Left and Right Heart Catheterization - Single Service

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: March 22, 2024

Important Notices

Notices & Disclaimers:

GUIDELINES SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION MAKING OF END USERS.

Cohere Health, Inc. ("**Cohere**") has published these clinical guidelines to determine medical necessity of services (the "**Guidelines**") for informational purposes only, and solely for use by Cohere's authorized "**End UserS**". These Guidelines (and any attachments or linked third party content) are not intended to be a substitute for medical advice, diagnosis, or treatment directed by an appropriately licensed healthcare professional. These Guidelines are not in any way intended to support clinical decision making of any kind; their sole purpose and intended use is to summarize certain criteria Cohere may use when reviewing the medical necessity of any service requests submitted to Cohere by End Users. Always seek the advice of a qualified healthcare professional regarding any medical questions, treatment decisions, or other clinical guidance. The Guidelines, including any attachments or linked content, are subject to change at any time without notice.

Other Notices:

Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

Guideline Information:

Specialty Area: Cardiovascular Disease
Guideline Name: Left and Right Heart Catheterization (Single Service)

Literature review current through: 3/22/2024
Document last updated: 3/22/2024
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17yo)

Table of Contents

Care Path Services & Medical Necessity Criteria

Service: Left and Right Heart Catheterization

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** A left and right catheterization is invasive, with more risks than other tests (e.g., CCTA or Stress Echo). It is appropriate when there is a high likelihood of coronary artery disease (CAD) with the additional need for a hemodynamic assessment. Unless the clinical situation is emergent or progressive, non-invasive testing (e.g., cardiac computed tomography angiography (CCTA) or stress testing with or without accompanying echo or isotope imagery) should precede a direct catheterization if the primary assessment is for CAD.[1,2] The addition of a right cardiac catheterization to a left cardiac catheterization is needed for a hemodynamic assessment when evaluating valvular heart disease, cardiomyopathies, or pericardial disease.
- **Exclusions:** Non-emergent cardiac catheterization should be performed at a facility that offers coronary intervention and has the staffing and lab availability for a percutaneous coronary intervention (PCI) if indicated. Unless there are objective findings at the time of catheterization that make intervention uncertain, intervention should occur at the time of the catheterization.[3]

Medical Necessity Criteria

Indications

➔ **Left and right heart catheterization** is considered appropriate if **ANY** of the following is **TRUE**[1-7]:

- Preoperative assessment before valvular surgery; **OR**
- Left ventricular dysfunction out of proportion to the severity of the valvular disease; **OR**
- Pulmonary hypertension out of proportion to the severity of the valvular disease; **OR**
- Suspected or clinical uncertainty between constrictive vs. restrictive physiology; **OR**
- Suspected pericardial tamponade; **OR**

- Suspected cardiomyopathy (LV ejection fraction (LVEF) less than 40%) of unknown etiology with symptoms; **OR**
- The patient is being considered for or has received a heart transplant; **OR**
- Patients with stable ischemic heart disease who develop symptoms and signs of heart failure; **OR**
- Depressed LV function (ejection fraction less than 40%) and moderate risk criteria on noninvasive testing with demonstrable ischemia; **OR**
- The patient has suspected or known congenital heart disease when non-invasive tests are inconclusive or discordant with clinical assessment; **OR**
- Before **ANY** of the following procedures:
    - Assessment before listing the patient for a heart transplant; **OR**
    - Assessing any shunt inside the heart or lungs[8]; **OR**
    - Initial Fontan surgery or revision of a prior Fontan connection; **OR**
- During transcatheter atrial septal defect (ASD) closure[8]; **OR**
- Partial anomalous pulmonary venous connection to define vascular connections[8]; **OR**
- In patients with repaired Tetralogy of Fallot (TOF) or Right Ventricular-Pulmonary Artery (RV-PA) conduit where non-invasive testing cannot assess the severity of obstruction in the conduit or pulmonary arteries, and the patient has **ANY** of the following:
    - Arrhythmia; **OR**
    - Heart Failure; **OR**
    - Unexplained ventricular dysfunction; **OR**
    - Suspected right ventricular hypertension; **OR**
    - Cyanosis[8]; **OR**
- For assessment of atrial baffle function (suspected obstruction or leak) after Mustard/Senning operation; **OR**
- After a Fontan palliation procedure in patients with **ANY** of the following[8]:
    - Creation or closure of a fenestration; **OR**
    - Suspected collateral vessels; **OR**
    - Baffle obstruction; **OR**
    - Protein-losing enteropathy or ascites; **OR**
    - New onset or worsening atrial tachyarrhythmias; **OR**
    - Symptomatic and non-invasive testing is insufficient to guide therapy.

Non-Indications

- ➔ **Left and Right cardiac catheterization** may not be considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ Acute or chronic kidney disease; **OR**
  - ◆ Coagulopathy; **OR**
  - ◆ Fever; **OR**
  - ◆ Systemic infection; **OR**
  - ◆ Uncontrolled arrhythmia; **OR**
  - ◆ Uncontrolled hypertension; **OR**
  - ◆ Uncompensated heart failure; **OR**
  - ◆ Radiopaque contrast agent allergies in patients who have not been appropriately premedicated; **OR**
  - ◆ Pregnancy; **OR**
  - ◆ Normal coronary angiogram or CCTA within the last two years and with no stenosis or plaque (For certain left heart catheterization scenarios); **OR**
  - ◆ Normal stress test (given adequate stress) within the last year (for certain left heart catheterization scenarios).

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
93453	Combined right and left heart catheterization with intraprocedural injection for left ventriculography
93456	Catheter placement in coronary artery for coronary angiography, with intraprocedural injection for coronary angiography, imaging supervision, and interpretation, with right heart catheterization
93457	Catheter placement in coronary artery for coronary angiography, with intraprocedural injection for coronary angiography, imaging supervision, and interpretation, with catheter placement in bypass graft, with intraprocedural injection for bypass graft angiography and right heart catheterization
93460	Catheter placement in coronary artery for coronary

	angiography, with intraprocedural injection for coronary angiography, imaging supervision, and interpretation, with right and left heart catheterization
93461	Catheter placement in coronary artery for coronary angiography, with intraprocedural injection for coronary angiography, imaging supervision, and interpretation, with right and left heart catheterization, catheter placement in bypass graft, with bypass graft angiography
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

Medical Evidence

National and Professional Organizations

A selection of guidelines and criteria that reference heart catheterization have been published by the following organizations:

- American Association for Thoracic Surgery (ATS)
- American College of Cardiology Foundation (ACCF)
- American Heart Association (AHA)
- American Society of Echocardiography (ASEC)
- American Society of Nuclear Cardiology (ASNC)
- European Society of Cardiology (ESC)
- Heart Failure Society of America (HFSA)
- Heart Rhythm Society (HRS)
- Society for Cardiovascular Angiography and Interventions (SCAI)
- Society for Cardiovascular Magnetic Resonance (SCMR)
- Society of Cardiovascular Computed Tomography (SCCT)
- Society of Critical Care Medicine (SCCM)
- Society of Thoracic Surgeons (STS)

To access the documents below, consult the Reference section.

- *Appropriate Use Criteria for Diagnostic Catheterization* - ACCF, SCAI, AHA, ASEC, ATS, ASNC, HFSA, HRS, SCCM, SCCT, SCMR, and the STS[1]
- *Appropriate Use Criteria for Multimodality Imaging in Valvular Heart Disease* -ACC/AATS/AHA/ASE/ASNC/HRS/SCAI/SCCT/SCMR/STS[5]
- *Guideline for the Diagnosis and Treatment of Patients with Hypertrophic Cardiomyopathy* - AHA/ACC[6]
- *Guideline for the Evaluation and Diagnosis of Chest Pain* - AHA/ACC/ASE/Chest/SAEM/SCCT/SCMR[2]
- *Guideline for the Management of Patients with Valvular Heart Disease* - ACC/AHA[4]
- *Guidelines for the Diagnosis and Management of Chronic Coronary Syndromes* - ESC[7]
- *Staging of Multivessel Percutaneous Coronary Interventions* - SCAI[3]

References

1. Patel MR, Bailey SR, Bonow RO, et al. ACCF/SCAI/AATS/AHA/ASE/ASNC/HFSA/HRS/SCCM/SCCT/SCMR/STS 2012 Appropriate Use Criteria for Diagnostic Catheterization. Journal of the American College of Cardiology. 2012;59(22):1995-2027. doi:10.1016/j.jacc.2012.03.003
2. Gulati M, Levy PD, Mukherjee D, et al. 2021 AHA/ACC/ASE/Chest/Saem/SCCT/SCMR guideline for the evaluation and diagnosis of chest pain. Journal of the American College of Cardiology. October 2021. doi:10.1016/j.jacc.2021.07.053
3. J.C. Blankenship, I.D. Moussa, C.C. Chambers, *et al.* Staging of multivessel percutaneous coronary interventions: an expert consensus statement from the Society for Cardiovascular Angiography and Interventions. Catheter Cardiovasc Interv, 79 (2012), pp. 1138-1152
4. Otto CM, Nishimura RA, Bonow RO, et al. 2020 ACC/AHA guideline for the management of patients with valvular heart disease: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation. 2021 Feb 2;143(5):e72-e227. doi: 10.1161/CIR.0000000000000923. PMID: 33332150.
5. Doherty JU, Kort S, Mehran R, et al. ACC/AATS/AHA/ASE/ASNC/HRS/SCAI/SCCT/SCMR/STS 2019 appropriate use criteria for multimodality imaging in the assessment of cardiac structure and function in nonvalvular heart disease: A report of the American College of Cardiology Appropriate Use Criteria Task Force, American Association for Thoracic Surgery, American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and the Society of Thoracic Surgeons. J Thorac Cardiovasc Surg. 2019 Apr;157(4):e153-e182. doi: 10.1016/j.jtcvs.2018.12.061. PMID: 30635178.
6. Ommen SR, Mital S, Burke MA, et al. 2020 AHA/ACC guideline for the diagnosis and treatment of patients with hypertrophic cardiomyopathy: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation. 2020 Dec 22;142(25):e558-e631. doi: 10.1161/CIR.0000000000000937. PMID: 33215931.
7. Knuuti J, Wijns W, ESC Scientific Document Group, et al. 2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes. Eur Heart J. 2020 Jan 14;41(3):407-477. doi: 10.1093/eurheartj/ehz425. PMID: 31504439.
8. Stout KK, Daniels CJ, Aboulhosn JA, et al. 2018 AHA/ACC Guideline for the Management of Adults With Congenital Heart Disease. *Journal of the*

American College of Cardiology. 2019;73(12):81-192. doi:10.1016/j.jacc.2018.08.1029

Clinical Guideline Revision History/Information

Original Date: March 5, 2021	
Review History	
Version 2	11/17/2023
Version 3	3/22/2024