



MASSACHUSETTS

Blue Cross Blue Shield of Massachusetts is an Independent Licensee of the Blue Cross and Blue Shield Association

Medical Policy

Cardiac Catheterization and Coronary Angiography

Table of Contents

- [Policy: Commercial](#)
- [Authorization Information](#)
- [Coding Information](#)
- [Description](#)
- [Policy History](#)
- [References](#)
- [Information Pertaining to All Policies](#)
- [Endnotes](#)

Policy Number: 116

BCBSA Reference Number: N/A

Related Policies

Percutaneous Coronary Intervention, #[117](#)

Policy¹

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

The guidelines in this policy outline the indications for coverage of each procedure.

1. [Right Heart Catheterization](#)
2. [Left Heart Catheterization](#)
3. [Left Heart Catheterization by Transseptal Puncture](#)
4. [Cardiac Angiography](#)
5. [Pulmonary Angiography](#)
6. [Intra-Coronary Ultrasound and Doppler Functional Flow Reserve Studies](#)
7. [Physiologic Exercise Study with Hemodynamic Measurement](#)
8. [Angioplasty/Stent Placement/Atherectomy](#)

Right Heart Catheterization

Right heart catheterization is **MEDICALLY NECESSARY** to evaluate:

1. Valvular heart disease.
2. Congestive heart failure.
3. Congenital heart disease.
4. Cor pulmonale.
5. Pulmonary hypertension.
6. Intracardiac shunts (including septal rupture) and extracardiac vascular shunts.
7. Suspected cardiomyopathy or myocarditis.
8. Endocarditis anticipated to require valvular surgical repair.
9. Suspected rejection of a transplanted heart.
10. Suspected pericardial tamponade or constriction.

Right heart catheterization is **NOT MEDICALLY NECESSARY** for:

1. Atherosclerotic heart disease without heart failure; **or**

2. Coronary angioplasty, electrophysiologic studies or other interventional procedures.

Left Heart Catheterization

Left heart catheterization is considered **MEDICALLY NECESSARY** for the diagnosis of, or treatment planning for:

1. myocardial abnormalities or dysfunction (including ischemic disease, myocarditis, cardiomyopathy)
2. valvular dysfunction
3. intracardiac shunts
4. congenital heart abnormalities
5. cardiac trauma
6. pericardial tamponade.

Left Heart Catheterization by Transseptal Puncture

The transseptal catheterization may be considered **MEDICALLY NECESSARY** in those cases in which:

1. access to the left ventricle is required for hemodynamic measurements or angiography, when retrograde arterial access is not feasible or appropriate
2. access to the left atrium and pulmonary veins is necessary for hemodynamic measurements and angiography
3. access to the left atrium and ventricle is necessary for the performance of diagnostic and therapeutic electrophysiological procedures.

Cardiac Angiography

Angiograms of the individual cardiac chambers (atria and ventricles) are considered **MEDICALLY NECESSARY** for the assessment of:

1. mitral or tricuspid valve function
2. ventricular function or morphology (including tumors and clots)
3. suspected ventricular aneurysms
4. intracardiac shunts
5. congenital heart disease
6. cardiac trauma.

Coronary and bypass angiography are considered **MEDICALLY NECESSARY** for the diagnosis of, or treatment planning for:

1. anginal syndromes
2. atypical chest pain syndrome suggesting ischemia
3. congenital heart disease
4. following cardiac arrest suspected to be due to ischemia or infarction
5. myocardial infarction
6. known atherosclerotic or other coronary disease
7. suspected graft or stent/PTCA closure
8. Prinzmetal's angina
9. coronary shunts and fistulae
10. cardiac trauma
11. non-coronary cardiac surgical procedures (e.g., aortic or mitral valve surgery when not requiring left heart catheterization).
12. non-cardiac surgical procedures (arterial or aortic surgery, or surgery with large fluid shifts) in high-risk patients with evidence of ischemic heart disease.

Pulmonary Angiography

Pulmonary angiography is **MEDICALLY NECESSARY** for:

1. suspected pulmonary emboli
2. pulmonary hypertension
3. pulmonary A-V malformations or shunts
4. pulmonary artery stenosis
5. congenital heart disease affecting the pulmonary vasculature including pulmonary venous return.

Intracoronary Ultrasound and Doppler Functional Flow Reserve Studies

Intracoronary ultrasound may be considered **MEDICALLY NECESSARY** to assess the extent of coronary stenosis if equivocal on angiography, or to assess the patency and integrity of a coronary artery post-intervention.

Intravascular doppler velocity and/or pressure derived coronary flow reserve measurement may be considered **MEDICALLY NECESSARY** to assess the degree of stenosis within a vessel.

Physiologic Exercise Study with Hemodynamic Measurement

The performance of physiologic exercise to assess hemodynamic effects is **MEDICALLY NECESSARY** when performed as a diagnostic test to evaluate cardiac abnormalities such as valve dysfunction, ventricular dysfunction or shunt ratios.

All such interventions must include pre-, intra- and post-exercise measurement of ventricular function (e.g., ejection fraction or wall motion) or hemodynamics.

Angioplasty/Stent Placement/Atherectomy

The interventional procedures: percutaneous transluminal angioplasty, coronary stent placement and atherectomy are described in a separate policy (#117) Percutaneous Coronary Intervention.

Extra-Cardiac Angiography performed with Cardiac Catheterization

Extra-cardiac angiography (e.g., injection of the abdominal aorta, carotid, iliofemoral or renal arteries) is sometimes performed during the same session with cardiac catheterization.

These procedures are considered **MEDICALLY NECESSARY** for the following conditions:

1. a transient ischemic attack
2. hypertensive heart and kidney disease
3. atherosclerosis
4. aneurysm
5. embolism and thrombosis
6. artery dissection.

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is not required .
Commercial PPO and Indemnity	Prior authorization is not required .

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

The above **medical necessity criteria MUST** be met for the following CPT codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
93451	Right heart catheterization including measurement(s) of oxygen saturation and cardiac output, when performed
93453	Combined right and left heart catheterization including intraprocedural injection(s) for left ventriculography, imaging supervision and interpretation, when performed
93456	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right heart catheterization
93457	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography and right heart catheterization
93460	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed
93461	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed, catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) with bypass graft angiography

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

The above **medical necessity criteria MUST** be met for the following CPT codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
93452	Left heart catheterization including intraprocedural injection(s) for left ventriculography, imaging supervision and interpretation, when performed
93453	Combined right and left heart catheterization including intraprocedural injection(s) for left ventriculography, imaging supervision and interpretation, when performed
93458	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed
93459	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed, catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) with bypass graft angiography
93460	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed

93461	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed, catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) with bypass graft angiography
-------	---

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

In addition to the covered diagnosis codes in Billing and Coding Article A52850, the following ICD diagnosis code is considered medically necessary for commercial products when submitted with the CPT/HCPCS codes above if medical necessity criteria are met:

ICD-10 Diagnosis Codes

ICD-10-CM diagnosis codes:	Code Description
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site

The above medical necessity criteria **MUST** be met for the following CPT codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
93454	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation;
93455	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography
93456	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right heart catheterization
93457	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography and right heart catheterization

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

The above medical necessity criteria **MUST** be met for the following CPT codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
93593	Right heart catheterization for congenital heart defect(s) including imaging guidance by the proceduralist to advance the catheter to the target zone; normal native connections

93594	Right heart catheterization for congenital heart defect(s) including imaging guidance by the proceduralist to advance the catheter to the target zone; abnormal native connections
93595	Left heart catheterization for congenital heart defect(s) including imaging guidance by the proceduralist to advance the catheter to the target zone, normal or abnormal native connections
93596	Right and left heart catheterization for congenital heart defect(s) including imaging guidance by the proceduralist to advance the catheter to the target zone(s); normal native connections
93597	Right and left heart catheterization for congenital heart defect(s) including imaging guidance by the proceduralist to advance the catheter to the target zone(s); abnormal native connections
93598	Cardiac output measurement(s), thermodilution or other indicator dilution method, performed during cardiac catheterization for the evaluation of congenital heart defects (List separately in addition to code for primary procedure)

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

The above **medical necessity criteria MUST** be met for the following CPT code to be covered for Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity:

CPT Codes

CPT codes:	Code Description
93505	Endomyocardial biopsy

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

In addition to the covered diagnosis codes in Billing and Coding Article A52850, the following ICD diagnosis code is considered medically necessary for commercial products when submitted with the CPT/HCPCS codes above if **medical necessity criteria** are met:

ICD-10 Diagnosis Codes

ICD-10-CM diagnosis codes:	Code Description
I40.9	Acute myocarditis, unspecified

Extra-Cardiac Angiography Performed During the Same Encounter as Cardiac Catheterization

Note: In addition to the covered diagnosis codes in Billing and Coding Article A52850, any procedure code from column 1 must be accompanied by any procedure code from column 2 and any procedure code from column 3 to be considered medically necessary.

[Link to A52850 Billing and Coding: Cardiac Catheterization and Coronary Angiography covered ICD diagnosis codes](#)

Column 1 CPT/HCPCS code	Column 2 CPT/HCPCS code	Column 3 CPT/HCPCS code
75625	36140	93451
75630	36200	93453
75705	36215	93456
75710	36216	93457

75716	36217	93460
	36218	93461
		93452
		93458
		93459
		93454
		93455
		93593
		93594
		93595
		93596
		93597
		93598

Description

Cardiac catheterization is the introduction and positioning of a catheter in the heart to assess cardiac function and structure, for diagnosis, treatment planning or to assess therapy. This assessment may include the measurement of intracardiac and intra-vascular pressures, obtaining blood samples for blood gas or other constituent analysis, determination of cardiac output, injection of contrast for angiography, and performing endomyocardial biopsy. The conduct and evaluation of these procedures are then documented and interpreted by the physician, in a report.

Cardiac catheterization may be utilized in various clinical situations ranging from those requiring only a right heart catheterization to those requiring the performance of right and left heart catheterization with simultaneous diagnostic procedures including coronary and bypass angiography, angiography of the cardiac chambers, aortic and pulmonary angiography, endomyocardial biopsy, and extra-cardiac angiography.

The guidelines in this policy outline the indications for coverage of each procedure:

- Right Heart Catheterization Indications
- Left Heart Catheterization Indications and Limitations
- Left Heart Catheterization by Transseptal Puncture
- Cardiac Angiography Indications and Limitations
- Pulmonary Angiography Indications
- Intra-Coronary Ultrasound and Doppler Functional Flow Reserve Studies
- Pharmacologic Agent Administration with Hemodynamic Assessment
- Physiologic Exercise Study with Hemodynamic Measurement
- Angioplasty/Stent Placement/Atherectomy Indications and Limitations.

Right Heart Catheterization

This is the introduction of a catheter(s) into the right atrium, right ventricle and pulmonary artery. It generally includes hemodynamic measurements, and cardiac output determination, and may also include, when medically indicated, shunt determinations, and/or blood sampling, and/or hydrogen arrival time as part of the procedure. Placement of catheter(s), repositioning, and replacement with other catheters are included as part of the procedure. Cannulation of the coronary sinus is included in this procedure. Right heart catheterization is a formal diagnostic procedure (with report) performed in a catheterization or other procedure suite, as compared to Swan-Ganz catheterization which is generally performed for ongoing monitoring of the patient (after the initial diagnostic results are recorded), performed at the bedside, or in an operating room, emergency department or other intensive/critical care unit. The results of the Swan-Ganz catheterization may be recorded in the progress notes rather than by a formal report.

Right heart catheterization, performed along with left heart catheterization, coronary angiography, or both, is seldom medically reasonable and necessary unless one disease process appears to affect both sides of the heart, or a different disease process appears to affect each side of the heart.

Left Heart Catheterization

This is the introduction of a catheter(s) into the left ventricle (LV). The catheter may be inserted retrograde from the brachial, axillary or femoral artery; by cutdown or percutaneously; or transseptally via a patent foramen ovale or by septal puncture; or transapically. The catheterization also includes catheterization of the left atrium and aorta when performed with the LV catheterization. It includes all hemodynamic measurements (with and without maneuvers and/or infusions or medication), blood sampling and shunt determinations as part of the procedure. Placement of multiple catheters and their repositioning or replacement is included in this procedure.

Left Heart Catheterization by Transseptal

A catheter with an enclosed transseptal puncture needle is positioned into the right atrium, and under fluoroscopic and/or ultrasonic guidance is advanced, puncturing an intact intra-atrial septum thereby entering the left atrium. The needle is then removed, leaving the catheter through which a guide wire may be advanced to facilitate placement of appropriate catheters into the left atrium and left ventricle. This procedure should not be billed if the catheter is advanced into the left atrium through a patent foramen ovale or atrial septal defect.

Coronary angiography

Coronary angiography is a single procedure which includes arteriograms of all coronary arteries and their branches, regardless of the number of vessels selectively catheterized or visualized, with and without the administration of diagnostic or therapeutic vasoactive medications.

Policy History

Date	Action
11/2024	Updated link to A52850.
10/2024	New medical policy describing medically necessary and not medically necessary indications. Effective 10/1/2024.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

References

1. American College of Cardiology/American Heart Association Task Force. Guidelines for coronary angiography. *J Am Coll Cardiol.* 1987;10:935-950.
2. American College of Cardiology Position Statement on Right Heart Catheterization. Adopted by the American College of Cardiology Executive Committee on March 9, 1985; re-approved in 1990.
3. American College of Cardiology/American Heart Association Ad Hoc Task Force on Cardiac Catheterization. ACC/AHA guidelines for cardiac catheterization and cardiac catheterization laboratories. *J Am Coll Cardiol.* 1991;18(5):1149-1182.
4. American College of Cardiology/American Heart Association Task Force. Guidelines for the evaluation and management of heart failure. *J Am Coll Cardiol.* 1995;26:1376-1398.
5. Braunwald E. Heart Disease: A Textbook of Cardiovascular Medicine. Sixth Edition. St. Louis, MO: WB Saunders Co; February 2001.
6. HealthGate Data Corporation. Swan-Ganz Catheterization. May 1998.
7. Other carrier's local medical review policy (legacy Empire Medicare Services Part B and Administar Federal Part B).
8. Practice Guidelines for Pulmonary Artery Catheterization: A report by the American Society of Anesthesiologists Task Force on pulmonary artery catheterization. *Anesthesiology.* 1993;78:380-394.

Endnotes

¹ [Local Coverage Determination \(LCD\) Cardiac Catheterization and Coronary Angiography L33557](#)
[Billing and Coding: Cardiac Catheterization and Coronary Angiography A52850](#)

Last revision date: 10/1/2019