



Kaiser Foundation Health Plan of Washington

Clinical Review Criteria Myocardial Perfusion Imaging

- Exercise Nuclear Stress Test
- Pharmacologic Nuclear Stress Test

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Criteria

For Medicare Members

Source	Policy
CMS Coverage Manuals	None
National Coverage Determinations (NCD)	None
Local Coverage Determinations (LCD)	Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography (L36889)
Local Coverage Article (LCA)	Billing and Coding: Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography (A57184)

For Non-Medicare Members

Service	Criteria Used
Exercise Nuclear Stress Test	Kaiser Permanente has elected to use the Myocardial Perfusion Imaging, Exercise Stress (KP-0078 02012024) MCG* for medical necessity determinations. For access to the MCG Clinical Guidelines criteria, please see the MCG Guideline Index through the provider portal under Quick Access.
Pharmacologic Nuclear Stress Test	Kaiser Permanente has elected to use the Myocardial Perfusion Imaging, Pharmacologic Stress (KP-0079 02012024) MCG* for medical necessity determinations. For access to the MCG Clinical Guidelines criteria, please see the MCG Guideline Index through the provider portal under Quick Access.

[ASCVD Risk Estimator Plus \(American College of Cardiology\): please click here](#)

*MCG manuals are proprietary and cannot be published and/or distributed. However, on an individual member basis, Kaiser Permanente can share a copy of the specific criteria document used to make a utilization management decision. If one of your patients is being reviewed using these criteria, you may request a copy of the criteria by calling the Kaiser Permanente Clinical Review staff at 1-800-289-1363 or access the MCG Guideline Index using the link provided above.

If requesting these services, please send the following documentation to support medical necessity:

- Last 6 months of clinical notes from requesting provider &/or specialist

The following information was used in the development of this document and is provided as background only. It is provided for historical purposes and does not necessarily reflect the most current published literature. When significant new articles are published that impact treatment option, Kaiser Permanente will review as needed. This information is not to be used as coverage criteria. Please only refer to the criteria listed above for coverage determinations.

Background

Myocardial perfusion exercise stress imaging, such as stress SPECT, involves intravenous injection of a radioactive tracer (eg, thallium, sestamibi, or tetrofosmin), which is taken up by myocardial cells and visualized by a digital gamma camera, thereby reflecting the distribution of blood perfusion throughout the myocardium. A defect in the image with exercise that is not present at rest usually indicates an area of myocardial ischemia. Myocardial perfusion imaging synchronized with ECG (eg, gated SPECT) can assess ventricular function, including ejection fraction, in addition to myocardial perfusion. Myocardial perfusion imaging has been noted by specialty societies to have the most clinical utility in patients who are at intermediate risk for coronary artery disease, in those requiring management or prognostic information, and in those with unexplained and persistent symptoms. Myocardial perfusion imaging systems that combine SPECT and CT technology (also known as "hybrid" systems) are now widely available. It has been noted that myocardial perfusion scans contribute at least 20% of the estimated annual collective radiation dose in the United States, although the lifetime cancer risk from a single myocardial perfusion imaging study is thought to be small. Best-practice methods to maximize diagnostic quality while minimizing radiation exposure have been proposed.

Pharmacologic stress myocardial perfusion imaging, such as pharmacologic stress SPECT, involves intravenous injection of a radioactive tracer (eg, thallium, sestamibi, or tetrofosmin), which is taken up by myocardial cells and visualized by a digital gamma camera, thereby reflecting the distribution of blood perfusion throughout the myocardium. Coronary hyperemia is induced by a vasodilator, such as adenosine, dipyridamole, or regadenoson, or an adrenergic agent such as dobutamine, in lieu of stress via exercise or in addition to submaximal exercise. A defect in the image with stress that is not present at rest usually indicates an area of myocardial ischemia. Myocardial perfusion imaging synchronized with ECG (eg, gated SPECT) can assess ventricular function, including ejection fraction, in addition to myocardial perfusion. Pharmacologic stress testing using the vasodilator agent's adenosine and dipyridamole is contraindicated in patients with severe reactive airway disease (eg, asthma or chronic obstructive pulmonary disease) because of provocation of bronchospasm; regadenoson or dobutamine may be substituted in this population.

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Applicable Codes

Myocardial Perfusion Imaging, Exercise or Pharmacologic Stress—

Medicare – Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

Non-Medicare - Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

CPT® or HCPC Codes	Description
78451	Myocardial perfusion imaging, tomographic (SPECT) (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); single study, at rest or stress (exercise or pharmacologic)

78452	Myocardial perfusion imaging, tomographic (SPECT) (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection
78453	Myocardial perfusion imaging, planar (including qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); single study, at rest or stress (exercise or pharmacologic)
78454	Myocardial perfusion imaging, planar (including qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection

***Note:** Codes may not be all-inclusive. Deleted codes and codes not in effect at the time of service may not be covered.

**To verify authorization requirements for a specific code by plan type, please use the [Pre-authorization Code Check](#).

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Date Created	Date Reviewed	Date Last Revised
01/05/2021	01/05/2021 ^{MPC} , 01/04/2022 ^{MPC} , 01/10/2023 ^{MPC} , 04/02/2024 ^{MPC}	11/07/2023

^{MPC} Medical Policy Committee

Revision History	Description
05/20/2021	Updated policy effective date to 7/1/2021. Medical necessity review requirement does not apply to Medicare.
02/16/2022	Updated applicable codes
08/24/2022	Added Cardiac Risk Calculator link
09/05/2023	MPC approved the updated changes to the hybrid criteria to improve the performance of the MPI criteria. Requires 60-day notice, effective February 1, 2024.
11/07/2023	MPC approved to initiate medical necessity review of MPI for Medicare Advantage members to align with 2024 CMS final rule. Requires expedited 60-day notice, effective February 1, 2024.