

WellCare Health Plans, Inc.

The WellCare Group of Companies

Clinical Coverage Guideline

WellCare Prescription Insurance, Inc.



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Cardiac Computed Tomography (CT) Angiography

Guideline Number: HS-022

Original Effective Date: 5/15/2008

Revision Date: 7/16/2009; 2/26/2010

The Clinical Coverage Guideline is intended to supplement certain standard WellCare benefit plans. The terms of a member's particular Benefit Plan, Evidence of Coverage, Certificate of Coverage, etc., may differ significantly from this Coverage Position. For example, a member's benefit plan may contain specific exclusions related to the topic addressed in this Clinical Coverage Guideline. When a conflict exists between the two documents, the Member's Benefit Plan always supersedes the information contained in the Clinical Coverage Guideline. Additionally, Clinical Coverage Guidelines relate exclusively to the administration of health benefit plans and are NOT recommendations for treatment, nor should they be used as treatment guidelines. The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

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DISCLAIMER

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APPLICATION STATEMENT

The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

CLINICAL COVERAGE GUIDELINE

WellCare considers Cardiac Computed Tomography/Computed Tomography Angiography^{A/B/C} (including calcium scoring when appropriate) medically necessary for any (ONE) of the following indications:

- 1) Evaluation of Chest Pain Syndrome in patients with *intermediate* pre-test probability of CAD and an uninterpretable ECG or inability to exercise.
- 2) Evaluation of Chest Pain Syndrome in patients with an uninterpretable or equivocal stress test (exercise, perfusion, or stress echo).
- 3) Evaluation of Acute Chest Pain in patients determined to be at *intermediate* pre-test probability of CAD with no ECG changes and serial enzymes are negative.
- 4) Evaluation of Chest Pain Syndrome or Acute Chest Pain in patients with suspected structural coronary anomalies.
- 5) Assessment of complex congenital heart disease including anomalies of coronary circulation, great vessels, and cardiac chambers and valves.
- 6) Evaluation of coronary arteries in patients with new onset heart failure to assess etiology.
- 7) Evaluation of suspected aortic dissection or thoracic aortic aneurysm.*
- 8) Evaluation of suspected pulmonary embolism.*
- 9) Evaluation of cardiac mass (suspected tumor or thrombus) or pericardial conditions (pericardial mass, constrictive pericarditis, or complications of cardiac surgery) following echocardiogram, MRI, or TEE resulting in technically limited images.
- 10) Evaluation of pulmonary vein anatomy prior to invasive radiofrequency ablation for atrial fibrillation.
- 11) Noninvasive coronary vein mapping prior to placement of biventricular pacemaker.
- 12) Noninvasive coronary arterial mapping, including internal mammary artery prior to repeat cardiac surgical revascularization.

WellCare considers all other indications for Computed Tomography Angiography, Cardiac Computed Tomography, or Calcium Scoring **not medically necessary** as there are other diagnostic procedures available, and the American College of Cardiology has determined that the appropriateness of this technology in evaluating these other indications is either inappropriate or uncertain.

Notes

^A For CT angiography, patients are assumed not to present with any of the following:

- a. Irregular rhythm (e.g., atrial fibrillation/flutter, frequent irregular premature ventricular contractions or premature atrial contractions, and high grade heart block);
- b. Very obese patients, body mass index greater than 40 kg/m²;
- c. Renal insufficiency, creatinine greater than 1.8 mg/dL;
- d. Heart rate greater than 70 beats/min refractory to heart-rate-lowering agents (e.g., a combination of beta-blocker and calcium-channel blocker);
- e. Metallic interference (e.g., surgical clips, pacemaker, and/or defibrillator wires, or tissue expander).

^B For CT angiography, patients must be able to:

- a. Hold still;
- b. Follow breathing instruction;
- c. Take nitroglycerin (for performing coronary CT angiography only);
- d. Take iodine in spite of steroid prep for contrast allergy;
- e. Lift both arms above the shoulders.

^C Cardiac computed tomography imaging equipment and personnel are available that have the minimal technical capabilities required for the indication (the number of detector rows, spatial and temporal resolution, and acquisition protocols).

* Non-gated CT angiogram which has a sufficiently large field of view for these specific indications.

BACKGROUND

General Information

Coronary artery disease (CAD), also called coronary heart disease (CHD), is the most common cardiac disorder and the leading cause of death in the United States. Approximately 17 million people have CAD and CAD accounts for more than 650,000 deaths annually.

A diagnosis of CAD is generally made when there is least one high-grade stenosis in the coronary tree; patients may or may not be symptomatic. A diagnosis of CAD is generally indicated if there is presence of at least one high-grade stenosis in the coronary tree. In general, symptoms include chest pain (angina), dizziness or light-headedness, rapid or irregular heart beats, and shortness of breath. Some patients, however, may not present with symptoms. To diagnose and treat the disorder effectively, many experts consider that the development of accurate cardiac imaging techniques is critical. Current techniques used to detect and diagnose CAD include but are not limited to (Hayes, 2007):

- Stress tests: Comparison of blood flow with and without exercise
- Echocardiograms combined with stress tests and nuclear ventriculography: High-resolution visualization of the heart using radioactive tracers
- Coronary angiography (CAG): Invasive visualization of blood flow through the arteries using contrast material
- Electron-beam computed tomography (EBCT): Detects calcium within vessel walls
- Intravascular ultrasound (IVUS): Visualization of arteries using sound waves

- Magnetic resonance angiography (MRA): Magnetic fields and radio waves used to view arteries

To diagnose and treat the disorder effectively, the development of accurate cardiac imaging techniques is critical. Modalities for detecting and diagnosing CAD include but are not limited to stress tests, echocardiograms combined with nuclear ventriculography, coronary angiography (CAG), electron-beam computed tomography (EBCT), intravascular ultrasound (IVUS), and magnetic resonance angiography (MRA). Multislice computed tomography (MSCT) is also known as multidetector computed tomography (MDCT), multidetector-row computed tomography (MDCT), and multisection computed tomography. As early as 2001, MSCT has been investigated as a viable tool for diagnosing CAD. MSCT is noninvasive and is currently the standard procedure used in several imaging applications. The MSCT scanner generates multiple cross-sectional images at a very fast rate. During the last 2 years, aggressive advancements in MSCT have moved this technology to the verge of being useful for diagnosing CAD. There have been improvements in temporal resolution, spatial resolution, and speed of volume coverage (from 4 slices through 64 slices).

There is sufficient evidence in the peer-reviewed scientific literature supporting the use of noninvasive multidetector-row computed tomography angiography (CTA) as a vascular imaging technique that can be performed rapidly and safely for the assessment of many vascular diseases. Studies have demonstrated the high degree of accuracy of CTA compared to invasive angiography for imaging of vessels of the head, neck, thorax and abdomen. CTA is indicated for patients with suspected congenital anomalies of coronary circulation or great vessels. CTA has shown comparable diagnostic accuracy to DSA in the detection of pulmonary embolism. Also, CTA was shown to be at least as good as DSA in imaging peripheral vascular disease.

Also, there is sufficient evidence in the peer-reviewed scientific literature to support the use of 64-slice CTA as an adjunct to other testing as medically indicated in a specific cardiac population subset with intermediate pretest probability of coronary artery disease (CAD). Physicians should utilize established methods of determining risk/probability of CAD (e.g., ACC/AHA Multiple-Risk-Factor Assessment [Age, Gender, and Symptoms], Framingham Risk Score calculation). The literature regarding CTA performed on a multidetector-row scanner with less than 64 slices is not consistent, as is 64-slice literature in demonstrating high accuracy for the detailed diagnosis of CAD. Because of improved spatial and temporal resolution, 64-slice provides improvement in the assessable segments and inclusion of more distal branches for analysis. However, current literature does not provide sufficient evidence to support a role for CTA in any other CAD population. The literature does not support its use as a screening tool.

Although definitive patient selection criteria have not been established, there is evidence to support the use of MSCT as a triage tool to rule out CAD in symptomatic patients with no history of CAD and who are at low risk for CAD to decide whether patients should be referred for invasive CAG. There is some evidence to suggest that high body mass index (BMI) and calcium scores affect the diagnostic accuracy of MSCT. Generally, patients must be able to tolerate iodinated contrast media and beta-blockers, have sinus rhythm, and be able to hold their breath for at least 12 seconds.

Chest Pain Syndrome and Acute Chest Pain (Angina)

Determination of CT angiogram use is dependent on several factors including whether the patient is presenting with Chest Pain Syndrome or acute chest pain (angina). (Note: see policy for exact use of these determinations).

Chest Pain Syndrome is defined by the American College of Cardiology (ACC, 2006) as “any constellation of symptoms that the physician feels may represent a complaint consistent with obstructive CAD. Examples of such symptoms include, but are not exclusive to: chest pain, chest tightness, burning, dyspnea, shoulder pain, and jaw pain.” Namely, the definition of the syndrome includes pain that is not localized to the chest area. Upon determination of the presence of symptoms consistent with obstructive CAD, pre-test probability of CAD should be determined.

According to the ACC, angina can be classified into two types: 1) typical, (definite) and 2) atypical (probable). Typical angina is defined as a) substernal chest pain or discomfort that is b) provoked by exertion or emotional stress and can c) be relieved by rest and/or nitroglycerin. Atypical angina is chest pain or discomfort that lacks one of the characteristics of typical angina. Angina can also be defined as acute chest pain, localized to the substernal region. Lastly, non-anginal chest pain is chest pain or discomfort that meets one or none of the typical angina characteristics.

During the pre-test evaluation period a patient can be considered asymptomatic (presenting with no symptomatology of

CAD) or symptomatic (presenting with symptoms consistent with CAD). This symptom grading is essential to the proper pre-test evaluation of the patient and determines whether a CT angiogram should be performed.

Pre-Test Probability of CAD

The pre-test probability of Coronary Artery Disease in symptomatic members should be determined *before* CT angiography or any other cardiac assessment is performed. Pre-test probability of CAD is determined by analyzing factors such as age, gender, and symptoms. These factors are analyzed using a matrix style grid (see adapted table below).

Table B1. Pre-Test Probability of CAD by Age, Gender, and Symptoms*

Age (yrs)	Gender	Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Nonanginal Chest Pain	Asymptomatic
30–39	Men	Intermediate	Intermediate	Low	Very low
	Women	Intermediate	Very low	Very low	Very low
40–49	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Low	Very low	Very low
50–59	Men	High	Intermediate	Intermediate	Low
	Women	Intermediate	Intermediate	Low	Very low
60–69	Men	High	Intermediate	Intermediate	Low
	Women	High	Intermediate	Intermediate	Low

High: Greater than 90% pre-test probability; Intermediate: Between 10% and 90% pre-test probability; Low: Between 5% and 10% pre-test probability; Very Low: Less than 5% pre-test probability. *No data exist for patients less than 30 years or greater than 69 years, but it can be assumed that prevalence of CAD increases with age. In a few cases, patients with ages at the extremes of the decades listed may have probabilities slightly outside the high or low range.

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CODING

Covered CPT® Codes

Note: CPT Category Codes 0144T-0151T have been deleted effective 12/31/2009 and replaced by CPT codes 75571-75574

- 75571** Computed Tomography, Heart, without contrast material, with quantitative evaluation of coronary calcium
- 75572** Computed Tomography, Heart, with contrast material for evaluation of cardiac structure and morphology (including 3D Image postprocessing, assessment of cardiac function, and evaluation of venous structures, if performed)
- 75573** Computed Tomography, Heart, with contrast material, for evaluation of cardiac structure and morphology in the setting of Congenital Heart Disease (including 3D image postprocessing, assessment of LV cardiac function, RV structure and function and evaluation of venous structures, if performed)
- 75574** Computed Tomographic Angiography, Heart, Coronary Arteries and Bypass Grafts (when present), with contrast material, including 3D Image postprocessing (including evaluation of cardiac structure and morphology, assessment of cardiac function, and evaluation of venous structures, if performed.)

ICD-9 Procedure Code

87.42 CT Angiography – Cardiac Computed Tomography

HCPCS Level II Codes

No applicable codes

Covered ICD-9 Diagnosis Codes

Note: It is not enough to link the procedure code to a correct, payable ICD-9-CM code. The diagnosis or clinical signs/symptoms must be present for the procedure to be paid.

402.00 - 402.91	Malignant Hypertensive Heart Disease without Heart Failure, Unspecified Hypertensive Heart Disease with Heart Failure
411.1	Intermediate Coronary Syndrome
412	Old Myocardial Infarction
413.0 - 413.9	Angina Decubitis – Other and Unspecified Angina Pectoris
414.00 - 414.07	Coronary Atherosclerosis of Unspecified Type of Vessel Native or Graft - Coronary Atherosclerosis of Bypass Graft (Artery) (Vein) of Transplanted Heart
414.10 - 414.19	Aneurysm of Heart (Wall) – Other Aneurysm of Heart
414.8	Other Specified Forms of Chronic Ischemic Heart Disease
414.9	Chronic Ischemic Heart Disease Unspecified
415.11 - 415.19	Pulmonary Embolism
420.0 - 420.99	Acute Pericarditis in Diseases Classified Elsewhere – Other Acute Pericarditis
424.3	Pulmonary Valve Disorders (Pulmonary Outflow Obstruction)
427.31	Atrial Fibrillation – Evaluation of Pulmonary Veins Pre and Post Ablation Not covered for persons in atrial fibrillation.
428.0 - 428.9	Congestive Heart Failure
441.0 - 441.9	Aortic Aneurysm and Dissection
444.0 - 444.9	Arterial Embolism and Arthrosis
745.0 - 745.9	Common Truncus – Unspecified Defect of Septal Closure
746.00 - 746.9	Congenital Pulmonary Valve Anomaly Unspecified – Unspecified Congenital Anomaly of Heart
747.40 - 747.49	Congenital Anomaly of Great Veins Unspecified – Other Anomalies of Great Veins
786.05	Shortness of Breath
786.50	Unspecified Chest Pain
786.51	Precordial Pain
786.59	Other Chest Pain
794.30	Unspecified Abnormal Function Study of Cardiovascular System
794.31	Nonspecific Abnormal Electrocardiogram (ECG) (EKG)

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