



v2.0.2024 Cardiac Imaging Guidelines
Executive Summary
Effective Date: November 1, 2024

| Section Name | Version/Release Number | Section Number/Policy Number | Summary of change | Will this change impact the current clinical decision-making? | If yes, both or unsure to prior Column, will it impact more than 1 case per week? | Provide citable, peer-reviewed/society references for all changes, except for editorial changes (i.e. formatting, wordsmithing, restructuring changes that don't impact clinical content) |
|---|------------------------|------------------------------|--|---|---|---|
| General Guidelines | v2.0.2024 | CD 1.0 | Added dyspnea on exertion under anginal equivalent | No | N/A | |
| Transthoracic Echocardiography (TTE) Indications/initial evaluation | v2.0.2024 | CD 2.2 | Reorganized for better readability | No | N/A | |
| Transthoracic Echocardiography (TTE) Indications/initial evaluation | v2.0.2024 | CD 2.2 | Added indication At risk for developing iron-overload cardiomyopathy | Yes, More Approvals | No | Kottam A et al. American Heart Association Council on Cardiovascular Radiology and Intervention. State-of-the-Art Imaging of Infiltrative Cardiomyopathies: A Scientific Statement From the American Heart Association. <i>Circ Cardiovasc Imaging</i> . 2023 Nov;16(11):e000081. doi: 10.1161/HCI.0000000000000081. Epub 2023 Nov 2. OCEBM Level of Evidence 3 Arbelo E et al. ESC Scientific Document Group. 2023 ESC Guidelines for the management of cardiomyopathies. <i>Eur Heart J</i> . 2023 Oct 1;44(37):3503-3626. doi: 10.1093/eurheartj/ehad194. |
| Transthoracic Echocardiography (TTE) Indications/initial evaluation | v2.0.2024 | CD 2.2 | One repeat echo can be approved if requested for contrast study | Yes, More Approvals | No | McDonagh TA et al ESC Scientific Document Group. 2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. <i>Eur Heart J</i> . 2023 Oct 1;44(37):3627-3639. doi: 10.1093/eurheartj/ehad195. Chung MK, et al. 2023 HRS/APHRS/LAHRs guideline on cardiac physiologic pacing for the avoidance and mitigation of heart failure. <i>Heart Rhythm</i> . 2023 May 15:S1547-5271(23)02026-X. doi: 10.1016/j.hrthm.2023.03.1538. |
| Transthoracic Echocardiography (TTE) Indications/initial evaluation | v2.0.2024 | CD 2.3 | Reorganized for better readability | No | N/A | N/A |

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| Frequency of Echocardiography Testing | v2.0.2024 | CD 2.3 | Added indication Echo every year for bioprosthetic valve replacement ≥10 years since implant | Yes, More Approvals | No | McDonagh TA et al ESC Scientific Document Group. 2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur Heart J. 2023 Oct 1;44(37):3627-3639. doi: 10.1093/eurheartj/ehad195. Writing Committee Members; Otto CM, 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. J Am Coll Cardiol. 2021 Feb 2;77(4):e25-e197. Doherty JU et al. ACC/AATS/AHA/ASE/ASNC/HRS/SCAI/SCCT/ SCMR/STS 2017 Appropriate Use Criteria for Multimodality Imaging in Valvular Heart Disease. J Am Coll Cardiol. 2017 Sep 26;70(13):1647-1672. doi: 10.1016/j.jacc.2017.07.732. Epub 2017 Sep 1. |
| Frequency of Echocardiography Testing | v2.0.2024 | CD 2.3 | Added indication Echo every year for Frequent right ventricular pacing >40% | Yes, More Approvals | No | McDonagh TA et al ESC Scientific Document Group. 2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur Heart J. 2023 Oct 1;44(37):3627-3639. doi: 10.1093/eurheartj/ehad195. Chung MK, et al. 2023 HRS/APHRS/LAHR guideline on cardiac physiologic pacing for the avoidance and mitigation of heart failure. Heart Rhythm. 2023 May 15:S1547-5271(23)02026-X. doi: 10.1016/j.hrthm.2023.03.1538. |

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| Frequency of Echocardiography Testing | v2.0.2024 | CD 2.3 | Added indication Echo every year for Chronic LBBB | Yes, More Approvals | No | McDonagh TA et al ESC Scientific Document Group. 2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur Heart J. 2023 Oct 1;44(37):3627-3639. doi: 10.1093/eurheartj/ehad195. Chung MK, et al. 2023 HRS/APHRS/LAHRs guideline on cardiac physiologic pacing for the avoidance and mitigation of heart failure. Heart Rhythm. 2023 May 15:S1547-5271(23)02026-X. doi: 10.1016/j.hrthm.2023.03.1538. |
| Frequency of Echocardiography Testing | v2.0.2024 | CD 2.3 | Added indication Echo every year for At risk for developing iron-overload cardiomyopathy | Yes, More Approvals | No | Kottam A et al. American Heart Association Council on Cardiovascular Radiology and Intervention. State-of-the-Art Imaging of Infiltrative Cardiomyopathies: A Scientific Statement From the American Heart Association. Circ Cardiovasc Imaging. 2023 Nov;16(11):e000081. doi: 10.1161/HCI.0000000000000081. Epub 2023 Nov 2. Arbelo E et al. ESC Scientific Document Group. 2023 ESC Guidelines for the management of cardiomyopathies. Eur Heart J. 2023 Oct 1;44(37):3503-3626. doi: 10.1093/eurheartj/ehad194. |
| Transesophageal Echocardiography (TEE) | v2.0.2024 | CD 2.5 | Added indication TEE prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |

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| 3D Echocardiography | v2.0.2024 | CD 2.9 | Added indication 3D Echo prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Cardiac CT and CTA - General information and coding | v2.0.2024 | CD 4.1 | Updated CT FFR CPT codes based on AMA revised code | No | N/A | |
| Fractional Flow Reserve by Computed Tomography | v2.0.2024 | CD 4.5 | Updated CT FFR CPT codes based on AMA revised code | No | N/A | |
| 3D Predictive model generation for pre- planning of cardiac procedure | v2.0.2024 | CD 4.9 | New CPT code C9793 added criteria experimental, investigational or unproven. | Yes, More Denials | No | Sachdeva R, Armstrong AK, Arnaout R, et al. Novel Techniques in Imaging Congenital Heart Disease: JACC Scientific Statement. J Am Coll Cardiol. 2024;83(1):63-81. doi:10.1016/j.jacc.2023.10.025. Jone, P, Gearhart, A, Lei, H. et al. Artificial Intelligence in Congenital Heart Disease: Current State and Prospects. JACC Adv. 2022 Dec, 1 (5) . doi:10.1016/j.jacadv.2022.100153 |

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| Cardiac MRI and MRA Chest – Indications (excluding Stress MRI) | v2.0.2024 | CD 5.2 | Added indication Cardiac MRI, Flow velocity mapping and Chest MRA prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Diagnostic Left Heart Catheterization | v2.0.2024 | CD 7.3.3 | Repeated existing indications under CD 7.3.4 in CD 7.3.3 for easy reference | No | N/A | |
| Diagnostic Left Heart Catheterization | v2.0.2024 | CD 7.3.1 to CD 7.3.5 | Repeated indication for right and left heart catheterization under each section for consistency | No | N/A | |
| Diagnostic Left Heart Catheterization | v2.0.2024 | Angiography Derived Fractional Flow Reserve CD 7.3.6 | New CPT code C7557 added criteria experimental, investigational or unproven. | Yes, More Denials | No | Morris PD, Curzen N, Gunn JP. Angiography- Derived Fractional Flow Reserve: More or Less Physiology? J Am Heart Assoc. 2020 Mar 17;9(6):e015586. doi: 10.1161/JAHA.119.015586. Witberg G et al. Clinical Outcomes of FFRangio-Guided Treatment for Coronary Artery Disease. JACC Cardiovasc Interv. 2022 Feb 28;15(4):468-470. doi: 10.1016/j.jcin.2021.11.039. Arefinia F et al. Non-invasive fractional flow reserve estimation using deep learning on intermediate left anterior descending coronary artery lesion angiography images. Sci Rep. 2024 Jan 20;14(1):1818. doi: 10.1038/s41598-024-52360-5. Advancing Cath Lab Results With FFRangio Coronary Physiology Assessment (ALL-RISE) ClinicalTrials.gov Identifier: NCT05893498. Study Start: 2023-06-21. Primary Completion (Estimated): 2024-12. Clinical Trials.gov. |

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| Right Heart Catheterization and Right and Left Heart Catheterization without Coronary Angiography | v2.0.2024 | CD 7.4 | Added indication right and left heart catheterization prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Right Heart Catheterization and Right and Left Heart Catheterization without Coronary Angiography | v2.0.2024 | CD 7.4 | Added indication right and left heart catheterization post LVAD implant as needed for hemodynamic assessment to guide changes to therapy | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Planned (Staged) Procedures | v2.0.2024 | CD 7.6 | Added criteria repeat complete diagnostic left heart catheterization is not medically necessary for the purpose of coronary artery lesion assessment | Yes, More Denials | No | Liu X, Zhang Y, Xu Y, Tang Z, Wang X, Nie S, Mintz GS. Fractional flow reserve versus intravascular imaging to guide decision-making for percutaneous coronary intervention in intermediate lesions: A meta-analysis. Catheter Cardiovasc Interv. 2023 Nov 8. doi: 10.1002/ccd.30909. |
| Pulmonary Hypertension (PH) | v2.0.2024 | CD 8.1 | Initial and follow up echo indications aligned with CD 2.2 and CD 2.3 for consistency | No | N/A | |

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| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added indication TEE prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
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| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added indication Cardiac MRI, Flow velocity mapping and Chest MRA prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added imaging indication prior to LVAD implant: CT or CTA or MRI or MRA Chest | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |

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| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added imaging indication prior to LVAD implant: CTA or MRA Abdomen and pelvis | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added imaging indication prior to LVAD implant CT coronary angiography in individuals post CABG | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |

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| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added indication right and left heart catheterization prior to LVAD implant | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Congestive Heart Failure | v2.0.2024 | Left ventricular assist devices (LVAD) CD 9.4 | Added indication right and left heart catheterization post LVAD implant as needed for hemodynamic assessment to guide changes to therapy | Yes, More Approvals | No | Saeed Det al. The 2023 International Society for Heart and Lung Transplantation Guidelines for Mechanical Circulatory Support: A 10- Year Update. J Heart Lung Transplant. 2023 Jul;42(7):e1-e222. Pergola Vet al. Multimodality imaging of left ventricular assist devices: applications in advanced heart failure. Front Cardiovasc Med. 2023 Sep 28;10:1277563. doi: 10.3389/fcvm.2023.1277563. Masarone D et al. How to Select Patients for Left Ventricular Assist Devices? A Guide for Clinical Practice. J Clin Med. 2023 Aug 10;12(16):5216. doi: 10.3390/jcm12165216. |
| Congenital heart disease – General Information | v2.0.2024 | CD-11.1 | Moved section 11.2 and 11.3 dividers to bottom of 11.1 | No | N/A | N/A |
| Hypertrophic Cardiomyopathy (HCM) | v2.0.2024 | CD 14 | Echo indications aligned with CD 2.2 and CD 2.3 for consistency | No | N/A | N/A |