

Cardio Policy:

Positron Emission Tomography (PET) Myocardial Imaging

POLICY NUMBER UM CARDIO_1124	SUBJECT Positron Emission Tomography (PET) Myocardial Imaging		DEPT/PROGRAM UM Dept	PAGE 1 OF 4
DATES COMMITTEE REVIEWED 07/22/11, 12/12/12, 03/10/14, 02/19/15, 08/12/15, 11/28/16, 12/21/16, 10/31/17, 02/13/19, 03/08/19, 05/08/19, 12/11/19, 06/10/20, 03/10/21, 06/09/21, 08/11/21, 07/13/22, 01/11/23, 02/01/23, 03/08/23, 05/10/23, 12/20/23	APPROVAL DATE December 20, 2023	EFFECTIVE DATE December 22, 2023	COMMITTEE APPROVAL DATES 07/22/11, 12/12/12, 03/10/14, 02/19/15, 08/12/15, 11/28/16, 12/21/16, 10/31/17, 02/13/19, 03/08/19, 05/08/19, 12/11/19, 06/10/20, 03/10/21, 06/09/21, 08/11/21, 07/13/22, 01/11/23, 02/01/23, 03/08/23, 05/10/23, 12/20/23	
PRIMARY BUSINESS OWNER: UM		COMMITTEE/BOARD APPROVAL Utilization Management Committee		
URAC STANDARDS HUM v8: UM 1-2; UM 2-1	NCQA STANDARDS UM 2		ADDITIONAL AREAS OF IMPACT	
CMS REQUIREMENTS	STATE/FEDERAL REQUIREMENTS		APPLICABLE LINES OF BUSINESS Commercial, Exchange, Medicaid	

I. PURPOSE

Indications for determining medical necessity for Positron Emission Tomography (PET) Myocardial Imaging.

II. DEFINITIONS

A PET study is a diagnostic test used to evaluate blood flow to the heart. During the test, a small amount of radioactive tracer is injected into a vein. A special camera, called a gamma camera, detects the radiation released by the tracer to produce computer images of the heart. Combined with a medication, the test can help determine if there is adequate blood flow to the heart during activity versus at rest. The medication simulates exercise for patients unable to exercise on a treadmill or stationary cycle.

PET perfusion studies illustrate myocardial blood flow by demonstrating tracer uptake. PET metabolic evaluation studies are used to demonstrate inflammation produced by infiltrative disease such as sarcoidosis, but also enhance the detection of viable (hibernating) myocardium. Hybrid PET-CT scanning combines anatomical information with blood flow assessment and is useful for assessing viable myocardium, especially in CHF patients with global ischemia, or in patients with multivessel diffuse coronary artery disease as opposed to focal stenotic lesions.

An appropriate diagnostic or therapeutic procedure is one in which the expected clinical benefit exceeds the risks or negative consequences of the procedure by a sufficiently wide margin such that the procedure is generally considered acceptable or reasonable care. The ultimate objective of AUC

is to improve patient care and health outcomes in a cost-effective manner but is not intended to ignore ambiguity and nuance intrinsic to clinical decision making.

Appropriate Care- Median Score 7-9

May be Appropriate Care- Median Score 4-6

Rarely Appropriate Care- Median Score 1-3

Guideline directed medical therapy (GDMT) are outlined by joint American College of Cardiology (ACC)/American Heart Association (AHA) in cardiovascular clinical practice guidelines as Class I recommendation. These are maximally tolerated medications for a cardiovascular condition, when prescribed, have shown to improve healthcare outcomes such as survival along with significant reduction in major adverse cardiovascular events and hospitalization. For all recommended drug treatment regimens, the prescriber should confirm the dosage with product insert material and carefully evaluate for contraindications and interactions^{6,7,8,9,10,11,12}

III. POLICY

Indications for approving a request for medical necessity are:

- A. Cardiac PET stress-rest perfusion and metabolic activity study (with ¹⁸F-FDG PET) is appropriate in patients with ischemic cardiomyopathy to determine myocardial viability prior to revascularization following an inconclusive SPECT with no prior Cardiac PET or Cardiac PET CT done within the last 12 months. **(AUC Score 9)**^{1,2,3,4,5}
- B. The addition of CT to the PET study may be considered for patients facing complex coronary interventions, suspected global myocardial ischemia, necessitating correlation between anatomy and perfusion **(AUC Score 7)**⁴
- C. Cardiac PET stress testing may be performed in patients who have had equivocal, borderline, or discordant SPECT nuclear stress testing and obstructive CAD remains a concern with no prior Cardiac PET done within the last 12 months. **(AUC Score 9)**³
- D. Cardiac PET stress testing can be performed as a first-line investigation in patients with cardiac related symptoms who have BMI greater than greater than or equal to 35 kg/m² **(AUC Score 9)**³, large breast and breast implants, mastectomy, chest wall deformity **(AUC Score 7)**³ with no prior Cardiac PET done within the last 12 months.
- E. Cardiac PET assessment (rest perfusion ¹⁸F-FDG PET) of myocardial inflammation may be performed to evaluate clinically appropriate patients for cardiac sarcoidosis **(AUC Score 9)**³. This may be combined with stress-rest imaging if a prior ischemic workup has not been performed and the patient is having symptoms suggestive of angina. **(AUC Score 8)**³

Limitations:

- A. Absence of symptoms following normal coronary angiography.
- B. When there is no probability of intervention and risk for the procedure is too high or patient refuses to consider, or presence of unacceptable comorbidities.
- C. As a repetitive, frequent testing in the absence of changing clinical parameters.
- D. Screening for coronary artery disease.
- E. Apart from the specific scenarios indicated above, stress testing of asymptomatic individuals is not appropriate unless there are other signs of cardiac pathology e.g., new EKG abnormalities,

new wall motion abnormalities on an echo, or a new decrease in LVEF as detected by another modality.

- F. Before PET Myocardial Imaging can be performed in a patient with CAD the following must be considered: Predicted or observed lack of adequate response to maximally tolerated GDMT^{6,7,8,9,10,11,12}
- G. Requests for services that are part of a surveillance protocol for patients who are involved in a clinical trial are considered out of scope (OOS) for New Century Health and cannot be reviewed.

IV. PROCEDURE

- A. To review a request for medical necessity, the following items must be submitted for review:
 - 1. Cardiology notes that prompted request
 - 2. Recent Stress test and or Cardiac Catheterization report
 - 3. Recent echocardiogram
- B. Primary codes appropriate for this service:
 - 1. 78430 - Cardiac PET stress and concurrently acquired CT (single study at rest or stress)
 - 2. 78431 - stress + rest: PET stress combined with resting perfusion AND metabolic activity with concurrently acquired CT transmission scan (¹⁸F-FDG PET):
 - 3. 78432 - PET Myocardial imaging combined perfusion with metabolic evaluation study (including ventricular wall motion and/or EF Dual radiotracer study (e.g. Myocardial Viability); 78433 - PET Myocardial imaging combined perfusion with metabolic evaluation study (including ventricular wall motion and/or EF Dual radiotracer study (e.g. Myocardial Viability) with concurrently acquired CT scan.
 - 4. 78459 - PET Myocardial imaging metabolic evaluation study (including ventricular wall motion and/or EF when performed Single Study (¹⁸F-FDG PET), no perfusion, no CT; 78429 - PET Myocardial imaging metabolic evaluation study (including ventricular wall motion and/or EF when performed Single Study with concurrently acquired CT Scan.
 - 5. 78491 - PET perfusion, single study at rest or stress; 78492 – Multiple studies at rest and stress (exercise or pharmacologic)
 - 6. ⁸²Rb (Rubidium radioactive isotope): A9555
 - 7. When performed during exercise and/or pharmacologic stress, the appropriate stress testing code from 93015, 93016, 93017, 93018 may be reported in addition to 78430, 78431, 78432, 78433, 78451-78454, 78472, 78491, and 78492.

V. APPROVAL AUTHORITY

- A. Review – Utilization Management Department
- B. Final Approval – Utilization Management Committee

VI. ATTACHMENTS

- A. None

VII. REFERENCES

- 1. Centers for Medicare and Medicaid Services. Florida. Local Coverage Determination (LCD) (L38396). Cardiology – non-emergent outpatient testing: exercise stress test, stress echo, MPI SPECT, and cardiac PET. Retrieved from <https://www.cms.gov> [Accessed December 19, 2023].

2. Centers for Medicare and Medicaid Services. Illinois. Local Coverage Determination (LCD) (L33560). Cardiology – non-emergent outpatient testing: exercise stress test, stress echo, MPI SPECT, and cardiac PET. Retrieved from <https://www.cms.gov> [Accessed December 19, 2023].
3. Thomas H. Schindler, et al. Appropriate Use Criteria for PET Myocardial Perfusion Imaging. *J Nuc Med* Vol 61, No.8, Aug 2020, pp 1221-1265
4. Quynh A. Truong and Henry Gewirtz, Cardiac PET-CT for Monitoring Medical and Interventional Therapy in Patients with CAD: PET Alone Versus Hybrid PET-CT? *Curr Cardiol Rep.* 2014 Mar; 16(3): 460. doi: 10.1007/s11886-013-0460-5
5. Robert C. Hendel MD, FACC, FAHA, et al. Appropriate use of cardiovascular technology: 2013 ACCF appropriate use criteria methodology update: a report of the American College of Cardiology Foundation appropriate use criteria task force. *Journal of the American College of Cardiology.* March 2013, Volume 61, Issue 12, Pages 1305-1317.
6. Hideyuki Kawashima, et.al. Impact of Optimal Medical Therapy on 10-Year Mortality After Coronary Revascularization. On behalf of the SYNTAX Extended Survival Investigators. *J Am Coll Cardiol.* 2021 Jul, 78 (1) 27–38
7. Fihn SD, et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for the diagnosis and management of patients with stable ischemic heart disease. *Circulation.* 2012 Dec 18;126(25):3097-137.
8. Amsterdam EA, et al. 2014 AHA/ACC Guideline for the Management of Patients with Non-ST-Elevation Acute Coronary Syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol.* 2014 Dec 23;64(24):e139-e228.
9. Levine GN, et al. 2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients with Coronary Artery Disease. *Circulation.* 2016 Sep 6;134(10):e123-55.
10. David J. Maron, M.D., Judith S. Hochman, M.D et.al- ISCHEMIA Research Group. Initial Invasive or Conservative Strategy for Stable Coronary Disease- *N Engl J Med* 2020; 382:1395-407. DOI: 10.1056/NEJMoa1915922.
11. William E. Boden, M.D. et. Al; Optimal Medical Therapy with or without PCI for Stable Coronary Disease. Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation – COURAGE. *N Engl J Med* 2007; 356:1503-1516. DOI: 10.1056/NEJMoa070829.
12. Natasha K Wolfe et.al. The independent reduction in mortality associated with guideline-directed medical therapy in patients with coronary artery disease and heart failure with reduced ejection fraction. *European Heart Journal - Quality of Care and Clinical Outcomes*, qcaa032. <https://doi.org/10.1093/ehjqcco/qcaa032>.
13. NCQA UM 2023 Standards and Elements.