

National Imaging Associates, Inc.	
Clinical Guidelines for Coronary Artery Calcium Scoring by: Electron-Beam Tomography (EBCT) OR Non-Contrast Coronary Computed Tomography (Non-contrast CCT)	Original Date: January 2008
CPT Codes: 75571, S8092	Last Revised Date: April June 2023³²
Guideline Number: NIA_CG_029	Implementation Date: January 2024⁴³

GENERAL INFORMATION

- It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

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INDICATIONS FOR CORONARY ARTERY CALCIUM (CAC) TESTING¹⁻¹⁰

See [Legislative Requirements](#) for specific mandates in: State of New Mexico and State of Texas

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CAC testing is for cardiovascular risk assessment in individuals aged 40-75 years who have an intermediate (5-19.9%) 10-year ASCVD risk based upon the ACC/AHA pooled cohort risk calculator. Documentation is required that the results of the study will affect decision making for preventative actions (i.e., statin therapy).

- Patients regardless of age (~~including those over who are over 75 or younger than 40 years old~~) can be considered for CAC testing when there is well-documented evidence of one of the following: ^{4, 11}
 - Patients with estimated 10-year risk of less than 5%, but are suspected to be at elevated atherosclerotic cardiovascular disease (ASCVD) risk because of a major risk factor not accounted for in the global risk equations below and consider CAC score as an adjudicator to upgrade risk; such as: ^{4, 5, 11, 12}
 - Family history of premature ASCVD
 - Persistently elevated LDL-C > 160mg/dl or non-HDL-C > 190mg/dl
 - Chronic kidney disease
 - Metabolic syndrome
 - Conditions specific to women (e.g., pre-eclampsia, premature menopause)
 - Inflammatory diseases (HIV, psoriasis, RA)
 - Ethnicity (e.g., South Asian ancestry)
 - Persistently elevated triglycerides (> 175mg/dl)
 - hsCRP > 2mg/L
 - Lp(a) levels > 50mg/dl
 - apoB > 130mg/dl
 - ABI < 0.9
 - Patients in whom statin therapy is indicated, but have intolerable adverse effects from, or are reluctant to take statin medication, in order to guide the need for alternative lipid-lowering strategies^{2, 8, 13}
- CAC scoring should be performed in asymptomatic patients. It should not be used as a diagnostic test in patients with symptoms suggestive of ischemia.
- Patients with known CAD should not be considered for calcium scoring as the results are unlikely to affect treatment.^{5, 13-15}
- CAC testing may be repeated for risk re-assessment after a minimum of 5 years, if documentation indicates it will alter management.^{4, 5, 13} It should not be repeated if the patient already has two CAC scores of zero 5 years apart or has a score ≥ 400⁴.

LEGISLATIVE REQUIREMENTS

- **State of New Mexico**
 - **§ 59A-23-7.16. Heart artery calcium scan coverage**
 - Coronary calcium scan can be **approved** every 5 years with the following:
 - Individual between ages 45 and 65 years of age **AND**
 - Individual has an intermediate risk of developing CHD as determined by a HCP based upon a score calculated from an evidence-based algorithm widely used in the medical community to assess a person's ten-year CVD risk
 - **EBCT is approvable** once every 5 years *even if individual has previously received a heart artery calcium score of ZERO*
 - EBCT is not required for future scores/testing if individual receives a heart artery calcium score greater than ZERO
 - At its discretion or as required by law, an insurer may offer or refuse coverage for further cardiac testing or procedures for eligible insureds based upon the results of a heart artery calcium scan
 - **Heart artery calcium scan** means a computed tomography scan measuring coronary artery calcium for atherosclerosis and abnormal artery structure and function

Source: N.M.S.A. 1978, § 59A-23-7.16 New Mexico Legislature House Bill 126 ¹⁶

- **State of Texas**
 - **HB 1290 Texas Heart Attack Prevention Screening Law Sec. 1376.003**
 - Indications for EBCT for the detection of coronary artery calcification:
 - Male between the ages of 45 – 76, **AND**
 - Patient is a diabetic **OR**
 - Has **intermediate** or **higher** risk factors (based on the Framingham risk criteria)
 - Female between the ages of 55 – 76, **AND**
 - Patient is a diabetic **OR**
 - Has **intermediate** or **higher** risk factors (based on the Framingham risk criteria)

Source: Texas House Bill 1290 Sec. 1376.003¹⁷

BACKGROUND^{2, 4, 5}

Coronary artery calcium (CAC) testing is a cardiovascular risk assessment tool, applicable only to the patient without known cardiovascular disease, for the purpose of primary prevention. It is not for the patient with suspected or known cardiovascular disease, coronary or otherwise, who already requires aggressive risk factor modification.

CAC testing, by either EBCT or non-contrast CCT, provides a quantitative assessment of coronary artery calcium content in Agatston units, as an adjunct to the estimation of global risk for coronary or cardiovascular events over the next 10 years.⁷ A CAC Score > 0 is a highly specific feature of coronary atherosclerosis.

CAC score > 100 can also provide support for aspirin therapy^{5, 18} and statin therapy.¹⁹

Patients who have already manifested cardiovascular disease are already at high global risk and the Global Cardiovascular Risk Calculators are not applicable.

Links to Global Cardiovascular Risk Calculators^{1, 3, 7, 20, 21}

Risk Calculator	Website for Online Calculator
Framingham Cardiovascular Risk	https://reference.medscape.com/calculator/framingham-cardiovascular-disease-risk
Reynolds Risk Score Can use if no diabetes Unique for use of family history	http://www.reynoldsriskscore.org/
Pooled Cohort Equation	http://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx?example
ACC/AHA Risk Calculator	http://tools.acc.org/ASCVD-Risk-Estimator/



Abbreviations

ASCVD	Atherosclerotic cardiovascular disease
CAC	Coronary artery calcium
CAD	Coronary artery disease
CCT	Cardiac computed tomography
EBCT	Electron beam computed tomography

POLICY HISTORY

Date	Summary
	Added statement on clinical indications not addressed in this guideline
June 2022	Updated state legislative requirements
February 2022	Modified indication statements to include additional examples of CAD risk factors EBCT not to be used as test for symptoms of ischemia EBCT not to be used in patients with known CAD
March 2021	No changes
March 2020	Added general information section as Introduction which outlines requirements for documentation of pertinent office notes by a licensed clinician, and inclusion of laboratory testing and relevant imaging results for case review Updated and added new references
July 2019	Repeat CAC testing indication revised as follows: It should not be repeated if the patient has already had two CAC Scores of zero 5 years apart added clause 'or has a score ≥ 400.' For patients with estimated 10-year risk of less than 5% but are suspected to be at elevated atherosclerotic cardiovascular disease (ASCVD) risk because of a major risk factor not accounted for in the global risk equations, only family history of premature CAD was included as an example.

REFERENCES

1. Arnett DK, Blumenthal RS, Albert MA, et al. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol*. Sep 10 2019;74(10):e177-e232. doi:10.1016/j.jacc.2019.03.010
2. Blankstein R, Gupta A, Rana JS, Nasir K. The Implication of Coronary Artery Calcium Testing for Cardiovascular Disease Prevention and Diabetes. *Endocrinol Metab (Seoul)*. Mar 2017;32(1):47-57. doi:10.3803/EnM.2017.32.1.47
3. Goff DC, Jr., Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol*. Jul 1 2014;63(25 Pt B):2935-2959. doi:10.1016/j.jacc.2013.11.005
4. Greenland P, Blaha MJ, Budoff MJ, Erbel R, Watson KE. Coronary Calcium Score and Cardiovascular Risk. *J Am Coll Cardiol*. Jul 24 2018;72(4):434-447. doi:10.1016/j.jacc.2018.05.027
5. Hecht H, Blaha MJ, Berman DS, et al. Clinical indications for coronary artery calcium scoring in asymptomatic patients: Expert consensus statement from the Society of Cardiovascular Computed Tomography. *J Cardiovasc Comput Tomogr*. Mar-Apr 2017;11(2):157-168. doi:10.1016/j.jcct.2017.02.010
6. Mahabadi AA, Möhlenkamp S, Lehmann N, et al. CAC Score Improves Coronary and CV Risk Assessment Above Statin Indication by ESC and AHA/ACC Primary Prevention Guidelines. *JACC Cardiovasc Imaging*. Feb 2017;10(2):143-153. doi:10.1016/j.jcmg.2016.03.022
7. McClelland RL, Jorgensen NW, Budoff M, et al. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). *J Am Coll Cardiol*. Oct 13 2015;66(15):1643-53. doi:10.1016/j.jacc.2015.08.035
8. Nasir K, Bittencourt MS, Blaha MJ, et al. Implications of Coronary Artery Calcium Testing Among Statin Candidates According to American College of Cardiology/American Heart Association Cholesterol Management Guidelines: MESA (Multi-Ethnic Study of Atherosclerosis). *J Am Coll Cardiol*. Oct 13 2015;66(15):1657-68. doi:10.1016/j.jacc.2015.07.066
9. Pender A, Lloyd-Jones DM, Stone NJ, Greenland P. Refining Statin Prescribing in Lower-Risk Individuals: Informing Risk/Benefit Decisions. *J Am Coll Cardiol*. Oct 11 2016;68(15):1690-1697. doi:10.1016/j.jacc.2016.07.753
10. Piepoli MF, Hoes AW, Agewall S, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts) Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *Eur Heart J*. Aug 1 2016;37(29):2315-2381. doi:10.1093/eurheartj/ehw106

11. Grundy SM, Stone NJ, Bailey AL, et al. 2018
AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the
Management of Blood Cholesterol: Executive Summary: A Report of the American College of
Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*.
06 18 2019;139(25):e1046-e1081. doi:10.1161/CIR.0000000000000624
12. Golub IS, Termeie OG, Kristo S, et al. Major Global Coronary Artery Calcium Guidelines.
JACC Cardiovasc Imaging. Jan 2023;16(1):98-117. doi:10.1016/j.jcmg.2022.06.018
13. Michos ED, Blaha MJ, Blumenthal RS. Use of the Coronary Artery Calcium Score in
Discussion of Initiation of Statin Therapy in Primary Prevention. *Mayo Clin Proc*. Dec
2017;92(12):1831-1841. doi:10.1016/j.mayocp.2017.10.001
14. Stone NJ, Robinson JG, Lichtenstein AH, et al. 2013 ACC/AHA guideline on the treatment of
blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: a report of the
American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J
Am Coll Cardiol*. Jul 1 2014;63(25 Pt B):2889-934. doi:10.1016/j.jacc.2013.11.002
15. Wilkins JT, Lloyd-Jones DM. USPSTF Recommendations for Assessment of Cardiovascular
Risk With Nontraditional Risk Factors: Finding the Right Tests for the Right Patients. *Jama*. Jul 17
2018;320(3):242-244. doi:10.1001/jama.2018.9346
16. § 59A-23-7.16. Heart artery calcium scan coverage. Legislature of the State of New Mexico.
Updated March 9, 2020. Accessed February 1, 2023.
<https://www.nmlegis.gov/Sessions/20%20Regular/final/HB0126.pdf>
17. Insurance code: Title 8. Health insurance and other health coverages. Chapter 1376. Certain
tests for early detection of cardiovascular disease. Texas State Legislature. Accessed February 1,
2023. <https://statutes.capitol.texas.gov/Docs/IN/htm/IN.1376.htm>
18. Miedema MD, Duprez DA, Misialek JR, et al. Use of coronary artery calcium testing to guide
aspirin utilization for primary prevention: estimates from the multi-ethnic study of
atherosclerosis. *Circ Cardiovasc Qual Outcomes*. May 2014;7(3):453-60.
doi:10.1161/circoutcomes.113.000690
19. Mortensen MB, Falk E, Li D, et al. Statin Trials, Cardiovascular Events, and Coronary Artery
Calcification: Implications for a Trial-Based Approach to Statin Therapy in MESA. *JACC
Cardiovasc Imaging*. Feb 2018;11(2 Pt 1):221-230. doi:10.1016/j.jcmg.2017.01.029
20. Ridker PM, Buring JE, Rifai N, Cook NR. Development and validation of improved algorithms
for the assessment of global cardiovascular risk in women: the Reynolds Risk Score. *Jama*. Feb
14 2007;297(6):611-9. doi:10.1001/jama.297.6.611
21. D'Agostino RB, Sr., Vasan RS, Pencina MJ, et al. General cardiovascular risk profile for use in
primary care: the Framingham Heart Study. *Circulation*. Feb 12 2008;117(6):743-53.
doi:10.1161/circulationaha.107.699579

POLICY HISTORY

<u>Date</u>	<u>Summary</u>
<u>April 2023</u>	<ul style="list-style-type: none">• <u>Removed age limitations for CAC testing</u>• <u>Added new references</u>• <u>Added statement on clinical indications not addressed in this guideline</u>
<u>June 2022</u>	<ul style="list-style-type: none">• <u>Updated state legislative requirements</u>
<u>February 2022</u>	<ul style="list-style-type: none">• <u>Modified indication statements to include additional examples of CAD risk factors</u>• <u>EBCT not to be used as test for symptoms of ischemia</u>• <u>EBCT not to be used in patients with known CAD</u>

ADDITIONAL RESOURCES

- ~~1. Blaha MJ, Matsushita K. Coronary Artery Calcium: Need for More Clarity in Guidelines. *JACC Cardiovasc Imaging*. Feb 2017;10(2):154-156. doi:10.1016/j.jcmg.2016.05.017~~
- ~~2. Nasir K, Shaw LJ, Budoff MJ, Ridker PM, Peña JM. Coronary artery calcium scanning should be used for primary prevention: pros and cons. *JACC Cardiovasc Imaging*. Jan 2012;5(1):111-8. doi:10.1016/j.jcmg.2011.11.007~~

Reviewed / Approved by NIA Clinical Guideline Committee

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