Contractor Name
Wisconsin Physicians Service (WPS)

Contractor Number
00951, 00952, 00953, 00954

Contractor Type
Carrier

LCD Database ID Number

Wisconsin	L13984
Illinois	L13985
Michigan	L13986
Minnesota	L13987

LCD Version Number

LCD Title
Cardiac Stress Testing

Contractor's Determination Number
CV-004

AMA CPT/ ADA CDT Copyright Statement
CPT codes, descriptions and other data only are copyright 2003 American Medical Association (or such other date of publication of CPT). All Rights Reserved. Applicable FARS/DFARS Clauses Apply. CDT-4 codes and descriptions are © 2003 American Dental Association. All rights reserved.

CMS National Coverage Policy
Title XVIII of the Social Security Act section 1862 (a)(1)(A). This section allows coverage and payment of those services that are considered to be medically reasonable and necessary.

Title XVIII of the Social Security Act section 1862 (a)(7). This section excludes routine physical examinations and services

Title XVIII of the Social Security Act section 1833 (e). This section prohibits Medicare payment for any claim which lacks the necessary information to process the claim.

Medicare Claims Processing Manual Chapter 12 - Physicians/Non-physician Practitioners

Formerly MCM 15021, 15047

Primary Geographic Jurisdiction
Wisconsin, Illinois, Michigan, Minnesota

Oversight Region
Region V

CMS Consortium
Midwest

Original Determination Effective Date

Wisconsin	07/01/1996; 03/15/2003
Illinois:	12/15/1997; 03/15/2003
Michigan:	12/15/1997; 03/15/2003
Minnesota	03/15/2003

Revision Effective Date
*10/01/2006

Indications and Limitations of Coverage and/or Medical Necessity
LCD Abstract
Cardiovascular stress testing is a well-established procedure that has been in widespread clinical use for many decades. Stress testing is adjunctive to the history and physical examination in the diagnosis and treatment of the patient who has known or suspected heart disease. Cardiovascular stress testing uses cardiac physiological monitoring (including ECG, B/P and HR) during and after stress, with or without subsequent imaging such as echocardiography or nuclear cardiac imaging. Exercise testing is considered the standard of care for most patients when cardiovascular stress testing is indicated. Exercise may be in the form of a treadmill or cycle ergometry device. Pharmacologic agents are used when the patient is unable to perform exercise. Pharmacologic stress is typically performed with the use of dipyridamole, adenosine or dobutamine. A diseased heart responds abnormally to stress allowing a diagnostic determination to be made. Although exercise testing is generally a safe procedure, both myocardial infarction and death have been reported. Good clinical judgment, therefore, need to be used in deciding which patient should undergo exercise testing.

Indications and Limitations of Coverage and/or Medical Necessity
Cardiovascular stress testing is covered by Medicare when reasonable and necessary and in the absence of absolute contraindications. The safety of the patient must be assured.

A. Covered indications for cardiovascular stress testing include the following:
   1. Exercise Testing in the Diagnosis of Obstructive Coronary Artery Disease.
      - The vast majority of treadmill exercise testing is performed in adults with symptoms of known or suspected ischemic heart disease. The exercise test may be used if the diagnosis of CAD is uncertain. Myocardial ischemia is the most important cause of chest pain or discomfort and is most commonly a consequence of underlying coronary disease.

   2. Risk Assessment and Prognosis in Patients with Symptoms or a Prior History of Coronary Artery Disease.
      - Risk stratification with the exercise test does not take place in isolation but as part of a process that includes more readily accessible data from the clinical exam and other tests. Thus, the value of exercise testing for risk stratification must be considered in light of what is added to that which is already known about the patient's risk status.
        -Unless cardiac catheterization is indicated, patients with suspected or known CAD and new or changing symptoms suggesting ischemia should undergo exercise testing to assess the risk of future cardiac events.
        -There is no compelling evidence, in patient's who are classified as low risk based on clinical and exercise testing information, that an imaging modality adds significant new prognostic information to a standard exercise test.
      - Exercise or pharmacologic stress testing should generally be an integral part of the evaluation of low-risk patients with unstable angina who are evaluated on an

outpatient basis. In most cases testing should be performed within 72 hours of presentation.

- The results of exercise testing may be used to titrate medical therapy up to a desirable level. The other management step addressed by exercise testing is whether to proceed with additional testing. Patients with a low-risk exercise test result can be treated medically without need for referral to cardiac catheterization. Patients with high-risk exercise test should usually be referred for cardiac catheterization. Patients with an intermediate result should be referred for additional testing, either cardiac catheterization or an exercise imaging study.

3. After Myocardial Infarction:

   The post-MI evaluation is limited by the severity of the disease.

   - Exercise testing is useful in evaluation and treatment of patients after myocardial infarction. Exercise testing yields information on prognosis, functional capacity and assessment of adequacy of medical therapy and the need to employ other diagnostic or treatment options.

4. Valvular Heart Disease:
   - In symptomatic patients with documented valvular stenosis or regurgitation, the course of treatment is usually clear and exercise testing is not required. The primary value of exercise testing in valvular heart disease is to objectively assess atypical symptoms, exercise capacity, and extent of disability, which may have implications for medical, surgical, and social decision making. This is particularly of importance in the elderly, who are often asymptomatic because they are inactive.

5. Exercise Testing Before and After Revascularization
   - Patients who undergo myocardial revascularization should have documented ischemic or viable myocardium, especially if they are asymptomatic.
   - There are two phases after revascularization. In the early phase the goal of exercise testing is to determine the immediate result of revascularization. In the second phase the goal is to assist in guiding an appropriate cardiac rehabilitation program and return-to-work decisions.
   - After coronary bypass graft surgery, in symptomatic patients, exercise testing may be used to distinguish between cardiac and noncardiac causes of recurrent chest pain.
   - Restenosis remains the single major limitation of percutaneous coronary intervention. Unfortunately, symptom status is an unreliable index to development of restenosis; many patients complain of noncardiac pain after angioplasty, and many persons experience silent ischemia. Silent restenosis is a common clinical manifestation, with 25% of asymptomatic patients documented as having ischemia on exercise testing. The exercise ECG is an insensitive predictor of restenosis, with sensitivities ranging from 40% to 55%, significantly less than those obtainable with SPECT or exercise echocardiography.

6. Investigation of Heart Rhythm Disturbances
   - Use of exercise testing in patients with syncope may identify those with CAD, although this is usually not the cause of syncope.
   - The usefulness of exercise testing in patients with VT is variable, according to the cause of the tachycardia.

- Exercise testing is useful as a prelude to electrophysiological testing. Testing may be of prognostic value in these patients: 12 month mortality is three times greater in persons exhibiting exercise-induced ectopy than those with ectopy at rest only.
- In patients on antiarrhythmic therapy, sustained exercise-induced VT is associated with a high risk of sudden death.
- Patients developing supraventricular arrhythmias during exercise often display marked tachycardia due to their heightened adrenergic state. In patients with Wolff-Parkinson-White syndrome, exercise testing may be used to help evaluate the risk of developing rapid ventricular response during atrial arrhythmias.
- In patients with atrial fibrillation, effective rate control at rest does not necessarily signify rate control during exercise and the titration of additional drugs may be facilitated by exercise testing.
- Exercise testing may distinguish resting bradycardia with a normal exercise heart rate response from sinus node dysfunction with resting bradycardia and in patients who fail to make an exercise response.
- The development of adaptive rate pacing using various physiologic sensors has led to study of the exercise response being an important constituent in fine-tuning these pacemakers.

7. Silent Ischemia
    - To evaluate patients with previously documented silent ischemia where further therapeutic or clinical management decisions are expected.
    - To evaluate patients in whom silent ischemia is considered highly probable (i.e. a patient with neuropathic interference with normal sensation of pain).

B. Stress Echocardiography

1. As currently practiced (with the aid of digital acquisition and storage of relevant images), stress echocardiography is both sensitive and specific for detecting inducible myocardial ischemia in patients with intermediate to high pretest probability of coronary artery disease. In patients with a significant clinical suspicion of CAD, stress echocardiography is appropriate when standard exercise testing is likely to be non-diagnostic. Examples include conditions likely to reduce the validity of ST-segment analysis, such as the presence of resting ST-T wave abnormalities, left bundle branch block, ventricular paced rhythms, LV hypertrophy/strain, or digitalis treatment. When a noncardiac limitation precludes adequate exercise testing, pharmacological stress echocardiography is an appropriate alternative. Dobutamine stress echocardiography has substantially higher sensitivity than vasodilator stress echocardiography for detecting coronary stenoses. Treadmill stress echocardiography may have lowered sensitivity if there is a delay from the end of exercise to the acquisition of postexercise images. In patients with unstable angina who undergo revascularization by surgery or angioplasty, the completeness of revascularization and the functional significance of residual lesions can be determined using exercise or pharmacological stress echocardiography.

2. Graded stress echocardiography using intravenous dobutamine can help in assessing myocardial viability early after myocardial infarction.

    Occasionally, transesophageal stress echocardiogram is medically necessary in some patients who have a poor acoustic window and all other transthoracic indications are met. When these circumstances are met, the service is billable with the CPT code 93799 instead of the transthoracic stress echocardiography code (when a transthoracic approach

is attempted and unsuccessful, only the completed procedure, e.g., transesophageal, is billable; it is inappropriate to bill both).

C. The following services are considered not medically necessary:

1. Stimulus to motivate changes in lifestyle; e.g., weight loss or exercise programs do not meet the Medicare medical necessity criteria
2. Sports medicine
3 Routine follow-up tests for MI, CABG, or PTCA in the absence of symptoms or clinical indications (e.g., annual stress tests are not covered in the absence of individualized clinical indications).
4. Occupational fitness.

D. Absolute contraindications:

1. Patients with an immediate acute myocardial infarction, (depending on severity of disease).
2. Patients suffering from acute myocarditis or pericarditis.
3. Patients exhibiting signs of unstable progressive angina. This includes the patient who has long periods of angina of fairly recent onset while at rest.
4. Patients with rapid ventricular or atrial arrhythmias at the time of the test.
5. Patients with second- or third- degree heart block and patients with known severe left main disease.
6. Acutely ill patients, such as those with infections, hyperthyroidism, or severe anemia.

E. Pharmacologic ECG stress testing is indicated only when the patient is unable to exercise adequately. Documentation in the patient's record must clearly indicate that the patient is unable to exercise, as well as the reason(s) why the patient cannot undergo exercise stress testing. (A review of records may be performed to determine if drugs are being used appropriately.) The drugs used in cardiovascular testing are potent drugs with many side effects, and must be used with appropriate caution.

1. Dobutamine
   - HCPCS code J1250 - per 250 mg
   - Dosage is calculated according to the patient's weight (beginning at 5-10 mcg/kg/min) and increased (titrated) to reach the maximum heart rate for 2-5 minutes (for a 200-lb person, the total dose is not to exceed 35 mg).

2. Dipyridamole (Persantine)
   - HCPCS code J1245 - per 10 mg
   - Dosage is calculated according to the patient's weight (0.142 mg/kg/minute) and infused IV over approximately 4 minutes. The maximum dose is not to exceed 60 mg.

3. Adenosine (Adenoscan)
   - HCPCS code J0152 - per 30mg
   - Dosage is calculated according to the patient's weight (140 mcg/kg/minute) for 6 minutes. The total dose is not to exceed 0.84 mg/kg (for a 200-lb person, the total maximum dose would equal 76 mg).

     Note: Code J0150 – Adenosine (Adenocard) 6mg. It is inappropriate to use this code when billing Medicare Part B in conjunction with a stress test. This drug is indicated for treatment of supraventricular tachycardia (SVT) 427.0, 427.31,

427.32 and will be denied as not medically necessary when billed in conjunction with cardiac stress testing.

4. Arbutamine
   - HCPCS code J0395 - 1 mg
   - The maximum infusion rate delivered by its accompanying device is 0.8 mg/kg/min and the maximum total dose is 10mcg/kg.

Since these drugs may be billed for indications other than pharmacological stress agents with cardiovascular testing, the use of these drugs is not subject to the list of diagnoses listed in ICD-9 Codes That Support Medical Necessity. There may be a payable diagnostic indication for stress testing listed that would be considered a contraindication for the use of a specified drug. In this case, the drug itself may be denied. The indications for the use of these drugs must be documented in the patient's record as well as the appropriate ICD-9 code that describes the patient's condition.

F. Stress testing can be performed in conjunction with other cardiac diagnostic tests when medically necessary, including echocardiography and nuclear medicine studies. Only the most appropriate test(s) necessary to diagnose and subsequently treat the clinical condition should be performed.

Coverage Topic
Medicine; Cardiovascular

CPT/HCPCS Codes
93015, 93016, 93017, 93018, 93350, 93799,
J0152, J1245, J1250, J0395

Does the CPT 30% Rule Apply
No

ICD-9 Codes that Support Medical Necessity

250.60-250.63	Diabetes with neurological manifestations
250.90-250.93	Diabetes with unspecified complication
394.0-394.9	Diseases of mitral valve
395.0-395.2	Diseases of aortic valve
396.0-396.3	Disease of mitral and aortic valve
396.8	Multiple involvement of mitral and aortic valves
410.02-410.82	Myocardial Infarction
411.0	Postmyocardial Infarction syndrome
411.1	Intermediate coronary syndrome
411.81	Coronary occlusion without MI
411.89	Coronary insufficiency
413.0	Angina decubitus
413.1	Prinzmetal angina
413.9	Angina unspecified
414.00-414.05, 414.07	Coronary Atherosclerosis, unspecified vessel
414.8	Specified chronic ischemic heart disease
424.0	Mitral valve disorder
424.1	Aortic valve disorder
424.2	Tricuspid valve disorder
424.3	Pulmonary valve disorder

425.0-425.9	Cardiomyopathy
426.10-426.9	Conduction Disorders
427.0-427.89	Cardiac dysrhythmias
428.0-428.9	Heart failure
429.0	Myocarditis, unspecified
429.1	Myocardial degeneration
429.2	Cardiovascular disease, unspecified
429.3	Cardiomegaly
429.4	Disturbances following cardiac surgery
*429.83	Takotsubo syndrome (also called transient left ventricular (LV) apical ballooning)
433.10	Occlusion/stenosis carotid artery
433.11	Occlusion/stenosis carotid artery
440.0	Atherosclerosis aorta
440.20-440.9	Atherosclerosis of extremities
441.00-441.9	Aortic aneurysm
745.2-745.5	Tetralogy of Fallot, Common ventricle, Ventricular septal defect ASD
746.00-746.7	Congenital anomalies of heart
746.81	Subaortic stenosis
746.85	Coronary artery anomaly
780.2	Syncope
785.1	Palpitations
786.02	Orthopnea
786.05	Shortness of breath
786.09	Dyspnea
786.50	Chest pain, unspecified
786.51	Precordial pain
786.59	Other chest pain
794.30	Abnormal cardiovascular function study
794.31	Abnormal EKG
*995.20	Adverse effect of drug
996.02	Mechanical complication due to heart valve prosthesis
996.03	Mechanical complication Due to coronary bypass graft
996.1	Mechanical complication of graft
996.61	Infectious complication of graft
996.71	Complications to heart valve prosthesis
996.72	Complication due to cardiac graft
996.83	Complication due to heart transplant
V45.81	Aorto-coronary bypass, post surgical status
V42.1	Heart transplant
V42.2	Heart valve replacement
V43.3	Heart valve
V58.69	Aftercare for long-term high-risk drugs currently used
V67.51	Follow-up care for treatment with high-risk medications
V45.81	Aorto-coronary bypass, post surgical status
V72.81	Preoperative cardiovascular exam

Note: ICD-9 codes must be coded to the highest level of specificity.

Diagnoses that Support Medical Necessity

ICD-9 Codes that DO NOT Support Medical Necessity
Any code not listed above

Diagnoses that DO NOT Support Medical Necessity
Any diagnosis not listed above

Documentation Requirements

Utilization Guidelines
Stress testing is covered only at a frequency appropriate for the patient's condition. Documentation in the patient's progress notes must indicate medical necessity for the frequency.

Sources of Information and Basis for Decision
Rodgers, et al, CLINICAL COMPETENCE STATEMENT ON STRESS TESTING; JACC Vol. 36, 2000: 1441-53 (American College of Cardiology/American Heart Association Clinical Competence Statement on Stress Testing)
Gibbons et al, EXERCISE TESTING GUIDELINES; JACC Vol. 30, No. 1, July 1997:260-315 (ACC/AHA Guidelines for Exercise Testing)
ACC/AHA Task Force Report. Guidelines for Preoperative Cardiovascular Evaluation for Noncardiac Surgery; JACC 1996; 27(4): 910-948
ACC/AHA 2002 Guideline Update for Exercise Testing.
Drugs Facts and Comparisons; 2002

Advisory Committee Meeting Notes
Wisconsin: 09/26/2002
Illinois: 09/04/2002
Michigan: 09/04/2002
Minnesota: 09/26/2002

Start Date of Comment Period
Wisconsin: 09/26/2002
Illinois: 09/04/2002
Michigan: 09/04/2002
Minnesota: 09/26/2002

End Date of Comment Period
Wisconsin: 11/10/2003
Illinois: 11/10/2003
Michigan: 11/10/2003
Minnesota: 11/10/2003

Start Date of Notice Period

Wisconsin	Existing policy; 06/01/1996; Article 10/01/1996; Article 01/01/1997; 09/01/1997; Article 08/01/1998; Article 09/01/1999; Article 04/01/2002; 02/01/2003; Article 04/01/2003; Article 06/01/2003; Article 10/01/2003; Article 12/01/2003; Article 05/01/2006; *09/01/2006 Article
Illinois:	11/15/1997; 11/01/1999; 04/01/2000; 10/01/2000; 01/01/2001; 03/01/2001; 04/01/2001; Article 07/01/2002; Formerly ILMI 057; 02/01/2003; Article 04/01/2003; Article 06/01/2003; Article 10/01/2003; Article 12/01/2003; Article 05/01/2006; *09/01/2006 Article
Michigan:	11/15/1997; 11/01/1999; 04/01/2000; 10/01/2000; 01/01/2001; 03/01/2001; 04/01/2001; Article 07/01/2002; Formerly ILMI 057; 02/01/2003; Article

	04/01/2003; Article 06/01/2003; Article 10/01/2003; Article 12/01/2003; Article 05/01/2006; *09/01/2006 Article
Minnesota	02/01/2003; Article 04/01/2003; Article 06/01/2003; Article 10/01/2003; Article 12/01/2003; Article 05/01/2006; *09/01/2006 Article

Revision History Number and Explanation

Wisconsin	*10/01/2006 (2007 ICD-9 update); 05/01/2006 (clarification of billing contrast agents); 01/01/2004, HCPCS update - J0152) thirteen; 10/01/2003 twelve (04 ICD-9 UD); 06/01/2003 eleven (ICD-9 update); 04/01/2003 ten (ICD-9code update), nine; 02/01/2003, eight (Formerly CV-005); 04/01/2002, seven (code update & supervision revised) 07/20/1999, six (code update); 06/17/1998, five; 07/01/1997, four; 11/15/1996, three (code update); 09/01/1996, two; 01/15/1996, one
Illinois:	*10/01/2006 (2007 ICD-9 update); 05/01/2006 (clarification of billing contrast agents); 01/01/2004, HCPCS update - J0152) thirteen; 10/01/2003 twelve (04 ICD-9 UD); 06/01/2003 eleven (ICD-9 update); 04/01/2003 ten (ICD-9code update), nine; 02/01/2003, eight (Formerly ILMI 057); 11/01/1999, one & two (added, corrected ICD-9s); 10/01/2000, three (added ICD-9s); 01/01/2001, four (reprint, ICD-9s added); 01/01/2001, five (corrected ICD-9); 05/01/2001, six (ICD-9s added);07/01/2002 seven (code update)
Michigan:	*10/01/2006 (2007 ICD-9 update); 05/01/2006 (clarification of billing contrast agents); 01/01/2004, HCPCS update - J0152) thirteen; 10/01/2003 twelve (04 ICD-9 UD); 06/01/2003 eleven(ICD-9 update); 04/01/2003 ten(ICD-9code update), nine; 02/01/2003, eight (Formerly ILMI 057); 11/01/1999, one & two (added, corrected ICD-9s); 10/01/2000, three (added ICD-9s); 01/01/2001, four (reprint, ICD-9s added); 01/01/2001, five (corrected ICD-9); 05/01/2001, six (ICD-9s added), 07/01/2002 seven (code update)
Minnesota	*10/01/2006 (2007 ICD-9 update); 05/01/2006 (clarification of billing contrast agents); 01/01/2004, HCPCS update - J0152) four; 10/01/2003 three (04 ICD-9 UD); 06/01/2003 two (ICD-9 update); 04/01/2003 one(ICD-9code update)

This policy does not reflect the sole opinion of the contractor or Contractor Medical Director. Although the final decision rests with the contractor, this policy was developed in cooperation with advisory groups, which includes representatives from cardiology, internal medicine, family practice and other specialties.

Last Reviewed On
09/01/2004

Notes
* - An asterisk indicates a revision to that section of the policy.
There is a coding article associated with this LCD.

Does this LCD contain a "Least Costly Alternative" Provision?

No