

## AmeriHealth Caritas Louisiana

<u>National Imaging Associates, Inc.*</u>	
<u>Clinical Guidelines for Coronary Artery Calcium</u>	<b>Original Date: January 2008</b>
<u>Scoring by:</u> <u>Electron-Beam Tomography (EBCT)</u> <u>OR</u> <u>Non-Contrast Coronary Computed Tomography (Non-contrast CCT)</u>	
<u>CPT Codes: 75571, S8092</u>	<b>Last Revised Date: March 2020</b>
<u>Guideline Number: NIA CG 029</u>	<b>Implementation Date: January 2021 TBD</b>

### 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. All prior relevant imaging results, and the reason that alternative imaging (gold standard, protocol, contrast, etc.) cannot be performed must be included in the documentation submitted.

### INDICATIONS FOR CORONARY ARTERY CALCIUM (CAC) TESTING

([Arnet, 2019](#); [Blankstein, 2017](#); [Goff, 2014](#); [Greenland, 2018](#); [Hecht, 2017](#); [Mahabadi, 2017](#); [McClelland, 2015](#); [Nasir, 2015](#); [Pender, 2016](#); [Piepoli, 2016](#))

- In the context of shared decision making for patients aged 40 to 75, (without clinical atherosclerotic cardiovascular disease), with intermediate-to-low 10-year risk (5 - 20%), with documentation that the CAC score is necessary to adjust management, such as statin therapy (Hecht, 2017; Michos, 2017; Stone, 2013; Wilkins, 2018)
- Patients who are over 75 or younger than 40 years old can be considered for CAC testing when there is well-documented evidence that the results could alter management (Tota-Maharaj, 2012)
  - 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, such as family history of premature CAD

\* [National Imaging Associates, Inc. \(NIA\) is a subsidiary of Magellan Healthcare, Inc.](#)

(Greenland, 2018; Hecht, 2017)

- 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 (Blankstein, 2017; Michos, 2017; Nasir, 2015)
- CAC testing may be repeated for risk re-assessment after a minimum of 5 years, if documentation indicates it will alter management (Greenland, 2018; Hecht, 2017; Michos, 2017). It should not be repeated if the patient already has two CAC Scores of zero 5 years apart or has a score  $\geq 400$  (Greenland, 2018)

---

#### BACKGROUND:

(Blankstein, 2017; Greenland, 2018; Hecht, 2017)

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 (McClelland 2015). A CAC Score  $> 0$  is a highly specific feature of coronary atherosclerosis.

CAC score  $> 100$  can also provide support for aspirin therapy (Hecht, 2017; Miedema, 2014) and statin therapy (Mortenen, 2018).

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

(Arnet, 2019; D'Agostino, 2008; Goff, 2014; McClelland, 2015; Ridker, 2007)

Risk Calculator	Website for Online Calculator
-----------------	-------------------------------

Framingham Cardiovascular Risk	<a href="https://reference.medscape.com/calculator/framingham-cardiovascular-disease-risk">https://reference.medscape.com/calculator/framingham-cardiovascular-disease-risk</a>
Reynolds Risk Score Can use if no diabetes Unique for use of family history	<a href="http://www.reynoldsriskscore.org/">http://www.reynoldsriskscore.org/</a>
Pooled Cohort Equation	<a href="http://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx?example">http://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx?example</a>
ACC/AHA Risk Calculator	<a href="http://tools.acc.org/ASCVD-Risk-Estimator/">http://tools.acc.org/ASCVD-Risk-Estimator/</a>
<del>MESA Risk Calculator With addition of Coronary Artery Calcium Score, for CAD only risk</del>	

#### Risk Tiers:

- **Low** < 10%.
- **Moderate** 10% - 20%.
- **High risk** ≥20%.

#### Abbreviations

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

#### POLICY HISTORY:

**Review Date:** July 22, 2019

#### Review Summary:

- 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.

**Review Date:** March 2020

**Review Summary:**

- 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
- Added new 2019 primary prevention guideline reference

## REFERENCES

Arnett DK, Blumenthal RS, Albert MA, *et al.* Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 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.* 2019; 74: e177–232.

Blaha MJ Matsushita K. Editorial comment: Coronary artery calcium, need for more clarity in guidelines. *J Am Coll Cardiol. JACC Cardiovasc Imaging.* 2017; 10(2):154-156.

Blankstein R, Gupta A, Rana J, et al. The implication of coronary artery calcium testing for cardiovascular disease prevention and diabetes. *Endocrinology and Metabolism.* 2017; 32:47-57.

D'Agostino RB Sr, Vasan RS, Pencina MJ, et al. General cardiovascular risk profile for use in primary care: The Framingham Heart Study. *Circulation.* 2008; 117:743-753.

Greenland P, Blaha MJ, Budoff MJ, et al. State of the Art Paper, Coronary Calcium Score and Cardiovascular Risk. *J Am Coll Cardiol. JACC.* 2018; 72:434–47.

Goff DC, 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 Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, American Society for Preventive Cardiology, American Society of Hypertension, Association of Black Cardiologists, National Lipid Association, Preventive Cardiovascular Nurses Association, and Women Heart: The National Coalition for Women With Heart Disease. *J Am Coll Cardiol. JACC.* 2014; 63(25):2935-2959.

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. *Journal of Cardiovascular Computed Tomography.* 2017; 11(2):157-168.

Mahabadi AA, Hohlenkamp S, Lehmann N, et al. CAC score improves coronary and CV risk assessment above statin indication by ESC and AHA/ACC Primary Prevention Guideline. *J Am Coll Cardiol. JACC Cardiovascular Imaging.* 2017; 10:143-153.

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. JACC.* 2015; 66(15):1643-53.

Michos ED, Blaha MJ, Blumenthal RS, et al. Use of the coronary artery calcium score in discussion of initiation of statin therapy in primary prevention. *Mayo Clin Proc*. 2017; 92(12):1831-1841.

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*. 2014; 7:453-60.

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. *J Am Coll Cardiol Cardiovasc Imaging*. 2018; 11:221-30.

Nasir K, Shaw LJ, Budoff, et al. Coronary artery calcium scanning should be used for primary prevention, pros and cons. *J Am Coll Cardiol. JACC*. 2012; 5(1):111-118.

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. JACC*. 2015; 66(15):1657-1668.

Pender A, Lloyd-Jones DM, Stone NJ, et al. Refining statin prescribing in lower-risk individuals, informing risk/benefit decisions. *J Am Coll Cardiol. JACC*. 2016; 68(15):1690-1697.

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). *European Heart Journal*. 2016; 37:2315-2381.

Ridker PM, Buring JE, Rifai N, et al. NIH Estimate of 10-year10-year coronary artery disease risk from Framingham Risk Score: Development and validation of improved algorithms for the assessment of global cardiovascular risk in women: the Reynolds Risk Score. *JAMA*. 2007; 297(6):611-619. Available at: <http://jama.jamanetwork.com/article.aspx?articleid=205528>.

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. JACC*. 2014; 63(25):2889-2934.

Wilkins JT, Lloyd-Jones DM. USPSTF recommendations for assessment of cardiovascular risk with nontraditional risk factors, finding the right tests for the right patients (Editorial). *JAMA*. 2018; 320(3):242-244.

Tota-Maharaj R, Blaha MJ, McEvoy JW, et al. Coronary artery calcium for the prediction of mortality in young adults <45 years old and elderly adults >75 years old. *Eur Heart J.* 2012; 33(23):2955-2962.

Reviewed / Approved by

*Rosalind C. Watman D.O.*

Rosalind C. Watman, D.O., Medical

Director, Cardiology

Reviewed / Approved by



Patrick Browning, VP, Medical Director

**Disclaimer:** Magellan Healthcare service authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. These policies are not meant to supplant your normal procedures, evaluation, diagnosis, treatment and/or care plans for your patients. Your professional judgement must be exercised and followed in all respects with regard to the treatment and care of your patients. These policies apply to all Magellan Healthcare subsidiaries including, but not limited to, National Imaging Associates ("Magellan"). The policies constitute only the reimbursement and coverage guidelines of Magellan. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies. Magellan reserves the right to review and update the guidelines at its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.