Local Coverage Determination (LCD): Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography (L36889)

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**LCD Information**

**Document Information**

**LCD ID**
L36889

**LCD Title**
Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography

**Proposed LCD in Comment Period**
N/A

**Source Proposed LCD**
DL36889

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**CMS National Coverage Policy**

Title XVIII of the Social Security Act (SSA), 1862(a)(1)(A), states that no Medicare payment shall be made for items or services that “are not reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.”

Title XVIII of the Social Security Act, 1862(a)(7) and 42 Code of Federal Regulations, Section 411.15, exclude routine physical examinations.

Title XVIII of the Social Security Act, 1833(e), prohibits Medicare payment for any claim lacking the necessary documentation to process the claim.


The Code of Federal Regulations (CFR), 42 CFR 410.32, specifies that all diagnostic tests “must be ordered by the physician who is treating the beneficiary.”

Section 4317(b), of the Balanced Budget Act (BBA) of 1997, specifies that referring physicians are required to provide diagnostic information to the testing entity at the time the test is ordered.


CMS Manual System, Pub. 100.04, *Medicare Claims Processing Manual*, Chapter 32, §§140.1, 140.1.1, 140.2, 140.2.1, 140.2.2.1, 140.2.2.2, 140.2.2.3, 140.2.2.4, 140.2.2.5, 140.2.2.6, 140.3, 140.3.1., Cardiac Rehabilitation.
Coverage Guidance
Coverage Indications, Limitations, and/or Medical Necessity

CARDIOVASCULAR STRESS TESTING

A cardiovascular stress test is a diagnostic test designed to evaluate a patient for the presence or the severity of coronary artery disease (CAD), exercise-induced arrhythmias or hemodynamic changes, and/or cardiac functional capacity.

The cardiovascular stress test is performed using continuous electrocardiographic monitoring (ECG), monitoring blood pressure and pulse, and measuring changes in cardiac electrical activity during and after the use of a cardiac stressor (exercise or a drug). Exercise-induced changes in the ST-T segment of the ECG are measured and correlated with each level of cardiac stress achieved during the test.

The patient’s heart is stressed by walking, then by running on a treadmill, or by riding a stationary bicycle, or by climbing up and down steps. When the patient is unable to perform exercise (e.g., is unable to walk, run, or bicycle), cardiac stress may be induced with intravenous (IV) medication. An interpretation and written report includes a review of the actual ECG recordings of the raw unprocessed data, for comparison with any averages the exercise test monitor generates.

STRESS ECHOCARDIOGRAPHY

Stress echocardiography adds a sound wave image of the heart (echocardiogram) to the electrical monitoring. A two-dimensional (2-D) echocardiographic image of the heart is made and recorded during rest. A second 2-D image is made 30 seconds to two minutes after exercise. The two images are compared and the changes noted.

Stress echocardiography can measure exercise-induced changes in regional ventricular wall motion, ventricular wall thickness, ventricular end-systolic volume, and ventricular ejection fraction (LVEF). Such changes offer mechanical evidence of exercise-induced cardiac muscle dysfunction, presumably due to reduced blood flow through one or more diseased coronary arteries.

RADIONUCLIDE IMAGING

Selected patients may have electrocardiographic findings that make interpretation difficult or other factors that make it reasonable and necessary to perform cardiovascular stress testing in association with radionuclide imaging. As indicated in the ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM 2009 Appropriate Use Criteria for Cardiac Radionuclide Imaging, “In general, use of cardiac radionuclide imaging (RNI) for diagnosis and risk assessment in intermediate- and high-risk patients with coronary artery disease (CAD) was viewed favorably, while testing in low-risk patients, routine repeat testing, and general screening in certain clinical scenarios were viewed less favorably. Additionally, use for perioperative testing was found to be inappropriate except for high selected groups of patients.”

INDICATIONS OF COVERAGE

Cardiovascular Stress Testing:

A cardiovascular stress test is covered for a patient who:

- Has signs or symptoms consistent with CAD:
  - Angina pectoris or anginal equivalent symptoms,
  - Cardiac rhythm disturbances,
• Unexplained syncope,
• Heart failure, or
• Significant atherosclerotic vascular disease elsewhere in the body (e.g., carotid obstructive disease, peripheral vascular disease involving the lower extremities, or abdominal aortic aneurysm.

• Has a metabolic disorder known to cause CAD:
  • Diabetes mellitus,
  • Syndrome X, or
  • Atherogenic hypercholesterolemia.

• Has an abnormal ECG consistent with CAD.

• Needs an evaluation for progression of CAD with the potential for a change in treatment:
  • Following coronary artery bypass graft (CABG) surgery;
  • Following a myocardial infarction (MI);
  • Following a percutaneous transluminal coronary angioplasty (PTCA), atherectomy, intracoronary thrombolysis, or other coronary revascularization procedure;
  • Following medical treatment to reverse or stabilize CAD; or
  • For a history of a coronary artery ischemic event without symptoms (e.g., a prior “silent MI”).

• Needs an evaluation as part of a preoperative assessment when intermediate- or high-risk for CAD is present and surgery is likely to induce significant cardiac stress.

• Needs an evaluation when information from the clinical assessment does not adequately assess functional capacity when such information is needed to manage the patient (e.g., for a patient with angina to assess the level of exercise tolerance for treatment planning).

Stress Echocardiogram

A stress echocardiogram is reasonable and necessary in addition to an electrical stress test in the following instances:

• An electrical stress test alone is not useful or effective, and a stress echocardiogram is needed. Such circumstances may include:
  • An abnormal resting ECG due to digitalis, left ventricular hypertrophy, bundle branch block, preexcitation syndrome (Wolff-Parkinson-White), electronically paced ventricular rhythm, or greater than 1 mm of resting ST depression;
  • A prior equivocal stress ECG; or
  • A history of posterior wall MI.

• The patient has significant valvular heart disease, and measuring the physiologic changes with exercise is necessary to determine the need for a valve intervention,

• When needed to determine the significance or the extent of myocardial ischemia (or scar), or to assess myocardial viability (e.g., risk stratification following acute myocardial infarction),

• When information from the clinical assessment and an electrical stress test does not adequately assess functional capacity, and such information is needed to manage the patient (e.g., for a patient with angina and left bundle branch block to assess the level of exercise tolerance for treatment planning),

• When needed to aid in diagnosis of hypertrophic or dilated cardiomyopathy,

• When needed to differentiate ischemic from non-ischemic cardiomyopathy,

• As part of a preoperative evaluation of a patient who is at intermediate or high risk for CAD when the surgery is likely to induce significant cardiac stress.

Radionuclide Imaging

The medical necessity for use of RNI must be independently documented in the medical record. Documentation
reference to the ACCF/ASNC/ACR/AHA/ASE/SCCT/SCMR/SNM 2009 Appropriate Use Criteria for Cardiac Radionuclide Imaging, or a similar standard will help to assure sufficient evidence that the testing is reasonable and necessary

**LIMITATIONS OF COVERAGE:**

Cardiovascular stress testing would not be considered “Reasonable and Necessary” when:

- The incremental information obtained from a repeat test or from the addition of an echocardiogram to an electrical stress test is of no clinical relevance.
- The results of the test have no potential to affect the treatment of the patient, such as when the patient has a severe comorbidity that is likely to limit life expectancy and/or likely to limit his/her candidacy for revascularization.
- Secondary conditions will potentially decrease both the sensitivity and specificity of testing (e.g., immediate postoperative period, anemia, or infection).
- A stress test is performed too frequently (See the **Utilization Guidelines** section).

Medicare will not cover cardiovascular stress testing:

- For Screening CAD (e.g., in a patient without signs or symptoms of CAD), such as for the presence of risk factors—smoking, obesity, family history of CAD, but no personal history of vascular disease or related metabolic disorder.
- When used solely to motivate changes in lifestyle.
- To qualify a patient for a noncovered service, such as fitness training, a weight loss program, or an occupational fitness evaluation.
- For a preoperative assessment prior to either a noncovered surgery or a covered surgery if the reasonable and necessary criteria for the testing is not documented.

A stress echocardiogram is not reasonable and necessary if performed simultaneously with the following additional tests:

- Radionuclide ventriculography;
- A myocardial perfusion imaging stress test with or without pharmacological stress.

Typically, a patient will not require both a stress echocardiogram and a stress nuclear test for the same clinical problem.

**Summary of Evidence**

N/A

**Analysis of Evidence**

(Rationale for Determination)
General Information

Associated Information

Supportive documentation evidencing the condition and treatment is expected to be documented in the medical record and be available upon request.

Documentation in the patient’s medical record must substantiate the medical necessity of the service, including the following:

- A clinical diagnosis,
- The specific reason for the study,
- Reason for performing a stress echocardiogram as opposed to only an electrical stress test,
- The reason for using any pharmacological stress, and
- The reason for a stress echocardiogram if a stress nuclear test is also performed for the same patient for the same clinical condition.

Document the referral order (written or verbal) in the patient’s medical record. For example, if a referring physician calls a cardiologist to order a stress echocardiogram, the test report or office record must document the date of the call, name of the referring physician, and reason for referral.

Document the interpretation and report of all segments of the service (e.g., the electrical and echo results).

Document the necessity for the test frequency, when applicable.

Document (preferably on the test report) that any applicable physician supervision requirement is met.

For tests performed by leased employees, maintain the leasing contract on file (e.g., in the office) and submit it to the contractor for review upon request.

Utilization Guidelines:

Stress testing is covered only at a frequency appropriate for the patient’s condition, and when the results will potentially affect the patient’s treatment.

A routine follow-up test after an MI, CABG, or PTCA, in the absence of symptoms or clinical indications, outside of the reassessment period, is not reasonable and necessary. Annual testing in the absence of individualized clinical indications is not reasonable and necessary. For example, a patient who has had a MI, CABG, PTCA, or other coronary revascularization procedure may require an initial follow-up stress test several months later and a second test one year after the first follow-up test. Thereafter, a patient who initially presented with silent coronary disease
(no reliable signs or symptoms) may require testing as often as annually. However, a patient who initially presented with reliable symptoms or signs of CAD (e.g., angina pectoris) typically will not need annual testing. When the clinical information is sufficient to reliably monitor the patient, an additional follow-up test once every five years may be sufficient.

**Sources of Information**

See Bibliography

**Bibliography**


5. 2017 ACC/AHA/HFSA/ISHLT/ACP Advanced Training Statement on Advanced Heart Failure and Transplant Cardiology (Revision of the ACCF/AHA/ACP/HFSA/ISHLT 2010 Clinical Competence Statement on Management of Patients With Advanced Heart Failure and Cardiac Transplant), accepted J Am Coll Cardiol March 2017, available at: http://www.onlinejacc.org/content/early/2017/03/03/j.jacc.2017.03.001


### Revision History Information

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<th>Revision History Explanation</th>
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<td>10/01/2019</td>
<td>R5</td>
<td>10/01/2019: At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage. The following codes were added to Group 1 coding: I48.11 and I48.21 LCD was converted to the &quot;no-codes&quot; format.</td>
<td>Revisions Due To ICD-10-CM Code Changes, Revisions Due To Code Removal</td>
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<td>10/01/2018</td>
<td>R4</td>
<td>09.05.18: At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage determination; and, therefore not all the fields included on the LCD are applicable as noted in this policy. The following ICD-10 code was deleted from the ICD-10 Codes that Support Medical Necessity field: E78.4 was deleted from Group 1. The following ICD-10 Codes were added to the ICD-10 Codes that Support Medical Necessity field: E78.89. This revision is due to the Annual ICD-10 Code Update and becomes effective October 1, 2018.</td>
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<td>07/17/2017</td>
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<td>12/26/2017: At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage determination; and, therefore not all the fields included on the LCD are applicable as noted in this policy. Corrected typographical error in revision history R2. Codes I08.1, I08.2, I08.3 have been added to the policy per LCD</td>
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Reconsideration

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| 07/17/2017            | R2                      | 12/18/2017: At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage determination; and, therefore not all the fields included on the LCD are applicable as noted in this policy.
Codes I80.1, I80.2, I80.3 have been added to the policy per LCD Reconsideration. | • Reconsideration Request |
| 07/17/2017            | R1                      | Correct Links in the Sources of Information and Basis for Decision and typographical error | • Typographical Error |

**Associated Documents**

**Attachments**

N/A

**Related Local Coverage Documents**

**Article(s)**

A57184 - Billing and Coding: Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography

A55554 - Response to Comments: Cardiovascular Stress Testing, Including Exercise and/or Pharmacological Stress and Stress Echocardiography

**LCD(s)**

DL36889

- (MCD Archive Site)

**Related National Coverage Documents**

N/A

**Public Version(s)**

Updated on 09/19/2019 with effective dates 10/01/2019 - N/A

Updated on 09/05/2018 with effective dates 10/01/2018 - 09/30/2019

Updated on 12/26/2017 with effective dates 07/17/2017 - 09/30/2018

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- Cardiovascular
- Stress
- Testing
- Exercise
- Pharmacological
- Stress
- Echocardiography