

MILLIMAN REPORT

# Maryland House Bill 1137 calcium score testing analysis

Prepared for Maryland Health Care Commission

December 5, 2024

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## Introduction

Insurance Article §15–1501, Annotated Code of Maryland, requires the Maryland Health Care Commission (MHCC) to annually assess the medical, social, and financial impact of proposed mandated health insurance services that failed to pass during the preceding legislative session. House Bill 1137 (HB 1137), which did not pass, requires the following, summarized from the bill text: coverage for calcium score testing (also known as coronary artery calcium, or CAC, testing) for individuals who have at least three of the four following risk factors: (1) diabetes; (2) high blood pressure; (3) high cholesterol; or (4) a family history of premature coronary artery disease.

At the request of MHCC, Milliman, Inc. was asked to assess the medical, social, and financial impact of HB 1137.

The analysis requires a medical evaluation that includes the extent to which the medical community generally recognizes the services as being effective, the evidence of effectiveness from peer-reviewed literature, and the extent to which testing is available.

This report also requires a social evaluation that includes the extent to which the service is generally utilized by a significant portion of the population and to which insurance coverage is already generally available. And, if coverage is not generally available, the extent to which the lack of coverage results in individuals avoiding necessary healthcare treatments and to which the lack of coverage results in unreasonable financial hardship. And also, the impact to the level of public demand for the service, the level of public demand for insurance coverage of the service, the level of interest of collective bargaining agents in negotiating privately for inclusion of this coverage in group contracts; and the extent to which the mandated health insurance service is covered by self-funded employer groups of employers in the state of Maryland that employ at least 500 employees.

This report also requires a financial impact assessment that includes the extent to which the coverage will increase or decrease the cost and appropriate use of the service, the extent to which the mandated service will be a substitute for a more expensive service, and the extent to which the coverage will increase or decrease the administrative expenses of insurers and the premium and administrative expenses of policyholders. The impact analysis also includes the effect of this benefit mandate on the total cost of healthcare; and the impact of all mandated health insurance services on employers' ability to purchase health benefits policies meeting their employees' needs.

## Highlights

Sources and citations supporting the statements contained in the Highlights and Executive Summary sections may be found in the body of this report.

### MEDICAL IMPACT

- Atherosclerotic cardiovascular disease (ASCVD) is a heterogenous group of conditions caused by the buildup of atheromatous plaque in the arterial walls and includes coronary heart disease, cerebrovascular disease, peripheral artery disease, and aortic atherosclerotic disease. Coronary artery calcium (CAC) is the use of computed tomography (CT) scanning to detect atheroma plaque calcification in coronary arteries.
- The American College of Cardiology (ACC) and American Heart Association (AHA), two of the largest cardiovascular disease (CVD) professional organizations in the United States, have incorporated CAC testing into their joint guidelines for the primary prevention of cardiovascular disease, both as part of risk assessment and to help guide treatment decisions.
- In some situations, the ACC and AHA recommend the use of CAC testing to reclassify ASCVD risk and guide further discussion on the risks and benefits of initiating statin therapy.

### SOCIAL IMPACT

- Prevalence of ASCVD risk factors has been shown to vary across demographics. The prevalence of diabetes in the United States, including diagnosed and undiagnosed diabetes, is highest among American Indian and Alaska Native adults (13.6%), followed by non-Hispanic Black adults (12.1%). It is lowest among non-Hispanic white adults (6.9%). Nationally, hypertension is more prevalent among Black adults (45.3%) than white (31.4%), Hispanic (31.6%), or Asian adults (31.8%). High total cholesterol is most prevalent among non-Hispanic Asian men (13.0%), followed by non-Hispanic white women (10.7%). It is lowest among non-Hispanic Black men (6.9%)
- The Multi-Ethnic Study of Atherosclerosis (MESA) found men had higher calcium scores than women and the prevalence of higher scores increased with age. White participants generally had the highest percentile scores and Hispanic participants generally had the lowest.
- Lower rates of CAC testing are associated with higher proportions of African Americans and women, as well as lower per capita income.
- Based on a survey of carriers, Maryland enrollees have between 49% and 86% coverage for CAC testing.

### FINANCIAL IMPACT

- We estimated a range of financial impacts varying the number of enrollees with ASCVD risk factors, statin usage, and heart disease-related event avoidance. Figure 1 shows that the 2026 total commercial premium/Medicaid cost impact of HB 1137 CAC testing in Maryland will range from \$16,000 to \$285,000.
- Mandated coverage for CAC testing is estimated to result in increased utilization of CAC testing. The estimated impact ranges from 70 to 970 new users in the fully insured commercial market, 20 to 300 new users enrolled in the Maryland state health plan, and 40 to 430 new users enrolled in the Medicaid plan.
- New usage of CAC testing is expected to increase usage of statin therapy. Increased statin therapy usage is expected to offset some ischemic cardiac events in Maryland.
- A summary of the estimated financial impact, assuming the high-end estimate, is provided in total and on per member per month (PMPM) and per member per year (PMPY) bases in Figure 2.

FIGURE 1: SUMMARY OF PREVALENCE AND FINANCIAL IMPACT OF HB 1137

	HB 1137 LOW ESTIMATE	HB 1137 AVERAGE ESTIMATE	HB 1137 HIGH ESTIMATE
Members with three of the four ASCVD risk factors prevalence (%)	1.2%	3.2%	5.2%
% of eligible population receiving CAC tests after HB 1137	0.9%	3.0%	5.0%
Commercial premium/Medicaid cost PMPM increase due to HB 1137	\$0.000	\$0.004	\$0.008

Commercial premium/Medicaid cost PMPY increase due to HB 1137	\$0.005	\$0.053	\$0.100
<b>Total commercial premium/Medicaid cost increase due to HB 1137</b>	<b>\$16,000</b>	<b>\$150,500</b>	<b>\$285,000</b>

FIGURE 2: SUMMARY OF PREVALENCE AND FINANCIAL IMPACT OF HB 1137, HIGH-END SCENARIO

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
Members with three of the four ASCVD risk factors prevalence (%)	5.9%	5.1%	6.0%	5.8%	11.3%	4.1%
% of eligible population receiving CAC tests after HB 1137	9.5%	10.2%	7.3%	8.6%	6.2%	2.9%
Commercial premium/Medicaid cost PMPM increase due to HB 1137	\$0.015	\$0.011	\$0.011	\$0.012	\$0.041	\$0.002
Commercial premium/Medicaid cost PMPY increase due to HB 1137	\$0.180	\$0.128	\$0.136	\$0.147	\$0.494	\$0.025
<b>Total commercial premium/Medicaid cost increase due to HB 1137</b>	<b>\$51,000</b>	<b>\$28,000</b>	<b>\$61,000</b>	<b>\$140,000</b>	<b>\$103,000</b>	<b>\$42,000</b>

## Executive Summary

Atherosclerotic cardiovascular disease (ASCVD) is a heterogeneous group of conditions caused by the buildup of atheromatous plaque in the arterial walls and includes coronary heart disease, cerebrovascular disease, peripheral artery disease, and aortic atherosclerotic disease. Prevention of ASCVD and ASCVD-related conditions relies upon timely and accurate risk assessment, risk stratification, and guideline-based management strategies. Based on an individual's risk assessment and stratification, either lifestyle therapies or lipid-lowering drugs are the preferred management strategies for lowering ASCVD risk. Lifestyle therapy includes diet modification, weight control, and physical activity, while statins are the cornerstone of lipid-lowering therapy.

Coronary artery calcium (CAC) is the use of computed tomography (CT) scanning to detect atheroma plaque calcification in coronary arteries. CAC testing can be used to inform the choice of treatment for individuals whose ASCVD risk is borderline or intermediate but who may benefit from statin therapy.

Maryland House Bill (HB) 1137 seeks to improve access to CAC testing by requiring the Maryland Medical Assistance Program and certain insurers, nonprofit health service plans, health maintenance organizations (HMOs), and managed care organizations (MCOs) to provide coverage for CAC testing for individuals who have at least three of the following risk factors for ASCVD: diabetes, high blood pressure, high cholesterol, or a family history of premature coronary artery disease.

Prevalence of these risk factors has been shown to vary across demographics. Nationally, hypertension is more prevalent among Black adults than white Hispanic or Asian adults. The prevalence of diabetes in the United States, including diagnosed and undiagnosed diabetes, is highest among the American Indian and Alaska Native adults, followed by non-Hispanic Black adults and it is lowest among non-Hispanic white adults. CAC scores have also been found to vary across demographics. The Multi-Ethnic Study of Atherosclerosis (MESA) found men had higher calcium scores than women and prevalence of higher scores increased with age.

We surveyed insurance carriers in Maryland about current CAC test coverage and no carrier specifically stated that it uses the same criteria as outlined in the legislation. Of the carriers surveyed, three out of five respondents indicated that CAC testing is covered for Maryland enrollees across all markets when following standard American College of Cardiology (ACC) and/or American Heart Association (AHA) guidelines or as determined medically necessary. These carriers' policies are less restrictive than the proposed legislation and are compliant with HB 1137. The remaining two carriers were determined to have noncompliant coverage.

For our financial analysis, we projected the population, cost of benefits, plan cost, and enrollee cost sharing for the 2026 calendar year under two scenarios; the first where the proposed legislation *does not* go into effect, baseline, and the second where the proposed legislation *does* go into effect, post-mandate. The difference between the baseline and post-mandate values is the impact of the proposed legislation. We modeled two scenarios by varying: the increase in CAC testing post-mandate, the statin therapy utilization resulting from the new tests, and ischemic cardiac events avoided from statin therapy.

We estimate 2026 CAC tests allowed costs to range from \$120 to \$130 for the fully insured commercial market, \$130 for the Maryland state health plan, and \$50 for Medicaid enrollees. Enrollees would pay the same cost sharing for CAC tests in both the baseline and post-mandate scenarios.

HB 1137 is estimated to result in a \$9,000 to \$140,000 increase, or \$0.001 to \$0.012 per member per month (PMPM), or \$0.009 to \$0.147 per member per year (PMPY), to the fully insured commercial market premium in 2026, an increase of \$4,000 to \$103,000, or \$0.002 to \$0.041 PMPM, or \$0.019 to \$0.494 PMPY to 2026 state health plan premium, and an increase of \$3,000 to \$42,000, or \$0.000 to \$0.002 PMPM, or \$0.002 to \$0.025 PMPY, to the Medicaid revenue. The premium impact is driven by an increase in usage as a result of expanded coverage for CAC testing, an increase in CAC test usage as a result of increased awareness, an increase in statin therapy usage as a result of additional CAC tests. It is offset by savings from avoided ischemic cardiac events as a result of increased statin therapy.

## Medical evaluation

### BACKGROUND

Atherosclerotic cardiovascular disease (ASCVD) is a heterogeneous group of conditions caused by the buildup of atheromatous plaque in the arterial walls and includes coronary heart disease, cerebrovascular disease, peripheral artery disease, and aortic atherosclerotic disease. (American Heart Association, 2024) ASCVD-related conditions are a leading cause of mortality in the United States, with cardiovascular disease (of which coronary heart disease is the most common type) and cerebrovascular disease being the first- and fifth-leading causes of death in 2022, respectively. (Centers for Disease Control and Prevention, National Center for Health Statistics, 2024)

ASCVD is characterized by the accumulation of lipids, fibrous elements, and calcification within arteries. This process is initiated by endothelial dysfunction, followed by low-density lipoprotein (LDL) retention and modification within the blood vessel intima, and finally by activation of inflammatory pathways that results in the formation and subsequent growth of an atheromatous plaque. (Jebari-Benslaiman, et al., 2022) As the condition advances, further inflammation causes a buildup of crystalline calcium within the plaque in a process called atheroma plaque calcification. When exposed to hemodynamic forces, the atheromatous plaque may rupture, triggering a coagulation process that leads to the formation of a thrombus that may either stabilize and cause local obstruction or detach and form an embolus that may cause infarction in distant anatomic sites.

Prevention of ASCVD and ASCVD-related conditions relies upon timely and accurate risk assessment, risk stratification, and guideline-based management strategies. (Arnett, et al., 2019) Based on an individual's risk assessment and stratification, either lifestyle therapies or lipid-lowering drugs are the preferred management strategies for lowering ASCVD risk. (Grundy, et al., 2019) Lifestyle therapy includes diet modification, weight control, and physical activity, while statins are the cornerstone of lipid-lowering therapy. The initiation of statin therapy should be guided by a shared decision-making discussion on the potential benefits, adverse effects, drug-drug interactions, and cost of statin therapy, taking into consideration the patient's preferences and values. (Grundy, et al., 2019)

Coronary artery calcium (CAC) is the use of computed tomography (CT) scanning to detect atheroma plaque calcification in coronary arteries. (American Heart Association, 2024) A CAC score greater than zero Agatston units (AUs) indicates the presence of an atheromatous plaque, with higher scores indicating more advanced plaque formation. CAC testing can be used to inform the choice of treatment for individuals whose ASCVD risk is borderline or intermediate but who may benefit from statin therapy. (Arnett, et al., 2019) CAC testing may also be used in shared decision-making discussions to help individuals better understand their cardiovascular risk and enhance motivation to start and adhere to statin therapy. (Kalia, Cespedes, Yousef, Li, & Budoff, 2015)

Maryland House Bill (HB) 1137 seeks to improve access to CAC testing by requiring the Maryland Medical Assistance Program and certain insurers, nonprofit health service plans, health maintenance organizations, and managed care organizations to provide coverage for CAC testing for individuals who have at least three of the following risk factors for ASCVD: diabetes, high blood pressure, high cholesterol, or a family history of premature coronary artery disease. (Maryland General Assembly, 2024) While CAC testing has applications in both primary and secondary prevention, given the focus of HB 1137 this medical evaluation focuses on the use of CAC testing in primary prevention of ASCVD.

### RECOGNITION OF EFFECTIVENESS BY MEDICAL COMMUNITY

Multiple professional organizations in the United States, including the American College of Cardiology (ACC), American Heart Association (AHA), National Lipid Association (NLA), and Society of Cardiovascular Computed Tomography (SCCT), recognize the use of CAC testing in select populations. (Arnett, et al., 2019) (Orringer, et al., 2021) (Hecht, et al., 2017) The ACC and AHA, two of the largest cardiovascular disease professional organizations in the United States, have incorporated CAC testing in their joint guidelines for the primary prevention of cardiovascular disease, both as part of risk assessment and to help guide treatment decisions. (Arnett, et al., 2019)

Risk assessment for ASCVD begins with the routine assessment of traditional cardiovascular risk factors such as hypertension, primary hypercholesterolemia, and smoking. Based on these risk factors, the ACC and the AHA then recommend calculating an individual's 10-year ASCVD risk using a validated risk prediction tool such as the Pooled

Cohort Equations Tool. (Arnett, et al., 2019) Such tools stratify adults into low risk (< 5%); borderline risk (5% to < 7.5%); intermediate risk ( $\geq 7.5\%$  to < 20%); and high risk ( $\geq 20\%$ ) for 10-year ASCVD risk and can be used to guide the management of individuals. For adults between 20 and 39 years of age, the ACC and the AHA recommend lifestyle therapy regardless of the 10-year ASCVD risk unless their LDL-cholesterol (LDL-C) is moderately high or greater ( $\geq 160$  mg/dL) and there is a family history of premature ASCVD (before 55 and 65 years of age in males and females, respectively), in which case statin therapy is indicated. (Arnett, et al., 2019) For adults between 40 and 75 years of age, lifestyle therapy is recommended for those with low risk, while statins are indicated for those with LDL-C above 70 mg/dL and high 10-year ASCVD risk, and those with intermediate or borderline risk should be offered statins during a shared decision-making discussion if they also have ASCVD risk enhancers such as family history of premature ASCVD, chronic kidney disease, or metabolic syndrome. (Arnett, et al., 2019) In cases where the shared decision-making discussion results in uncertainty about whether to initiate statin therapy, CAC testing is recommended to guide further discussion on treatment.

In such situations, the ACC and the AHA recommend the use of CAC testing to reclassify ASCVD risk and guide further discussion on the risks and benefits of initiating statin therapy: statins are beneficial and should be recommended if the CAC score is 100 or more AUs or at the 75th percentile or over, while a CAC score of 0 AU means statin treatment may offer no benefit and withholding treatment is reasonable in patients without certain risk enhancers. (Arnett, et al., 2019) For individuals with a CAC score between 1 to 99 AUs, statins have variable benefit and should be recommended for individuals 55 years of age or older, or younger patients with risk enhancers. (Arnett, et al., 2019) Additionally, a CAC score of 0 AU should not be used to withhold statin therapy for individuals with diabetes, chronic inflammatory disease, or a family history of premature ASCVD, or who are persistent cigarette smokers, as the absence of atheroma plaque calcification does not rule out the increased risk of noncalcified plaque or thrombosis among these individuals. (Arnett, et al., 2019) The ACC and the AHA do not recommend routine CAC testing among individuals with low, borderline, or high ASCVD risk. (Arnett, et al., 2019) CAC testing may be considered in borderline-risk individuals with concomitant ASCVD risk enhancers, although positive CAC scores are less common in this group and thus not routinely recommended. (Arnett, et al., 2019)

#### **EVIDENCE OF EFFECTIVENESS FROM PEER-REVIEWED LITERATURE**

Coronary artery calcium has been recognized as a specific marker of ASCVD since the 1940s, although it was only in 1991 that a technique for assigning a score to the magnitude of calcification through the use of a CT scan was developed. (Berman, Aronson, & Rozanski, 2016) In the succeeding years, multiple studies have looked at the effectiveness of the CAC score at measuring the extent of ASCVD and the use of CAC scoring in ASCVD risk assessment. One of the earliest large observational studies showed that CAC was an independent predictor of mortality after controlling for age, gender, ethnicity, and cardiac risk factors, with a CAC score of 0 AU corresponding to a 10-year survival rate of 99.4% and a score of more than 1,000 AUs corresponding to a 10-year survival rate of 87.8%. (Budoff, et al., 2007) A systematic review in 2009 of published research assessed the value of CAC in asymptomatic and symptomatic individuals and determined that CAC scores of 0 AU were associated with reduced risk for cardiovascular events in both groups, (Sarwar, et al., 2009) The same review found that CAC scores had a pooled sensitivity of 98% and a negative predictive value of 93% for detecting clinically significant coronary artery disease as confirmed by coronary angiography. (Hecht, et al., 2017) A large National Institutes of Health (NIH) study followed 6,814 asymptomatic individuals for 10 years and determined that, among different risk markers for ASCVD, CAC was the most powerful predictor of 10-year ASCVD risk in this group. (Yeboah, et al., 2012) Aside from initial CAC scoring, CAC score progression has also been found to be associated with higher risk for myocardial infarction and all-cause mortality. (Raggi, Callister, & Shaw, 2004) (Budoff, et al., 2010)

More recently, studies have investigated the utility of CAC scores not just in the detection and risk assessment of ASCVD, but also in guiding treatment decisions. One study assessed how the addition of CAC scores to the ACC/AHA guidelines affected statin therapy in intermediate-risk individuals and determined that CAC scoring appropriately reclassified 31.4% of patients to no statin therapy. (Taron, et al., Coronary Artery Calcium Score–Directed Primary Prevention With Statins on the Basis of the 2018 American College of Cardiology/American Heart Association/Multisociety Cholesterol Guidelines, 2021) Another study assessed the association of risk enhancers and ASCVD, stratified by CAC score, among intermediate-risk individuals and determined that, in individuals with CAC scores of 0 AU, the presence of risk enhancers was not associated with higher ASCVD risk. Additionally, positive



CAC scores significantly increase the likelihood of initiation or continuation of lifestyle therapy and statin therapy for ASCVD prevention. (Kalia, Cespedes, Youssef, Li, & Budoff, 2015) (Gupta, et al., 2017)

**AVAILABILITY OF SERVICES**

CAC testing is available at many medical centers, hospitals, and specialized imaging facilities across the United States. Although no specific estimates of the geographic availability of CAC testing are available, no significant additional requirements in either equipment or personnel are needed to perform the test apart from what is already required in many other CT scanning procedures. (Gupta, et al., 2022) CT scans are a widely used imaging procedure in the United States, with 428 CT scans performed per 1,000 person years in 2016. (Smith-Bindman, et al., 2019)

## Social evaluation

### PREVALENCE OF ASCVD RISK FACTORS

HB 1137 would require coverage for calcium score testing for individuals who have at least three of the four following risk factors: (1) diabetes; (2) high blood pressure; (3) high cholesterol; or (4) a family history of premature coronary artery disease. According to results of the National Health and Nutrition Examination Survey (NHANES), among U.S. adults the prevalence of diagnosed diabetes between 2021 and 2023 was 11.3% (Baumblatt, Fryar, Gu, & Ashman, 2024), the prevalence of hypertension between 2021 and 2023 was 47.7% (Fryar, Ostchega, Hales, Zhang, & Kruszon-Moran, 2017), and the prevalence of high cholesterol was 11.4% between 2015-2018. (Carroll & Fryar, 2020) NHANES results also estimated that 27.8 million people over 20 years of age had a family history of premature heart disease between 2007 and 2014. (Moonesinghe, Yang, Zhang, & Khoury, 2019)

Hypertension, high cholesterol, and diabetes often cooccur together. (National Institutes of Health, 2024) The Framingham Study found 58% of study participants with newly diagnosed diabetes had hypertension at the time of diagnosis. (Chen, McAllister, Walker, Hemmelgarn, & Campbell, 2011) It is estimated that 15% to 20% of adults with hypertension have comorbid high cholesterol. (Eaton, et al., 1994) (Wong, Lopez, Tang, & Williams, 2006) A National Center for Health Statistics data brief has the co-occurrence of all three conditions at 3% among United States adults. (Fryar, Hirsch, Eberhardt, Yoon, & Wright, 2010)

Figure 3 shows the percentage of individuals with at least three of the four ASCVD risk factors in the Maryland population by source of coverage, based on the Maryland All-Payer Claims Database (APCD). The Medicaid population has the lowest percentage of individuals (1.0%) and the Maryland state health plan has the highest percentage (2.7%).

**FIGURE 3: PREVALENCE OF AT LEAST THREE OF THE FOUR ASCVD RISK FACTORS IN THE MARYLAND POPULATION**

Individual	Small Group	Fully Insured Large Group	State Health Plan	Medicaid
1.4%	1.2%	1.4%	2.7%	1.0%

There are several reasons the values from the medical claims experience may be lower than the published literature values. To be confident that enrollees had diabetes, hypertension, or high cholesterol diagnoses, we required two non-laboratory or nondiagnostic claims coded with those conditions at least 30 days apart in one calendar year. This is because some providers include suspected but unconfirmed conditions on claims for diagnostic services and, by requiring two claims at least 30 days apart, we are more confident that the condition is truly diagnosed. It is possible that some enrollees identified with two risk factors actually have three diagnosed conditions but one is not coded. For family history of premature coronary artery disease, we required one non-laboratory or nondiagnostic claim coded with the diagnosis code that is closest to representing this circumstance (family history of sudden cardiac death) in one calendar year. However, this ICD-10-CM code is rarely reported and may not have been reported for some individuals with a family history of premature coronary artery disease because it only would be reported for an individual's family history of premature heart disease if sudden cardiac death in a family member occurred. Most enrollees with at least three of the four risk factors qualified by having diabetes, hypertension, and high cholesterol risk factors. Enrollees with these conditions may not have consistent claims within a calendar year or their providers may not comprehensively code their conditions in every encounter; enrollees under these circumstances would be underestimated in our methodology.

Prevalence of these risk factors has been shown to vary across demographics. Nationally, hypertension is more prevalent among Black adults (45.3%) than white (31.4%), Hispanic (31.6%), or Asian adults (31.8%). (Aggarwal, et al., 2021) The prevalence of diabetes in the United States, including diagnosed and undiagnosed diabetes, is highest among the American Indian and Alaska Native adults (13.6%), followed by non-Hispanic Black adults (12.1%). It is lowest among non-Hispanic white adults (6.9%). (CDC, 2024a) [11] High total cholesterol is most prevalent among non-Hispanic Asian men (13.0%), followed by non-Hispanic white women (10.7%), and it is lowest among non-Hispanic Black men (6.9%). (CDC, 2024b)

CAC scores have also been found to vary across demographics. The Multi-Ethnic Study of Atherosclerosis (MESA) found men had higher calcium scores than women and the prevalence of higher scores increased with age. White participants generally had the highest scores and Hispanic participants generally had the lowest. (McClelland, Chung, Detrano, Post, & Kronmal, 2006) Evidence suggests that calcium may have a different impact on risk of CVD, depending on race. For example, Black and Hispanic individuals have been found to have higher risk of CVD across all CAC scores. (Orimoloye et al, 2018)

For reference, Maryland's population is 51.3% female, 48.3% non-Hispanic white, 31.7% Black, 11.5% Hispanic, 7.1% Asian, 0.7% American Indian and Alaska Native, 0.1% Native Hawaiian and Other Pacific Islander, and 3.2% two or more races. (United States Census, 2024)

The higher rates of ASCVD risk factors among men and people of color suggest that legislation related to ASCVD screening would have a greater impact on these populations.

### INSURANCE COVERAGE

To determine insurance coverage of CAC testing, we surveyed the insurance carriers across Maryland's fully insured individual, fully insured small group, and fully insured large group employers, the Maryland state health plan, and the managed Medicaid population (see Appendix A for the survey sent to carriers). No carrier specifically stated that it uses the same criteria as outlined in the legislation. Of the carriers surveyed, three out of five respondents indicated that CAC testing is covered for Maryland enrollees across all markets when following ACC/AHA guidelines or as determined medically necessary. These carriers' policies are less restrictive than the proposed legislation and are compliant with HB 1137. The other two respondents cover CAC testing but under more restrictive policies than is required by the proposed legislation.

Figure 4 shows current coverage of CAC testing by source of coverage, based on carrier survey results weighted by market enrollment carrier surveys.

**FIGURE 4: ENROLLEES WITH COVERAGE FOR CAC TESTING**

Individual	Small Group	Fully Insured Large Group	State Health Plan	Medicaid
81%	86%	61%	85%	59%

### PUBLIC DEMAND AND UTILIZATION

Nationally, there has been increased interest in CAC testing as measured by internet searches. One study used Google Trends to measure the volume of searches for terms related to CAC testing between 2004 and 2021 and found the overall increase of these search terms in the United States during this time period was 354.8%. (Dzaye, et al., 2021) Searching does not indicate there is interest in receiving a test, but there is a positive correlation. Another study quantified public perception of CAC testing by using artificial intelligence (AI) to analyze 5,606 CAC-related Reddit discussions. The analysis found that most of the discussions had a neutral (49.5%) or negative (48.4%) sentiment. Common themes in the analysis included that CAC testing can help with therapeutic decision-making, motivate lifestyle changes and avoid statin therapy, and prevent CVD diagnoses. Public concerns were related to the out-of-pocket costs from lack of insurance coverage and radiation exposure from the tests. (Somani, et al., 2024) Authors note that the study sample may not be fully representative of the population considering testing, as Reddit users tend to be younger on average than patients at high risk of CVD.

We expect no change to CAC testing guidelines as result of this legislation, but we do expect an increase in public demand and provider test orders due to expanded awareness of CAC testing coverage, for both patients and providers. Figures 5 and 6 show a range of estimated enrollees using CAC testing in Maryland in 2026 if the benefit mandate *does not* go into effect (baseline) and if the benefit mandate *does* go into effect (post-mandate).

The low estimate reflects an expansion of coverage to all enrollees and a small increase in public demand and provider test orders due to expanded awareness. The high estimate reflects an expansion of coverage to all enrollees, a large increase in public demand and provider test orders due to expanded awareness, and an increase in eligibility due to improved identification and coding of the ASCVD risk factors.

**FIGURE 5: LOW ESTIMATED ELIGIBLE ENROLLEES USING CAC TESTING AT BASELINE AND POST-MANDATE, 2026**

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Enrollees with three of the four ASCVD risk factors</b>	3,960	2,580	6,390	<b>12,940</b>	5,660	16,390
<b>Users of CAC testing at baseline</b>	50	40	40	130	50	40
<b>Users of CAC testing post-mandate</b>	70	50	80	200	70	80
<b>Change in users of CAC testing</b>	20	10	40	70	20	40
<b>% Change in users of CAC testing</b>	40%	25%	100%	54%	40%	100%

**FIGURE 6: HIGH ESTIMATED ELIGIBLE ENROLLEES USING CAC TESTING AT BASELINE AND POST-MANDATE, 2026**

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Enrollees with three of the four ASCVD risk factors</b>	3,960	2,580	6,390	<b>12,940</b>	5,660	16,390
<b>Users of CAC testing at baseline</b>	50	40	40	130	50	40
<b>Users of CAC testing post-mandate</b>	370	260	460	1,090	350	470
<b>Change in users of CAC testing</b>	320	220	420	960	300	430
<b>% Change in users of CAC testing</b>	640%	550%	1050%	738%	600%	1075%

We estimate that about 130 eligible commercial enrollees, 50 eligible state health plan enrollees, and 40 Medicaid-eligible enrollees with CAC testing coverage at baseline use CAC testing. Post-mandate, we expect the number of CAC test users to increase to 200 to 1,090 fully insured commercial enrollees, 70 to 350 state health plan enrollees, and 80 to 470 Medicaid enrollees.

Utilization of CAC testing has been shown to vary by geography (Sachs, Scoma, Shaikh, Budoff, & Almeida, 2024), with rates ranging from 1.24 to 3.09 scans per 1,000 population. The northeast, where Maryland is located, had a utilization rate of 1.63 scans per 1,000. Utilization has also been found to vary by sociodemographics, with white patients and patients with higher incomes being more likely to utilize CAC testing. (Sachs, Scoma, Shaikh, Budoff, & Almeida, 2024) In a study of CAC utilization in Wisconsin, patients using CAC were disproportionately white and were more likely to be from higher income areas. (Marzlin, et al., 2024) This study also found that white patients were more likely to complete a physician-referred CAC relative to Black/African American, Asian, and Hispanic/Latino patients. This disparity suggests different barriers to accessing CAC across race and ethnic groups. Aside from regional and socioeconomic factors, access to CAC testing is also impacted by lack of insurance coverage from both government and private insurers, despite advocacy from professional organizations for coverage. (Greenland, Maron, & Budoff, 2022)

As discussed in the Medical Evaluation section above, increased CAC utilization can lead to the reclassification of risk, which may inform treatment decisions, including statin therapy. (Taron, et al., 2021) Risk reclassification has also been shown to lead to an increase in the likelihood of statin initiation and adherence for individuals with positive CAC scores. (Gupta, et al., 2017) (Al-Kindi, et al., 2022) We could not find evidence suggesting that individuals avoid other healthcare services because of lack of CAC testing benefits.

## FINANCIAL BARRIERS

When available, health system subsidized self-pay options may offer lower-cost options for CAC testing (\$50–\$100) (Greenland, Maron, & Budoff, 2022); however, financial barriers may still exist for low-income individuals. There is evidence that the removal of the cost barrier (resulting from lack of insurance coverage) for CAC testing results in increased utilization, as well as an increase in the proportion of African Americans, women, and people living in areas with lower incomes who receive testing. (Al-Kindi, et al., 2020)

The 2026 estimated cost of CAC tests in Maryland in the commercial market is \$120 to \$135 with enrollee cost sharing ranging from \$7 to \$60. The 2026 estimated cost of CAC tests in Maryland for Medicaid enrollees is \$46 with \$0 enrollee cost sharing.

Legislation that improves the coverage of CAC will likely have a greater impact to low-income individuals, although this will depend on the actual utilization of the benefits and out-of-pocket costs for each enrollee. Individuals with high-cost sharing for CT scans such as CAC testing may continue to have financial barriers.

## Financial evaluation

The financial evaluation projects the population, cost of benefits, commercial premium, Medicaid cost, and enrollee cost sharing for the 2026 calendar year under the following two scenarios:

1. Baseline: Proposed legislation *does not* go into effect.
2. Post-mandate: Proposed legislation *does* go into effect.

The difference between the baseline and post-mandate values is the impact of the proposed legislation. As discussed in the Medical Evaluation section above, users of CAC testing may begin statin therapy as a result of the CAC test results. Statins may cause enrollees to avoid ischemic cardiac events, including acute myocardial infarction (i.e. heart attacks), coronary revascularization events (i.e. procedures to address coronary artery blockages), and ischemic heart disease-related emergency department (ED) visits (e.g. chest pain). The financial evaluation considers the additional CAC tests, statins, and avoided events as a result of the CAC test coverage expansion from HB 1137.

Results from our financial evaluation are presented as a range, with the following variables adjusted:

- Public demand and coverage awareness. The increase in post-mandate usage rate of CAC testing for eligible enrollees with baseline coverage due to increased knowledge of CAC testing as a result of this legislation.
- Condition coding improvements. As mentioned in the Prevalence section above, coding for family history is rarely done. Our baseline eligibility rates effectively assume an enrollee must have diabetes, high blood pressure, and high cholesterol. Other chronic conditions may also be under-coded. As awareness for CAC testing coverage increases post-mandate, we anticipate physician coding and documentation to improve and indicate more enrollees are eligible for CAC testing than at baseline. The high end of the range reflects post-mandate eligibility for CAC testing if enrollees only had two of the four risk factors present in the APCD data.
- Statin therapy utilization increase. Depending on the results of the CAC tests, enrollees may begin statin therapy.
- Ischemic cardiac event avoidance. The number and types of ischemic cardiac events avoided due to the increase in statin therapy. We estimate acute myocardial infarction events, coronary revascularization surgery, and ischemic heart disease-related ED visits avoided per 1,000 new statin therapy users.

Figure 7 shows the range of values assumed for the adjusted variables. See the Methodology and Assumptions section below for additional detail on the rationale for the values in the ranges in Figure 7.

**FIGURE 7: ANALYSIS VARIABLES FOR RANGE OF POST-MANDATE RESULTS**

	LOW	HIGH
<b>Public demand/coverage awareness</b>	+10% annual eligible users with baseline coverage	+100% annual eligible users with baseline coverage
<b>Condition coding improvements</b>	Prevalence rate is the same as baseline	Prevalence rate is 4.2 times the baseline
<b>Statin therapy</b>	25% of new CAC testing annual users	50% of new CAC testing annual users
<b>Acute myocardial infarctions</b>	1.5 annual myocardial infarctions avoided per 1,000 new statin therapy users	2.0 annual myocardial infarctions avoided per 1,000 new statin therapy users
<b>Coronary revascularization surgery</b>	0.5 annual procedures avoided per 1,000 new statin therapy users	0.75 annual procedures avoided per 1,000 new statin therapy users
<b>Ischemic heart disease-related ED visits</b>	1.0 annual ED visits avoided per 1,000 new statin therapy users	1.5 annual ED visits avoided per 1,000 new statin therapy users

We included the annual impact of subsequent statin therapy (12 months of scripts) and avoided ischemic cardiac events in order to demonstrate the cost and savings of a year of HB 1137. In practice, the CAC tests may be performed throughout the year so a new user of statins resulting from CAC test results would use less than 12 scripts during calendar year 2026.

## COST PER SERVICE AND ENROLLEE COST SHARING

### CAC testing

We estimate the average allowed cost of CAC testing in 2026 to be \$120 to \$130 per test for commercially insured enrollees, \$130 for the state health plan, and \$50 for Medicaid enrollees. Enrollee cost sharing for CAC testing is estimated to be \$7 to \$60 per test for commercially insured enrollees and \$0 for Medicaid enrollees at baseline. Post-mandate, we assumed the average allowed cost and enrollee cost sharing for CAC testing would not change as a result of HB 1137. The table in Figure 8 shows the average allowed cost and enrollee cost sharing of CAC testing by source of coverage.

FIGURE 8: ESTIMATED COST PER CAC TEST, 2026

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	STATE HEALTH PLAN	MEDICAID
<b>Average allowed cost</b>	\$130	\$130	\$120	\$130	\$50
<b>Average enrollee cost sharing</b>	\$60	\$60	\$40	\$7	\$0

### Statin therapy

We expect some portion of new post-mandate CAC test takers will begin statin therapy as a result of CAC testing. We estimate the average allowed cost of one year of statin scripts in 2026 to be \$140 to \$520 and enrollee cost sharing for one year of statin scripts to be \$4 to \$90. The table in Figure 9 shows the average cost of one year of statin scripts by source of coverage.

FIGURE 9: ESTIMATED ANNUAL COST OF STATIN THERAPY, 2026

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	STATE HEALTH PLAN	MEDICAID
<b>Average allowed cost</b>	\$300	\$290	\$260	\$520	\$140
<b>Average enrollee cost sharing</b>	\$40	\$90	\$60	\$70	\$4

### Avoided services from statin therapy use

We expect some portion of new post-mandate statin therapy users to avoid the following three types of ischemic cardiac events as a result of statin therapy:

1. Acute myocardial infarctions
2. Coronary revascularization surgeries
3. Ischemic heart disease-related ED visits

Figures 10 to 12 show the estimated allowed and enrollee cost sharing for each type of avoided service.

We estimated from the APCD that the cost of care for an acute myocardial infarction is between \$42,700 and \$43,000 for the fully insured commercial market and \$11,500 for a Medicaid enrollee. The estimated cost of care of a coronary revascularization surgery for a fully insured enrollee in the commercial market is between \$43,300 and \$63,700 and is estimated to be \$15,400 for a Medicaid enrollee. We estimated the cost of care for an ischemic heart disease-related ED visit is between \$17,100 and \$18,400 for a fully insured commercial enrollee and \$6,800 for a Medicaid enrollee.

See the Avoided Services Offsets section in the Methodology and Assumptions section below for how we identified ischemic cardiac events in the APCD.

FIGURE 10: ESTIMATED COST OF ACUTE MYOCARDIAL INFARCTIONS, 2026

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	STATE HEALTH PLAN	MEDICAID
<b>Average allowed cost</b>	\$42,700	\$43,000	\$42,800	\$29,100	\$11,500
<b>Average enrollee cost sharing</b>	\$2,200	\$1,100	\$4,900	\$220	\$0

FIGURE 11: ESTIMATED COST OF CORONARY REVASCULARIZATION SURGERIES, 2026

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	STATE HEALTH PLAN	MEDICAID
<b>Average allowed cost</b>	\$63,700	\$43,300	\$48,900	\$39,000	\$15,400
<b>Average enrollee cost sharing</b>	\$2,800	\$950	\$5,300	\$360	\$0

FIGURE 12: ESTIMATED COST OF ISCHEMIC HEART DISEASE-RELATED EMERGENCY DEPARTMENT VISITS, 2026

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	STATE HEALTH PLAN	MEDICAID
<b>Average allowed cost</b>	\$18,400	\$17,200	\$17,100	\$17,200	\$6,800
<b>Average enrollee cost sharing</b>	\$1,700	\$840	\$2,800	\$150	\$0

### ADMINISTRATION OF BENEFITS

Carriers did not report any undue burden from administering this additional benefit. Administration costs will increase in proportion to the cost of additional mandated benefits. We do not expect HB 1137 to impact individuals or employers' ability to purchase health benefits policies meeting their own or employees' needs.

### STATE BENEFIT DEFRAIAL EXCEEDING ESSENTIAL HEALTH BENEFIT

HB 1137 may exceed essential health benefits (EHBs) and may require the state to defray costs of exceeding essential health benefits if Maryland does not include CAC testing in its 2026 EHB benchmark plan. CAC testing could be an EHB if it is considered diagnostic imaging under the ambulatory patient services or laboratory services EHBs. In "[Final 2025 HHS Notice of Benefits and Payment Parameters](#)," the Centers for Medicare and Medicaid Services (CMS) finalized an amendment to codify that benefits covered in a state's EHB benchmark plan will not be considered in addition to EHBs, even if they had been required by state action taking place after December 31, 2011, other than for purposes of compliance with federal requirements. Under this policy, there would be no obligation for the state to defray the cost of a state mandate enacted after December 31, 2011, that requires coverage of a benefit if that benefit is included in the state's EHB benchmark plan. Benefits that are covered in a state's EHB benchmark plan will not be considered in addition to EHBs and will remain subject to the various rules applicable to the EHBs.

### COMMERCIAL PREMIUM AND MEDICAID COST IMPACT

The estimated commercial premium and Medicaid cost impact from passing HB 1137 is shown in Figures 13 and 14. Total fully insured commercial premiums are estimated to increase \$9,000 to \$140,000 or \$0.001 to \$0.012 PMPM (\$0.009 to \$0.147 PMPY). State health plan premiums are estimated to increase \$4,000 to \$103,000 or \$0.002 to \$0.041 PMPM (\$0.019 to \$0.494 PMPY). Medicaid costs are estimated to increase by \$3,000 to \$42,000, or \$0.000 to \$0.002 PMPM (\$0.002 to \$0.025 PMPY). The assumptions used for the range of estimates can be found in the low and high assumptions discussed above.

Both commercial premium and Medicaid costs include administrative fees.



FIGURE 13: ESTIMATED COMMERCIAL PREMIUM AND MEDICAID COST IMPACT OF HB 1137, 2026 (LOW-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Dollars</b>	\$2,000	\$2,000	\$5,000	<b>\$9,000</b>	\$4,000	\$3,000
<b>PMPM</b>	\$0.001	\$0.000	\$0.001	<b>\$0.001</b>	\$0.002	\$0.000
<b>PMPY</b>	\$0.009	\$0.006	\$0.011	<b>\$0.009</b>	\$0.019	\$0.002

FIGURE 14: ESTIMATED COMMERCIAL PREMIUM AND MEDICAID COST IMPACT OF HB 1137, 2026 (HIGH-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Dollars</b>	\$51,000	\$28,000	\$61,000	<b>\$140,000</b>	\$103,000	\$42,000
<b>PMPM</b>	\$0.015	\$0.011	\$0.011	<b>\$0.012</b>	\$0.041	\$0.002
<b>PMPY</b>	\$0.180	\$0.128	\$0.136	<b>\$0.147</b>	\$0.494	\$0.025

### ENROLLEE OUT-OF-POCKET IMPACT

The estimated enrollee out-of-pocket cost impact post-mandate is in Figures 15 and 16. Total fully insured commercial out-of-pocket costs are estimated to increase by \$3,000 to \$70,000 or \$0.000 to \$0.006 PMPM (\$0.004 to \$0.075 PMPY). State health plan enrollee out-of-pocket costs are estimated to increase \$1,000 to \$13,000 or \$0.000 to \$0.005 PMPM (\$0.002 to \$0.061 PMPY). Medicaid enrollee out-of-pocket costs are estimated to increase by \$1,000 or \$0.000 PMPM (\$0.001 PMPY) in the high-end scenario for statin therapy. The assumptions used for the range of estimates can be found in the low and high assumptions shown above in Figure 7.

FIGURE 15: ESTIMATED POST-MANDATE ENROLLEE OUT-OF-POCKET IMPACT OF HB 1137, 2026 (LOW-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Out-of-Pocket</b>	\$1,000	\$1,000	\$1,000	<b>\$3,000</b>	\$1,000	\$0
<b>Out-of-Pocket PMPM</b>	\$0.000	\$0.000	\$0.000	<b>\$0.000</b>	\$0.000	\$0.000
<b>Out-of-Pocket PMPY</b>	\$0.005	\$0.004	\$0.004	<b>\$0.004</b>	\$0.002	\$0.000

FIGURE 16: ESTIMATED POST-MANDATE ENROLLEE OUT-OF-POCKET IMPACT OF HB 1137, 2026 (HIGH-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Out-of-Pocket</b>	\$24,000	\$22,000	\$24,000	<b>\$70,000</b>	\$13,000	\$1,000
<b>Out-of-Pocket PMPM</b>	\$0.007	\$0.009	\$0.005	<b>\$0.006</b>	\$0.005	\$0.000
<b>Out-of-Pocket PMPY</b>	\$0.086	\$0.103	\$0.054	<b>\$0.075</b>	\$0.061	\$0.001

### TOTAL COST OF CARE IMPACT

The total estimated cost of care impact, including out-of-pocket costs, from passing HB 1137 is shown in Figures 17 and 18. Total fully insured commercial cost of care is estimated to increase by \$12,000 to \$210,000 or \$0.001 to \$0.018 PMPM (\$0.013 to \$0.222 PMPY). State health plan total estimated cost of care impact is estimated to increase \$5,000 to \$116,000 or \$0.002 to \$0.046 PMPM (\$0.021 to \$0.555 PMPY). Medicaid costs are estimated to increase by \$3,000 to \$43,000, or \$0.000 to \$0.002 PMPM (\$0.002 to \$0.025 PMPY). The assumptions used for the range of estimates can be found in the low and high assumptions shown above in Figure 7.

FIGURE 17: ESTIMATED POST-MANDATE TOTAL COST OF CARE IMPACT OF HB 1137, 2026 (LOW-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Cost of Care</b>	\$3,000	\$3,000	\$6,000	<b>\$12,000</b>	\$5,000	\$3,000
<b>Total Cost of Care PMPM</b>	\$0.001	\$0.001	\$0.001	<b>\$0.001</b>	\$0.002	\$0.000
<b>Total Cost of Care PMPY</b>	\$0.014	\$0.010	\$0.014	<b>\$0.013</b>	\$0.021	\$0.002

FIGURE 18: ESTIMATED POST-MANDATE TOTAL COST OF CARE IMPACT OF HB 1137, 2026 (HIGH-END SCENARIO)

	INDIVIDUAL	SMALL GROUP	FULLY INSURED LARGE GROUP	TOTAL FULLY INSURED COMMERCIAL	STATE HEALTH PLAN	MEDICAID
<b>Total Cost of Care</b>	\$75,000	\$50,000	\$85,000	<b>\$210,000</b>	\$116,000	\$43,000
<b>Total Cost of Care PMPM</b>	\$0.022	\$0.019	\$0.016	<b>\$0.018</b>	\$0.046	\$0.002
<b>Total Cost of Care PMPY</b>	\$0.265	\$0.231	\$0.190	<b>\$0.222</b>	\$0.555	\$0.025

See Appendix C and D for more detailed information on PMPM and total cost of care.

## Methodology and Assumptions

As noted in the prior section, the financial evaluation projects the population, cost of benefits, commercial premium and Medicaid costs, and enrollee cost sharing for the 2026 calendar year under the following two scenarios:

1. Baseline: Proposed legislation *does not* go into effect.
2. Post-mandate: Proposed legislation *does* go into effect.

The difference between the baseline and post-mandate values is the impact of the proposed legislation.

### MARYLAND POPULATION

We used the Maryland population changes from the 2020 census to the 2030 census projection to trend 2022 and 2023 enrollment data from Maryland's All-Payer Claims Database (APCD) to 2026. We adjusted our initial 2026 population estimate for Medicaid redetermination, which began in Maryland in April 2023, based on Maryland Medicaid redetermination enrollment estimates as of May 2024. The Maryland Department of Health reported 1,684,462 Medicaid enrollees in May 2024 with 35,106 new enrollees in an individual health plan through Maryland Health Connection.

### BENEFIT COVERAGE

We surveyed insurance carriers in Maryland about current coverage of calcium score testing in Maryland. We received responses from five carriers.

Many carriers did not report coverage of CAC testing as described by HB 1137. As discussed in the Medical Evaluation section above, CAC testing is recommended by the ACC and the AHA based on an individual's 10-year ASCVD risk. While conditions such as high blood pressure are evaluated as part of an individual's 10-year ASCVD risk, we did not expect physicians to deviate from current practice guidelines recommended by the ACC and the AHA. We assumed CAC testing coverage that follows ACC/AHA guidelines to be compliant with HB 1137. For carriers with CAC testing coverage, but under more restrictive policies than required by the proposed legislation, we assumed 0% coverage.

Figure 19 shows the baseline coverage rate for CAC testing using market proportions from 2023 carrier surveys.

**FIGURE 19: CORONARY ARTERY CALCIUM TESTING COVERAGE RATE**

Individual	Small Group	Fully Insured Large Group	State Health Plan	Medicaid
81%	86%	61%	85%	59%

### ELIGIBLE ENROLLEES

We used the APCD to identify claims and membership for enrollees with three of the four ASCVD risk factors listed by HB 1137: diabetes, high blood pressure, high cholesterol, or a family history of premature coronary artery disease. To qualify as having diabetes, high blood pressure, or high cholesterol, enrollees were required to have at least two non-laboratory/nondiagnostic claims with a corresponding diagnosis at a minimum of 30 days apart. To qualify as having a family history of premature coronary artery disease, enrollees were required to have at least one non-laboratory/nondiagnostic claim with a diagnosis of family history of sudden cardiac death (the closest proxy to family history of premature coronary artery disease). Commercial enrollees with at least three of the four conditions in 2023 (2022 for Medicaid enrollees) were identified as patients eligible for CAC testing under HB 1137.

HB 1137 may increase the number of eligible enrollees in the post-mandate period. Coding for family history is rarely done. Our baseline eligibility rates effectively assume an enrollee must have diabetes, high blood pressure, and high cholesterol. Other chronic conditions may also be under-coded. As awareness for CAC testing coverage increases post-mandate, we anticipate physician coding and documentation to improve and indicate more enrollees are eligible for CAC testing than at baseline. The high end of the range reflects post-mandate eligibility for CAC testing if

enrollees only had two of four risk factors present in the APCD data, which is approximately 4.2 times the baseline eligible enrollee count.

### **CORONARY ARTERY CALCIUM TESTING UTILIZATION AND COST**

At baseline, we estimate that between 1% and 2% of members eligible for CAC testing had coverage in 2023 and received a CAC test based on data from the APCD.

Post-mandate, we expected CAC testing utilization rates for enrollees with baseline coverage to increase 10% to 100% as a result of increased awareness for CAC testing. For enrollees without baseline coverage, we expect similar post-mandate utilization as enrollees with baseline coverage.

We trended the 2023 (2022 for Medicaid) average cost of CAC testing from the APCD for each source of coverage to 2026. We used a 7% annual cost trend based on the Milliman Health Cost Guidelines for commercial sources of insurance and 2.75% annual cost trend for Medicaid. We assumed that the 2023 APCD enrollee cost sharing as a percentage of total allowed cost for CAC testing would be the same as other CT scans post-mandate.

All PMPY calculations assume enrollees are enrolled in the plan for 12 months.

### **STATIN THERAPY UTILIZATION AND COST**

We assumed some new users of CAC testing would begin statin therapy based on their test results. We estimate between 25% to 50% of new CAC testing users will begin statin therapy based on a distribution of CAC scores. In the cited study, about 30% of patients had a CAC score of zero (recommended not to start statins), 30% had a score of 1 to 99 (recommended to start statins), and 40% had a score of greater than or equal to 100 (recommended to start statins). (Taron, et al., 2021) (Gupta, et al., 2017) We expect, in accordance with ACC/AHA guidelines, about 70% of patients undergoing CAC testing to be recommended statin therapy, but we have provided a lower range attributable to post-mandate new CAC testing because some of these patients would have been started on statins even without CAC testing.

We trended the 2023 (2022 for Medicaid) average 30-day script cost of statin therapy from the APCD for each source of coverage to 2026. We assumed 12 30-day scripts per year per user. We used an 11.5% annual cost trend based on the Milliman Health Cost Guidelines for commercial sources of insurance and 2.75% annual cost trend for Medicaid based on the CMS national health expenditure projections. For commercial enrollees, we assumed that the average proportion of patient cost sharing in the APCD for statin therapy in 2023 would be the same in 2026. For Medicaid enrollees, we assumed a quarterly \$1 copayment per member for statin therapy in 2026.

### **AVOIDED SERVICES OFFSETS**

We assumed some new users of statin therapy would avoid some ischemic cardiac events as a result. We estimate that, annually, 1.5 to 2.0 enrollees per 1,000 new users of statin therapy would avoid an acute myocardial infarction, 0.50 to 0.75 enrollees per 1,000 new users of statin therapy would avoid a coronary revascularization surgery, and 1.0 to 1.5 enrollees per 1,000 new users of statin therapy would avoid an ischemic heart disease-related ED visit.

We estimate a range of 1.5 to 2.0 enrollees per 1,000 new statin therapy users would avoid an acute myocardial infarction based on the information provided in a study about statin use being the primary prevention of cardiovascular disease in adults. (Chou R & et al., 2022) To get an annual rate, we calculated the acute myocardial infarction rate reduction for the new statin population versus the no statin population and divided the result by the average duration of studies included in the meta-analysis. Note that, because the majority of coronary revascularization surgeries occur in the context of acute myocardial infarctions, the majority of the reduction in coronary revascularization surgeries is captured in the myocardial infarction reduction assumptions.

The range of 0.50 to 0.75 coronary revascularization surgeries avoided was calculated using the same methodology as the acute myocardial infarctions. (Chou R & et al., 2022) As acute myocardial infarctions and coronary revascularization surgeries have substantial overlap (most coronary revascularization surgeries are performed for acute myocardial infarction), we provided a lower range in order to avoid overestimating savings resulting from the mandate.

We estimated a range of 1.0 to 1.5 enrollees per 1,000 new statin therapy users would avoid an ischemic heart disease-related ED visits based on two factors: the number of all-cause ED encounters per year in the commercial market stemming from prior Milliman work in this area and the percentage of ED visits (both treat-and-release and ED visits resulting in admission) with a circulatory system principal diagnosis code. (Agency for Healthcare Research and Quality, 2024) Because circulatory system diagnosis codes encompass a much wider list than ischemic heart disease, we estimated the proportion of those ED encounters that were due to ischemic heart disease-related conditions (e.g., unstable angina) and excluded ED visits resulting in admissions for acute myocardial infarction because they are already captured in the acute myocardial infarction reduction assumptions.

Acute myocardial infarctions were identified in the APCD as any inpatient event with a corresponding diagnosis code or myocardial infarction, with medical claims from the day of admission to 30 days post-discharge included in the myocardial infarction cost. Coronary revascularization surgeries were identified in the APCD as any claim with a corresponding procedure code or MS-DRG for coronary revascularization surgery code. Ischemic heart disease emergency events were identified in the APCD as any ED visit with a corresponding diagnosis code for ischemic heart disease; if the ED visit led to an inpatient admission, all claims related to the admission were included in the cost of the event.

We trended the 2023 (2022 for Medicaid) average cost of avoided ischemic cardiac events from the APCD for each source of coverage to 2026. We used a 1% annual cost trend based on the Milliman Health Cost Guidelines for commercial sources of insurance and 2.75% annual cost trend for Medicaid.

We assumed the average proportion of patient cost sharing in the APCD for avoided ischemic cardiac events in 2023 (2022 for Medicaid) would be the same in 2026.

### **COMMERCIAL PREMIUM, MEDICAID COST, AND RETENTION**

We assumed a medical loss ratio of 80% for fully insured commercial individual and small group plans, a medical loss ratio of 85% for fully insured large group plans and the state health plan, and a medical loss ratio of 92% for the Medicaid population.

We assumed no additional administrative costs due to this mandate beyond the typical proportional increase in retention costs when applied to medical cost increases.

## **Considerations and limitations**

As discussed in the Medical Evaluation section above, usage of CAC testing typically follows ACC and AHA care guidelines and we do not expect usage post-mandate to follow the coverage criteria under HB 1137. We assumed coverage guidelines that follow ACC/AHA guidelines at baseline are compliant with HB 1137 at baseline.

To identify enrollees with diabetes, high blood pressure, high cholesterol, or a family history of premature coronary artery disease, we excluded claims related to diagnostic imaging and lab tests, as diagnosis codes on claims for those service categories are typically unreliable for medical condition identification. Our estimates for the number of enrollees eligible for CAC testing under HB 1137 may be understated because of claim quality requirements as well as claim quantity requirements.

Due to low usage of both CAC testing for covered and eligible enrollees and subsequent statin therapy, as well as low avoidance rates for ischemic cardiac events, we calculate less than one avoided event for each event type. We assume an average annual avoidance savings based on fewer than one expected event avoided for our calculations and estimates.

## **Variability of results**

Differences between our estimates and actual amounts depend on the extent to which future experience conforms to the assumptions made in this model. It is almost certain that actual experience will not conform exactly to the assumptions used in this model. Actual amounts will differ from projected amounts to the extent that actual experience is better or worse than expected.

## Model and data reliance

Milliman has developed certain models to estimate the values included in this report. The intent of the models was to estimate the impact of bill HB 1137. We have reviewed this model, including its inputs, calculations, and outputs, for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP).

The models rely on data and information as input to the models. We have relied upon certain data and information for this purpose and accepted it without audit. To the extent that the data and information provided is not accurate, or is not complete, the values provided in this report may likewise be inaccurate or incomplete.

Milliman's data and information reliance includes:

- Data summaries from Maryland's All-Payer Claims Database provided by Maryland Health Care Commission
- U.S. Census data and projections
- All other sources mentioned inline and in references, including surveys and studies.

The models, including all input, calculations, and output, may not be appropriate for any other purpose.

We have performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our investigation.

## Qualifications to perform analysis

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Two of the developers of this model and authors of this paper, Casey Hammer and Norman Yu, are members of the American Academy of Actuaries and meet the qualification standards for performing the analyses supported by this model.

## Distribution and usage

We understand that MHCC intends to distribute this report to the commissioners and it may be published on their website. We consent to this distribution as long as the work is distributed in its entirety. Milliman does not intend to benefit any third-party recipient of its work product and assumes no duty or liability to other parties that receive this work.

## Appendix A: Carrier Coverage Survey

### COVERAGE SURVEY FOR THE CALCIUM SCORE TESTING

Insurance Article §15–1501, Annotated Code of Maryland, requires the Maryland Health Care Commission (MHCC) to annually assess the medical, social, and financial impact of proposed mandated health insurance services that failed to pass during the preceding legislative session. House Bill 1137, which did not pass, requires coverage for calcium score testing for individuals who have at least 3 of the 4 following risk factors: (1) diabetes; (2) high blood pressure; (3) high cholesterol; or (4) a family history of premature coronary artery disease.

This survey is intended to inform this analysis. Please return this survey to Jason Caplan via email at [jason.caplan3@maryland.gov](mailto:jason.caplan3@maryland.gov) by **Friday, September 27**.

1) What is the name of the insurance carrier?

2) Please complete the following table with **how many people** are enrolled in the following lines of business as of August 1, 2024?

Individual Market	Small Group Market	Large Group Market	State Employee Health Plan	Self-Funded Employer Plan <sup>1</sup>	Medical Assistance Program

3) Please complete the following table with **average monthly premium** in the following lines of business as of August 1, 2024?

Individual Market	Small Group Market	Large Group Market	State Employee Health Plan	Self-Funded Employer Plan <sup>2</sup>	Medical Assistance Program

4) Please complete the following table with the percentage of enrollees who currently have coverage for calcium score testing.

Individual Market	Small Group Market	Large Group Market	State Employee Health Plan	Self-Funded Employer Plan <sup>3</sup>	Medical Assistance Program

<sup>1</sup> DO NOT include State Health Plan

<sup>2</sup> DO NOT include State Health Plan

<sup>3</sup> DO NOT include State Health Plan

- 5) For enrollees with coverage for calcium score testing, are there any benefit limitations? Please include any conditions/risk factors that are required for coverage.
- 6) Do you expect any additional administrative burden resulting from this benefit mandate?
- 7) Is there any additional information you would like to share as we consider mandating coverage of this benefit?



## Appendix B: Enrollees Impacted by HB 1137 Legislation

### PROJECTED 2026 USERS OF CAC TESTING – LOW END SCENARIO

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total baseline enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Eligible CAC testing users with baseline coverage</b>	50	40	40	130	50	180	40
<b>Additional post-mandate CAC test users</b>	20	10	40	70	20	90	40
<b>Total post-mandate CAC test users</b>	70	50	80	200	70	270	80

## Appendix B: Enrollees Impacted by HB 1137 Legislation (Cont.)

## PROJECTED 2026 USERS OF CAC TESTING – HIGH END SCENARIO

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total baseline enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Eligible CAC testing users with baseline coverage</b>	50	40	40	130	50	180	40
<b>Additional post-mandate CAC test users</b>	320	220	420	960	300	1,260	430
<b>Total post-mandate CAC test users</b>	370	260	460	1,090	350	1,440	470

## Appendix C: Low-End Scenario

### COMMERCIAL PREMIUM, MEDICAID COST, AND ENROLLEE OUT-OF-POCKET PMPM

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Baseline</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$0.0014	\$0.0013	\$0.0008	\$0.0011	\$0.0031	\$0.0015	\$0.0001
Enrollee out-of-pocket expenses attributable to mandated benefits	\$0.0009	\$0.0009	\$0.0003	\$0.0006	\$0.0001	\$0.0005	\$0.0000
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$0.0023</b>	<b>\$0.0022</b>	<b>\$0.0011</b>	<b>\$0.0017</b>	<b>\$0.0032</b>	<b>\$0.0020</b>	<b>\$0.0001</b>
<b>Post-Mandate</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$0.0022	\$0.0018	\$0.0017	\$0.0019	\$0.0046	\$0.0024	\$0.0002
Enrollee out-of-pocket expenses attributable to mandated benefits*	\$0.0013	\$0.0012	\$0.0006	\$0.0010	\$0.0003	\$0.0008	\$0.0000
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$0.0035</b>	<b>\$0.0031</b>	<b>\$0.0023</b>	<b>\$0.0028</b>	<b>\$0.0049</b>	<b>\$0.0032</b>	<b>\$0.0002</b>
<b>Financial Impact of Mandate</b>							
Change in commercial premium/Medicaid cost	\$0.0008	\$0.0005	\$0.0009	\$0.0008	\$0.0016	\$0.0009	\$0.0001
Change in enrollee out-of-pocket expenses	\$0.0004	\$0.0003	\$0.0003	\$0.0003	\$0.0002	\$0.0003	\$0.0000
<b>Total Mandate Impact</b>	<b>\$0.0011</b>	<b>\$0.0008</b>	<b>\$0.0012</b>	<b>\$0.0011</b>	<b>\$0.0017</b>	<b>\$0.0012</b>	<b>\$0.0001</b>

\* Medicaid enrollee out-of-pocket expenses are \$0.0000 due to rounding.

## Appendix C: Low-End Scenario (Cont.)

## TOTAL COST OF CARE

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Baseline</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$5,000	\$3,000	\$4,000	\$12,000	\$8,000	\$20,000	\$2,000
Enrollee out-of-pocket expenses attributable to mandated benefits	\$3,000	\$2,000	\$2,000	\$7,000	\$0	\$7,000	\$0
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$8,000</b>	<b>\$5,000</b>	<b>\$6,000</b>	<b>\$19,000</b>	<b>\$8,000</b>	<b>\$27,000</b>	<b>\$2,000</b>
<b>Post-Mandate</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$7,000	\$5,000	\$9,000	\$21,000	\$12,000	\$33,000	\$5,000
Enrollee out-of-pocket expenses attributable to mandated benefits*	\$4,000	\$3,000	\$3,000	\$10,000	\$1,000	\$11,000	\$0
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$11,000</b>	<b>\$8,000</b>	<b>\$12,000</b>	<b>\$31,000</b>	<b>\$13,000</b>	<b>\$44,000</b>	<b>\$5,000</b>
<b>Financial Impact of Mandate</b>							
Change in commercial premium/Medicaid cost	\$2,000	\$2,000	\$5,000	\$9,000	\$4,000	\$13,000	\$3,000
Change in enrollee out-of-pocket expenses	\$1,000	\$1,000	\$1,000	\$3,000	\$1,000	\$4,000	\$0
<b>Total Mandate Impact</b>	<b>\$3,000</b>	<b>\$3,000</b>	<b>\$6,000</b>	<b>\$12,000</b>	<b>\$5,000</b>	<b>\$17,000</b>	<b>\$3,000</b>

\* Medicaid enrollee out-of-pocket expenses are \$0 due to rounding.

## Appendix D: High-End Scenario

### COMMERCIAL PREMIUM, MEDICAID COST, AND ENROLLEE OUT-OF-POCKET PMPM

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Baseline</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$0.0014	\$0.0013	\$0.0008	\$0.0011	\$0.0031	\$0.0015	\$0.0001
Enrollee out-of-pocket expenses attributable to mandated benefits	\$0.0009	\$0.0009	\$0.0003	\$0.0006	\$0.0001	\$0.0005	\$0.0000
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$0.0023</b>	<b>\$0.0022</b>	<b>\$0.0011</b>	<b>\$0.0017</b>	<b>\$0.0032</b>	<b>\$0.0020</b>	<b>\$0.0001</b>
<b>Post-Mandate</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$0.0164	\$0.0120	\$0.0121	\$0.0134	\$0.0442	\$0.0190	\$0.0022
Enrollee out-of-pocket expenses attributable to mandated benefits*	\$0.0081	\$0.0095	\$0.0048	\$0.0069	\$0.0052	\$0.0066	\$0.0000
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$0.0244</b>	<b>\$0.0215</b>	<b>\$0.0170</b>	<b>\$0.0202</b>	<b>\$0.0494</b>	<b>\$0.0255</b>	<b>\$0.0022</b>
<b>Financial Impact of Mandate</b>							
Change in commercial premium/Medicaid cost	\$0.0150	\$0.0107	\$0.0113	\$0.0123	\$0.0412	\$0.0175	\$0.0021
Change in enrollee out-of-pocket expenses	\$0.0071	\$0.0086	\$0.0045	\$0.0062	\$0.0050	\$0.0060	\$0.0000
<b>Total Mandate Impact</b>	<b>\$0.0221</b>	<b>\$0.0192</b>	<b>\$0.0158</b>	<b>\$0.0185</b>	<b>\$0.0462</b>	<b>\$0.0235</b>	<b>\$0.0021</b>

\* Medicaid enrollee out-of-pocket expenses are \$0.0000 due to rounding.

## Appendix D: High-End Scenario (Cont.)

## TOTAL COST OF CARE

	Individual	Small Group	Fully Insured Large Group	Total Fully Insured Commercial	State Health Plan	Total Commercial	Medicaid
<b>Total enrollees subject to state mandates</b>	283,600	213,000	445,500	942,100	209,600	1,151,700	1,697,200
<b>Total enrollees with three of the four risk factors</b>	3,960	2,580	6,390	12,930	5,660	18,590	16,390
<b>Baseline</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$5,000	\$3,000	\$4,000	\$12,000	\$8,000	\$20,000	\$2,000
Enrollee out-of-pocket expenses attributable to mandated benefits	\$3,000	\$2,000	\$2,000	\$7,000	\$0	\$7,000	\$0
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$8,000</b>	<b>\$5,000</b>	<b>\$6,000</b>	<b>\$19,000</b>	<b>\$8,000</b>	<b>\$27,000</b>	<b>\$2,000</b>
<b>Post-Mandate</b>							
Commercial premium/Medicaid cost attributable to mandated benefits	\$56,000	\$31,000	\$65,000	\$152,000	\$111,000	\$263,000	\$44,000
Enrollee out-of-pocket expenses attributable to mandated benefits*	\$27,000	\$24,000	\$26,000	\$77,000	\$13,000	\$90,000	\$1,000
<b>Total Cost of Care for Mandated Benefits</b>	<b>\$83,000</b>	<b>\$55,000</b>	<b>\$91,000</b>	<b>\$229,000</b>	<b>\$124,000</b>	<b>\$353,000</b>	<b>\$45,000</b>
<b>Financial Impact of Mandate</b>							
Change in commercial premium/Medicaid cost	\$51,000	\$28,000	\$61,000	\$140,000	\$103,000	\$243,000	\$42,000
Change in enrollee out-of-pocket expenses	\$24,000	\$22,000	\$24,000	\$70,000	\$13,000	\$83,000	\$1,000
<b>Total Mandate Impact</b>	<b>\$75,000</b>	<b>\$50,000</b>	<b>\$85,000</b>	<b>\$210,000</b>	<b>\$116,000</b>	<b>\$326,000</b>	<b>\$43,000</b>

\* Medicaid enrollee out-of-pocket expenses are \$1,000 due to rounding.

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