MEDICAL POLICY

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Medical Policy Title	**Positron Emission Tomography (PET) - Non-Oncologic Applications**
Policy Number	**6.01.07**
Current Effective Date	**May 15, 2026**
Next Review Date	**January 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)

I. Abdominal Imaging

A. Positron emission tomography/computed tomography (PET/CT) imaging is **medically appropriate** for lymphoproliferative disorders for **ANY** of the following indications:

1. Prior to biopsy to determine a more favorable site for biopsy, when a prior biopsy was nondiagnostic;
2. An inaccessible site is contemplated which would require invasive surgical intervention for biopsy attempt;
3. If biopsy is inconclusive.

B. PET/CT imaging is **medically appropriate** when the following indication specific criteria are met:

1. Sclerosing mesenteritis or mesenteric panniculitis and **ALL** of the following:
   a. Follow-up imaging is asymptomatic;
   b. Sequential imaging to monitor for the development of malignancy; **and**
   c. If the lymph nodes are greater than or equal to 10mm;
2. Incidental non-diagnostic splenic findings on CT or magnetic resonance imaging (MRI) for **either** of the following indications:
   a. Prior imaging is available and there is a lack of stability in findings; **or**
   b. No known malignancy and **all** of the following criteria are met:
      i. Suspicious imaging features;
      ii. MRI abdomen is inconclusive; **and**
      iii. biopsy is not feasible;
3. Retroperitoneal fibrosis when **either** of the following indications are met:

a. After diagnosis, to establish avidity patterns to assess for the likelihood of malignancy and for stratification for the likelihood of response to steroids; **or**

b. 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).

II. Cardiac Imaging

A. Cardiac PET perfusion imaging is considered **medically appropriate** for **EITHER** of the following indications:

1. When requested after an equivocal nuclear perfusion (SPECT MPI) stress test;
2. To conduct routine, post-heart transplant assessment of transplant CAD.

B. Cardiac PET or PET-metabolic or perfusion is considered **medically appropriate** for **ANY** of the following indications:

1. To determine myocardial viability in patients with severe left ventricular dysfunction as a technique to determine candidacy for a revascularization procedure;
2. Suspected cardiac sarcoidosis with **any** of the following:
   a. Initial imaging when there is a contraindication to MRI imaging (non-MRI safe pacemaker, renal failure);
   b. Initial cardiac MRI is equivocal, or additional information is needed based on results from the MRI;
   c. To confirm diagnosis if suggested by MRI; **or**
   d. Initial imaging to evaluate for suspected cardiac sarcoidosis when there is documented sarcoidosis outside of the heart;
3. 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:
   a. Prior to treatment of cardiac sarcoidosis; **or**
   b. PET (heart FDG metabolic with perfusion) can be repeated at 3–6-month intervals if there is active disease or to make therapeutic decisions;
4. Any **one** of the following radiotracers is **medically appropriate** for the use in any of the above listed cardiac indications:
   a. Fluorodeoxyglucose (FDG);
   b. Rubidium 82 (Rb-82);
   c. Nitrogen ammonia 13 (ammonia N-13).

C. 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:

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

D. Absolute quantification of myocardial blood flow (AQMBF) with PET is considered **medically appropriate** when criteria have been met for a primary study Myocardial PET rest/stress perfusion (per Policy Statement II.A).

III. Chest Imaging

A. PET/CT is considered **medically appropriate** for **ANY** of the following indications when criteria are met:
1. Sarcoidosis:
    a. To help guide biopsy location if:
        i. Known lesion on CT Chest is difficult to access, to help identify alternative biopsy location; **and**
        ii. No apparent lung involvement and to identify an extrapulmonary biopsy site;
    b. Differentiation of reversible granulomatous disease from irreversible pulmonary fibrosis and will affect treatment options;
    c. Help identify treatment failure where either current treatment will be modified, or treatment will be introduced;
2. Mediastinal Lymphadenopathy:
    a. Enlarged lymph nodes greater or equal to 15mm with no explainable disease or increasing lymph node size on follow-up CT chest;
3. Incidental Pulmonary Nodules Detected on CT Imaging:
    a. Greater or equal to 8mm solid lung nodule or solid component of a sub-solid nodule, not for ground glass opacity.

IV. Musculoskeletal Imaging

A. FDG PET/CT is considered **medically appropriate** for evaluation of suspected bone infection when **ALL** of the following criteria have been met:

1. If MRI or CT is equivocal or cannot be done;
2. With **one** of the following indications:
    a. When infection is multifocal, **or**
    b. When the infection is associated with orthopedic hardware or chronic bone alterations from trauma or surgery.

V. Pelvis Imaging

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

VI. Peripheral Nerve Disorders (PND) Imaging

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

VII. Peripheral Vascular Disease (PVD) Imaging

A. 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.

B. PET/CT imaging for peripheral vascular disorders is **medically appropriate** when **ALL** of the following criteria are met:

1. Clinical suspicion of aortic infection (graft or native aorta);
2. CT-angiogram is equivocal/indeterminate;
3. Indium-111 or Gallium-67 studies have **not** been performed **and** are not available or not technically feasible.

C. 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**.

D. PET is considered **medically necessary** when MRA or ultrasound (US) are equivocal and **ONE** of the following indications:

1. Temporal artery biopsy is negative and giant cell arteritis (GCA) is still suspected;
2. Where the results would change clinical management.

VIII. Spine Imaging

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

B. 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:

1. Fever;
2. History of intravenous (IV) drug use;

3. Recent bacterial infection (UTIs, pyelonephritis, pneumonia);
4. Recent spinal intervention (e.g., surgery, pain injection, or stimulator implantation);
5. Immunocompromised states;
6. Long term use of systematic glucocorticoids;
7. Organ transplant recipients taking anti-rejection medication;
8. Diabetes mellitus;
9. HIV/AIDS;
10. Chronic dialysis;
11. Immunosuppressant therapy;
12. Neoplastic involvement of the spine;
13. Laboratory values indicative of infection (e.g., evaluated WBC, ESR, CRP, positive cultures);
14. Decubitus ulcer or wound overlying spine;
15. Abnormal x-ray or CT suspicious for infection.

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 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 perforation 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.

VI. 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):

A. Laboratories that are Intersocietal Accreditation Commission (IAC), American College of Radiology (ACR), or Joint Commission cardiac PET accredited.

B. Interpreting physician(s) must be board certified in Nuclear Cardiology (CBNC), Nuclear Medicine (ABNM), or Radiology (ABR) and have additional training in measuring AQMBF.

C. Individual laboratories should have a standard protocol (same tracer, camera, software, stressor, model etc.) for use for all patients.

D. 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 normal limits).

E. 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.

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 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 [18F] 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 [18F] FDG-PET/CT for the treatment monitoring in large vessel vasculitis (LVV) by 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 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 Foot in Patients with Diabetes Mellitus • Noncerebral Vasculitis	(See reference section for weblink and years)
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/ASE/CHEST/SAEM/SCCT/ 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
American College of Cardiology (ACC)/American Heart Association (AHA)	Guideline for the Diagnosis and Management of Aortic Disease	2022
AHA/ACC/American College of Clinical	Guideline for the Management of	2023

Pharmacy (ACCP)/American Society for Preventative Cardiology (ASPC)/National Lipid Assoc. (NLA)/Preventative Cardiovascular Nurses Assoc. (PCNA)	Patients with Chronic Coronary Disease	

REGULATORY STATUS

Refer to the FDA Medical Device website. Available from: https://www.fda.gov/medical-devices [accessed 2025 Dec 09]

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

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)

Code	Description
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
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

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

Code	Description
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)
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)

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SEARCH TERMS

Not Applicable

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

PET Imaging for Cardiac

PET for Perfusion of the Heart (NCD 220.6.1) [accessed 2025 Dec 09]

FDG PET for Myocardial Viability (NCD 220.6.8) [accessed 2025 Dec 09]

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	
Date	**Summary of Changes**
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 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