

## Corporate Medical Policy

### Computed Tomography to Detect Coronary Artery Calcification

**File Name:** computed\_tomography\_to\_detect\_coronary\_artery\_calcification  
**Origination:** 3/1994  
**Last CAP Review** 10/2011  
**Next CAP Review:** 10/2012  
**Last Review:** 10/2011

#### Description of Procedure or Service

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Electron beam computed tomography (CT; also known as ultrafast CT) uses an electron gun rather than a standard x-ray tube to generate x-rays, thus permitting very rapid scanning. Spiral CT scanning (also referred to as helical CT scanning) also creates images at greater speeds by rotating a standard x-ray tube around the patient such that data are gathered in a continuous spiral or helix rather than in individual slices. While both electron beam CT (EBCT) and spiral CT scanning may be valued as an alternative to conventional CT scanning due to their faster throughput, their speed of image acquisition permits unique imaging of the moving heart. For example, the rapid image acquisition time virtually eliminates motion artifact related to cardiac contraction, permitting visualization of the calcium in the epicardial coronary arteries. EBCT software permits quantification of calcium area and density, which are translated into calcium scores. Calcium scores have been investigated as a technique for detecting coronary artery calcification, both as a technique to diagnostic technique in symptomatic patients to determine the necessity of coronary angiography, or, in asymptomatic patients, as a screening technique for coronary artery disease.

As of 2007, EBCT and multi-detector computed tomography (MDCT) are the primary fast CT methods for measurement of coronary artery calcification. A fast CT study for coronary artery calcium measurement generally takes 10 to 15 minutes and requires only a few seconds of scanning time.

**\*\*\*Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.**

#### Policy

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**BCBSNC will not provide coverage for Computed Tomography to Detect Coronary Artery Calcification. The use of computed tomography (e.g., electron beam CT, spiral or helical CT, multislice or multi-detector CT) to detect coronary artery calcification is considered investigational. BCBSNC does not cover investigational services or procedures.**

#### Benefits Application

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Please refer to Certificate for availability of benefits. This policy relates only to the services or supplies described herein. Benefits may vary according to benefit design, therefore certificate language should be reviewed before applying the terms of the policy.

#### When Computed Tomography to Detect Coronary Artery Calcification is covered

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Not applicable.

# Computed Tomography to Detect Coronary Artery Calcification

## When Computed Tomography to Detect Coronary Artery Calcification is not covered

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Computed tomography to detect coronary artery calcification is considered investigational for all services, including:

- detection of coronary artery calcification as a screening examination for asymptomatic patients
- as a diagnostic study in symptomatic patients
- assessment of coronary artery bypass graft patency
- measurement of cardiac perfusion.

## Policy Guidelines

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There is extensive evidence on the predictive value of coronary artery calcium screening for cardiovascular disease, and this evidence demonstrates that scanning has incremental predictive accuracy above traditional risk factor measurement. High quality evidence is lacking comparing the use of coronary artery calcium screening to other methods of enhanced risk prediction, as a result there is uncertainty as to which methods are preferred in specific populations. Limited evidence from clinical trials suggest that scanning may lead to improved risk factor profiles, but this finding has not been consistent and methodologic limitations preclude definitive conclusions on this question.

Evidence-based guideline statements regarding calcium score measurement give, at best, a reserved recommendation in favor of the use of EBCT and recognize the incomplete evidence base that supports those recommendations. The USPSTF review highlights the inconsistency of the relative risk of coronary disease associated with calcium scores, thus making risk estimates based on it imprecise. Because of the lack of high quality evidence demonstrating improved outcomes and the lack of strong recommendations from authoritative sources, the use of computed tomography (CT) to detect coronary artery calcification is not recommended.

## Billing/Coding/Physician Documentation Information

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This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at [www.bcbsnc.com](http://www.bcbsnc.com). They are listed in the Category Search on the Medical Policy search page.

*Applicable codes: S8092, 75571*

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

## Scientific Background and Reference Sources

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### **From Policy titled: Electron Beam Computed Tomography for Imaging of Coronary Artery Disease**

BCBSA Medical Policy Reference Manual - 12/95

Blue Cross Blue Shield Association Policy, 6.01.03, reviewed 7/31/97

Medical Policy Advisory Group, 11/98

Medical Policy Advisory Group 12/2/1999

Specialty Matched Consultant Advisory Panel - 8/2000

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Medical Policy Advisory Group 10/2000

BCBSA Medical Policy Reference Manual 6.01.03, 8/15/01

Specialty Matched Consultant Advisory Panel - 9/2002

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.03, 04/29/03

ECRI Health Technology Forecast. (2004, April 9). Computed tomography for cardiovascular disease screening. Retrieved on April 12, 2004 from [http://www.ta.ecri.org/Forecast/Prod/summary/detail.aspx?doc\\_id=5035&q=ct+for+cardiovascular+disease+screening&anm](http://www.ta.ecri.org/Forecast/Prod/summary/detail.aspx?doc_id=5035&q=ct+for+cardiovascular+disease+screening&anm).

Walsh CR, Larson MG, Kupka JM, Levy D, Vasan RS, Benjamin EJ, et al. (February 2004). Association of aortic valve calcium detected by electron beam computed tomography with echocardiographic aortic valve disease and with calcium deposits in the coronary arteries and thoracic aorta. *Am J Cardiol*, 15;93(4), 421-5. Retrieved on April 12, 2004 from [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list\\_uids=14969614](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14969614).

American Medical Association Report 10 of the Council on Scientific Affairs (A-03). Commercialized Medical Screening. Retrieved on April 13, 2004 from <http://www.ama-assn.org/ama/pub/article/print/2036-7820.html>.

Specialty Matched Consultant Advisory Panel - 6/2004

ECRI Target Report #529 (2004, August) Electron-beam computed tomography (EBCT) for coronary artery disease (CAD) screening. Retrieved on December 9, 2005 from [http://www.target.ecri.org/summary/detail.aspx?e=5&doc\\_id=518&q=computed+tomographic+angiography&anm](http://www.target.ecri.org/summary/detail.aspx?e=5&doc_id=518&q=computed+tomographic+angiography&anm)

## **For Policy renamed: Computed Tomography to Detect Coronary Artery Calcification**

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.03, 12/14/05

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.03, 4/17/07

Institute for Clinical Systems Improvement (ICSI). Electron-Beam and Helical Computed Tomography for Coronary Artery Disease. Technology Assessment # 34. Bloomington, MN: ICSI; May 2004. Retrieved 10/ 23/07 from <http://www.icsi.org>

California Technology Assessment Forum (CTAF). Utility of Coronary Artery Calcium Measurement in Cardiovascular Disease. San Francisco, CA: CTAF; February 2005. Retrieved 10/23/07 from <http://www.ctaf.org/content/general/detail/570>.

Wagh N, Black C, Walker S, McIntyre L, Cummins E, Hillis G. The effectiveness and cost-effectiveness of computed tomography screening for coronary artery disease: systematic review. *Health Technol Assess*. 2006 Oct;10(39):1-60. Retrieved 1/7/08 from <http://www.hta.nhsweb.nhs.uk/execsum/summ1039.htm>

Medical Advisory Secretariat, Ontario Ministry of Health and Long-Term Care for the Ontario Health Technology Advisory Committee. (May 2007). Multidetector Computed Tomography for Coronary Artery Disease Screening in Asymptomatic Populations. Retrieved 10/23/07 from [http://www.health.gov.on.ca/english/providers/program/ohtac/tech/reviews/pdf/rev\\_mdct\\_20070926.pdf](http://www.health.gov.on.ca/english/providers/program/ohtac/tech/reviews/pdf/rev_mdct_20070926.pdf)

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.03, 7/09/09

National Heart, Lung, and Blood Institute (NHLBI). Adding Coronary Calcium Score to Traditional Risk Factors Improves Risk Assessment for Heart Disease. April 2010. Retrieved on September 15, 2010 from <http://www.nih.gov/news/health/apr2010/nhlbi-27.htm>

National Institutes of Health (NIH). Multi-Ethnic Study of Atherosclerosis (MESA). Retrieved on September 15, 2010 from <http://www.clinicaltrials.gov/ct2/show/NCT00005487>

U.S. Preventive Services Task Force (USPSTF). Using Nontraditional Risk Factors In Coronary Heart Disease Risk Assessment. October 2009. Retrieved on September 15, 2010 from

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<http://www.uspreventiveservicestaskforce.org/uspstf/usp Coronaryhd.htm>

Specialty Matched Consultant Advisory Panel review 10/2010

Greenland P, Alpert JS, Beller GA et al. 2010 ACCF/AHA guideline for assessment of cardiovascular risk in asymptomatic adults: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2010; 56(25):e50-103. Retrieved on August 15, 2011 from <http://www.asnc.org/imageuploads/CV%20Risk.pdf>

Rozanski A, Gransar H, Shaw LJ, et al. Impact of coronary artery calcium scanning on coronary risk factors and downstream testing. J Amer Coll Cardiol, 2011;57:1622-1632. Retrieved on August 15, 2011 from <http://content.onlinejacc.org/cgi/content/full/j.jacc.2011.01.019v1>

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.03, 7/14/11

U.S. Preventive Services Task Force (USPSTF). Screening for Coronary Heart Disease. Updated September 2011. Retrieved on September 26, 2011 from <http://www.uspreventiveservicestaskforce.org/uspstf/uspacad.htm>

Specialty Matched Consultant Advisory Panel review 10/2011

## **Policy Implementation/Update Information**

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### **From Policy titled: Electron Beam Computed Tomography for Imaging of Coronary Artery Disease**

- 11/93      Evaluated: Investigational for detection of coronary artery calcification, assessment of coronary artery bypass graft patency and measurement of cardiac perfusion.
- 6/96      Reaffirmed: National Association reviewed 12/95. No changes.
- 9/98      Reaffirmed. Association reviewed 7/31/97, no changes.
- 6/99      Reformatted, Description of procedure revised, Medical Term Definitions added.
- 12/99      Reaffirmed, Medical Policy Advisory Group
- 10/00      Specialty Matched Consultant Advisory Panel. No change in criteria. System coding changes. Medical Policy Advisory Group review. No change in criteria. Approve.
- 5/01      Policy key words added.
- 11/01      Coding format change.
- 9/02      Specialty Matched Consultant Advisory Panel review. No change to policy criteria.
- 1/03      Code S8092 added to policy. Removed 76120 from policy. Added statement to billing and coding section regarding the possible ordering of medical records. System coding changes.
- 3/04      Benefits Application and Billing/Coding sections updated for consistency.
- 7/15/04      Specialty Matched Consultant Advisory Panel review with no changes made to policy criteria. References added.
- 10/14/04      Code S8093 added to the Billing/Coding section.
- 12/15/05      Code S8093 removed from Billing/Coding section of the policy.
- 3/30/06      Specialty Matched Consultant Advisory Panel review 2/27/06. No changes made to policy criteria. Description of procedure expanded for clarity. Rationale added to Policy Guidelines. Policy number added to Key Words. References and CPT codes updated.

### **For Policy renamed: Computed Tomography to Detect Coronary Artery Calcification**

- 7/10/06      Added statement to description "Although most of the research regarding imaging of coronary artery calcification has focused on EBCT, helical or spiral CT and multislice or multi-detector

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CT have also been used for this purpose." Policy statement clarified to read "the use of computed tomography (e.g., electron beam CT, spiral or helical CT, multislice or multi-detector CT) to detect coronary artery calcification is considered investigational." Additional statement added to section When Electron Beam CT is Not Covered that indicates electron beam CT is not covered "as a diagnostic study in symptomatic patients." Rationale for investigational status added to Policy Guidelines section. References updated. (adn)

- 4/7/08 References updated. Specialty Matched Consultant Advisory Panel review 3/12/08. No change to policy statement. (adn)
- 5/11/10 Description section extensively revised. Policy Guidelines and References updated. CPT codes 0144T, 0147T, 0149T deleted. CPT code 75571 added to the Billing/Coding section. (adn)
- 6/22/10 Medical Policy number removed.
- 11/23/10 Specialty Matched Consultant Advisory Panel review 10/10. Policy Guidelines updated. References updated.(mco)
- 8/30/11 Updated Policy Guidelines. Updated References. No changes to Policy Statements. (mco)
- 11/8/11 Specialty Matched Consultant Advisory Panel review 10/2011. References updated. No changes to Policy Statements. (mco)

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Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.