



Corporate Medical Policy

Computed Tomography to Detect Coronary Artery Calcification

File Name: computed_tomography_to_detect_coronary_artery_calcification
Policy Number: RAD5050
Origination: 3/1994
Last Review: 3/2008
Next Review: 3/2010

Description of Procedure or Service

Electron Beam Computed Tomography (EBCT) is a highly technical method of viewing the [cardiovascular](#) system. EBCT is able to quantify the amount of calcium in the coronary arteries. Using EBCT to predict heart disease risk is based on the assumption that an association exists between calcium deposits in the coronary arteries and subsequent heart attacks or other clinical manifestations of heart disease. An EBCT scanner uses x-rays to image the patient like a conventional CT scanner, however it can generate images of the cardiovascular system within tens of milliseconds. Consequently, the movement of the beating heart has less effect on the image.

It is also known as ultrafast CT, cine computed X-ray [tomography](#), rapid acquisition X-ray computed tomography, high speed computed X-ray tomography, CT calcium scoring, electron beam calcium scan and coronary artery calcification study.

Although most of the research regarding imaging of coronary artery calcification has focused on EBCT, helical or spiral CT and multislice or multi-detector CT have also been used for this purpose.

Policy

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.

Benefits Application

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

Not applicable.

When Computed Tomography to Detect Coronary Artery Calcification is not cov-

Policy: Computed Tomography to Detect Coronary Artery Calcification

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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

Although it had been well established previously that calcium scores predicted future coronary events, studies showing incremental predictive value beyond that of standard risk prediction had been lacking. Recent prospective studies have shown evidence for predictive capacity of calcium scores in addition to assessment of traditional risk factors. While a growing body of literature now addresses the relationship of traditional risk factors, calcium scores and risk of coronary heart disease, more knowledge is needed about how calcium scores should be integrated into treatment guidelines. Current treatment guidelines for coronary disease prevention recommend specific treatment based on prediction of coronary disease risk. Thus, solid information is needed on how such a risk predictor produces accurate predictions. Given the variation in the published studies, it is difficult to know the magnitude of increased risk conferred by a given calcium score. In summary, the additional studies published since the 1998 BCBSA TEC Assessment do not yet establish a clear role for EBCT in coronary disease risk stratification in asymptomatic patients, nor have any studies shown that clinical outcomes can be favorably altered by the use of screening EBCT.

Billing/Coding/Physician Documentation Information

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. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: S8092, 0144T, 0147T, 0149T

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.

Policy Key Words

Key Words: RAD5050, Cine computed X-ray Tomography, Electron Beam Computed Tomography, EBCT, Coronary Artery, High Speed Computed X-ray Tomography, CT, Ultrafast, CT calcium scoring, electron beam calcium scan, coronary artery calcification

Policy: Computed Tomography to Detect Coronary Artery Calcification

Medical Term Definitions

Cardiovascular

pertains to the heart, blood vessels, and circulatory system.

Tomography

a technique of using x-rays or ultrasound waves to produce an image of structures at a particular depth within the body, bringing them into sharp focus. The visual record is called the Tomogram.

Scientific Background and Reference Sources

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

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.

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.

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

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>

Policy: Computed Tomography to Detect Coronary Artery Calcification

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>.

Waugh 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/ohnac/tech/reviews/pdf/rev_mdct_20070926.pdf

Policy Implementation/Update Information

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 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 diag-

Policy: Computed Tomography to Detect Coronary Artery Calcification

nostic study in symptomatic patients." Rationale for investigational status added to Policy Guidelines section. References updated.

4/7/08 References updated. Specialty Matched Consultant Advisory Panel review 3/12/08. No change to policy statement.

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.

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