



# **Cohere Medical Policy - Percutaneous Coronary Intervention (PCI)/Angioplasty/Stent**

*Clinical Guidelines for Medical Necessity Review*

**Version:** 2  
**Effective Date:** January 16, 2025

# 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.

©2025 Cohere Health, Inc. All Rights Reserved.

## Other Notices:

HCPCS® and CPT® copyright 2025 American Medical Association. All rights reserved.

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.

HCPCS and CPT are registered trademarks of the American Medical Association.

## Guideline Information:

**Specialty Area:** Cardiovascular Disease

**Guideline Name:** Percutaneous Coronary Intervention/Angioplasty/Stent

**Date of last literature review:** 1/9/2025

**Document last updated:** 1/16/2025

**Type:** ☒ Adult (18+ yo) | ☒ Pediatric (0-17yo)

## **Table of Contents**

<b>Important Notices</b>	<b>2</b>
Table of Contents	3
<b>Medical Necessity Criteria</b>	<b>4</b>
<b>Service: Percutaneous Coronary Intervention (PCI)/Angioplasty/Stent</b>	<b>4</b>
Recommended Clinical Approach	4
Medical Necessity Criteria	5
Indications	5
Non-Indications	6
Level of Care Criteria	7
Procedure Codes (HCPCS/CPT)	7
<b>Medical Evidence</b>	<b>8</b>
<b>References</b>	<b>9</b>
<b>Clinical Guideline Revision History/Information</b>	<b>11</b>

# Medical Necessity Criteria

## ***Service: Percutaneous Coronary Intervention (PCI)/Angioplasty/Stent***

### **Recommended Clinical Approach**

Coronary artery revascularization is the process of reestablishing blood flow through the coronary arteries that vascularize the cardiac muscle. This is accomplished through a traditional, open approach (coronary artery bypass graft surgery, CABG) or a minimally invasive approach (percutaneous coronary intervention, PCI). Coronary revascularization is used to treat medical emergencies such as acute myocardial infarction or acute coronary syndrome, in contrast to less urgent environments, such as in stable ischemic heart disease (SIHD). In the latter scenario, a PCI is typically performed during a heart catheterization for symptomatic, significant stenosis or blockage that is refractory to optimal medical therapy, or to improve survival.

For patients being considered for coronary revascularization and for whom the optimal treatment strategy is unclear, a multidisciplinary heart team (which includes the cardiologist, cardiac surgeon, and other specialists) is recommended. Treatment decisions should be patient-centered, incorporate patient preferences and goals, and include shared decision-making.

Coronary angiography remains the default method to define coronary anatomy and characterize the severity of coronary arterial stenoses. A visually estimated diameter stenosis severity of greater than or equal to 70% for non-left main disease and greater than or equal to 50% for left main disease has been used to define significant stenosis and to guide revascularization strategy. An angiographically intermediate coronary stenosis is defined as a diameter stenosis severity of 40% to 69% and generally warrants additional investigation to assess physiological significance.<sup>1</sup> Coronary computed tomography angiography (CCTA) is gaining acceptance as an alternative to coronary angiography to define coronary anatomy.

## Medical Necessity Criteria

### Indications

→ **Percutaneous coronary intervention** is considered appropriate if **ANY** of the following is **TRUE**<sup>1-9</sup>:

- ◆ The patient has significant coronary artery disease (CAD) and **ANY** of the following:
  - Ventricular fibrillation (VF); **OR**
  - Polymorphic ventricular tachycardia (VT); **OR**
  - Prior cardiac arrest; **OR**
  - Severe left ventricle dysfunction (ejection fraction less than or equal to 35%)<sup>4</sup>; **OR**
  - Prior to transcatheter aortic valve replacement (TAVR)<sup>115</sup>; **OR**
  - Prior to renal transplantation<sup>116</sup>; **OR**
  - Prior to liver transplantation<sup>17-19</sup>; **OR**
- ◆ The patient has acute ST-elevation myocardial infarction (STEMI); **OR**
- ◆ Non-ST-elevation acute coronary syndrome (NSTEMI-ACS); **OR**
- ◆ Unstable angina; **OR**
- ◆ Refractory angina (or ischemic equivalent\*) and **ALL** of the following:
  - Symptoms despite optimal medical therapy (GDMT, including two anti-anginal drugs or documented intolerance)<sup>4</sup>; **AND**
  - Significant coronary artery stenoses as shown by **ANY** of the following:
    - Significant anatomic stenosis greater than or equal to 50% left main; **OR**
    - Significant anatomic stenosis greater than or equal to 70% non-left main CAD; **OR**
    - Significant physiological stenosis: fractional flow reserve (FFR) less than or equal to 0.80 or instantaneous wave-free ratio (iFR) less than or equal to 0.89; **OR**
- ◆ The patient has stable ischemic heart disease (SIHD) and **ANY** of the following:
  - Multivessel CAD with significant stenoses in the three major coronary arteries that are suitable for PCI; **OR**

- **ALL** of the following<sup>1,2</sup>:
  - Significant left main stenosis (greater than or equal to 50%); **AND**
  - PCI is expected to provide equivalent revascularization to coronary artery bypass graft surgery (CABG); **OR**
- ◆ In stable patients with STEMI and multivessel disease, staged PCI may be performed, after successful primary PCI, for a significant non-infarct (non-culprit) artery stenosis; **OR**
- ◆ The patient has had a prior heart transplant and now has severe cardiac allograft vasculopathy (as diagnosed by coronary angiography/intravascular ultrasound) with proximal, discrete lesion(s).<sup>4,10-11</sup>

**\*Ischemic equivalent:** Examples include, but are not limited to, pain, pressure, tightness, or discomfort in the chest, shoulders, arms, neck, back, upper abdomen, or jaw; new ECG abnormalities; or other symptoms/findings suggestive of CAD. Clinical presentations in the absence of chest pain (e.g., dyspnea with exertion, fatigue, or reduced/worsening effort tolerance) consistent with CAD may also be considered an ischemic equivalent.<sup>14</sup>

## Non-Indications

→ **Percutaneous coronary intervention** is **NOT** considered appropriate if **ANY** of the following is **TRUE**<sup>1-9,12-13</sup>:

- ◆ Stable ischemic heart disease (SIHD) and **ALL** of the following:
  - The patient has an unprotected left main CAD with unfavorable anatomy for PCI; **AND**
  - The patient is a good candidate for CABG; **OR**
- ◆ Patient requires revascularization for significant left main CAD with high-complexity CAD (CABG is recommended over PCI to improve survival); **OR**
- ◆ Patient requires revascularization for multivessel CAD with complex or diffuse CAD (e.g., SYNTAX score greater than 33) (CABG is recommended over PCI to improve survival); **OR**
- ◆ Patient has diabetes and multivessel CAD with the involvement of the LAD, and is an appropriate candidate for CABG (CABG with LIMA to LAD is recommended over PCI to reduce mortality and repeat revascularizations).

### **Level of Care Criteria**

Inpatient or Outpatient

### **Procedure Codes (HCPCS/CPT)**

<b>HCPCS Code</b>	<b>Code Description/Definition</b>
92920	Percutaneous transluminal coronary angioplasty into single major coronary artery
92928	Percutaneous transcatheter insertion of stent into single major coronary artery
92937	Percutaneous transluminal revascularization of a single coronary artery bypass graft with angioplasty
92943	Percutaneous transluminal revascularization of chronic total occlusion of a single coronary artery branch with atherectomy, angioplasty, and insertion of stent
C9600	Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch
C9604	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel
C9607	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; single vessel

## Medical Evidence

Lawton et al. (2022) published a clinical practice guideline for the American College of Cardiology, the American Heart Association, and the Society for Cardiovascular Angiography and Interventions to describe the best practices of coronary artery revascularization. It recommended that, in patients with significant left main disease, traditional surgical revascularization be undertaken. Percutaneous revascularization (PCI) is a reasonable option to improve survival as compared with medical therapy in selected patients with low to medium anatomic complexity of coronary artery disease and left main disease that is suitable for revascularization. In patients with stable ischemic heart disease, normal left ventricular ejection fraction, and triple vessel coronary artery disease, surgical revascularization may be reasonable.<sup>1</sup>

Virani et al. (2023) developed a clinical practice guideline for managing patients with chronic coronary disease for the American Heart Association and the American College of Cardiology. Revascularization has a strong recommendation in patients with lifestyle-limiting angina who are currently on guideline-based medical therapy (GDMT) and who have significant coronary artery stenoses. Due to higher survival rates, coronary artery bypass grafting (CABG) is recommended over PCI in patients with chronic coronary disease with significant left main artery involvement associated with high-complexity CAD.<sup>4</sup>

In 2024, the Society for Cardiovascular Angiography and Interventions (SCAI) issued an expert consensus on treating patients with ST-elevation myocardial infarction (STEMI) through PCI. The authors acknowledge the complexity of managing multivessel disease, present in about half of patients with STEMI, and therefore recommended complete revascularization with treatment of the non-infarct stenosis. At the time of authorship of the statement, the existing guidelines recommend staged PCI among stable patients—although research in this area is ongoing with respect to the optimal timing of resolution of non-culprit lesions.<sup>2</sup>

## References

1. Lawton J, Tamis-Holland J, Bangalore S, Bates E, Beckie T, et al. 2021 ACC/AHA/SCAI guideline for coronary artery revascularization: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *J Am Coll Cardiol*. Dec 09, 2021. Epublished DOI: 10.1016/j.jacc.2021.09.006.
2. Neumann F, Sousa-Uva M, Ahlsson A, Alfonso F, Banning A, et al. 2018 ESC/EACTS guidelines on myocardial revascularization. *Eur Heart J*. 2019 40, 87–165 doi:10.1093/eurheartj/ehy394.
3. Roffi M, Patrono C, Collet J, Mueller C, Valgimigli M, et al. 2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC). *Eur Heart J*. 2016;37(3):267–315. doi:10.1093/eurheartj/ehv320.
4. Virani S, Newby L, Arnold S, Bittner V, Brewer L, et al. 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease: a report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2023;82:833–955.
5. Amsterdam EA, Wenger NK, Brindis RG, et al. 2014 AHA/ACC guideline for the management of patients with non-ST-elevation acute coronary syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol*. 2014 Dec 23;64(24):e139–228. <http://dx.doi.org/10.1016/j.jacc.2014.09.017>
6. Byrne RA, Rossello X, Coughlan JJ, et al. 2023 ESC guidelines for the management of acute coronary syndromes: developed by the task force on the management of acute coronary syndromes of the European Society of Cardiology (ESC). *EHJ-ACVC*. 2024 Jan;13(1):55–161. <https://doi.org/10.1093/eurheartj/ehad191>
7. Tamis-Holland JE, Abbott JD, Al-Azizi K, et al. SCAI Expert Consensus Statement on the Management of Patients With STEMI Referred for Primary PCI. *JSCAI*. 2024 Oct 7:102294. <https://doi.org/10.1016/j.jscai.2024.102294>
8. Kumbhani DJ, Bhatt DL. Chapter 41 Percutaneous Coronary Intervention. In: *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*. 12th ed. Elsevier; 2022: 786–805.
9. Kumbhani DJ, Cannon CP, Beavers CJ, et al. 2020 ACC expert consensus decision pathway for anticoagulant and antiplatelet therapy in patients with atrial fibrillation or venous thromboembolism undergoing percutaneous coronary intervention or with atherosclerotic

- cardiovascular disease: a report of the American College of Cardiology Solution Set Oversight Committee. *J Am Coll Cardiol*. 2021 Feb 9;77(5):629–58. <https://doi.org/10.1016/j.jacc.2020.09.011>
10. Luc JG, Choi JH, Rizvi SS, et al. Percutaneous coronary intervention versus coronary artery bypass grafting in heart transplant recipients with coronary allograft vasculopathy: a systematic review and meta-analysis of 1,520 patients. *Ann. Cardiothorac. Surg*. 2018 Jan;7(1):19. PMID: 29492381 <https://doi.org/10.21037/acs.2018.01.10>
  11. Pyka Ł, Hawranek M, Szyguła-Jurkiewicz B, et al. Everolimus-eluting second-generation stents for treatment of de novo lesions in patients with cardiac allograft vasculopathy. *Ann. Transplant*. 2020;25:e921266–1. PMID: 32253369 <https://doi.org/10.12659/AOT.921266>
  12. Schneider AE, Johnson JN, Taggart NW, et al. Percutaneous coronary intervention in pediatric and adolescent patients. *Congenit Heart Dis*. 2014 May;9(3):228–34. <https://doi.org/10.1111/chd.12130>
  13. Ozaki Y, Tobe A, Onuma Y, et al. CVIT expert consensus document on primary percutaneous coronary intervention (PCI) for acute coronary syndromes (ACS) in 2024. *CVIT* 2024 Sep 20:1–41.
  14. 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. *J Am Coll Cardiol*. 2012;59(22):1995–2027. doi:10.1016/j.jacc.2012.03.003
  15. Faroux L, Villecourt A, Metz D. The Management of Coronary Artery Disease in TAVR Patients. *Journal of Clinical Medicine*. 2023 Nov 16;12(22):7126.
  16. Cheng XS, Mathew RO, Parasuraman R, Tantisattamo E, Levea SL, Kapoor R, Dadhanian DM, Rangaswami J. Coronary artery disease screening of asymptomatic kidney transplant candidates: a web-based survey of practice patterns in the United States. *Kidney medicine*. 2020 Jul 1;2(4):505–7.
  17. Kozlik A, Wiseman K, Upadhyaya VD, Sharma A, Chatterjee S. Preoperative Coronary Intervention Before Orthotopic Liver Transplantation (from a Review of Literature). *The American Journal of Cardiology*. 2022 Dec 15;185:94–9.
  18. Sharma V, Kleb C, Sheth C, Verma BR, Jain V, Sharma R, Parikh P, Cywinski J, Menon KN, Esfeh JM, Egtesad B. Cardiac considerations in liver transplantation. *Cleveland Clinic Journal of Medicine*. 2022 Jan 1;89(1):46–55.
  19. Imam A, Karatas C, Mecit N, Kalayoglu M, Kanmaz T. Cardiac intervention before liver transplantation. *Transplantation proceedings* 2021 Jun 1 (Vol. 53, No. 5, pp. 1622–1625). Elsevier.

# Clinical Guideline Revision History/Information

Original Date: December 29, 2023		
Review History		
Version 2	January 16, 2025	<p>Annual Policy Review &amp; Restructure:</p> <ul style="list-style-type: none"> <li>• Updated recommended clinical approach to the current format.</li> <li>• Consolidated redundant indications.</li> <li>• Reorganized order of indications for improved clarity.</li> <li>• Added indication for cardiac allograft vasculopathy.</li> <li>• Added indication for management of significant CAD among patients with left ventricle dysfunction.</li> <li>• Added indication for pre-TAVR, pre-renal transplant, pre-liver transplant patients.</li> <li>• Defined ischemic equivalent with previously-used language.</li> <li>• Updated medical evidence.</li> <li>• Updated references.</li> </ul>