

## LCD for Cardiac Catheterization and Coronary Angiography (L10880)

### Contractor Information

**Contractor Name:** Wisconsin Physicians Service Insurance Corporation

**Contractor Number:** 00952

**Contractor Type:** Carrier

### LCD Information

**LCD ID Number:** L10880 **Status:** A-Approved

**LCD Title:** Cardiac Catheterization and Coronary Angiography

**Contractor's Determination Number:** CV-006

**CMS National Coverage Policy:**

**Primary Geographic Jurisdiction:** Illinois

**Original Determination Effective Date:** 09/15/2002

**Original Determination Ending Date:**

**Revision Effective Date:** 10/01/2007

**Revision End Date:**

### Indications and Limitations of Coverage and/or Medical Necessity:

A. Covered indications for left cardiac catheterization/coronary angiography include the following:

Cardiac catheterization/coronary angiography is considered the standard for evaluating ventricular function, assessing valvular heart disease and coronary artery anatomy for patient management. While other methods are available, and are important in the overall evaluation, cardiac catheterization combined with coronary angiography is typically considered the key in clinical decision-making in the surgical or percutaneous candidates. The anatomic definition provided with cardiac catheterization and coronary angiography may include assessment of the right and left heart function, valvular function, congenital heart disease, coronary anatomy, status of bypass graft, presence, extent, and severity of obstructive atherosclerotic coronary disease, coronary artery size, coronary collateral flow, thrombus formation, dynamic obstructions (coronary spasm), congenital coronary artery anomalies, and/or other anomalies (e.g., dissection due to trauma, aneurysmal dilation due to Kawasaki disease).

Cardiac catheterization and coronary angiography are performed for diagnostic purposes, to assess the appropriateness and feasibility of various forms of cardiac therapy including medical therapy, interventional therapy, and particularly cardiac surgery. Coronary angiography is aimed directly at assessing the coronary arteries for treatment (e.g., PTCA, CABG, thrombolysis, and medical management), assessing the results of therapy, and determining the prognosis in patients with coronary artery disease.

A cardiac catheterization procedure typically includes insertion of a catheter through a vessel by cutdown or percutaneous technique (e.g., femoral, brachial, axillary, radial artery, left ventricular puncture) with local anesthesia and appropriate sedation. The catheter is advanced through the circulatory system into the heart under fluoroscopic guidance. Hemodynamic measurements to assess ventricular function, and/or valvular function, blood samples, injections of contrast, or endomyocardial biopsy may be performed during the procedure. Coronary arteries are visualized directly with selective angiography by injecting contrast material. Multiple catheter types may be inserted for specific procedures.

A. Covered indications for left cardiac catheterization/coronary angiography include the following:

1. Patients without symptoms or with atypical symptoms, who have had documented evidence of CAD on specified noninvasive cardiac testing:
  - a. Rest or exercise-induced electrocardiography (ECG) abnormalities suggesting myocardial ischemia associated with other risk factors. Abnormal exercise ECG including ST segment depression, exercise-induced ST elevation in leads other than aVr, blunted systolic blood pressure response during progressive exercise, or exercise-induced ventricular tachycardia.
  - b. Abnormal myocardial perfusion scintigraphy includes radiopharmaceutical distribution that is compatible with coronary ischemia: decreased distribution in one or more vascular regions at rest or with exercise, evidence of transient ischemic dilation, or abnormal distribution associated with increased lung uptake produced by exercise in the absence of severely depressed left ventricular function at rest.
  - c. Abnormal radionuclide ventriculography where the left ventricular ejection fraction falls during exercise or rest, and the findings are suggestive of CAD.
  - d. Abnormal echocardiographic global or regional left ventricular function at rest or in response to pharmacologic or exercise stress testing.
2. After successful resuscitation from cardiac arrest when a reasonable suspicion of coronary artery disease exists.
3. Prior to a high risk surgery, which includes major emergency surgery, aortic and other major vascular surgery, peripheral vascular surgery, and anticipated prolonged procedures associated with large fluid shifts and/or blood loss.
4. Angina that has proven inadequately responsive to medical treatment or prior intervention (e.g., PTCA, thrombolytic therapy, CABG).
5. Acute Coronary Syndrome including unstable angina, non-ST elevation MI and ST elevation MI.
6. Angina associated with abnormal results of non-invasive cardiac testing that are suggestive of CAD.
7. When the presence of atypical chest pain due to coronary spasm is suspected, or there are signs and symptoms of abnormal left ventricular function.
8. Complicated myocardial infarction, when one of the following exist:
  - a. The patient experiences an episode(s) of ischemic chest pain, particularly when accompanied with ECG changes.
  - b. Mitral regurgitation or ruptured interventricular septum is suspected, particularly when accompanied with heart failure or shock.
  - c. Subacute cardiac rupture (pseudoaneurysm) is suspected.
  - d. Hemodynamic compromise or clinical heart failure exists.
  - e. After non-Q-wave myocardial infarction, particularly when there is suspicion of ischemia post-MI.
  - f. Recurrent, potentially malignant ventricular arrhythmias.
  - g. Evidence of myocardial ischemia (e.g., abnormal blood pressure response or ventricular tachycardia on pre-discharge exercise stress testing, abnormal laboratory testing or non-invasive cardiac tests).
  - h. Heart failure or left ventricular ejection fraction is significantly decreased and is associated with manifestations of recurrent myocardial ischemia, or is associated with significant ventricular arrhythmias.
  - i. Evaluation for multivessel disease for prognosis and management.

9. When valve surgery is being considered, or other listed valvular pathology exists in an adult patient with chest discomfort or ECG changes, and the patient is at risk for CAD.
10. When corrective open heart surgery for congenital heart disease is being planned, and the patient is at risk for CAD.
11. Evaluation of patients with congenital heart disease who have signs or symptoms suggesting associated CAD.
12. Suspected congenital coronary anomalies (such as congenital coronary artery stenosis, coronary arteriovenous fistula, anomalous origin of left coronary artery) provided that aortography is not diagnostic.
13. In diseases affecting the aorta when knowledge of the presence or extent of coronary artery involvement is necessary for management.
14. The presence of left ventricular failure without obvious cause.
15. Patients with hypertrophic cardiomyopathy who are being evaluated for therapy of outflow tract obstruction.
16. The presence of, or suspicion of, heart neoplasms.
17. Post-cardiac transplant, to assess for rejection and/or coronary artery disease.
18. Hemodynamic evaluation of pulmonary hypertension

B. Covered indications for right heart catheterization, or combined right and left heart catheterization procedures include the following:

1. In situations in which right ventricular function may be abnormal (right ventricular infarction, tricuspid regurgitation, ventricular septal defect).
2. Where pulmonary artery disease is suspected (e.g., pulmonary hypertension, pulmonary emboli, pulmonary vascular abnormalities).
3. Where unexplained congestive heart failure is present, or right heart failure due to pulmonary hypertension or pulmonary interstitial disease.
4. Where intracardiac shunt is suspected (e.g., atrial septal defect), ventricular septal defect, papillary muscle rupture, or pseudoaneurysm complicating an acute myocardial infarction.
5. Abnormal findings from cardiac testing (e.g., echocardiogram) indicating right heart disease.
6. Cardiomyopathy.
7. Clinically suspected or known valvular heart disease.
8. Post-cardiac transplant, to assess ventricular function and/or rejection.
9. Known or suspected significant pericardial disease, myocarditis, or endocarditis.
10. Congenital heart disease affecting the right heart.

**Coverage Topic:**

## Coding Information

**Bill Type Codes: In Progress**

Contractors may specify Bill Types to help providers identify those Bill Types typically used to report this service. Absence of a Bill Type does not guarantee that the policy does not apply to that Bill Type. Complete absence of all Bill Types indicates that coverage is not influenced by Bill Type and the policy should be assumed to apply equally to all claims.

**Revenue Codes:**

Contractors may specify Revenue Codes to help providers identify those Revenue Codes typically used to report this service. In most instances Revenue Codes are purely advisory; unless specified in the policy services reported under other Revenue Codes are equally subject to this coverage determination. Complete absence of all Revenue Codes indicates that coverage is not influenced by Revenue Code and the policy should be assumed to apply equally to all Revenue Codes.

**CPT/HCPCS Codes:**

33967	INSERTION OF INTRA-AORTIC BALLOON ASSIST DEVICE, PERCUTANEOUS
93501	RIGHT HEART CATHETERIZATION
93503	INSERTION AND PLACEMENT OF FLOW DIRECTED CATHETER (EG, SWAN-GANZ) FOR MONITORING PURPOSES
93505	ENDOMYOCARDIAL BIOPSY
93508	CATHETER PLACEMENT IN CORONARY ARTERY(S), ARTERIAL CORONARY CONDUIT(S), AND/OR VENOUS CORONARY BYPASS GRAFT(S) FOR CORONARY ANGIOGRAPHY WITHOUT CONCOMITANT LEFT HEART CATHETERIZATION
93510	LEFT HEART CATHETERIZATION, RETROGRADE, FROM THE BRACHIAL ARTERY, AXILLARY ARTERY OR FEMORAL ARTERY; PERCUTANEOUS
93511	LEFT HEART CATHETERIZATION, RETROGRADE, FROM THE BRACHIAL ARTERY, AXILLARY ARTERY OR FEMORAL ARTERY; BY CUTDOWN
93514	LEFT HEART CATHETERIZATION BY LEFT VENTRICULAR PUNCTURE
93524	COMBINED TRANSSEPTAL AND RETROGRADE LEFT HEART CATHETERIZATION
93526	COMBINED RIGHT HEART CATHETERIZATION AND RETROGRADE LEFT HEART CATHETERIZATION
93527	COMBINED RIGHT HEART CATHETERIZATION AND TRANSSEPTAL LEFT HEART CATHETERIZATION THROUGH INTACT SEPTUM (WITH OR WITHOUT RETROGRADE LEFT HEART CATHETERIZATION)
93528	COMBINED RIGHT HEART CATHETERIZATION WITH LEFT VENTRICULAR PUNCTURE (WITH OR WITHOUT RETROGRADE LEFT HEART CATHETERIZATION)
93529	COMBINED RIGHT HEART CATHETERIZATION AND LEFT HEART CATHETERIZATION THROUGH EXISTING SEPTAL OPENING (WITH OR WITHOUT RETROGRADE LEFT HEART CATHETERIZATION)
93530	RIGHT HEART CATHETERIZATION, FOR CONGENITAL CARDIAC ANOMALIES
93531	COMBINED RIGHT HEART CATHETERIZATION AND RETROGRADE LEFT HEART CATHETERIZATION, FOR CONGENITAL CARDIAC ANOMALIES
	COMBINED RIGHT HEART CATHETERIZATION AND

93532	TRANSSEPTAL LEFT HEART CATHETERIZATION THROUGH INTACT SEPTUM WITH OR WITHOUT RETROGRADE LEFT HEART CATHETERIZATION, FOR CONGENITAL CARDIAC ANOMALIES
93533	COMBINED RIGHT HEART CATHETERIZATION AND TRANSSEPTAL LEFT HEART CATHETERIZATION THROUGH EXISTING SEPTAL OPENING, WITH OR WITHOUT RETROGRADE LEFT HEART CATHETERIZATION, FOR CONGENITAL CARDIAC ANOMALIES
93539	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR SELECTIVE OPACIFICATION OF ARTERIAL CONDUITS (EG, INTERNAL MAMMARY), WHETHER NATIVE OR USED FOR BYPASS
93540	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR SELECTIVE OPACIFICATION OF AORTOCORONARY VENOUS BYPASS GRAFTS, ONE OR MORE CORONARY ARTERIES
93541	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR PULMONARY ANGIOGRAPHY
93542	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR SELECTIVE RIGHT VENTRICULAR OR RIGHT ATRIAL ANGIOGRAPHY
93543	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR SELECTIVE LEFT VENTRICULAR OR LEFT ATRIAL ANGIOGRAPHY
93544	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR AORTOGRAPHY
93545	INJECTION PROCEDURE DURING CARDIAC CATHETERIZATION; FOR SELECTIVE CORONARY ANGIOGRAPHY (INJECTION OF RADIOPAQUE MATERIAL MAY BE BY HAND)
93555	IMAGING SUPERVISION, INTERPRETATION AND REPORT FOR INJECTION PROCEDURE(S) DURING CARDIAC CATHETERIZATION; VENTRICULAR AND/OR ATRIAL ANGIOGRAPHY
93556	IMAGING SUPERVISION, INTERPRETATION AND REPORT FOR INJECTION PROCEDURE(S) DURING CARDIAC CATHETERIZATION; PULMONARY ANGIOGRAPHY, AORTOGRAPHY, AND/OR SELECTIVE CORONARY ANGIOGRAPHY INCLUDING VENOUS BYPASS GRAFTS AND ARTERIAL CONDUITS (WHETHER NATIVE OR USED IN BYPASS)

#### ICD-9 Codes that Support Medical Necessity:

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

#### **Cardiac Catheterization/Coronary Angiography** (93501, 93508, 93510, 93511, 93514, 93524, 93526, 93527, 93528, 93529)

074.20 - 074.23 ± Cocksackie carditis, unspecified - Cocksackie myocarditis

093.1 - 093.82 ± Syphilitic aortitis - Syphilitic myocarditis

098.83 - 098.84 ± Gonococcal pericarditis - Gonococcal endocarditis

112.81 Candidal endocarditis

115.03 Infection by Histoplasma capsulatum, pericarditis

115.04 Infection by Histoplasma capsulatum, endocarditis

115.13 Infection by Histoplasma duboisii, pericarditis

115.14 Infection by Histoplasma duboisii, endocarditis

130.3 Myocarditis due to toxoplasmosis

164.1 Malignant neoplasm of heart

198.89	Secondary malignant neoplasm of other sites
212.7	Benign neoplasm of heart
238.8	Neoplasm of uncertain behavior of other specified sites
239.8	Neoplasms of unspecified nature, other specified sites
391.0 - 392.0 ±	Acute rheumatic pericarditis - Rheumatic chorea with heart involvement
394.0 - 394.9 ±	Mitral stenosis - Other and unspecified mitral valve diseases
395.0 - 395.9 ±	Rheumatic aortic stenosis - Other and unspecified rheumatic aortic diseases
396.0 - 396.9 ±	Mitral valve stenosis and aortic valve stenosis - Mitral and aortic valve diseases, unspecified
397.0 - 397.9 ±	Diseases of tricuspid valve - Rheumatic diseases of endocardium, valve unspecified
398.0 - 398.91 ±	Rheumatic myocarditis - Rheumatic heart failure (congestive)
410.00 - 410.82 ±	Infarction of anterolateral wall, episode of care unspecified - Infarction of other specified sites, subsequent episode of care
411.0 - 411.89 ±	Postmyocardial infarction syndrome - Other ischemic heart disease
412	Old myocardial infarction
413.0 - 413.9 ±	Angina decubitus - Other and unspecified angina pectoris
414.00 - 414.8 ±	Coronary atherosclerosis of unspecified vessel - Other specified forms of chronic ischemic heart disease
415.0 - 415.19 ±	Acute cor pulmonale - Other pulmonary embolism and infarction
416.0 - 416.9 ±	Primary pulmonary hypertension - Chronic pulmonary heart disease, unspecified
417.0 - 417.1 ±	Arteriovenous fistula of pulmonary vessels - Aneurysm of pulmonary artery
420.0 - 420.99 ±	Acute pericarditis in diseases classified elsewhere - Other pericarditis
421.0 - 421.9 ±	Acute and subacute bacterial endocarditis - Acute endocarditis, unspecified
422.0 - 422.99 ±	Acute myocarditis in diseases classified elsewhere - Other myocarditis
423.0 - 423.9 ±	Hemopericardium - Unspecified disease of pericardium
424.0 - 424.99 ±	Mitral valve disorders - Other endocarditis
425.0 - 425.9 ±	Endomyocardial fibrosis - Secondary cardiomyopathy, unspecified
426.0 - 427.9 ±	Atrioventricular block, complete - Cardiac dysrhythmia, unspecified
428.0 - 428.9 ±	Congestive heart failure - Heart failure, unspecified
429.0 - 429.1 ±	Myocarditis, unspecified - Myocardial degeneration
429.3 - 429.79 ±	Cardiomegaly - Other cardiac defect
429.81 - 429.83 ±	Other disorders of papillary muscle - Takotsubo syndrome
429.89	Other ill-defined heart disease
429.9	Heart disease, unspecified
441.4 - 441.9 ±	Abdominal aneurysm without rupture - Aortic aneurysm of unspecified site without rupture
745.0 - 747.49 ±	Common truncus - Other anomalies of great veins
785.2 - 785.3 ±	Undiagnosed cardiac murmurs - Other abnormal heart sounds
785.51	Cardiogenic shock
786.50 - 786.59 ±	Chest pain, unspecified - Other chest pain
794.30 - 794.39 ±	Abnormal function study, unspecified - Other abnormal results of function studies
795.4	Other nonspecific abnormal histological findings
960.7	Poisoning by antineoplastic antibiotics
996.83	Complications, transplanted heart
997.1	Cardiac complications
998.0	Postoperative shock
V42.1	Organ or tissue replaced by transplant, heart
V47.2	Other cardiorespiratory problems
V58.11	Encounter for antineoplastic chemotherapy
V58.12	Encounter for immunotherapy for neoplastic condition
V67.2	Follow-up examination following chemotherapy

**Cardiac Catheterizations for congenital anomalies** (93530, 93531, 93532, 93533)

745.0 - 747.49 ± Common truncus - Other anomalies of great veins

785.2 - 785.3 ± Undiagnosed cardiac murmurs - Other abnormal heart sounds

794.30 - 794.39 ± Abnormal function study, unspecified - Other abnormal results of function studies

**Diagnosis that support medical necessity.**

NA

**ICD-9 Codes that DO NOT Support Medical Necessity****ICD-9 Codes that DO NOT Support Medical Necessity Asterisk Explanation**

Any ICD-9 code that is not listed above

**Diagnoses that DO NOT Support Medical Necessity**

NA

**General Information****Documentation Requirements**

1. *Documentation supporting the medical necessity of this item, such as ICD-9 codes, must be submitted with each claim. Claims submitted without such evidence will be denied as being not medically necessary.*
2. The patients medical records should be legible, contain the relevant history, physical findings conforming to the criteria stated in the "Indications and Limitations of Coverage and/or Medical Necessity" section of this policy, and must be made available to the Carrier on request.

**Appendices****Utilization Guideline**

N/A

**Sources of Information and Basis for Decision**

1. IL C012/B5246.9/CAT PTCA 2;
2. Cross-Reference: (Interventional Cardiology 5-92980M),
3. IL 07/28/94, FKA113; IL CO2/B2020G, 03/24/93;
4. Ross, et. al., ACC/AHA Task Force, "Guidelines for Coronary Angiography", JACC, Vol. 10, No. 4, October 1987:935-50;
5. Williams, et. al., ACC/AHA Task Force, "Guidelines for the Evaluation and Management of Heart Failure", JACC, Vol. 26, No. 5, November 1, 1995:1376-98;
6. ACC/AHA Guidelines for Cardiac Catheterization and Cardiac Catheterization Laboratories, JACC Volume 18, No. 5, November 1, 1991, 1149-1182;
7. ACC Position Statement on Right Heart Catheterization adopted by the ACC executive Committee on March 9, 1985 and re-approved in 1990.
8. Scanlon and Faxon, "ACC/AHA Guidelines for Coronary Angiography: Executive Summary and Recommendations" Circulation, Volume 99, No. 17, May 1999: 2345-57.
9. Eagle et al., "Perioperative Cardiovascular Evaluation for Noncardiac Surgery" JACC Volume 27, 1996; 5-7

**Advisory Committee Meeting Notes**

Meeting Dates: Illinois: 01/12/2000; 01/31/2002

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 and all specialties.

**Start Date of Comment Period**

2002-01-31 00:00:00.0

**End Date of Comment Period**

2002-03-15 00:00:00.0

**Start Date of Notice Period**

2007-09-01 00:00:00.0

**Revision History Number**

6

**Revision History Explanation**

10/01/2007-08 code update 414.2, 415.12, 423.3 added per article - included in code ranges for /cpt codes 93501, 93508, 93510, 93511, 93514, 93524, 93526, 93527, 93528, 93529

**Last Reviewed On Date**

09/05/2007