



## MASSACHUSETTS

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### Medical Policy

## Coronary CT Angiography (CCTA) and CT Derived Fractional Flow Reserve (FFR-CT)

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### Policy Number: 831

BCBSA Reference Number: N/A

### Related Policies

- **Medicare Advantage: High-Technology Radiology and Sleep Disorder Management Clinical and Utilization Guidance Redirect, #923**
- CT Angiography (CTA) Abdomen and Pelvis Combination, #761
- CT Angiography (CTA) Abdominal Aorta and Bilateral Iliofemoral Lower Extremity Run-Off, #762
- CT Angiography (CTA) and MR Angiography (MRA) Abdomen, #763
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- CT/MR Angiography (CTA/MRA) Neck, #769

### Policy<sup>1</sup>

#### Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

The use of CT Coronary Angiography (CCTA), with or without Fractional Flow Reserve assessed by CT (FFR-CT), may be **MEDICALLY NECESSARY** when accompanied by pre-test considerations as well as supporting clinical data and prerequisite information based on the following diagnostic indications.

**For purposes of this policy, a patient is considered to be “symptomatic” when one of the following (1–4) applies:**

1. Chest pain
  - With intermediate or high pretest probability of CAD; **OR**
  - With low or very low pretest probability of CAD and high risk of CAD (SCORE)<sup>2</sup>
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 CAD (SCORE)<sup>2</sup>
3. Other symptoms: palpitation, nausea, vomiting, anxiety, weakness, fatigue, or exercise-induced dizziness, lightheadedness or near syncope, etc.
    - With high risk of CAD (SCORE)<sup>2</sup>
  4. Patients with any cardiac symptom who have diseases/conditions with which CAD 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) or carotid endarterectomy (CEA) or high grade carotid stenosis (>70%)

**Indications where FFR-CT will not be required in conjunction with CCTA**

**Congenital coronary artery anomalies**

- For evaluation of suspected congenital anomalies of the coronary arteries

**Indications where FFR-CT may be appropriate but is not a required capability of the performing imaging facility**

**Congestive heart failure/cardiomyopathy/left ventricular dysfunction**

- For exclusion of CAD in patients with left ventricular ejection fraction <55% and low to moderate coronary heart disease risk (using standard methods of risk assessment, such as the SCORE risk calculation) in whom CAD has not been excluded as the etiology of the cardiomyopathy
  - Patients with high coronary heart disease risk should undergo cardiac catheterization

**Preoperative evaluation for patients undergoing non-coronary cardiac surgery**

- Evaluation of symptomatic or asymptomatic patients at moderate coronary heart disease risk (using standard methods of risk assessment, such as the SCORE risk calculation) to avoid an invasive angiogram, where all the necessary preoperative information can be obtained using cardiac CT
  - Procedures include open and percutaneous valvular procedures or ascending aortic surgery

**Suspected coronary artery disease in patients who have had abnormal exercise EKG test (performed without imaging) within the past 60 days**

- When both of the following apply
  - Patient is symptomatic
  - During testing the patient had exercise-induced chest pain, ST segment change, abnormal BP response or complex ventricular arrhythmias

**Suspected coronary artery disease in patients who have had equivocal MPI or SE within the past 60 days**

- When both of the following apply
  - Patient is symptomatic
  - The imaging portion of the study is neither clearly normal nor clearly abnormal

**Suspected coronary artery disease in patients who have had abnormal MPI or SE within the past 60 days**

- When both of the following apply
  - Patient is symptomatic
  - The imaging portion of the study is abnormal

**Indications where FFR-CT may be appropriate and is a required capability of the imaging facility**

**Suspected coronary artery disease in symptomatic patients who have abnormal resting EKG**

- When resting EKG abnormalities (left bundle branch block, electronically paced ventricular rhythm, left ventricular hypertrophy with repolarization abnormalities, resting ST segment depression 1 mm or more, digoxin effect or pre-excitation syndrome) would render an exercise treadmill test (without imaging) uninterpretable

**Suspected coronary artery disease in symptomatic patients who have not had recent CAD evaluation**

- When no CAD imaging evaluation (MPI, cardiac PET, stress echo, CCTA or coronary angiography) has been performed within the preceding sixty (60) days

**Prior Authorization Information**

**Inpatient**

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

**Outpatient**

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	<b>Outpatient</b>
<b>Commercial Managed Care (HMO and POS)</b>	The requirements of BCBSMA Radiology Management Program may require a precertification/prior authorization via AIM Specialty Health. These requirements are member-specific:
<b>Commercial PPO and Indemnity</b>	Please verify member eligibility and requirements through <b>Online Services</b> by logging onto <a href="#">Provider Central</a> . Refer to our <a href="#">Quick Tip</a> for an overview of pre-certification and prior authorization requirements.  Ordering clinicians should request pre-certification from <a href="#">AIM Specialty Health</a> or call 1-866-745-1783 (when applicable).  Prior authorization information for Medicare HMO Blue and Medicare PPO Blue is addressed in <a href="#">medical policy #923, High Technology Radiology and Sleep Disorder Management for Medicare Advantage Products</a> .

**CPT Codes / HCPCS Codes**

*Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.*

*Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.*

*The following codes are included below for informational purposes only; this is not an all-inclusive list.*

**The above medical necessity criteria **MUST** be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:**

**CPT Codes**

<b>CPT codes:</b>	<b>Code Description</b>
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75574	Computed tomographic angiography, heart, coronary arteries and bypass grafts (where present), with contrast material, including 3-D image post-processing (including evaluation of cardiac structure and morphology, assessment of cardiac function, and evaluation of venous structures, if performed)
0501T	Noninvasive estimated coronary fractional flow reserve (FFR) derived from coronary computed tomography angiography data using computation fluid dynamics physiologic simulation software analysis of functional data to assess the severity of coronary artery disease; data preparation and transmission, analysis of fluid dynamics and simulated maximal coronary hyperemia, generation of estimated FFR model, with anatomical data review in comparison with estimated FFR model to reconcile discordant data, interpretation and report
0502T	Data preparation and transmission
0503T	Analysis of fluid dynamics and simulated maximal coronary hyperemia, and generation of estimated FFR model
0504T	Anatomical data review in comparison with estimated FFR model to reconcile discordant data, interpretation and report

**Note: Codes 0501T–0504T are effective January 1, 2018. These codes should be reported if FFR is estimated from CCTA data.**

**The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT codes above if medical necessity criteria are met:**

### ICD-10 diagnosis coding

ICD-10 Diagnosis code	Description
C38.0	Malignant neoplasm of heart
C45.2	Mesothelioma of pericardium
C79.89	Secondary malignant neoplasm of other specified sites
D15.1	Benign neoplasm of heart
I01.8	Other acute rheumatic heart disease
I09.1	Rheumatic diseases of endocardium, valve unspecified
I09.81	Rheumatic heart failure
I20.0	Unstable angina
I20.1	Angina pectoris with documented spasm
I20.8	Other forms of angina pectoris
I20.9	Angina pectoris, unspecified
I24.0	Acute coronary thrombosis not resulting in myocardial infarction
I25.10	Atherosclerotic heart disease of native coronary artery without angina pectoris
I25.110	Atherosclerotic heart disease of native coronary artery with unstable angina pectoris
I25.111	Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm
I25.118	Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris
I25.119	Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris
I25.2	Old myocardial infarction
I25.3	Aneurysm of heart
I25.41	Coronary artery aneurysm
I25.42	Coronary artery dissection
I25.5	Ischemic cardiomyopathy
I25.6	Silent myocardial ischemia

I25.700	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unstable angina pectoris
I25.701	Atherosclerosis of coronary artery bypass graft(s), unspecified, with angina pectoris with documented spasm
I25.708	Atherosclerosis of coronary artery bypass graft(s), unspecified, with other forms of angina pectoris
I25.709	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unspecified angina pectoris
I25.710	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unstable angina pectoris
I25.711	Atherosclerosis of autologous vein coronary artery bypass graft(s) with angina pectoris with documented spasm
I25.718	Atherosclerosis of autologous vein coronary artery bypass graft(s) with other forms of angina pectoris
I25.719	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unspecified angina pectoris
I25.720	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unstable angina pectoris
I25.721	Atherosclerosis of autologous artery coronary artery bypass graft(s) with angina pectoris with documented spasm
I25.728	Atherosclerosis of autologous artery coronary artery bypass graft(s) with other forms of angina pectoris
I25.729	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unspecified angina pectoris
I25.730	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unstable angina pectoris
I25.731	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with angina pectoris with documented spasm
I25.738	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with other forms of angina pectoris
I25.739	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unspecified angina pectoris
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris
I25.790	Atherosclerosis of other coronary artery bypass graft(s) with unstable angina pectoris
I25.791	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris with documented spasm
I25.798	Atherosclerosis of other coronary artery bypass graft(s) with other forms of angina pectoris
I25.799	Atherosclerosis of other coronary artery bypass graft(s) with unspecified angina pectoris
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris

I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris
I25.89	Other forms of chronic ischemic heart disease
I25.9	Chronic ischemic heart disease, unspecified
I27.0	Primary pulmonary hypertension
I30.0	Acute nonspecific idiopathic pericarditis
I30.1	Infective pericarditis
I30.8	Other forms of acute pericarditis
I30.9	Acute pericarditis, unspecified
I31.0	Chronic adhesive pericarditis
I31.1	Chronic constrictive pericarditis
I31.3	Pericardial effusion (noninflammatory)
I31.4	Cardiac tamponade
I31.8	Other specified diseases of pericardium
I31.9	Disease of pericardium, unspecified
I33.0	Acute and subacute infective endocarditis
I33.9	Acute and subacute endocarditis, unspecified
I34.0	Nonrheumatic mitral (valve) insufficiency
I34.1	Nonrheumatic mitral (valve) prolapse
I34.2	Nonrheumatic mitral (valve) stenosis
I34.8	Other nonrheumatic mitral valve disorders
I34.9	Nonrheumatic mitral valve disorder, unspecified
I35.0	Nonrheumatic aortic (valve) stenosis
I35.1	Nonrheumatic aortic (valve) insufficiency
I35.2	Nonrheumatic aortic (valve) stenosis with insufficiency
I35.8	Other nonrheumatic aortic valve disorders
I35.9	Nonrheumatic aortic valve disorder, unspecified
I38	Endocarditis, valve unspecified
I42.0	Dilated cardiomyopathy
I42.1	Obstructive hypertrophic cardiomyopathy
I42.2	Other hypertrophic cardiomyopathy
I42.3	Endomyocardial (eosinophilic) disease
I42.4	Endocardial fibroelastosis
I42.5	Other restrictive cardiomyopathy
I42.6	Alcoholic cardiomyopathy
I42.7	Cardiomyopathy due to drug and external agent
I42.8	Other cardiomyopathies
I42.9	Cardiomyopathy, unspecified
I43	Cardiomyopathy in diseases classified elsewhere
I48.0	Paroxysmal atrial fibrillation
I48.1	Persistent atrial fibrillation
I48.2	Chronic atrial fibrillation
I48.3	Typical atrial flutter

I48.4	Atypical atrial flutter
I48.91	Unspecified atrial fibrillation
I48.92	Unspecified atrial flutter
I49.01	Ventricular fibrillation
I49.02	Ventricular flutter
I50.9	Heart failure, unspecified
I51.81	Takotsubo syndrome
I51.9	Heart disease, unspecified
I71.01	Dissection of thoracic aorta
I71.1	Thoracic aortic aneurysm, ruptured
I71.2	Thoracic aortic aneurysm, without rupture
I71.8	Aortic aneurysm of unspecified site, ruptured
I71.9	Aortic aneurysm of unspecified site, without rupture
I74.11	Embolism and thrombosis of thoracic aorta
M31.4	Aortic arch syndrome [Takayasu]
M54.2	Cervicalgia
M54.6	Pain in thoracic spine
M54.89	Other dorsalgia
M54.9	Dorsalgia, unspecified
M79.601	Pain in right arm
M79.602	Pain in left arm
M79.603	Pain in arm, unspecified
M79.621	Pain in right upper arm
M79.629	Pain in left upper arm
Q20.1	Double outlet right ventricle
Q20.2	Double outlet left ventricle
Q20.3	Discordant ventriculoarterial connection
Q20.4	Double inlet ventricle
Q20.5	Discordant atrioventricular connection
Q20.6	Isomerism of atrial appendages
Q20.8	Other congenital malformations of cardiac chambers and connections
Q20.9	Congenital malformation of cardiac chambers and connections, unspecified
Q21.0	Ventricular septal defect
Q21.1	Atrial septal defect
Q21.2	Atrioventricular septal defect
Q21.3	Tetralogy of Fallot
Q21.4	Aortopulmonary septal defect
Q21.8	Other congenital malformations of cardiac septa
Q21.9	Congenital malformation of cardiac septum, unspecified
Q22.0	Pulmonary valve atresia
Q22.1	Congenital pulmonary valve stenosis
Q22.2	Congenital pulmonary valve insufficiency
Q22.3	Other congenital malformations of pulmonary valve

Q22.4	Congenital tricuspid stenosis
Q22.5	Ebstein's anomaly
Q22.6	Hypoplastic right heart syndrome
Q22.8	Other congenital malformations of tricuspid valve
Q22.9	Congenital malformation of tricuspid valve, unspecified
Q23.0	Congenital stenosis of aortic valve
Q23.1	Congenital insufficiency of aortic valve
Q23.2	Congenital mitral stenosis
Q23.3	Congenital mitral insufficiency
Q23.4	Hypoplastic left heart syndrome
Q23.8	Other congenital malformations of aortic and mitral valves
Q23.9	Congenital malformation of aortic and mitral valves, unspecified
Q24.0	Dextrocardia
Q24.1	Levocardia
Q24.2	Cor triatriatum
Q24.3	Pulmonary infundibular stenosis
Q24.4	Congenital subaortic stenosis
Q24.5	Malformation of coronary vessels
Q24.8	Other specified congenital malformations of heart
Q24.9	Congenital malformation of heart, unspecified
Q25.0	Patent ductus arteriosus
Q25.1	Coarctation of aorta
Q25.2	Atresia of aorta
Q25.3	Supravalvular aortic stenosis
Q25.4	Other congenital malformations of aorta
Q25.5	Atresia of pulmonary artery
Q25.6	Stenosis of pulmonary artery
Q25.71	Coarctation of pulmonary artery
Q25.72	Congenital pulmonary arteriovenous malformation
Q25.79	Other congenital malformations of pulmonary artery
Q25.8	Other congenital malformations of other great arteries
Q25.9	Congenital malformation of great arteries, unspecified
Q26.0	Congenital stenosis of vena cava
Q26.1	Persistent left superior vena cava
Q26.2	Total anomalous pulmonary venous connection
Q26.3	Partial anomalous pulmonary venous connection
Q26.4	Anomalous pulmonary venous connection, unspecified
Q26.8	Other congenital malformations of great veins
Q26.9	Congenital malformation of great vein, unspecified
Q79.6	Ehlers-Danlos syndrome
Q87.40	Marfan's syndrome, unspecified
Q87.410	Marfan's syndrome with aortic dilation
Q87.418	Marfan's syndrome with other cardiovascular manifestations



Q87.42	Marfan's syndrome with ocular manifestations
Q87.43	Marfan's syndrome with skeletal manifestation
R00.0	Tachycardia, unspecified
R00.2	Palpitations
R06.00	Dyspnea, unspecified
R06.02	Shortness of breath
R06.03	Acute respiratory distress
R06.09	Other forms of dyspnea
R06.89	Other abnormalities of breathing
R06.9	Unspecified abnormalities of breathing
R07.1	Chest pain on breathing
R07.2	Precordial pain
R07.82	Intercostal pain
R07.89	Other chest pain
R07.9	Chest pain, unspecified
R10.13	Epigastric pain
R11.0	Nausea
R11.10	Vomiting, unspecified
R11.11	Vomiting without nausea
R11.12	Projectile vomiting
R11.14	Bilious vomiting
R11.2	Nausea with vomiting, unspecified
R42	Dizziness and giddiness
R53.1	Weakness
R53.83	Other fatigue
R55	Syncope and collapse
R60.0	Localized edema
R61	Generalized hyperhidrosis
R68.64	Jaw Pain
R93.1	Abnormal findings on diagnostic imaging of heart and coronary circulation
R94.30	Abnormal result of cardiovascular function study, unspecified
R94.31	Abnormal electrocardiogram [ECG] [EKG]
R94.39	Abnormal result of other cardiovascular function study
Z01.810	Encounter for preprocedural cardiovascular examination
Z45.010	Encounter for checking and testing of cardiac pacemaker pulse generator [battery]
Z45.018	Encounter for adjustment and management of other part of cardiac pacemaker

## Policy History

Date	Action
1/2019	Medically necessary indications revised. Effective 1/27/2019. AIM Clinical Appropriateness Guidelines: Advanced Imaging: Cardiac Imaging. Effective Date: January 27, 2019.
9/2018	Links to the European High Risk Chart CAD Score and European Association of Preventive Cardiology HeartScore added under endnotes. 9/12/2018

1/2018	Prior authorization information for Medicare HMO Blue and Medicare PPO Blue removed. Prior authorization information for Medicare HMO Blue and Medicare PPO Blue is addressed in medical policy <a href="#">#923, High Technology Radiology and Sleep Disorder Management for Medicare Advantage Products</a> . 1/1/2018
8/2017	Local Coverage Determination (LCD): Cardiac Computed Tomography (CCT) and Coronary Computed Tomography Angiography (CCTA) (L33559) added for Medicare Advantage members. 8/1/2017
5/2017	Prior Authorization Information clarified. 5/1/2017
10/1/2016	New medical policy describing medically necessary indications. Effective 10/1/2016. Adopted AIM Clinical Appropriateness Guidelines: Advanced Imaging: Cardiac Imaging Effective Date: March 1, 2016.

## Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

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## Endnotes

<sup>1</sup> Based on AIM Clinical Appropriateness Guidelines: Advanced Imaging: Cardiac Imaging.

<sup>2</sup> [European High Risk Chart – CAD Score](#); [European Association of Preventive Cardiology HeartScore](#)