

MEDICAL POLICY

Medical Policy Title	Positron Emission Tomography (PET) - Non-Oncologic Applications
Policy Number	6.01.07
Current Effective Date	October 15, 2026
Next Review Date	June 2027

Our medical policies are guides to evaluate technologies or services for medical necessity. Criteria are established through the assessment of evidence based, peer-reviewed scientific literature, and national professional guidelines. Federal and state law(s), regulatory mandates and the member's subscriber contract language are considered first in the determination of a covered service. (Link to [Product Disclaimer](#))

POLICY STATEMENT(S)

Abdominal Imaging

- I. Positron emission tomography/computed tomography (PET/CT) imaging is **medically appropriate** for lymphoproliferative disorders for **ANY** of the following indications:
 - A. Prior to biopsy to determine a more favorable site for biopsy, when a prior biopsy was nondiagnostic;
 - B. An inaccessible site is contemplated which would require invasive surgical intervention for biopsy attempt;
 - C. If biopsy is inconclusive.
- II. PET/CT imaging is **medically appropriate** when the following indication specific criteria are met:
 - A. Sclerosing mesenteritis or mesenteric panniculitis and **ALL** of the following:
 1. Follow-up imaging is asymptomatic;
 2. Sequential imaging to monitor for the development of malignancy; **and**
 3. If the lymph nodes are greater than or equal to 10mm;
 - B. Incidental non-diagnostic splenic findings on CT or magnetic resonance imaging (MRI) for **either** of the following indications:
 1. Prior imaging is available and there is a lack of stability in findings; **or**
 2. No known malignancy and **all** of the following criteria are met:
 - a. Suspicious imaging features;
 - b. MRI abdomen is inconclusive; **and**
 - c. biopsy is not feasible;
 - C. Retroperitoneal fibrosis when **either** of the following indications are met:

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 2 of 21

1. After diagnosis, to establish avidity patterns to assess for the likelihood of malignancy and for stratification for the likelihood of response to steroids; **or**
2. Follow-up, if there is documentation of an anticipated therapeutic change based on the results (such as a change in immunosuppression therapy or stent removal).

Cardiac Imaging

- III. Cardiac PET perfusion imaging is considered **medically appropriate** for **EITHER** of the following indications:
- A. When requested after an equivocal nuclear perfusion (SPECT MPI) stress test;
 - B. To conduct routine, post-heart transplant assessment of transplant CAD.
- IV. Cardiac PET or PET-metabolic or perfusion is considered **medically appropriate** for **ANY** of the following indications:
- A. To determine myocardial viability in patients with severe left ventricular dysfunction as a technique to determine candidacy for a revascularization procedure;
 - B. Suspected cardiac sarcoidosis with **any** of the following:
 1. Initial imaging when there is a contraindication to MRI imaging (non-MRI safe pacemaker, renal failure);
 2. Initial cardiac MRI is equivocal, or additional information is needed based on results from the MRI;
 3. To confirm diagnosis if suggested by MRI; **or**
 4. Initial imaging to evaluate for suspected cardiac sarcoidosis when there is documented sarcoidosis outside of the heart;
 - C. To monitor therapy in cardiac sarcoidosis (Requires PET with F-18 FDG metabolic study combined with a PET perfusion study or PET metabolic study) for **either** of the following:
 1. Prior to treatment of cardiac sarcoidosis; **or**
 2. PET (heart FDG metabolic with perfusion) can be repeated at 3–6-month intervals if there is active disease or to make therapeutic decisions;
 - D. Any **one** of the following radiotracers is **medically appropriate** for the use in any of the above listed cardiac indications:
 1. Fluorodeoxyglucose (FDG);
 2. Rubidium 82 (Rb-82);
 3. Nitrogen ammonia 13 (ammonia N-13).
- V. FDG PET/CT is considered **medically appropriate** for use in the assessment of **ANY** of the following conditions when indication specific criteria have been met:
- A. Suspected prosthetic heart valve endocarditis when **all** of the following criteria are met:

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 3 of 21

1. Transthoracic electrocardiogram (TTE) or transesophageal echocardiography (TEE) are equivocal or nondiagnostic and suspicion remains high;
 2. C-reactive protein level greater or equal to 40 mg/L;
 3. No evidence of prolonged antibiotic therapy;
 4. The implantation was greater or equal to three (3) months ago; **and**
 5. There is no evidence of surgical adhesives used during the valve implantation;
- B. Left ventricular assist device (LVAD) driveline infection;
- C. Suspected LVAD driveline infection if other studies and examination remain inconclusive.

Absolute Quantitation Of Myocardial Blood Flow (AQMBF) PET

VI. AQMBF is considered **medically appropriate** to further evaluate cardiac function when included with cardiac PET perfusion.

Stress Testing with Imaging (PET Perfusion May Include Absolute Quantification of Myocardial Blood Flow [AQMBF])

VII. Stress test with imaging (including PET MPI) is considered **medically necessary** in **ANY** of the following clinical settings:

- A. Cardiac chest pain- new, recurrent or worsening;
- B. Prior history of PCI or CABG or a history of obstructive CAD and **any** of the following:
1. Cardiac chest pain;
 2. Anginal equivalents such as atypical chest pain, exertional dyspnea or exertional fatigue;
 3. Symptoms similar to prior ischemic episode; **or**
 4. New elevated troponin (with known CAD) after last evaluation with stress test, CCTA or diagnostic cardiac catheterization;
- C. New recurrent or worsening symptoms of chest pain, or new, recurrent, or worsening symptoms of exertional dyspnea or exertional fatigue that is not explained by another process and **any** of the following:
1. Individuals 50 years of age or above with **two (2) or more** of the following CV risk factors:
 - a. Diabetes;
 - b. Current cigarette smoking;
 - c. Family history of premature CAD;
 - d. Hypertension;
 - e. Hyperlipidemia;
 - f. History of adverse pregnancy outcomes (apos); **or**

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 4 of 21

2. The individual does not meet the medically necessary components needed for an ETT due to a history of **any** of the following:
 - a. Findings that may alter the ECG changes during exercise or are uninterpretable for ischemia on a stress test:
 - i. Complete Left Bundle Branch Block (bifascicular block involving right bundle branch and left anterior hemiblock does not render ECG uninterpretable for ischemia);
 - ii. Ventricular paced rhythm;
 - iii. Pre-excitation pattern such as Wolff-Parkinson-White;
 - iv. Greater or equal to 1.0mm ST segment depression (NOT nonspecific ST/T wave changes);
 - v. LVH with repolarization abnormalities, also called LVH with strain (NOT without repolarization abnormalities or by voltage criteria);
 - vi. T wave inversion in at least two contiguous inferior and/or lateral leads. This includes leads I, II, AVF, AVL, V5 or V6. (T wave inversion isolated in lead III or T wave inversion in lead V1 and V2 are not included);
 - vii. Individual on digitalis preparation; **or**
 3. Inconclusive ETT (exercise treadmill test) due to **any** of the following:
 - a. 85% maximum predicted heart rate achieved; **or**
 - b. Exercise ECG is uninterpretable for ischemia (for example due to development of rate-related left bundle branch block during exercise); **or**
 4. Abnormal ETT with **any** of the following results:
 - a. ST segment depression (horizontal or downsloping, greater or equal to 1.0 mm below baseline)
 - b. Development of chest pain;
 - c. Drop in systolic blood pressure greater than 10 mmHG during exercise;
 - d. Non-sustained ventricular tachycardia (VT) greater than or equal to 3 consecutive ventricular beats at a rate or greater than 100 beats/minute;
 - e. Sustained VT (ventricular rhythm at rate greater than 100 beats/minutes lasting greater than 30 seconds or requiring termination due to hemodynamic compromise in less than 30 seconds); **or**
 - f. Coronary artery calcium (CAC) score greater or equal to 100; **or**
 5. Inability to perform the exercise needed to achieve target heart rate (85% of the maximum age predicted heart rate or 220 minus the individual's age) on a treadmill or similar device (5 METs or greater) due to **any** of the following limitations:

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 5 of 21

- a. Unable to safely perform ETT due to gait disturbances, use of assistive devices, or other documented neuromuscular abnormalities;
 - b. Use of home oxygen for daily activity;
 - c. Documented activity-limiting dyspnea or heart failure;
 - d. Provider assessment that performing and ETT would be unsafe;
 - e. Unstable angina with concern for active acute coronary syndrome, or recent elevated troponin;
 - f. Severe aortic stenosis or other significant aortic valve disease; **or**
 - g. Severe hypertension that can not be controlled prior to stress testing;
- D. Individuals with suspected or known non-obstructive CAD such as myocardial infarction with no obstructive coronary arteries (MINOCA), ischemia with no obstructive coronary arteries (INOCA), or angina with no obstructive coronary arteries (ANOCA) to evaluate persistent symptoms of chest pain, exertional dyspnea, or exertional fatigue for Stress imaging with AQMBF in the setting of **any** of the following:
 1. A normal or equivocal ETT;
 2. A diagnosis of no obstructive CAD on CCTA or invasive coronary angiography with **either** of the following:
 - a. persistent symptoms despite medical management (beta-blockers, CCBs, nitrates, ranolazine, and ACE-Is); **or**
 - b. functional testing demonstrates myocardial ischemia (such as invasive coronary function testing or non-invasive stress testing without AQMBF);
- E. To evaluate heart failure or left ventricular systolic dysfunction when there is documentation of **any** of the following:
 1. New or worsening heart failure;
 2. New left ventricular systolic dysfunction (left ventricular ejection fraction less than 50%);
 3. Worsening left ventricular systolic dysfunction (decline in left ventricular ejection fraction greater or equal to 10%); **or**
 4. Significant ischemic ventricular dysfunction (suspected hibernating myocardium) to assess myocardial viability when there are persistent symptoms or heart failure and revascularization is being considered;
- F. Syncope of suspected ischemic etiology not otherwise explained;
- G. Sustained ventricular tachycardia (ventricular rhythm at rate >100 beats/minute lasting greater than 30 seconds or requiring termination due to hemodynamic compromise in less than 30 seconds);

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 6 of 21

- H. Non-sustained ventricular tachycardia greater than or equal to three (3) consecutive ventricular beats at rate greater than 100 beats/minute;
- I. Frequent PVCs (premature ventricular complexes) greater than 30 PVCs per hour;
- J. Prior to starting a Class IC antiarrhythmic agent (flecainide or propafenone) to assess for CAD and annually while taking the medication;
- K. To evaluate the functional significance of moderate stenosis with or without symptoms when there is documentation of **either** of the following:
 - 1. CCTA (coronary computed tomography angiography) with moderate stenosis (50 to 69%-CAD-RADS 3; **or**
 - 2. Invasive coronary angiography with intermediate severity stenosis and invasive physiological testing has not been done;
- L. Without symptoms and **any** of the following indications:
 - 1. Prior to starting Interleukin-2;
 - 2. An uninterpretable ECG as described in General Guidelines (CD 1.0) that has not been previously evaluated;
 - 3. Every 2 years if there is a history of silent ischemia (absence of ischemic symptoms or signs prior to objective demonstration of ischemia by stress testing and/or demonstration of obstructive CAD;
 - 4. Prior to starting a Class IC antiarrhythmic agent (flecainide or propafenone) to assess for CAD and annually while taking the medication; **or**
 - 5. Asymptomatic individual who has an ischemic EKG response on ETT (horizontal or downsloping ST depression ≥ 1.0 mm1.0mm below baseline).

Chest Imaging

VIII. PET/CT is considered **medically appropriate** for **ANY** of the following indications when criteria are met:

- A. Sarcoidosis:
 - 1. To help guide biopsy location if:
 - a. Known lesion on CT Chest is difficult to access, to help identify alternative biopsy location; **and**
 - b. No apparent lung involvement and to identify an extrapulmonary biopsy site;
 - 2. Differentiation of reversible granulomatous disease from irreversible pulmonary fibrosis and will affect treatment options;
 - 3. Help identify treatment failure where either current treatment will be modified, or treatment will be introduced;

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 7 of 21

- B. Mediastinal Lymphadenopathy:
 - 1. Enlarged lymph nodes greater or equal to 15mm with no explainable disease or increasing lymph node size on follow-up CT chest;
- C. Incidental Pulmonary Nodules Detected on CT Imaging:
 - 1. Greater or equal to 8mm solid lung nodule or solid component of a sub-solid nodule, not for ground glass opacity.

Musculoskeletal Imaging

- IX. FDG PET/CT is considered **medically appropriate** for evaluation of suspected bone infection when **ALL** of the following criteria have been met:
 - A. If MRI or CT is equivocal or cannot be done;
 - B. With **one** of the following indications:
 - 1. When infection is multifocal, **or**
 - 2. When the infection is associated with orthopedic hardware or chronic bone alterations from trauma or surgery.

Pelvis Imaging

- X. PET imaging for impotence/erectile dysfunction is considered **investigational**.

Peripheral Nerve Disorders (PND) Imaging

- XI. PET/CT is considered **not medically appropriate** in the evaluation of Gaucher disease.

Peripheral Vascular Disease (PVD) Imaging

- XII. PET imaging is **medically appropriate** for aortic root, arch or abdomen involvement if magnetic resonance angiography (MRA) or computed tomography angiography (CTA) are non-diagnostic and there is still suspicion for involvement.
- XIII. PET/CT imaging for peripheral vascular disorders is **medically appropriate** when **ALL** of the following criteria are met:
 - A. Clinical suspicion of aortic infection (graft or native aorta);
 - B. CT-angiogram is equivocal/indeterminate;
 - C. Indium-111 or Gallium-67 studies have **not** been performed **and** are not available or not technically feasible.
- XIV. PET/CT for initial staging in place of MRA or CTA of multiple areas when diffuse large vessel involvement, or occult vessel involvement is suspected is considered **medically necessary**.
- XV. PET is considered **medically necessary** when MRA or ultrasound (US) are equivocal and **ONE** of the following indications:
 - A. Temporal artery biopsy is negative and giant cell arteritis (GCA) is still suspected;

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 8 of 21

- B. Where the results would change clinical management.

Spine Imaging

XVI. FDG-PET/CT whole body (when x-ray or CT are abnormal, and MRI cannot be performed or is inconclusive) is **medically appropriate** when there is clinical suspicion of spinal infection and **ANY** of the following:

- A. Fever;
- B. History of intravenous (IV) drug use;
- C. Recent bacterial infection (UTIs, pyelonephritis, pneumonia);
- D. Recent spinal intervention (e.g., surgery, pain injection, or stimulator implantation);
- E. Immunocompromised states;
- F. Long term use of systematic glucocorticoids;
- G. Organ transplant recipients taking anti-rejection medication;
- H. Diabetes mellitus;
- I. HIV/AIDS;
- J. Chronic dialysis;
- K. Immunosuppressant therapy;
- L. Neoplastic involvement of the spine;
- M. Laboratory values indicative of infection (e.g., evaluated WBC, ESR, CRP, positive cultures);
- N. Decubitus ulcer or wound overlying spine;
- O. Abnormal x-ray or CT suspicious for infection.

XVII. Spine PET/CT for the routine assessment of spinal disorders, fusions, or unsuccessful spine surgery other than neoplastic disease is considered **not medically appropriate**.

RELATED POLICIES

Corporate Medical Policy

6.01.29 Positron Emission Tomography (PET) Oncologic Applications

7.01.30 Erectile Dysfunction

11.01.03 Experimental or Investigational Services

POLICY GUIDELINE(S)

- I. PET/CT is indicated for imaging of certain musculoskeletal conditions when MRI or CT is equivocal or cannot be performed.
- II. FDG is the only indicated radiotracer for use with PET/CT in the imaging of musculoskeletal

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 9 of 21

condition.

- III. 3D rendering, (CPT code 76376 or 76377), should not be billed in conjunction with PET imaging.
- IV. Target heart rate is calculated as 85% of maximum age predicted heart rate (MPHR). MPHR is estimated as 220 minus the individual's age.
- V. Absolute quantification of myocardial blood flow (AQMBF) at rest with stress in ml/g/min and the calculation of myocardial perfusion reserve (the ration of stress to rest flow) can be used for diagnosis and prognosis of coronary artery disease and cardiac endothelial dysfunction that can be seen in diabetes, left ventricular hypertrophy and heart transplantation vasculopathy.

High-Risk (greater than 5 %)	Intermediate-Risk (1-5 %)	Low-Risk (less than 1 %)
• Open aortic and other major open vascular surgery • Open peripheral vascular surgery • Esophagectomy • Pneumonectomy • Open intraperitoneal and/or intrathoracic surgery with organ resection	• Open intraperitoneal and/or intrathoracic surgery without major organ resection. • Open carotid endarterectomy • Head and neck surgery • Open orthopedic surgery • Open prostate surgery	• Endoscopic procedures • Superficial procedures • Cataract surgery • Breast surgery • Ambulatory surgery • Laparoscopic and endovascular procedures that are unlikely to require further extensive surgical intervention.

DESCRIPTION

PET scanning is an imaging technology that can reveal metabolic information in various tissue sites. It is the metabolic information that distinguishes PET scanning from other imaging modalities, such as magnetic resonance imaging (MRI) and computed tomography (CT), which provide primarily anatomic information. PET scans measure concentrations of radioactive chemicals that are partially metabolized in the body. PET scans are based on the use of positron emitting radionuclide tracers coupled to organic molecules such as glucose, ammonia, or water. Dedicated PET scanners consist of multiple detectors arranged in a full or partial ring around the patient.

A variety of radiotracers are used for PET scanning, including fluorine-18, rubidium-82, ammonia N-13, carbon-11, oxygen-15, and nitrogen-13. Fluorine-18 is often coupled with FDG as a means of detecting glucose metabolism, which, in turn, reflects the metabolic activity, and, thus, viability, of the target tissue. Because of their short half-life, tracers must be made locally. Apart from fluorine and rubidium, all the tracers must be manufactured with an on-site cyclotron.

Infective endocarditis (IE) is associated with significant morbidity and mortality, and its clinical

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 10 of 21

presentation is highly variable. IE is usually diagnosed using the modified Duke criteria, which rely on the presence of positive blood cultures and typical echocardiographic findings. The role of FDG PET/CT in assessing and managing infective endocarditis (IE), particularly device-related IE, is being investigated as FDG is taken up by inflammatory cells at the site of infection and/or inflammation. Given the high spatial and target-to-background contrast resolution of FDG PET/CT, recent publications including the TEPvENDO clinical trial (NCT02287792) advocate the use of FDG PET/CT for the detection of cardiac implantable device infections, as well as prosthetic valve endocarditis. A potential advantage of FDG PET/CT is in its detection of inflammatory cells early in the infectious process, before morphological damages occur.

PET/CT is a nuclear medicine/computed tomography (CT) fusion study that uses a positron emitting radiotracer to create cross-sectional and volumetric images based on tissue metabolism. PET imaging fusion with CT allows for better anatomic localization of the areas of abnormal increased tissue activity seen on PET.

SUPPORTIVE LITERATURE

Imamura et al (2025) conducted a retrospective study that evaluated 36 cardiac sarcoidosis (CS) patients treated with FDG–PET-guided immunosuppressive therapy from 2012 to 2017, tracking FDG uptake and outcomes over a median of 8.2 years. Patients with a one-year SUV_{max} greater than 4.5 had a markedly higher risk of adverse events ($p < 0.0001$), while those with a six-month SUV_{max} greater than 3.5 also faced elevated risk ($p = 0.035$). Additionally, lower left ventricular ejection fraction (LVEF $< 40\%$) correlated with poor outcomes, and patients requiring a final prednisolone dose of ≥ 10 mg had increased mortality ($p < 0.0001$). These findings highlight that persistent FDG uptake and poor response to immunosuppressive therapy are strong predictors of adverse prognosis, underscoring the importance of regular FDG–PET monitoring in cardiac sarcoidosis management.

Bayerl et al (2025) conducted an analysis of 50 patients with retroperitoneal fibrosis (RPF). The study aimed to evaluate the response to treatment in both $[^{18}F]$ FDG PET and CT, and potential baseline parameters for early prediction of progression. PET parameters included SUV_{max} , SUV_{mean} , SUV_{peak} , metabolic active volume (MAV), and morphologic measures, thickness (CT_{rim}) and cranio-caudal extension (CT_{cc}) of the retroperitoneal mass were measured. Therapy groups were placed into three groups, prednisolone, rituximab, and the combination of both. All PET parameters demonstrated significant correlations with CT_{rim} across all four timepoints, and both PET metrics and CT_{rim} decreased notably after therapy ($p \leq 0.021$). A strong metabolic and morphologic response was observed in the prednisolone group ($p \leq 0.003$) and the combination therapy group ($p \leq 0.001$). At follow-up 2 (FU2), eight patients showed disease progression, with baseline MAV emerging as a reliable predictor ($p = 0.041$; 217.33 vs. 100.86 ml). At FU2, SUV_{max} , SUV_{peak} , and MAV differed significantly between progression and non-progression groups ($p \leq 0.009$), while CT showed no significant differences. These findings highlight PET's superiority over CT for monitoring therapy in RPF, particularly for detecting progression at FU2. Higher baseline MAV correlated with progression, suggesting its potential as a predictive marker, though CT remains a viable option when PET is unavailable.

van der Geest et al (2021) conducted a systematic review and meta-analysis that evaluated the effectiveness of $[^{18}F]$ FDG-PET/CT for the treatment monitoring in large vessel vasculitis (LVV) by

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 11 of 21

analyzing 21 studies, with 8 included in the meta-analysis. Findings indicate that arterial [18F] FDG uptake decreases during clinical remission, though high heterogeneity limited pooled analysis of normalization rates. Cross-sectional data suggest moderate diagnostic accuracy for detecting active LVV, with sensitivity of 77% and specificity of 71%, but substantial variability was noted due to differences in clinical and imaging protocols. Overall, [18F] FDG-PET/CT can support treatment monitoring in LVV, but results should be interpreted alongside clinical context, emphasizing adherence to procedural guidelines.

PROFESSIONAL GUIDELINE(S)

Professional Society Guidelines/Recommendation Resource Grid

Professional Society	Title	Year/Version
American Society of Nuclear Cardiology	Clinical indications for positron emission tomography myocardial perfusion imaging and myocardial blood flow quantification: An American Society of Nuclear Cardiology position statement	2026
American College of Cardiology (ACC)/American Heart Association (AHA)/American College of Clinical Pharmacy (ACCP)/American Society for Preventative Cardiology (ASPC)/National Lipid Assoc. (NLA)/Preventative Cardiovascular Nurses Assoc. (PCNA)	Guideline for the Management of Patients with Chronic Coronary Disease	2023
American College of Radiology (ACR)	Appropriateness Criteria: • Chronic chest pain with high probability of CAD • Imaging After Total Knee Arthroplasty • Suspected Osteomyelitis, Septic Arthritis, or Soft Tissue Infection (Excluding Spine and Diabetic Foot) • Seizures and Epilepsy • Crohn Disease • Suspected Osteomyelitis of the	(See reference section for weblink and years)

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 12 of 21

	Foot in Patients with Diabetes Mellitus • Noncerebral Vasculitis	
Society of Nuclear Medicine and Molecular Imaging (SNMMI)		(See reference section for weblink and years)
American Academy of Orthopaedic Surgeons (AAOS)	Diagnosis and prevention of periprosthetic joint infections evidence-based clinical practice guideline	2019
AHA/ACC/American Society of Echocardiography (ASE)/American College of Chest Physicians/Society of Academic Emergency Medicine (SAEM)/Society of Cardiovascular Computed Tomography (SCCT)/Society of Cardiovascular Magnetic Resonance (SCMR)	Guideline for the Evaluation and Diagnosis of Chest Pain	2021
American Society of Nuclear Cardiology and the Society of Nuclear Medicine and Molecular Imaging	Practical guides for interpreting and reporting cardiac positron emission tomography (PET) measurements of myocardial blood flow.	2021
ACC/AHA	Guideline for the Diagnosis and Management of Aortic Disease	2022

The American Society of Nuclear Medicine, the American College of Cardiology and the Society of Nuclear Medicine and Molecular Imaging agree that to minimize variables AQMBF should only be considered when performed by (all):

- Laboratories that are Intersocietal Accreditation Commission (IAC), American College of Radiology (ACR), or Joint Commission cardiac PET accredited.
- Interpreting physician(s) must be board certified in Nuclear Cardiology (CBNC), Nuclear Medicine (ABNM), or Radiology (ABR) and have additional training in measuring AQMBF.
- Individual laboratories should have a standard protocol (same tracer, camera, software, stressor, model etc.) for use for all patients.
- Reports should contain rest myocardial blood flow (MBF) and stress MBF in ml/g/min, and myocardial blood flow reserve (MBFR) reported as the ratio of the stress to rest MBF (with

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 13 of 21

normal limits).

- Laboratories should have the ability to perform rate-pressure-product (RPP) correction and include true measured resting MBF and MBFR as well as the RPP-corrected resting MBF and RPP-corrected MBFR in the conclusions of the report.

REGULATORY STATUS

Refer to the FDA Medical Device website. Available from: <https://www.fda.gov/medical-devices> [accessed 2026 May 13]

Medical Devices

The United States Food and Drug Administration (FDA) regulates imaging devices as medical devices. All imaging devices including related components require FDA approval before marketing and use in the United States to ensure they are safe and effective for human use. Refer to the FDA Medical Device website. Available from: <https://www.fda.gov/medical-devices> [accessed 2026 May 18]

The FDA lists the most serious type of medical device recalls as well as early alert communications about corrective actions being taken by companies that the FDA believes are likely to be the most serious type of recalls on our website by the date that the FDA posts the information on our website. Available from: [Medical Device Recalls | FDA](#) [accessed 2026 May 18]

Drugs

The United States Food and Drug Administration (FDA) is responsible for ensuring the safety, efficacy, and quality of drugs sold in the United States. This includes both prescription and over-the-counter medications. Refer to the FDA Drug website. Available from: <https://www.fda.gov/drugs> [accessed 2026 May 18]

The FDA maintains information for consumers and health professionals on new drug warnings and other safety information, drug label changes, and shortages of medically necessary drug products. Available from: [Drug Safety and Availability | FDA](#) [accessed 2026 May 18]

The FDA also regulates drug manufacturing processes in PET facilities. In 1991, the FDA approved the use of Rubidium 82 (Rb 82) as a myocardial perfusion tracer and, in 1999, approved the use of ammonia N-13 as a myocardial perfusion tracer.

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CPT Codes

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications**Policy Number: 6.01.07****Page: 14 of 21**

Code	Description
78429	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study; with concurrently acquired computed tomography transmission scan
78430	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic), with concurrently acquired computed tomography transmission scan
78431	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic), with concurrently acquired computed tomography transmission scan
78432	Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (e.g., myocardial viability)
78433	Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (e.g., myocardial viability); with concurrently acquired computed tomography transmission scan
78434	Absolute quantification of myocardial blood flow (AQMBF), positron emission tomography (PET), rest and pharmacologic stress (List separately in addition to code for primary procedure)
78459	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s]; when performed), single study
78491	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic)
78492	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic)
78811	Positron emission tomography (PET) imaging; limited area (e.g., chest, head/neck)
78812	skull base to mid-thigh
78813	whole body

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications**Policy Number: 6.01.07****Page: 15 of 21**

Code	Description
78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (e.g., chest, head/neck)
78815	skull base to mid-thigh
78816	whole body

Copyright © 2026 American Medical Association, Chicago, IL

HCPCS Codes

Code	Description
A9526	Nitrogen N-13 ammonia, diagnostic, per study dose, up to 40 millicuries
A9552	Fluorodeoxyglucose F-18 FDG, diagnostic, per study dose, up to 45 millicuries
A9555	Rubidium Rb-82, diagnostic, per study dose, up to 60 millicuries
A9586	Florbetapir F18, diagnostic, per study dose, up to 10 millicuries (e.g., Amyvid)
A9598	Positron emission tomography radiopharmaceutical, diagnostic, for non-tumor identification, not otherwise classified
A9601	Flortaucipir f 18 injection, diagnostic, 1 millicurie (e.g., Tauvid)
A9602	Fluorodopa f-18, diagnostic, per millicurie
Q9982	Flutemetamol F18, diagnostic, per study dose, up to 5 millicuries (e.g., Vizamyl)
Q9983	Florbetaben F18, diagnostic, per study dose, up to 8.1 millicuries (e.g., Neuraceq)
S8085 (E/I)	Fluorine-18 fluorodeoxyglucose (F-18 FDG) imaging using dual-head coincidence detection system (non-dedicated PET scan)

ICD10 Codes

Code	Description
D33.0-D33.9	Benign neoplasm of brain and other parts of central nervous system (code range)
D43.0-D43.9	Neoplasm of uncertain behavior of brain and central nervous system (code range)
I25.10-I25.119	Atherosclerotic heart disease of native coronary artery with or without angina pectoris (code range)
I25.700-I25.739	Atherosclerosis of autologous or nonautologous vein or artery coronary artery bypass graft(s) with angina pectoris (code range)

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 16 of 21

Code	Description
I25.790- I25.799	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris (code range)
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris
I51.9	Heart disease, unspecified
I52	Other heart disorders in diseases classified elsewhere
K65.4	Sclerosing mesenteritis
M86.30- M86.69	Chronic osteomyelitis (code range)

REFERENCES

American Academy of Orthopaedic Surgeons (AAOS) [Internet]. Diagnosis and prevention of periprosthetic joint infections evidence-based clinical practice guideline. Guideline 2019 Mar; [accessed 2026 May 13]. Available from: <https://www.aaos.org/globalassets/quality-and-practice-resources/pji/diagnosisandpreventionofperiprostheticjointinfections-7-24-19.pdf>

American College of Radiology (ACR) [Internet]. ACR appropriateness criteria: Crohn disease. 2019; [revised 2019; accessed 2026 May 13]. Available from: <https://acsearch.acr.org/docs/69470/Narrative/>

American College of Radiology (ACR) [Internet]. ACR appropriateness criteria: imaging after total knee arthroplasty. 2017; [revised 2023; accessed 2026 May 13]. Available from: <https://acsearch.acr.org/docs/69430/Narrative/>

American College of Radiology [Internet]. ACR appropriateness criteria: noncerebral vasculitis. [revised 2021; accessed 2026 May 13]. Available from: <https://acsearch.acr.org/docs/3158180/Narrative/>

American College of Radiology (ACR) [Internet]. ACR appropriateness criteria: seizures and epilepsy. 2019; [revised 2019; accessed 2026 May 13]. Available from: <https://acsearch.acr.org/docs/69479/Narrative/>

American College of Radiology (ACR) [Internet]. ACR appropriateness criteria: suspected osteomyelitis, septic arthritis, or soft tissue infection (excluding spine and diabetic foot) 2022; [revised 2022; accessed 2026 May 13]. Available from: <https://acsearch.acr.org/docs/3094201/Narrative/>

Bateman TM, et al. Clinical indications for positron emission tomography myocardial perfusion imaging and myocardial blood flow quantification: An American Society of Nuclear Cardiology position statement. J Nucl Cardiol. 2026 Mar;57:102619.

Bateman TM, et al. Practical guide for interpreting and reporting cardiac PET measurements of

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 17 of 21

myocardial blood flow: an information statement from the American Society of Nuclear Cardiology, and the Society of Nuclear Medicine and Molecular Imaging. *J Nucl Cardiol.* 2021;28(2):768-787.

Bayerl C, et al. [¹⁸F] FDG PET/CT for treatment monitoring and prediction of progression in retroperitoneal fibrosis. *Eur J Nucl Med Mol Imaging.* 2025 Aug 14.

Castaigne C, et al. Clinical value of FDG-PET/CT for the diagnosis of human immunodeficiency virus-associated fever of unknown origin: a retrospective study. *Nuclear Medicine Communic.* 2009;30:41–47.

deWinter F, et al. Fluorine-18-fluorodeoxyglucose-positron emission tomography: a highly accurate imaging modality for the diagnosis of chronic musculoskeletal infections. *J Bone Joint Surg Am.* 2001 May;83-A(5):651-660.

Dhar R, et al. Rubidium-82 positron emission tomography imaging: an overview for the general cardiologist. *Cardiol Rev.* 2011 Sep-Oct;19(6):255-63.

Dietz M, et al. Overview of the RGD-Based PET agents use in patients with cardiovascular diseases: a systematic review. *Frontiers in Medicine.* 2022;9:887508.

Duval X, et al. Impact of systematic whole-body 18F-Fluorodeoxyglucose PET/CT on the management of patients suspected of infective endocarditis: the prospective multicenter TEPvENDO Study. *Clinical Infectious Diseases.* 2021 Aug 2;73(3):393-403.

Earls JP, et al. ACR Appropriateness Criteria(R) chronic chest pain--high probability of coronary artery disease. *J Am Coll Radiol.* 2011;8(10):679-86.

Fleisher LA, et al. ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery: a report of the American College of Cardiology/American Heart Association task force on practice guidelines. *Circulation.* 2007;116:e418-500.

Greenland P, et al. 2010 ACCF/AHA guideline for assessment of cardiovascular risk in asymptomatic adults: a report of the American College of Cardiology Foundation/American Heart Association Task Force on practice guidelines developed in collaboration with the American Society of Echocardiography, American Society of Nuclear Cardiology, Society of Atherosclerosis Imaging and Prevention, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, and Society for Cardiovascular Magnetic Resonance. *J Am Coll Cardiol.* 2010;56:e50-103.

Guhlmann A, et al. Fluorine-18-FDG PET and technetium-99m antigranulocyte antibody scintigraphy in chronic osteomyelitis. *J Nucl Med.* 1998 Dec;39(12):2145-2152.

Gulati M, et al. 2021 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR guideline for the evaluation and diagnosis of chest pain: a report of the American college of cardiology/American heart association joint committee on clinical practice guidelines. *J Cardiovasc Comput Tomogr.* 2022 Jan-Feb;16(1):54-122.

Hartmann A, et al. Diagnostic value of 18F-FDG PET/CT in trauma patients with suspected chronic osteomyelitis. *Eur J Nucl Med Mol Imaging.* 2007 May;34(5):704-714.

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 18 of 21

Hendel KA, et al. ACCF/ASNC/ACF/AHA/ASE/SCCT/SCMR/SNM 2009 appropriate use criteria for cardiac radionuclide imaging. *J Am Coll Cardiol*. 2009;59:2201-29.

Ibrahim T, et al. Assessment of coronary flow reserve: comparison between contrast-enhanced magnetic resonance imaging and positron emission tomography. *J Am Coll Cardiol*. 2002 Mar 6;39(5):864-70.

Imamura Y, et al. Long term prognosis in cardiac sarcoidosis under FDG-PET guided immunosuppressive therapy. *Int J Cardiol*. 2025 Aug 1;432:133273.

Isselbacher EM, et al. 2022 ACC/AHA guideline for the diagnosis and management of aortic disease: a report of the American heart association/American college of cardiology joint committee on clinical practice guidelines. *J Am Coll Cardiol*. 2022 Dec 13;80(24):e223-e393.

Jaarsma C, et al. Diagnostic performance of noninvasive myocardial perfusion imaging using single-photon emission computed tomography, cardiac magnetic resonance, and positron emission tomography imaging for the detection of obstructive coronary artery disease: a meta-analysis. *J Am Coll Cardiol*. 2012;59(19):1719-28.

Kanayama S, et al. Assessment of global and regional left ventricular function by electrocardiographic gated N-13 ammonia positron emission tomography in patients with coronary artery disease. *Circ J*. 2005 Feb;69(2):177-82.

Kwee TC, et al. FDG-PET for diagnosing prosthetic joint infection: a systematic review and metaanalysis. *Eur J Nucl Med Mol Imaging*. 2008;35:2122–2132.

Lauri C, et al. Imaging modalities for the diagnosis of vascular graft infections: a consensus paper amongst different specialists. *J Clin Med*. 2020 May 17;9(5):1510.

Lucinian YA, et al. FDG-PET/CT for the Detection of Infection Following Aortic Root Replacement Surgery. *JACC Cardiovasc Imaging*. 2020 Jun;13(6):1447-1449.

Maaniitty T, et al. Extensive and balanced reduction of myocardial blood flow in patients with suspected obstructive coronary artery disease: 15O-water PET study. *International Journal of Cardiology*. 2021;338:1-7.

Moody JB, et al. Added value of myocardial blood flow using 18F-flurpiridaz PET to diagnose coronary artery disease: The flurpiridaz 301 trial. *J Nucl Cardiol*. 2021;28:2313-2329.

Nakazato R, et al. Myocardial perfusion imaging with PET. *Imaging Med*. 2013 Feb1;5(1):35-46.

Ngo V, et al. Improving detection of CAD and prognosis with PET/CT quantitative absolute myocardial blood flow measurements. *Curr Cardiol*. 2022 Dec;24(12):1855-1864.

Parker MW, et al. Diagnostic accuracy of cardiac positron emission tomography versus single photon emission computed tomography for coronary artery disease: a bivariate meta-analysis. *Circ Cardiovasc Imaging*. 2012 Nov;5(6):700-7.

Petzinna SM, et al. Advanced imaging of relapse in giant cell arteritis: The role of vascular adhesion protein-1 and [⁶⁸Ga] Ga-DOTA-Siglec-9 positron emission tomography-computed tomography. *J Intern Med*. 2025 Jun 26;298(2):138–42.

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 19 of 21

Reinders Folmer EI, et al. A systematic review and meta-analysis of ^{18}F -fluoro-d-deoxyglucose positron emission tomography interpretation methods in vascular graft and endograft infection. J Vasc Surg. 2020 Dec;72(6):2174-2185.e2.

Santana CA, et al. Incremental prognostic value of left ventricular function by myocardial ECG-gated FDG PET imaging in patients with ischemic cardiomyopathy. J Nucl Cardiol. 2004 Sep-Oct;11(5):542-50.

Sevag Packard RR, et al. ^{18}F -flurpiridaz positron emission tomography segmental and territory myocardial blood flow metrics: incremental value beyond perfusion for coronary artery disease categorization. European Heart Journal-Cardiovascular Imaging. 2022;23:1636-1644.

Singh TP, et al. Positron emission tomography myocardial perfusion imaging in children with suspected coronary abnormalities. Pediatr Cardiol. 2003 Mar-Apr;24(2):138-44.

Slart RH, et al. Prediction of functional recovery after revascularization in patients with chronic ischaemic left ventricular dysfunction: head-to-head comparison between (99m)Tc-sestamibi/(18)F-FDG DISA SPECT and (13)N-ammonia/(18)F-FDG PET. Eur J Nucl Med Mol Imag. 2006 Jun;33(6):716-23.

Society of Nuclear Medicine & Molecular Imaging [Internet]. Clinical guidelines and appropriate use criteria. [accessed 2026 May 13]. Available from: <https://www.snmni.org/ClinicalPractice/content.aspx?ItemNumber=6414&navItemNumber=10790#General>

Swart LE, et al. Improving the diagnostic performance of ^{18}F -Fluorodeoxyglucose positron-emission tomography/computed tomography in prosthetic heart valve endocarditis. Circulation. 2018;138:1412-1427.

Tam MC, et al. Diagnostic accuracy of FDG PET/CT in suspected LVAD Infections: A case series, systematic review, and Meta-analysis. JACC Cardiovasc. Imaging. 2020;13:1191-1202.

Ten Hove, et al. The value of ^{18}F -FDG PET/CT for the diagnosis of device-related infections in patients with a left ventricular assist device: a systematic review and meta-analysis. European Journal of Nuclear Medicine and Molecular Imaging. 2021;48:241-253.

van der Geest KSM, et al. Diagnostic value of [^{18}F] FDG-PET/CT for treatment monitoring in large vessel vasculitis: a systematic review and meta-analysis. Eur J Nucl Med Mol Imaging. 2021 Nov;48(12):3886-3902.

Virani SS, et al. 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease: a report of the American Heart Association/American College of Cardiology joint committee on clinical practice guidelines. J Am Coll Cardiol. 2023 Jul 14:S0735-1097

Walter MA, et al. The value of [^{18}F] FDG-PET in the diagnosis of large-vessel vasculitis and the assessment of activity and extent of disease. Eur J Nucl Med Mol Imag. 2005 Jun;32(6):674-81.

SEARCH TERMS

Not Applicable

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 20 of 21

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

PET Imaging for Cardiac

[PET for Perfusion of the Heart \(NCD 220.6.1\)](#) [accessed 2026 May 13]

[FDG PET for Myocardial Viability \(NCD 220.6.8\)](#) [accessed 2026 May 13]

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

11/18/99, 04/19/00, 04/19/01, 01/17/02, 10/16/02, 01/16/03, 10/15/03, 10/20/04, 10/20/05, 11/16/06, 08/16/07, 08/21/08, 09/17/09, 12/16/10, 01/20/11, 12/15/11, 01/17/13, 05/22/14, 02/19/15, 02/18/16, 02/16/17, 02/15/18, 06/20/19, 03/19/20, 03/18/21, 02/17/22, 09/15/22, 11/16/23, 04/18/24, 10/17/24, 12/19/24, 06/26/25, 09/18/25, 01/22/26, 06/18/26

Date	Summary of Changes
06/18/26	• Off cycle review. Added new criteria for AQMBF with PET and Stress Testing with Imaging including PET MPI.
01/22/26	• Off cycle review. • Abdominal imaging: Medically appropriate criteria was added for PET/CT for the following indications: sclerosing mesenteritis, incidental non-diagnostic splenic findings, retroperitoneal fibrosis. • Chest imaging: Added additional indications for PET/CT of the chest: mediastinal lymphadenopathy and Incidental pulmonary nodule detected by CT. • Removed all head imaging criteria and moved it to the new PET Head Imaging Policy #6.01.47. • Spine imaging: New medically appropriate statement for spinal infections with

Medical Policy: Positron Emission Tomography (PET) - Non-Oncologic Applications

Policy Number: 6.01.07

Page: 21 of 21

	- specific criteria. - PVD imaging: Medically necessary statement added for PET/CT for initial staging in place of MRA or CTA of multiple areas when diffuse large vessel involvement. - Removed not medically necessary statement for inflammation of cranial arteries. - Added new medically necessary statement for PET when MRA or ultrasound are equivocal for specific indications.
09/18/25	Off cycle review, removed criteria for cardiac PET regarding body mass, breast size or implants and exercise requirements. Replaced with criteria allowing cardiac PET when a nuclear perfusion stress test is equivocal.
06/26/25	Off cycle review, no changes to the intent of the policy. Removed E/I from radiotracers that are FDA approved.
01/01/25	Summary of changes tracking implemented.
11/18/99	Original effective date