

<b>Department of Origin:</b> Integrated Healthcare Services	<b>Effective Date:</b> 12/06/22
<b>Approved by:</b> Medical Policy Quality Management Subcommittee	<b>Date Approved:</b> 12/06/22
<b>Clinical Policy Document:</b> Nuclear Medicine, Cardiac Positron Emission Tomography (PET), Cardiac PET/ Computed Tomography	<b>Replaces Effective Clinical Policy Dated:</b> 12/07/21
<b>Reference #:</b> MC/L023	<b>Page:</b> 1 of 4

**PURPOSE:**

The intent of this clinical policy is to ensure services are medically necessary.

Please refer to the member's benefit document for specific information. To the extent there is any inconsistency between this policy and the terms of the member's benefit plan or certificate of coverage, the terms of the member's benefit plan document will govern.

**POLICY:**

Benefits must be available for health care services. Health care services must be ordered by a provider. Health care services must be medically necessary, applicable conservative treatments must have been tried, and the most cost-effective alternative must be requested for coverage consideration.

**GUIDELINES:**

Requests for cardiac PET or cardiac PET/CT (computed tomography) imaging - Must satisfy the following: I or II

- I. Evaluation of known or suspected coronary artery disease to assess perfusion (PET using rubidium-82 [Rb-82] or N-13 ammonia done at rest or with pharmacological stress) – must satisfy any of the following: A – C (CPTs 78430, 78431, 78491, 78492)
  - A. Is used in place of, but not in addition to, a single photon emission computed tomography (SPECT) in persons with conditions that may cause attenuation problems with SPECT – must satisfy any of the following: 1 - 2
    1. Individual is severely obese (eg, BMI >40 kg/m<sup>2</sup>); or
    2. Individual has large breasts, breast implants, mastectomy, chest wall deformity, pleural or pericardial effusion).
  - B. SPECT myocardial perfusion scan or stress echocardiogram has been performed and the findings inconclusive, or no viable myocardium evident.
  - C. For assessment of coronary artery disease after heart transplantation.
- II. Evaluation of myocardial viability, cardiac sarcoid or infection (FDG-PET [fluorodeoxy-D-glucose]) – must satisfy any of the following: A – D
  - A. Assessment of myocardial viability – must satisfy any of the following: 1 - 3 (CPTs 78429, 78459)
    1. Known or suspected ischemic cardiomyopathy with left ventricular ejection fraction (LVEF) less than 35%; or
    2. To determine myocardial viability prior to re-vascularization – must satisfy any of the following: a – b
      - a. As a primary or initial diagnostic study; or
      - b. Following an inconclusive SPECT.
    3. Chronic secondary mitral regurgitation, and member is a candidate for revascularization if viable myocardium identified.

<b>Department of Origin:</b> Integrated Healthcare Services	<b>Effective Date:</b> 12/06/22
<b>Approved by:</b> Medical Policy Quality Management Subcommittee	<b>Date Approved:</b> 12/06/22
<b>Clinical Policy Document:</b> Nuclear Medicine, Cardiac Positron Emission Tomography (PET), Cardiac PET/ Computed Tomography	<b>Replaces Effective Clinical Policy Dated:</b> 12/07/21
<b>Reference #:</b> MC/L023	<b>Page:</b> 2 of 4

- B. Cardiac sarcoid - must satisfy any of the following: 1 – 2
  - 1. To monitor response to therapy for an established cardiac sarcoid (CPTs 78429, 78459); or
  - 2. To identify established or strongly suggested cardiac sarcoid (CPTS 78432, 78433)
- C. Suspected prosthetic heart valve endocarditis – must satisfy all of the following: 1 – 3 (CPT 78429)
  - 1. Clinical suspicion of endocarditis; and
  - 2. Echocardiogram is nondiagnostic; and
  - 3. Prosthetic valve implanted more than 3 months prior.
- D. Suspected LVAD driveline infection - must satisfy any of the following: 1 – 2 (CPT 78429)
  - 1. CT findings are nonspecific and metal device artifacts of the driveline itself affects sensitivity; or
  - 2. Other studies and examination remain inconclusive.

**EXCLUSIONS (not limited to):**

Refer to member’s Certificate of Coverage or Summary Plan Description

Absolute quantification of myocardial blood flow (AQMBF), PET, rest and pharmacologic stress (CPT 78434) is investigative (see Investigative List)

**BACKGROUND:**

Positron emission tomography – computed tomography (PET/CT) scans are performed at rest or with pharmacological stress for noninvasive imaging of the perfusion of the heart for the diagnosis and management of patients with known or suspected coronary artery disease. Rubidium-82 chloride and nitrogen-13 ammonia are the most common PET/CT radiopharmaceuticals for MPI, and fluorine-18- 2-fluoro-2-deoxy-D-glucose (FDG) is the standard for myocardial metabolic imaging.

The primary goals of cardiac PET/CT imaging include evaluation of perfusion, function, viability, inflammation, anatomy, and risk stratification for cardiac-related events such as myocardial infarction and death. Maximum diagnostic accuracy of cardiac PET/CT is achieved when images are interpreted in conjunction with other relevant imaging, clinical information, and laboratory data.

The identification of members with partial loss of heart muscle movement or hibernating myocardium is important in selecting candidates with compromised ventricular function to determine appropriateness for re-vascularization. Diagnostic tests such as FDG-PET distinguish between dysfunctional but viable myocardial tissue and scar tissue in order to affect the management decisions in members with ischemic cardiomyopathy and left ventricular dysfunction.

Absolute quantitation of myocardial blood flow (AQMBF) imaging is an additional physiological assessment during a pharmacologic stress/rest PET or PET/CT myocardial perfusion imaging. Following stress/rest PET or PET/CT myocardial perfusion imaging, images for PET myocardial perfusion imaging

<b>Department of Origin:</b> Integrated Healthcare Services	<b>Effective Date:</b> 12/06/22
<b>Approved by:</b> Medical Policy Quality Management Subcommittee	<b>Date Approved:</b> 12/06/22
<b>Clinical Policy Document:</b> Nuclear Medicine, Cardiac Positron Emission Tomography (PET), Cardiac PET/ Computed Tomography	<b>Replaces Effective Clinical Policy Dated:</b> 12/07/21
<b>Reference #:</b> MC/L023	<b>Page:</b> 3 of 4

are acquired to allow quantitation of AQMBF. The report quantifies in ml/g/min for rest, stress, and indexed/reserve flow for each coronary bed and for the global left ventricular. Performance of quantitation of myocardial blood flow by cardiac PET is currently non-standardized between different vendor products.

Prior Authorization: Yes, per network provider agreement.

**CODING:**

CPT® or HCPCS

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 (eg, 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 (eg, myocardial viability); with concurrently acquired computed tomography transmission scan

78459 Myocardial imaging, positron emission tomography (PET), metabolic evaluation

78491 Myocardial imaging, positron emission tomography (PET), perfusion; single study at rest or stress

78492 Myocardial imaging, positron emission tomography (PET), perfusion; multiple studies at rest and/or stress

CPT codes copyright 2022 American Medical Association. All Rights Reserved. CPT is a trademark of the AMA. The AMA assumes no liability for the data contained herein.

**REFERENCES:**

1. Integrated Healthcare Services Process Manual: UR015 Use of Medical Policy and Criteria
2. Clinical Policy: MP/C009 Coverage Determination Guidelines
3. American College of Radiology Practice Parameter. ACR–SPR–STR PRACTICE PARAMETER FOR THE PERFORMANCE OF CARDIAC POSITRON EMISSION TOMOGRAPHY - COMPUTED TOMOGRAPHY (PET/CT) IMAGING. Adopted 2017 (Resolution 26). Retrieved from: <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/CardiacPET-CT.pdf> Accessed 09-27-22.
4. American Society of Nuclear Medicine and Society of Nuclear Medicine and Molecular Imaging Joint Position Statement on the Clinical Indications for Myocardial Perfusion PET. ASNC/SNMMI POSITION STATEMENT. 2016. Retrieved from: <https://www.asnc.org/files/Guidelines%20and%20Quality/ASNCandSNMMIJointPETPositionPaper2016.pdf>. Accessed 09-27-22,
5. Einstein AJ, Moser KW, Thompson RC, et al. Radiation Dose to Patients from Cardiac Diagnostic Imaging. *Circ*. 2007;116(11):1290-1305. doi:10.1161/circulationaha.107.688101.

<b>Department of Origin:</b> Integrated Healthcare Services	<b>Effective Date:</b> 12/06/22
<b>Approved by:</b> Medical Policy Quality Management Subcommittee	<b>Date Approved:</b> 12/06/22
<b>Clinical Policy Document:</b> Nuclear Medicine, Cardiac Positron Emission Tomography (PET), Cardiac PET/ Computed Tomography	<b>Replaces Effective Clinical Policy Dated:</b> 12/07/21
<b>Reference #:</b> MC/L023	<b>Page:</b> 4 of 4

6. Youssef G, Mylonas I, Leung E, et al. The Use of 18F-FDG PET in the Diagnosis of Cardiac Sarcoidosis: A Systematic Review and Metaanalysis Including the Ontario Experience. *J Nucl Med*. <http://jnm.snmjournals.org/content/53/2/241.long>. Published February 1, 2012.
7. Blankstein R, Osborne M, Naya M, et al. Cardiac Positron Emission Tomography Enhances Prognostic Assessments of Patients with Suspected Cardiac Sarcoidosis. *J Am Coll Cardiol*. 2014;63(4):329-336. doi:10.1016/j.jacc.2013.09.022.
8. Habib G, Lancellotti P, Antunes MJ, et al. 2015 ESC Guidelines for the management of infective endocarditis. *Eur Heart J*. 2015;36(44):3075-3128. doi:10.1093/eurheartj/ehv319.
9. Swart LE, Gomes A, Scholtens AM, et al. Improving the Diagnostic Performance of 18 Fluorodeoxyglucose Positron-Emission Tomography/Computed Tomography in Prosthetic Heart Valve Endocarditis. *Circ*. 2018;138(14):1412-1427. doi:10.1161/circulationaha.118.035032.
10. Kim J, Feller ED, Chen W, Liang Y, Dilsizian V. FDG PET/CT for Early Detection and Localization of Left Ventricular Assist Device Infection. *J Am Coll Cardiol Img*. 2019;12(4):722-729. doi:10.1016/j.jcmg.2018.01.024.
11. Tam MC, Patel VN, Weinberg RL, et al. Diagnostic Accuracy of FDG PET/CT in Suspected LVAD Infections. *J Am Coll Cardiol Img*. 2020;13(5):1191-1202. doi:10.1016/j.jcmg.2019.04.024.
12. Harnett DT, Hazra S, Maze R, et al. Clinical performance of Rb-82 myocardial perfusion PET and Tc99m-based SPECT in patients with extreme obesity. *J Nucl Cardiol*. 2017;26(1):275-283. doi:10.1007/s12350-017-0855-6.
13. Blankstein R, Cooper LT. Management and prognosis of cardiac sarcoidosis. (Topic 113686, Version 13.0; last updated: 06/10/2021). In: Yeon SB, ed. *UpToDate*. Waltham, Mass.: UpToDate2021. [www.uptodate.com](http://www.uptodate.com). Accessed 09-27-22.
14. Blankstein R, Stewart GC. Clinical manifestations and diagnosis of cardiac sarcoidosis. (Topic 4922, Version 23.0; last updated: 12/06/21) In: Yeon SB, ed. *UpToDate*. Waltham, Mass.: UpToDate; 2021. [www.uptodate.com](http://www.uptodate.com). Accessed 09-27-22.

**DOCUMENT HISTORY:**

<b>Created Date:</b> 10/19/20
<b>Reviewed Date:</b> 09/08/21, 09/07/22
<b>Revised Date:</b> 09/24/21

## Nondiscrimination & Language Access Policy

Aspirus Health Plan, Inc. complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. *We* do not exclude people or treat them differently because of race, color, national origin, age, disability, or sex.

*We* will:

- Provide free aids and services to people with disabilities to communicate effectively with us, such as:
  - Qualified sign language interpreters
  - Written information in other formats (large print, audio, accessible electronic formats, other formats)
- Provide free language services to people whose primary language is not English, such as:
  - Qualified interpreters
  - Information written in other languages

If *you* need these services, contact *us* at the phone number shown on the inside cover of this *COC*, *your* id card, or [aspirushealthplan.com](http://aspirushealthplan.com).

If *you* believe that *we* have failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, or sex, *you* can file a grievance with:

Nondiscrimination Grievance Coordinator  
Aspirus Health Plan, Inc.  
PO Box 1062  
Minneapolis, MN 55440  
Phone: 1. 866.631.5404 (TTY: 1.866.631.8597)  
Fax: 763.847.4010  
Email: [customerservice@aspirushealthplan.com](mailto:customerservice@aspirushealthplan.com)

*You* can file a grievance in person or by mail, fax, or email. If *you* need help filing a grievance, the Nondiscrimination Grievance Coordinator is available to help *you*.

*You* can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at:

U.S. Department of Health and Human Services  
200 Independence Avenue, SW  
Room 509F, HHH Building  
Washington, D.C. 20201  
1-800-368-1019, 800-537-7697 (TDD)

Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>.

## Language Assistance Services

**Albanian:** KUJDES: Nëse flitni shqip, për ju ka në dispozicion shërbime të asistencës gjuhësore, pa pagesë. Telefononi në 1.866.631.5404 (TTY: 1.866.631.8597).

تنبيه: إذا كنت تتحدث اللغة العربية، فإن خدمات المساعدة اللغوية 1.866.631.5404 (رقم هاتف الصم والبك : 1.866.631.8597) متاحة لك مجاناً. اتصل بن اعلى رقم الهاتف  
**Arabic**

**French:** ATTENTION : Si vous parlez français, des services d'aide linguistique vous sont proposés gratuitement. Appelez le 1.866.631.5404 (ATS : 1.866.631.8597).

**German:** ACHTUNG: Wenn Sie Deutsch sprechen, stehen Ihnen kostenlos sprachliche Hilfsdienstleistungen zur Verfügung. Rufnummer: 1.866.631.5404 (TTY: 1.866.631.8597).

**Hindi:** \_यान द\_ : य\_द आप िहंदी बोलते ह\_ तो आपके िलए मु\_त म\_ भाषा सहायता सेवाएं उपल\_ध ह\_। 1-800-332-650 (TTY: 1.866.631.8597) पर कॉल कर\_।

**Hmong:** LUS CEEV: Yog tias koj hais lus Hmoob, cov kev pab txog lus, muaj kev pab dawb rau koj. Hu rau 1.866.631.5404 (TTY: 1.866.631.8597).

**Korean:** 주의: 한국어를 사용하시는 경우, 언어 지원 서비스를 무료로 이용하실 수 있습니다. 1.866.631.5404 (TTY: 1.866.631.8597) 번으로 전화해 주십시오.

**Polish:** UWAGA: Jeżeli mówisz po polsku, możesz skorzystać z bezpłatnej pomocy językowej. Zadzwoń pod numer 1.866.631.5404 (TTY: 1.866.631.8597).

**Russian:** ВНИМАНИЕ: Если вы говорите на русском языке, то вам доступны бесплатные услуги перевода. Звоните 1.866.631.5404 (телетайп: 1.866.631.8597).

**Spanish:** ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 1.866.631.5404 (TTY: 1.866.631.8597).

**Tagalog:** PAUNAWA: Kung nagsasalita ka ng Tagalog, maaari kang gumamit ng mga serbisyo ng tulong sa wika nangwalang bayad. Tumawag sa 1.866.631.5404 (TTY: 1.866.631.8597).

**Traditional Chinese:** 注意：如果您使用繁體中文，您可以免費獲得語言援助服務。請致電 1.866.631.5404 (TTY : 1.866.631.8597)

**Vietnamese:** CHÚ Ý: Nếu bạn nói Tiếng Việt, có các dịch vụ hỗ trợ ngôn ngữ miễn phí dành cho bạn. Gọi số 1.866.631.5404 (TTY: 1.866.631.8597).

**Pennsylvania Dutch:** Wann du Deitsch (Pennsylvania German / Dutch) schwetzscht, kannscht du mitaus Koschte ebbergricke, ass dihr helft mit die englisch Schprooch. Ruf selli Nummer uff: Call 1.866.631.5404 (TTY: 1.866.631.8597).

**Lao:** ໂປດຊາບ: ຖ້າວ່າ ທ່ານເວົ້າພາສາ ລາວ, ການບໍລິການຊ່ວຍເຫຼືອດ້ານພາສາ, ໂດຍບໍ່ເສັຽຄ່າ, ແມ່ນມີພ້ອມໃຫ້ທ່ານ. ໂທສ 1.866.631.5404 (TTY: 1.866.631.8597).