Cohere Medicare Advantage Policy - Right Heart Catheterization and/or Left Ventriculogram

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Other Notices:

Guideline Information:

Specialty Area: Cardiovascular Disease
Guideline Name: Cohere Medicare Advantage Policy - Right Heart Catheterization and/or Left Ventriculogram

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Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Right Heart Catheterization and/or Left Ventriculogram

Benefit Category

Inpatient Hospital Services

Please Note: This may not be an exhaustive list of all applicable Medicare benefit categories for this item or service.[1]

Recommended Clinical Approach

Cardiac catheterization is invasive, with more risks than other tests. Thus, it should be used to provide important information that may change the treatment plan. In some clinical situations, the performance of a right cardiac catheterization (hemodynamics and cardiac output) or a left heart catheterization/left ventricular angiogram alone may be needed.

Evaluation of Clinical Benefits and Potential Harms

Cohere Health uses the criteria below to ensure consistency in reviewing the conditions to be met for coverage of right heart catheterization and/or left ventriculogram procedures. This process helps to prevent both incorrect denials and inappropriate approvals of medically necessary services. Specifically, limiting incorrect approvals reduces the risks associated with unnecessary procedures, such as complications from surgery, adverse reactions, and infection.

The potential clinical harms of using these criteria may include:

- Adverse effects from delayed or denied treatment: Delays or denials in right heart catheterization can lead to increased symptoms and complications, especially in patients with a high likelihood of coronary artery disease (CAD) or those requiring hemodynamic assessment for conditions like valvular heart disease. The CMS Local Coverage Determination (LCD) for Cardiac Catheterization and Coronary Angiography (L33557) highlights the necessity of timely procedures to avoid adverse outcomes in patients with significant cardiovascular conditions.[1] Sorajja et al. emphasize the importance of invasive

hemodynamics in diagnosing and managing cardiovascular disease.[17] Additionally, Otto et al. underline the significance of accurate hemodynamic measurements in the management of valvular heart disease, which can be critical in treatment planning.[20]

- Risks with inappropriate procedures: This includes infection, bleeding, injury to neurovascular structures, anesthetic risk, and the need for repeat or additional procedures due to complications. Cochran et al. highlight the importance of right heart catheterization in diagnosing and managing advanced heart failure and evaluating eligibility for heart replacement therapies.[10] Del Rio-Pertuz et al. discuss the risks and necessary precautions in interpreting right heart catheterization results to minimize procedural complications.[7]
- Increased healthcare costs and complications: This includes inappropriate use of emergency services and additional treatments. Proper use of right heart catheterization criteria helps to avoid unnecessary interventions and their associated risks, thus safeguarding patient health. The CMS LCD (L33557) supports the necessity of appropriate use criteria to minimize healthcare costs and prevent complications.[1]

The clinical benefits of using these criteria include:

- Improved patient outcomes: Ensuring timely and appropriate access to right heart catheterization procedures for the patients selected for best outcomes. The goal is to provide accurate diagnostics and effective treatment planning, reducing the risk of complications and improving overall patient health. Lim et al. stressed the value of right heart catheterization in managing heart transplant recipients, indicating its role in long-term patient management.[9]
- Enhanced diagnostic accuracy: This is crucial for complex cardiovascular conditions where traditional diagnostic methods may pose additional risks. Cardiac catheterization offers the advantage of measuring intracardiac pressures and pulmonary vascular resistance, aiding in decision-making regarding valve intervention.[19] Gonzalez-Hermosillo et al. provide a comprehensive review of right heart catheterization in diagnosing pulmonary hypertension, underscoring its clinical relevance.[6]
- Reduction in complications and adverse effects: Proper use of right heart catheterization criteria helps to avoid unnecessary interventions

and their associated risks, thus safeguarding patient health. Cochran et al. highlighted the importance of right heart catheterization in reducing complications by providing crucial diagnostic information in advanced heart failure management.[10]

- Enhanced overall patient satisfaction: Ensuring that right heart catheterizations are used appropriately leads to better patient outcomes and higher satisfaction rates due to effective treatment and reduced complications. Saxena et al. emphasize the importance of hemodynamic monitoring in improving patient outcomes in cardiogenic shock, demonstrating the utility of right heart catheterization in critical care.[12]

This policy includes provisions for expedited reviews and flexibility in urgent cases to mitigate risks of delayed access. Evidence-based criteria are employed to prevent inappropriate denials, ensuring that patients receive medically necessary care. The criteria aim to balance the need for effective treatment with the minimization of potential harms, providing numerous clinical benefits in helping avoid unnecessary complications from inappropriate care.

In addition, the use of these criteria is likely to decrease inappropriate denials by creating a consistent set of review criteria, thereby supporting optimal patient outcomes and efficient healthcare utilization.

Medical Necessity Criteria

Indications

➔ **Other cardiac catheterization** is considered appropriate if **ANY** of the following is **TRUE**[1-18]:

- ◆ The procedure is a **right cardiac catheterization,** and **ANY** of the following is **TRUE**:
  - Valvular heart disease; **OR**
  - CHF; **OR**
  - Congenital heart disease; **OR**
  - Cor pulmonale; **OR**
  - Pulmonary hypertension; **OR**
  - Intracardiac shunts (including septal rupture) and extracardiac vascular shunts; **OR**
  - Suspected cardiomyopathy or myocarditis; **OR**
  - Endocarditis requiring valvular surgery; **OR**

- Suspected rejection of a transplanted heart; **OR**
- The patient is being considered for or has received a heart transplant; **OR**
- Suspected pericardial tamponade or constriction; **OR**

◆ The procedure is a **left heart catheterization/left ventricular angiogram**, and **ANY** of the following is **TRUE**[1-2]:
- Assessment of left ventricular systolic function; **OR**
- Assessment of the degree of mitral regurgitation; **OR**
- Assessment for a ventricular septal defect, other intracardiac shunts, or other congenital heart abnormalities; **OR**
- Pericardial tamponade; **OR**
- Hemodynamic assessment of the aortic valve; **OR**
- Measurement of the left ventricular end-diastolic pressure.

Non-Indications

➔ **Other cardiac catheterization** is not considered appropriate if **ANY** of the following is **TRUE**[1]:
◆ Inpatient or observation stay following routine outpatient cardiac catheterization; **OR**
◆ Right heart catheterization billed for "bedside placement" of flow directed (Swan-Ganz type) catheter; **OR**
◆ Right heart catheterization for atherosclerotic heart disease without heart failure; **OR**
◆ Right heart catheterization for angioplasty, electrophysiologic studies, or other interventional procedures; **OR**
◆ Aortography for atherosclerotic heart disease; **OR**
◆ Aortography performed for a diagnosis of "rule out (valvular lesion)"; **OR**
◆ When the service is performed by a resident alone, without a teaching physician present with the resident throughout entire procedure; **OR**
◆ Separate reimbursement for vascular closure of puncture site (with or without implantable device or other mechanical intervention); **OR**
◆ Separate reimbursement for dye injection during catheterization or angiographic procedures for the purpose of guiding catheter placement; **OR**
◆ Assistant at the surgery while catheterization is performed; **OR**
◆ Right heart catheterization solely for the purpose of inserting a temporary pacemaker, performing endomyocardial biopsy, or performing electrophysiologic studies; **OR**
◆ Standby anesthesia or surgeon during angioplasty.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Codes	Code Description
93451	Right heart catheterization
93452	Left heart catheterization with intraprocedural injection for left ventriculography
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

Medical Evidence

Cochran et al. (2022) performed a review on the role of right heart catheterization in patients (RHC) with heart failure. The procedure is a fundamental diagnostic tool for patients experiencing refractory heart failure or cardiogenic shock. The procedure is also crucial for evaluating eligibility for heart replacement therapies and for managing patients post-implantation of mechanical circulatory assist devices and heart transplantation. Guidelines published by the American College of Cardiology Foundation (ACCF), American Heart Association (AHA), and European Society of Cardiology (ESC) specify situations when RHC may be indicated. While RHC is not typically suggested for patients with decompensated heart failure, it may benefit those whose condition does not improve with initial therapy as well as those with uncertain volume status and persistent hypoperfusion, or those being evaluated for advanced treatments.[10]

Otto et al. (2021) reviewed published guidelines from the American College of Cardiology (ACC) and the American Heart Association (AHA) on the management of patients with valvular heart disease. When noninvasive testing results are inconclusive, especially in symptomatic patients, or when there's a discrepancy between noninvasive tests and clinical findings, cardiac catheterization with direct intracardiac measurements becomes crucial. Catheterization provides valuable information, particularly in assessing transvalvular pressure gradients and cardiac output. Imaging difficulties or misalignment of the Doppler beam can lead to underestimation of stenosis severity, while suboptimal image or Doppler data quality can cause overestimation or underestimation of valve regurgitation severity. In such cases, contrast angiography may be helpful for semiquantitative assessment, especially when noninvasive results conflict with physical examination findings. Cardiac catheterization offers the advantage of measuring intracardiac pressures and pulmonary vascular resistance, aiding in decision-making regarding valve intervention.[19]

Shellenberger et al. (2021) conducted a systematic review on the role of physical examination and RHC in the diagnosis of pulmonary hypertension (PH). Data from four studies (including calculated pooled diagnostic odds ratios [DOR]) were analyzed for several indicators, including right ventricular heave, a loud pulmonic component of the second heart sound (P2), jugular venous pressure (JVP) greater than 3 cm above sternal angle, and a palpable P2. Of these, three findings supported the diagnosis of PH: JVP greater than 3 cm above the sternal angle (DOR 5.90, 95% CI 2.57,

13.57), a loud P2 (DOR 2.91, 95% CI 1.38, 6.10), and a right ventricular heave (DOR 2.78, 95% CI 1.12, 6.89). Limitations of the review include a small sample size and a lack of control groups. Also, the studies were unable to correlate patient physical examination results with the NYHA functional class or stage of PH. Larger cohort studies employing a combination of tests may provide further insights into the role of physical examination in PH diagnosis and early detection.[20]

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