



Louisiana

Contrast-Enhanced Coronary Computed Tomography Angiography (CCTA) for Coronary Artery Evaluation

Policy # 00153

Original Effective Date: 07/15/2005

Current Effective Date: 09/26/2020

Applies to all products administered or underwritten by Blue Cross and Blue Shield of Louisiana and its subsidiary, HMO Louisiana, Inc. (collectively referred to as the "Company"), unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

Note: Contrast-Enhanced Coronary Computed Tomography to Detect Coronary Artery Calcification is addressed separately in medical policy 00031.

Note: Noninvasive Fractional Flow Reserve Using Computed Tomography Angiography is addressed in medical policy 00537.

When Services May Be Eligible for Coverage

Coverage for eligible medical treatments or procedures, drugs, devices or biological products may be provided only if:

- *Benefits are available in the member's contract/certificate, and*
- *Medical necessity criteria and guidelines are met.*

Based on review of available data, the Company may consider the use of contrast-enhanced coronary computed tomography angiography (CCTA) for coronary artery evaluation to be **eligible for coverage**.**

Patient Selection Criteria

Coverage eligibility will be considered when using at least a 64-slice multidetector row helical computed tomographic (CT) scanner for ANY of the following conditions:

- Evaluation of anomalous (native) coronary arteries in symptomatic patients when the results will impact treatment; OR
- Assessment of suspected or established complex congenital heart disease including anomalies of coronary circulation, great vessels and cardiac chambers and valves; OR
- Evaluation of pulmonary vein anatomy prior to invasive radiofrequency ablation for atrial fibrillation or flutter; OR
- Evaluation of patients with acute chest pain who do not have known coronary artery disease

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(CAD) in the emergency room/emergency department (ED) setting; OR

- For exclusion of coronary artery disease (CAD) in patients with left ventricular ejection fraction < 55% and low or intermediate coronary heart disease risk (using standard methods of risk assessment such as Framingham or the American College of Cardiology [ACC] criteria) in patients whom CAD has not been excluded as the etiology of the cardiomyopathy; OR
- Patients at intermediate coronary artery disease (CAD) risk (using standard methods of risk assessment such as Framingham or ACC criteria) being evaluated for non-coronary artery cardiac surgery (including valvular and ascending aortic surgery) to avoid an invasive angiogram, where all of the necessary preoperative information can be obtained using cardiac computed tomography (CT); OR
- For suspected coronary artery disease (CAD) in patients who have had abnormal exercise electrocardiogram (EKG) test (performed without imaging) within the past 60 days when BOTH of the following apply:
 - Patient is symptomatic (See Policy Guidelines); AND
 - During testing the patient had exercise-induced chest pain, ST segment change, abnormal blood pressure (BP) response or complex ventricular arrhythmias; OR
- For suspected coronary artery disease (CAD) in patients who have had equivocal myocardial perfusion imaging (MPI) or stress echocardiography (SE) within the past 60 days when BOTH of the following apply:
 - Patient is symptomatic (See Policy Guidelines); AND
 - The imaging portion of the study is neither clearly normal nor clearly abnormal; OR
- For suspected coronary artery disease (CAD) in patients who have had abnormal MPI or SE within the past 60 days when BOTH of the following apply:
 - Patient is symptomatic (See Policy Guidelines); AND
 - The imaging portion of the study is abnormal; OR
- For preoperative cardiac evaluation of asymptomatic patients undergoing non-cardiac surgery when ALL of the following are met:
 - The patient will undergo intermediate risk surgery (e.g. intraperitoneal or intrathoracic surgery, carotid endarterectomy, head and neck surgery, orthopedic surgery, prostate surgery, gastric bypass surgery) or high risk surgery (e.g. aortic and other major vascular surgery, peripheral vascular surgery); AND

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- The patient has not had a normal coronary angiogram, stress echocardiogram, myocardial perfusion imaging, cardiac PET scan, CCTA, or revascularization within the previous one (1) year; AND
- At least ONE of the following applies:
 - Patient has established coronary artery disease (e.g. prior myocardial infarction, coronary angioplasty, stent, or coronary artery bypass grafting) or presumed coronary artery disease (e.g. Q waves on EKG, abnormal MPI, SE or cardiac positron emission tomography); OR
 - Patient has history of congestive heart failure; OR
 - Patient has diabetes mellitus; OR
 - Patient has chronic kidney disease; OR
 - Patient has a history of cerebrovascular disease (e.g. transient ischemic attack, cerebrovascular accident, or documented carotid stenosis requiring carotid endarterectomy); AND
- The EKG shows ONE of the following abnormalities, i.e. left bundle branch block, electronically paced ventricular rhythm, left ventricular hypertrophy with repolarization abnormality, resting ST segment depression 1 mm or more on a recent EKG within the past 30 days, digoxin effect, or pre-excitation syndrome such as Wolff-Parkinson-White syndrome.

Note: Low-risk surgeries include endoscopic procedures, superficial procedures, cataract surgery, breast surgery, and ambulatory procedures.

- Suspected coronary artery disease in symptomatic patients who have not had recent coronary artery disease (CAD) evaluation in the following situation (See Policy Guidelines):
 - When no CAD imaging evaluation (MPI, cardiac positron emission tomography [PET], stress echo, coronary computed tomography angiography [CCTA] or coronary angiography) has been performed within the preceding sixty (60) days.

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When Services Are Considered Investigational

Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

Based on review of available data, the Company considers contrast-enhanced coronary computed tomography angiography (CCTA) for coronary artery evaluation to be **investigational*** for all other indications.

Policy Guidelines

The 2012 collaborative medical association guidelines for the diagnosis and management of patients with stable heart disease (Fihn et al, 2012) list several class I recommendations on use of noninvasive testing in patients with suspected stable ischemic heart disease. A class I recommendation indicates that a test should be performed. In general, patients with at least intermediate risk (10% -90% risk by standard risk prediction instruments) are recommended to have some type of test, the choice depending on interpretability of the electrocardiogram, capacity to exercise, and presence of comorbidity.

For purposes of this guideline, a patient is considered “symptomatic” when **ONE** of the following (1-4) applies:

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1. Chest pain
 - With intermediate or high pretest probability of coronary artery disease; **OR**
 - With low or very low pretest probability of coronary artery disease and high risk of coronary artery disease (using standard methods of risk assessment such as Framingham or ACC criteria)
2. Atypical symptoms: shortness of breath (dyspnea), neck, jaw, arm, epigastric or back pain, sweating (diaphoresis), or exercise-induced syncope
 - With moderate or high risk of coronary artery disease (using standard methods of risk assessment such as Framingham or ACC criteria)
3. Other symptoms: palpitation, nausea, vomiting, anxiety, weakness, fatigue, or any of the following symptoms when induced by exercise: dizziness, lightheadedness, or near syncope
 - With high risk of coronary artery disease (using standard methods of risk assessment such as Framingham or ACC criteria)
4. Patients with any cardiac symptom who have diseases/conditions with which coronary artery disease commonly coexists, such as:
 - Abdominal aortic aneurysm; **OR**
 - Chronic renal insufficiency or renal failure; **OR**
 - Diabetes mellitus; **OR**
 - Established and symptomatic peripheral vascular disease; **OR**
 - Prior history of cerebrovascular accident (CVA), transient ischemic attack (TIA), carotid endarterectomy (CEA), or high-grade carotid artery stenosis (> 70%)

Table 1: Pre-Test Probability of Coronary Artery Disease by Age, Gender and Symptoms

Age (yr)	Gender	Very Low < 5%		Intermediate Probability 10-90%	
		Low Probability < 10%		High Probability > 90%	
		Typical/Definite Angina Pectoris	Atypical/Probable Angina Pectoris	Non-Anginal 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

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	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

Gibbons RJ, Balady GJ, Beasley JW, et al. ACC/AHA Guidelines for Exercise Testing: Executive Summary. Circulation. 1997;96:345-354.

Background/Overview

Coronary Artery Disease

Various noninvasive tests are used to diagnose CAD. They can be broadly classified as those that detect functional or hemodynamic consequences of obstruction and ischemia (exercise treadmill testing, myocardial perfusion imaging, stress echocardiography with or without contrast), and others that identify the anatomic obstruction itself (coronary computed tomography angiography [CCTA], coronary magnetic resonance imaging). Functional testing involves inducing ischemia by exercise or pharmacologic stress and detecting its consequences. However, not all patients are candidates. For example, obesity or obstructive lung disease can make obtaining echocardiographic images of sufficient quality difficult. Conversely, the presence of coronary calcifications can impede detecting coronary anatomy with CCTA.

Diagnostic Testing

Some tests will be unsuitable for particular patients. The presence of dense arterial calcification or an intracoronary stent can produce significant beam-hardening artifacts and may preclude satisfactory imaging. The presence of an uncontrolled rapid heart rate or arrhythmia hinders the ability to obtain diagnostically satisfactory images. Evaluation of the distal coronary arteries is more difficult than the visualization of the proximal and mid-segment coronary arteries due to greater cardiac motion and the smaller caliber of coronary vessels in distal locations.

Evaluation of obstructive CAD involves quantifying arterial stenoses to determine whether significant narrowing is present. Lesions with stenosis more than 50% to 70% in diameter accompanied by symptoms are considered significant.

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Contrast-enhanced CCTA is a noninvasive imaging test that requires the use of intravenously administered contrast material and high-resolution, high-speed computed tomography machinery to obtain detailed volumetric images of blood vessels. It has been suggested that CCTA may help rule out CAD and avoid invasive coronary angiography in patients with a low clinical likelihood of significant CAD. Also of interest is the potentially important role of nonobstructive plaques (ie, those associated with <50% stenosis) because their presence is associated with increased cardiac event rates. CCTA also can visualize the presence and composition of these plaques and quantify plaque burden better than conventional angiography, which only visualizes the vascular lumen. Plaque presence has been shown to have prognostic importance.

The use of electron-beam computed tomography or helical computed tomography to detect coronary artery calcification and the use of fractional flow reserve computed tomography to support the functional evaluation of coronary artery disease are addressed separately in medical policies 00031 and 00537, respectively.

Coronary Arterial Anomalies

Congenital coronary arterial anomalies (ie, abnormal origin or course of a coronary artery) that lead to clinically significant problems are relatively rare. Symptomatic manifestations may include ischemia or syncope. Clinical presentation of anomalous coronary arteries is difficult to distinguish from other more common causes of cardiac disease; however, an anomalous coronary artery is an important diagnosis to exclude, particularly in young patients who present with unexplained symptoms (eg, syncope). There is no specific clinical presentation to suggest a coronary artery anomaly.

Radiation Exposure

Levels of radiation delivered with the current generation scanners using reduction techniques (prospective gating and spiral acquisition) have declined substantially-typically to under 10 mSv. For example, an international registry developed to monitor CCTA radiation exposure has reported a median of 2.4 mSv (interquartile range, 1.3-5.5). By comparison, radiation exposure accompanying rest-stress perfusion imaging varies by isotope used-approximately 5 mSv for rubidium 82 (positron emission tomography), 14 mSv for fluorine 18 fluorodeoxyglucose, 9 mSv for sestamibi (single-photon emission computed tomography), and 41 mSv for thallium; during diagnostic invasive coronary angiography, approximately 7 mSv is delivered. Electron-beam computed tomography

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using electrocardiogram triggering delivers the lowest dose (0.7-1.1 mSv with 3-mm sections). Any cancer risk due to radiation exposure from a single cardiac imaging test depends on age (higher with younger age at exposure) and sex (greater for women). Empirical data have suggested that every 10 mSv of exposure is associated with a 3% increase in cancer incidence over five years.

FDA or Other Governmental Regulatory Approval

U.S. Food and Drug Administration (FDA)

CCTA is performed using multidetector-row computed tomography, and multiple devices have been cleared for marketing by the U.S. Food and Drug Administration through the 510(k) process. Current machines are equipped with at least 64 detector rows. Intravenous iodinated contrast agents used for CCTA also have received Food and Drug Administration approval.

Rationale/Source

CCTA is a noninvasive imaging test that requires the use of intravenously administered contrast material and high-resolution, high-speed computed tomography machinery to obtain detailed volumetric images of blood vessels. It is a potential diagnostic alternative to current tests for cardiac ischemia (ie, noninvasive stress testing and/or coronary angiography).

For individuals who have acute chest pain and suspected coronary artery disease in the emergency setting, at intermediate- to low-risk, who receive CCTA, the evidence includes several randomized controlled trials, a systematic review, and a prospective head-to-head study comparing CCTA with an alternative noninvasive test. The relevant outcomes are overall survival, morbid events, and resource utilization. Trials have shown similar patient outcomes, with faster patient discharges from the emergency department, and lower short-term costs. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have stable chest pain, intermediate-risk of coronary artery disease, and meeting guideline criteria for noninvasive testing (ie, intermediate-risk) who receive CCTA, the evidence includes studies of diagnostic accuracy of CCTA, randomized trials and observational studies comparing CCTA with alternative diagnostic strategies, and systematic reviews. The relevant outcomes are overall survival, test accuracy, morbid events, and resource utilization. Studies of diagnostic accuracy have shown that CCTA has higher sensitivity and similar specificity to

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alternative noninvasive tests. Although randomized trials have not shown the superiority of CCTA over other diagnostic strategies, results are consistent with noninferiority (ie, similar health outcomes) to other diagnostic strategies. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have suspected anomalous coronary arteries who receive CCTA, the evidence includes case series. The relevant outcomes are overall survival, test accuracy, morbid events, and resource utilization. Series have shown that CCTA can detect anomalous coronary arteries missed by other diagnostic modalities. Anomalous coronary arteries are rare, and formal studies to assess clinical utility are unlikely to be performed. In most situations, these case series alone would be insufficient to determine whether the test improves health outcomes. However, in situations where patient management will be affected by CCTA results (eg, with changes in surgical planning), a chain of evidence indicates that health outcomes are improved. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Supplemental Information

Practice Guidelines and Position Statements

American College of Cardiology Foundation et al

The American College of Cardiology Foundation and several other medical societies (2012) issued joint guidelines for the management of patients with stable ischemic heart disease (see Table 2).

Table 2. Guidelines on Management of Stable IHD

Diagnosis	Recommendation	Class	LOE
Unknown			
	Able to exercise		
	"CCTA might be reasonable for patients with an intermediate pretest probability of IHD who have at least moderate physical functioning or no disabling comorbidity."	IIb	B
	Unable to exercise		

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Diagnosis	Recommendation	Class	LOE
	"CCTA is reasonable for patients with a low-to-intermediate pretest probability of IHD who are incapable of at least moderate physical functioning or have disabling comorbidity."	IIa	B
	"CCTA is reasonable for patients with an intermediate pretest probability of IHD who a) have continued symptoms with prior normal test findings, or b) have inconclusive results from prior exercise or pharmacological stress testing, or c) are unable to undergo stress with nuclear MPI or echocardiography."	IIa	C
Known coronary disease			
	Able to exercise		
	"CCTA may be reasonable for risk assessment in patients with SIHD who are able to exercise to an adequate workload but have an uninterpretable ECG."	IIb	B
	Able to exercise		
	"Pharmacological stress imaging (nuclear MPI, echocardiography, or CMR) or CCTA is not recommended for risk assessment in patients with SIHD who are able to exercise to an adequate workload and have an interpretable ECG."	III	C
	Unable to exercise		
	"Pharmacological stress CMR is reasonable for risk assessment in patients with SIHD who are unable to exercise to an adequate workload regardless of interpretability of ECG."	IIa	B
	"CCTA can be useful as a first-line test for risk assessment in patients with SIHD who are unable to exercise to an adequate workload regardless of interpretability of ECG."	IIa	C
	Unable to exercise		

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Diagnosis	Recommendation	Class	LOE
	"A request to perform either a) more than 1 stress imaging study or b) a stress imaging study and a CCTA at the same time is not recommended for risk assessment in patients with SIHD."	III	C
	Regardless of patients' ability to exercise		
	"CCTA might be considered for risk assessment in patients with SIHD unable to undergo stress imaging or as an alternative to invasive coronary angiography when functional testing indicates a moderate- to high-risk result and knowledge of angiographic coronary anatomy is unknown."	Iib	C

CCTA: coronary computed tomography angiography; CMR: cardiac magnetic resonance; ECG: electrocardiography; IHD: ischemic heart disease; LOE: level of evidence; MPI: myocardial perfusion imaging; SIHD: stable ischemic heart disease.

The American College of Cardiology Foundation and other medical societies (2013) published appropriate use criteria for detection and risk assessment of stable ischemic heart disease. Coronary computed tomography angiography (CCTA) was considered appropriate for:

- Symptomatic patients with intermediate (10%-90%) pretest probability of coronary artery disease and uninterpretable electrocardiogram (ECG) or inability to exercise
- Patients with newly diagnosed systolic heart failure
- Patients who have had a prior exercise ECG or stress imaging study with abnormal or unknown results
- Patients with new or worsening symptoms and normal exercise ECG.

National Institute for Health and Care Excellence

The National Institute for Health and Care Excellence (2016) has recommended CCTA as first-line testing for patients with stable angina if the clinical assessment indicates typical or atypical angina, or if the clinical assessment indicates non anginal chest pain but 12-lead resting ECG has been done and indicates ST-T changes or Q waves.

U.S. Preventive Services Task Force Recommendations

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No U.S. Preventive Services Task Force recommendations for CCTA have been identified.

Medicare National Coverage

There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review are listed in Table 3.

Table 3. Summary of Key Trials

NCT Number	Title	Enrollment	Completion Date
<i>Ongoing</i>			
NCT02400229	Diagnostic Imaging Strategies for Patients With Stable Chest Pain and Intermediate Risk of Coronary Artery Disease: Comparative Effectiveness Research of Existing Technologies) - A Pragmatic Randomised Controlled Trial of CT Versus ICA	3546	Sep 2019 (recruiting)
NCT02284191	The Role of Early CT Coronary Angiography in the Evaluation, Intervention and Outcome of Patients Presenting to the Emergency Department With Suspected or Confirmed Acute Coronary Syndrome	2500	Dec 2020 (recruiting)
<i>Unpublished</i>			
NCT02291484	Comprehensive Cardiac CT Versus Exercise Testing in Suspected Coronary Artery Disease (2) (CRESCENT2)	250	May 2016 (completed)
NCT01384448	A Randomized Trial Comparing Coronary CT Angiography and Stress Echocardiography for Evaluation of Low-to-	400	Feb 2017 (completed)

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NCT Number	Title	Enrollment	Completion Date
	Intermediate Risk Emergency Department Chest Pain Patients		
NCT01559467	The Supplementary Role of Non-invasive Imaging to Routine Clinical Practice in Suspected Non-ST-elevation Myocardial Infarction (CARMENTA)	300	June 2017 (completed)
NCT01283659	Computed Tomography Coronary Angiography for Heart Failure Patients (CTA - HF) Project I-C of Imaging Modalities to Assist With Guiding Therapy and the Evaluation of Patients With Heart Failure (IMAGE-HF)	253	Dec 2018 (completed)

NCT: national clinical trial.

References

1. Blue Cross and Blue Shield Association, Medical Policy Reference Manual, “Contrast-Enhanced Coronary Computed Tomography Angiography for Coronary Artery Evaluation”, 6.01.43, October 2019.
2. AIM Specialty Health, AIM Clinical Appropriateness Guidelines: Advanced Imaging, “Imaging of the Heart”, January 01, 2020.
3. Gibbons RJ, Balady GJ, Beasley JW, et al. ACC/AHA Guidelines for Exercise Testing: Executive Summary. *Circulation*. 1997;96:345-354.
4. Mastouri R, Sawada SG, Mahenthiran J. Current noninvasive imaging techniques for detection of coronary artery disease. *Expert Rev Cardiovasc Ther*. Jan 2010;8(1):77-91. PMID 20030023.
5. Chow BJ, Small G, Yam Y, et al. Incremental prognostic value of cardiac computed tomography in coronary artery disease using CONFIRM: COroNary computed tomography angiography evaluation for clinical outcomes: an InteRnational Multicenter registry. *Circ Cardiovasc Imaging*. Sep 2011;4(5):463-472. PMID 21730027.
6. Hadamitzky M, Achenbach S, Malhotra V, et al. Update on an International Registry for monitoring cardiac CT radiation dose [abstract]. *J Cardiovasc Comput Tomogr*. 2011;5(4S):S48.

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7. Gerber TC, Carr JJ, Arai AE, et al. Ionizing radiation in cardiac imaging: a science advisory from the American Heart Association Committee on Cardiac Imaging of the Council on Clinical Cardiology and Committee on Cardiovascular Imaging and Intervention of the Council on Cardiovascular Radiology and Intervention. *Circulation*. Feb 24 2009;119(7):1056-1065. PMID 19188512.
8. Hausleiter J, Meyer T, Hermann F, et al. Estimated radiation dose associated with cardiac CT angiography. *JAMA*. Feb 04 2009;301(5):500-507. PMID 19190314.
9. Einstein AJ, Hanzlova MJ, Rajagopalan S. Estimating risk of cancer associated with radiation exposure from 64- slice computed tomography coronary angiography. *JAMA*. Jul 18 2007;298(3):317-323. PMID 17635892.
10. Smith-Bindman R, Lipson J, Marcus R, et al. Radiation dose associated with common computed tomography examinations and the associated lifetime attributable risk of cancer. *Arch Intern Med*. Dec 14 2009;169(22):2078- 2086. PMID 20008690.
11. Eisenberg MJ, Afilalo J, Lawler PR, et al. Cancer risk related to low-dose ionizing radiation from cardiac imaging in patients after acute myocardial infarction. *CMAJ*. Mar 8 2011;183(4):430-436. PMID 21324846.
12. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Contract Enhanced Cardiac Computed Tomographic Angiography for Coronary Artery Evaluation. TEC Assessments. 2005;Volume 20:Tab 4.
13. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Contrast-Enhanced Cardiac Computed Tomographic Angiography in the Diagnosis of Coronary Artery Stenosis or for Evaluation of Acute Chest Pain. TEC Assessments. 2006;Volume 21:Tab 5.
14. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Coronary Computed Tomographic Angiography in the Evaluation of Patients with Acute Chest Pain. TEC Assessments. 2011;Volume 26:Tab 9.
15. Gongora CA, Bavishi C, Uretsky S, et al. Acute chest pain evaluation using coronary computed tomography angiography compared with standard of care: a meta-analysis of randomised clinical trials. *Heart*. Feb 2018;104(3):215-221. PMID 28855273.
16. Skelly AC, Hashimoto R, Buckley DI, et al. Noninvasive testing for coronary artery disease (Comparative Effectiveness Review No. 171). Rockville, MD: Agency for Healthcare Research and Quality; 2016.

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17. Levsky JM, Haramati LB, Spevack DM, et al. Coronary Computed Tomography Angiography Versus Stress Echocardiography in Acute Chest Pain: A Randomized Controlled Trial. *JACC Cardiovasc Imaging*. Jun 8 2018. PMID 29909113.
18. Hamilton-Craig C, Fifoot A, Hansen M, et al. Diagnostic performance and cost of CT angiography versus stress ECG--a randomized prospective study of suspected acute coronary syndrome chest pain in the emergency department (CT-COMPARE). *Int J Cardiol*. Dec 20 2014;177(3):867-873. PMID 25466568.
19. Linde JJ, Kofoed KF, Sorgaard M, et al. Cardiac computed tomography guided treatment strategy in patients with recent acute-onset chest pain: results from the randomised, controlled trial: CArdiac cT in the treatment of acute CHest pain (CATCH). *Int J Cardiol*. Oct 15 2013;168(6):5257-5262. PMID 23998546.
20. Litt HI, Gatsonis C, Snyder B, et al. CT angiography for safe discharge of patients with possible acute coronary syndromes. *N Engl J Med*. Apr 12 2012;366(15):1393-1403. PMID 22449295.
21. Hoffmann U, Truong QA, Schoenfeld DA, et al. Coronary CT angiography versus standard evaluation in acute chest pain. *N Engl J Med*. Jul 26 2012;367(4):299-308. PMID 22830462.
22. Goldstein JA, Chinnaiyan KM, Abidov A, et al. The CT-STAT (Coronary Computed Tomographic Angiography for Systematic Triage of Acute Chest Pain Patients to Treatment) trial. *J Am Coll Cardiol*. Sep 27 2011;58(14):1414- 1422. PMID 21939822.
23. Goldstein JA, Gallagher MJ, O'Neill WW, et al. A randomized controlled trial of multi-slice coronary computed tomography for evaluation of acute chest pain. *J Am Coll Cardiol*. Feb 27 2007;49(8):863-871. PMID 17320744.
24. Linde JJ, Hove JD, Sorgaard M, et al. Long-term clinical impact of coronary CT angiography in patients with recent acute-onset chest pain: the randomized controlled CATCH Trial. *JACC Cardiovasc Imaging*. Dec 2015;8(12):1404-1413. PMID 26577263.
25. Schlett CL, Banerji D, Siegel E, et al. Prognostic value of CT angiography for major adverse cardiac events in patients with acute chest pain from the emergency department: 2-year outcomes of the ROMICAT trial. *JACC Cardiovasc Imaging*. May 2011;4(5):481-491. PMID 21565735.
26. Durand E, Bauer F, Mansencal N, et al. Head-to-head comparison of the diagnostic performance of coronary computed tomography angiography and dobutamine-stress echocardiography in the evaluation of acute chest pain with normal ECG findings and negative troponin tests: A prospective multicenter study. *Int J Cardiol*. Aug 15 2017;241:463-469. PMID 28325613.
27. Fihn SD, Gardin JM, Abrams J, et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS Guideline for the diagnosis and management of patients with stable ischemic heart disease: a

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Louisiana

Contrast-Enhanced Coronary Computed Tomography Angiography (CCTA) for Coronary Artery Evaluation

Policy # 00153

Original Effective Date: 07/15/2005

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- report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, and the American College of Physicians, American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. *J Am Coll Cardiol.* Dec 18 2012;60(24):e44-e164. PMID 23182125.
28. Haase R, Schlattmann P, Gueret P et al. Diagnosis of obstructive coronary artery disease using computed tomography angiography in patients with stable chest pain depending on clinical probability and in clinically important subgroups: meta-analysis of individual patient data. *BMJ.* 2019 Jun 14;365:l1945. PMID 31189617.
 29. Nielsen LH, Ortner N, Norgaard BL, et al. The diagnostic accuracy and outcomes after coronary computed tomography angiography vs. conventional functional testing in patients with stable angina pectoris: a systematic review and meta-analysis. *Eur Heart J Cardiovasc Imaging.* Sep 2014;15(9):961-971. PMID 24618659.
 30. Ollendorf DA, Kuba M, Pearson SD. The diagnostic performance of multi-slice coronary computed tomographic angiography: a systematic review. *J Gen Intern Med.* Mar 2011;26(3):307-316. PMID 21063800.
 31. Health Quality Ontario. Non-invasive cardiac imaging technologies for the diagnosis of coronary artery disease: a summary of evidence-based analyses. *Ont Health Technol Assess Ser.* Jan 2010;10(7):1-40. PMID 23074410.
 32. Sandstedt M, De Geer J, Henriksson L, et al. Long-term prognostic value of coronary computed tomography angiography in chest pain patients. *Acta Radiol.* Jan 1 2018;284185118773551. PMID 29742921.
 33. Foy AJ, Dhruva SS, Peterson B, et al. Coronary computed tomography angiography vs functional stress testing for patients with suspected coronary artery disease: a systematic review and meta-analysis. *JAMA Intern Med.* Nov 1 2017;177(11):1623-1631. PMID 28973101.
 34. Rudziński PN, Kruk M, Kępka C et al. The value of Coronary Artery computed Tomography as the first-line anatomical test for stable patients with indications for invasive angiography due to suspected Coronary Artery Disease: CAT-CAD randomized trial. *J Cardiovasc Comput Tomogr.* 2018 Sep 12;12(6). PMID 30201310.
 35. Newby DE, Adamson PD, Berry C et al. Coronary CT Angiography and 5-Year Risk of Myocardial Infarction. *N. Engl. J. Med.*, 2018 Aug 28;379(10). PMID 30145934.
 36. Chang HJ, Lin FY, Gebow D et al. Selective Referral Using CCTA Versus Direct Referral for Individuals Referred to Invasive Coronary Angiography for Suspected CAD: A Randomized,

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Current Effective Date: 09/26/2020

- Controlled, Open-Label Trial. *JACC Cardiovasc Imaging*, 2018 Dec 17;12(7 Pt 2). PMID 30553687.
37. Douglas PS, Hoffmann U, Patel MR, et al. Outcomes of anatomical versus functional testing for coronary artery disease. *N Engl J Med*. Apr 2 2015;372(14):1291-1300. PMID 25773919.
 38. SCOT-HEART Investigators. CT coronary angiography in patients with suspected angina due to coronary heart disease (SCOT-HEART): an open-label, parallel-group, multicentre trial. *Lancet*. Jun 13 2015;385(9985):2383- 2391. PMID 25788230.
 39. McKavanagh P, Lusk L, Ball PA, et al. A comparison of cardiac computerized tomography and exercise stress electrocardiogram test for the investigation of stable chest pain: the clinical results of the CAPP randomized prospective trial. *Eur Heart J Cardiovasc Imaging*. Apr 2015;16(4):441-448. PMID 25473041.
 40. Hoffmann U, Ferencik M, Udelson JE, et al. Prognostic Value of Noninvasive Cardiovascular Testing in Patients With Stable Chest Pain: Insights From the PROMISE Trial (Prospective Multicenter Imaging Study for Evaluation of Chest Pain). *Circulation*. Jun 13 2017;135(24):2320-2332. PMID 28389572.
 41. Williams MC, Hunter A, Shah A, et al. Symptoms and quality of life in patients with suspected angina undergoing CT coronary angiography: a randomised controlled trial. *Heart*. Jul 2017;103(13):995-1001. PMID 28246175.
 42. Nielsen LH, Olsen J, Markenvard J, et al. Effects on costs of frontline diagnostic evaluation in patients suspected of angina: coronary computed tomography angiography vs. conventional ischaemia testing. *Eur Heart J Cardiovasc Imaging*. May 2013;14(5):449-455. PMID 22922828.
 43. Yamauchi T, Tamaki N, Kasanuki H, et al. Optimal initial diagnostic strategies for the evaluation of stable angina patients: a multicenter, prospective study on myocardial perfusion imaging, computed tomographic angiography, and coronary angiography. *Circ J*. Sep 2012;76(12):2832-2839. PMID 22975716.
 44. Berbarie RF, Dockery WD, Johnson KB, et al. Use of multislice computed tomographic coronary angiography for the diagnosis of anomalous coronary arteries. *Am J Cardiol*. Aug 1 2006;98(3):402-406. PMID 16860032.
 45. Datta J, White CS, Gilkeson RC, et al. Anomalous coronary arteries in adults: depiction at multi-detector row CT angiography. *Radiology*. Jun 2005;235(3):812-818. PMID 15833984.
 46. Romano S, Morra A, Del Borrello M, et al. Multi-slice computed tomography and the detection of anomalies of coronary arteries. *J Cardiovasc Med*. Feb 2008;9(2):187-194. PMID 18192814.

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Policy # 00153

Original Effective Date: 07/15/2005

Current Effective Date: 09/26/2020

47. Schmitt R, Froehner S, Brunn J, et al. Congenital anomalies of the coronary arteries: imaging with contrast-enhanced, multidetector computed tomography. *Eur Radiol.* Jun 2005;15(6):1110-1121. PMID 15756551.
48. Aglan I, Jodocy D, Hiehs S, et al. Clinical relevance and scope of accidental extracoronary findings in coronary computed tomography angiography: a cardiac versus thoracic FOV study. *Eur J Radiol.* Apr 2010;74(1):166-174. PMID 19268514.
49. Husmann L, Tatsugami F, Aepfli U, et al. Prevalence of noncardiac findings on low dose 64-slice computed tomography used for attenuation correction in myocardial perfusion imaging with SPECT. *Int J Cardiovasc Imaging.* Dec 2009;25(8):859-865. PMID 19662511.
50. Kawano Y, Tamura A, Goto Y, et al. Incidental detection of cancers and other non-cardiac abnormalities on coronary multislice computed tomography. *Am J Cardiol.* Jun 1 2007;99(11):1608-1609. PMID 17531590.
51. Kirsch J, Araoz PA, Steinberg FB, et al. Prevalence and significance of incidental extracardiac findings at 64- multidetector coronary CTA. *J Thorac Imaging.* Nov 2007;22(4):330-334. PMID 18043387.
52. Koonce J, Schoepf JU, Nguyen SA, et al. Extra-cardiac findings at cardiac CT: experience with 1,764 patients. *Eur Radiol.* Mar 2009;19(3):570-576. PMID 18925400.
53. Lazoura O, Vassiou K, Kanavou T, et al. Incidental non-cardiac findings of a coronary angiography with a 128- slice multi-detector CT scanner: should we only concentrate on the heart? *Korean J Radiol.* Jan-Feb 2010;11(1):60-68. PMID 20046496.
54. Lehman SJ, Abbara S, Cury RC, et al. Significance of cardiac computed tomography incidental findings in acute chest pain. *Am J Med.* Jun 2009;122(6):543-549. PMID 19486717.
55. Machaalany J, Yam Y, Ruddy TD, et al. Potential clinical and economic consequences of noncardiac incidental findings on cardiac computed tomography. *J Am Coll Cardiol.* Oct 13 2009;54(16):1533-1541. PMID 19815125.
56. Yorgun H, Kaya EB, Hazirolan T, et al. Prevalence of incidental pulmonary findings and early follow-up results in patients undergoing dual-source 64-slice computed tomography coronary angiography. *J Comput Assist Tomogr.* Mar-Apr 2010;34(2):296-301. PMID 20351524.
57. National Research Council, Committee to Assess Health Risks from Exposure to Low Level of Ionizing Radiation. *Health risks from exposure to low levels of ionizing radiation: BEIR VII Phase 2.* Washington, D.C.: National Academies Press; 2006.

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Contrast-Enhanced Coronary Computed Tomography Angiography (CCTA) for Coronary Artery Evaluation

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Original Effective Date: 07/15/2005

Current Effective Date: 09/26/2020

58. Berrington de Gonzalez A, Mahesh M, Kim KP, et al. Projected cancer risks from computed tomographic scans performed in the United States in 2007. *Arch Intern Med.* Dec 14 2009;169(22):2071-2077. PMID 20008689.
59. Bischoff B, Hein F, Meyer T, et al. Comparison of sequential and helical scanning for radiation dose and image quality: results of the Prospective Multicenter Study on Radiation Dose Estimates of Cardiac CT Angiography (PROTECTION) I Study. *AJR Am J Roentgenol.* Jun 2010;194(6):1495-1499. PMID 20489088.
60. Hausleiter J, Meyer TS, Martuscelli E, et al. Image quality and radiation exposure with prospectively ECG- triggered axial scanning for coronary CT angiography: the multicenter, multivendor, randomized PROTECTION- III study. *JACC. Cardiovascular imaging.* May 2012;5(5):484-493. PMID 22595156.
61. Stein PD, Yaekoub AY, Matta F, et al. 64-slice CT for diagnosis of coronary artery disease: a systematic review. *Am J Med.* Aug 2008;121(8):715-725. PMID 18691486.
62. Auguadro C, Manfredi M, Scalise F, et al. Multislice computed tomography for the evaluation of coronary bypass grafts and native coronary arteries: comparison with traditional angiography. *J Cardiovasc Med.* Jun 2009;10(6):454-460. PMID 19395978.
63. Tochii M, Takagi Y, Anno H, et al. Accuracy of 64-slice multidetector computed tomography for diseased coronary artery graft detection. *Ann Thorac Surg.* Jun 2010;89(6):1906-1911. PMID 20494047.
64. McEvoy JW, Blaha MJ, Nasir K, et al. Impact of coronary computed tomographic angiography results on patient and physician behavior in a low-risk population. *Arch Intern Med.* Jul 25 2011;171(14):1260-1268. PMID 21606093.
65. Muhlestein JB, Lappe DL, Lima JA, et al. Effect of screening for coronary artery disease using CT angiography on mortality and cardiac events in high-risk patients with diabetes: the FACTOR-64 randomized clinical trial. *JAMA.* Dec 3 2014;312(21):2234-2243. PMID 25402757.
66. Koshy AN, Ha FJ, Gow PJ et al. Computed tomographic coronary angiography in risk stratification prior to non-cardiac surgery: a systematic review and meta-analysis. *Heart,* 2019 Apr 26. PMID 31018953.
67. Wolk MJ, Bailey SR, Doherty JU, et al. ACCF/AHA/ASE/ASNC/HFSA/HRS/SCAI/SCCT/SCMR/STS 2013 multimodality appropriate use criteria for the detection and risk assessment of stable ischemic heart disease: a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force,

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American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons. J Am Coll Cardiol. Feb 4 2014;63(4):380-406. PMID 24355759.

68. National Institute for Health and Care Excellence (NICE). Chest pain of recent onset: assessment and diagnosis [CG95]. 2016; <https://www.nice.org.uk/guidance/CG95>.

Policy History

Original Effective Date: 07/15/2005

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06/07/2005	Medical Director review
06/21/2005	Medical Policy Committee review
07/15/2005	Managed Care Advisory Council approval
07/07/2006	Format revision including addition of FDA and or other governmental regulatory approval and Rationale/source. Coverage eligibility unchanged.
09/06/2006	Medical Director review
12/06/2006	Medical Director review
12/20/2006	Medical Policy Committee approval. Coverage eligibility unchanged
01/09/2008	Medical Director review
01/23/2008	Medical Policy Committee approval. Eligible for coverage statement added for CTA evaluation of anomalous (native) coronary arteries in symptomatic patients when conventional angiography is unsuccessful or equivocal and when the results will impact treatment.
05/07/2009	Medical Director review
05/20/2009	Medical Policy Committee approval. No change to coverage eligibility.
01/01/2010	Coding revision
06/03/2010	Medical Policy Committee approval
06/16/2010	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
05/05/2011	Medical Policy Committee review

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- 05/18/2011 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
- 11/03/2011 Medical Policy Committee review
- 11/16/2011 Medical Policy Implementation Committee approval. Added coverage for evaluation of patients in the emergency room without known coronary artery disease and acute chest pain.
- 03/07/2013 Medical Policy Committee review
- 03/20/2013 Medical Policy Implementation Committee approval. Replaced the 1st eligible for coverage criteria bullet to match the one from the 2008 policy. Added four new criteria bullets to be eligible for coverage. Included examples of standard methods of risk assessment such as Framingham or ACC criteria in the Patient Selection Criteria of this policy. Added a table to the Background/Overview section on the determination of pretest probability for coronary artery disease.
- 07/10/2014 Medical Policy Committee review
- 07/16/2014 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
- 06/25/2015 Medical Policy Committee review
- 07/15/2015 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
- 03/03/2016 Medical Policy Committee review
- 03/16/2016 Medical Policy Implementation Committee approval. Added bullet point with AIM guidelines to patient selection criteria.
- 01/01/2017 Coding update: Removing ICD-9 Diagnosis Codes
- 03/02/2017 Medical Policy Committee review
- 03/15/2017 Medical Policy Implementation Committee approval. Coverage eligibility unchanged. Updated background, rationale and references added “coronary” to title and policy statement.
- 03/01/2018 Medical Policy Committee review
- 03/21/2018 Medical Policy Implementation Committee approval. Removed “when conventional angiography is unsuccessful or equivocal” from the first eligible for coverage criteria bullet. Added “acute” to describe chest pain in the second eligible for coverage criteria bullet. Removed the last eligible for coverage criteria bullet and replaced it with:

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“To evaluate patients with suspected stable ischemic heart disease with at least intermediate risk (using standard methods of risk assessment such as Framingham or American College of Cardiology [ACC] criteria) when no coronary artery disease (CAD) imaging evaluation (e.g., myocardial perfusion imaging (MPI), cardiac positron emission tomography (PET), stress echocardiography (SE), coronary computed tomography angiography (CCTA), or coronary angiography) has been performed within the preceding sixty (60) days.” Added a Policy Guidelines section to the policy.

03/07/2019 Medical Policy Committee review

03/20/2019 Medical Policy Implementation Committee approval. All revisions track AIM Guidelines. Replaced the last three Patient Selection Criteria bullets with five new criteria bullets regarding suspected coronary artery disease. Defined “symptomatic” for patients with suspected coronary artery disease, but standard methods of Framingham or ACC criteria are used instead of using SCORE to refer to risk of CAD. Added Table 1: Pre-Test Probability of Coronary Artery Disease by Age, Gender and Symptoms to Policy Guidelines.

12/10/2019 Coding update

03/05/2020 Medical Policy Committee review

05/11/2020 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.

06/04/2020 Medical Policy Committee review

06/10/2020 Medical Policy Implementation Committee approval. Replaced the second to last solid criteria bullet with bulleted criteria from AIM Guidelines regarding preoperative cardiac evaluation of asymptomatic patients undergoing non-cardiac surgery.

10/06/2020 Coding update

Next Scheduled Review Date: 06/2021

Coding

The five character codes included in the Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines are obtained from Current Procedural Terminology (CPT®)‡, copyright 2019 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of

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descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures performed by physician.

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Codes used to identify services associated with this policy may include (but may not be limited to) the following:

Code Type	Code
CPT	75574
HCPCS	No codes
ICD-10 Diagnosis	I20.8-I20.9, I25.10-I25.9, I70.0-I70.9 Codes added eff 1/1/2020: I70.238, I70.248

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

- A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and

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whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or

- B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
1. Consultation with the Blue Cross and Blue Shield Association technology assessment program (TEC) or other nonaffiliated technology evaluation center(s);
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- A. In accordance with nationally accepted standards of medical practice;
- B. Clinically appropriate, in terms of type, frequency, extent, level of care, site and duration, and considered effective for the patient's illness, injury or disease; and
- C. Not primarily for the personal comfort or convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.

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