would be limited to "induced utilizers"—insureds who elect scalp cooling only after coverage is introduced. For individuals already using scalp cooling pre-mandate (and paying out of pocket), the effectiveness in preventing hair loss would remain the same, with the only difference being reduced financial burden for the patient rather than cost savings to the insurer.

Based on the calculation outlined in the following subsection (*Figure 2*), L&E calculated a potential for cost savings of up to $0.10 per member per year (PMPY). This calculation assumes that the uptake rate for hair prostheses is comparable to that for scalp cooling, reflecting a similar level of importance patients place on retaining their hair.

RESULTING FISCAL IMPACT ESTIMATE

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

Figure 1: Fiscal Impact Estimate Calculation

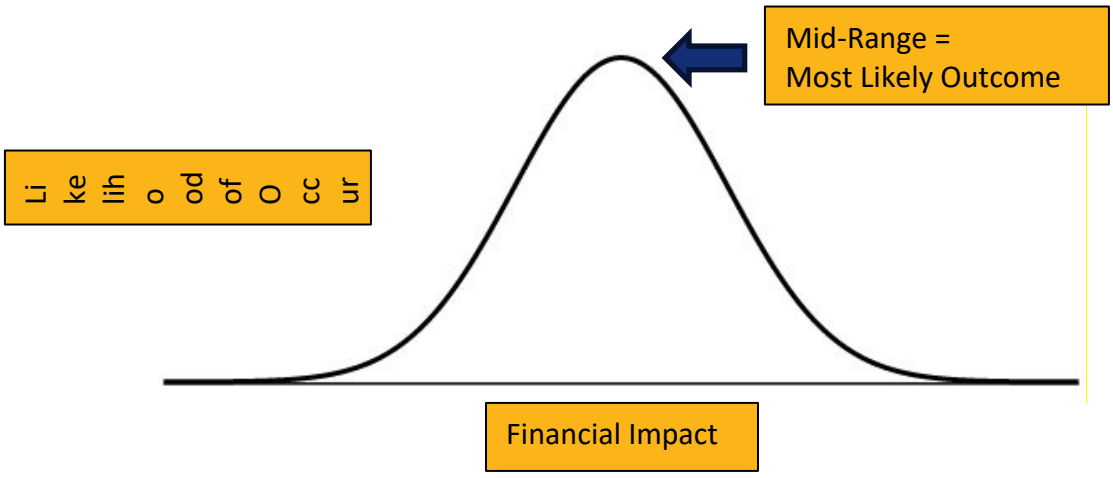
Assumption	Low	Mid	High
Chemotherapy Treatment Utilization Rate (a)	0.1%	0.2%	0.3%
Chemotherapy Patient Scalp Cooling Uptake Rate Pre-Mandate (b)	20%	30%	40%
Mandate Induced Utilization (c)	0%	30%	60%
Chemotherapy Patient Scalp Cooling Utilization Rate Post-Mandate (d) = (a)*(b)*[1+(c)]	0.0%	0.1%	0.2%
Average Annual Cost per Scalp Cooling Patient (e)	$1,000	$2,000	$3,000
Scalp Cooling Insurer Cost-Sharing (f)	60%	70%	80%
Potential Savings PMPY (g; See Figure 2 Below)	$0.00	$0.02	$0.10
Scalp Cooling Coverage Claim Cost PMPY Net of Savings (h) = [(d)*(e)*(f)]-(g)	$0.16	$1.03	$4.42
Scalp Cooling Coverage Claim Cost PMPM Net of Savings (i) = (h)/12	**$0.01**	**$0.09**	**$0.37**
Maryland Estimated 2026 Claims Costs PMPM (j)	$808.61	$808.61	$808.61
Loss Ratio (k)	85%	85%	85%
Premium Cost PMPY Net of Savings (l)=(h)/(k)	$0.19	$1.21	$5.20
Premium Cost PMPM Net of Savings (m)=(l)/12	**$0.02**	**$0.10**	**$0.43**
Maryland Estimated 2026 Premium PMPM (n)=(j)/(k)	$951.31	$951.31	$951.31
% Impact to Premium Net of Savings (o)=(m)/(n)	**0.00%**	**0.01%**	**0.05%**

[38] Insurance Article §15-836

Figure 2: Potential Cost Savings Calculation

Assumption	Low	Mid	High
Chemotherapy Patient Scalp Cooling Utilization Rate Pre-Mandate (1) = (a)*(b)	0.03%	0.06%	0.12%
Chemotherapy Patient Scalp Cooling Utilization Rate Post-Mandate (2) = (d)	0.03%	0.07%	0.19%
Induced Utilizers (3) = (2)-(1)	0.00%	0.02%	0.07%
Induced Utilizers that Successfully Avoid Hair Prothesis[39] (4)	20%	30%	40%
Savings per Avoided Hair Prothesis (5)	$250	$300	$350
Potential Savings PMPY (6) = (3)*(4)*(5)	$0.00	$0.02	$0.10

L&E notes that the estimated impact range is considered to take on a normal curve, or bell curve, where the low- and high- estimates represent less likely impacts. This is illustrated visually below.



L&E also notes that the estimated impact applies to the Maryland insurance market as a whole, but individual insurers may not be affected equally. The impact for each insurer may vary depending on the characteristics of their underlying population, potentially leading to higher or lower effects compared to the overall market estimate.

OTHER FISCAL IMPACT ESTIMATES CONSIDERED

New York is the first state to mandate commercial insurance coverage for scalp cooling, effective January 2026 for the large group market. L&E was unable to find a publicly available fiscal impact estimate performed by New York for this mandate.

[39] Based on medical effectiveness research, while accounting for the fact that some of the individuals that avoid hair loss would not have elected hair prothesis if they hadn't avoided hair loss.

ASOP 41 Disclosures

The Actuarial Standards Board (ASB), authorized by the U.S.-based actuarial organizations, promulgates Actuarial Standards of Practice (ASOPs) for actuaries providing professional services in the United States. Each of these organizations, through its Code of Professional Conduct, requires its members to comply with the ASOPs when practicing in the United States. ASOP No. 41 provides guidance on actuarial communications and specifies disclosure requirements, which are included in the following section

Identification of the Responsible Actuary

The responsible actuaries are:

- Traci Hughes, FSA, MAAA, Vice President & Principal
- Dave 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 October 1, 2025. The date (a.k.a. "latest information date") through which data or other information has been considered in performing this analysis is September 3, 2025.

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 required coverage for Scalp Cooling Systems.
- 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, 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.