



Cohere Medical Policy – Computed Tomography (CT), Cardiac

Clinical Guidelines for Medical Necessity Review

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Computed Tomography (CT), Cardiac

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Cardiac

Recommended Clinical Approach

The referring clinician determines the appropriate clinical indication in consultation with a cardiac imaging expert. The patient's pertinent medical history should justify the exam. The examination is primarily performed with IV contrast; however, non-contrast examinations are typically used for calcium scoring and in other limited clinical scenarios. The techniques used to detect and quantify coronary artery calcification (CAC) have evolved. Newer generations of CT scanners have widely replaced electron-beam CT (EBCT).

Medical Necessity Criteria

Indications

- **Computed tomography (CT), cardiac with contrast** is considered appropriate if **ANY** of the following is **TRUE**¹:
- ◆ Documented or suspected neoplastic conditions of the heart (including cardiac masses or mass-like conditions); **OR**
 - ◆ Infection or an infectious disorder, including infective endocarditis; **OR**
 - ◆ Cardiac trauma-related conditions, including iatrogenic injury²; **OR**
 - ◆ Cardiovascular conditions, known or suspected, including **ANY** of the following:
 - Suspected intracardiac thrombus, mass, aneurysm, or pseudoaneurysm when ECHO is indeterminant³; **OR**
 - Cardiomyopathies including **ANY** of the following:
 - Hypertrophic cardiomyopathy⁴; **OR**
 - Suspected arrhythmogenic cardiomyopathy of ventricular origin; **OR**
 - ◆ Preoperative or pre-treatment evaluation including **ANY** of the following:
 - Atrial septal defect/patent foramen ovale (ASD/PFO) closure if TEE is indeterminate; **OR**
 - Aortic root replacement; **OR**

- Pacemaker placement planning including the evaluation of coronary vein before biventricular pacing; **OR**
- Pulmonary vein ablation therapy for cardiac dysrhythmia; **OR**
- Surgical valve replacement; **OR**
- Surgical myectomy or septal ablation hypertrophic cardiomyopathy; **OR**
- Transcatheter left atrial appendage occlusion; **OR**
- Planning for aortic endovascular valve replacement; **OR**
- Post-procedure follow-up or complication to evaluate complications of valve repair or replacement (open or endovascular) including **ANY** of the following:
 - Leaflet thrombosis; **OR**
 - Pannus formation; **OR**
 - Paravalvular leak; **OR**
 - Pseudoaneurysms; **OR**
 - Root abscess; **OR**
- Ventricular assist devices; **OR**
- Pre-procedural planning for atrial fibrillation-related procedures⁵; **OR**
 - Left atrial ablation (pulmonary vein isolation); **OR**
 - Left atrial appendage endovascular occlusion; **OR**
 - Electrical cardioversion or Pharmacologic cardioversion when an indicated TEE has a contraindication or is unable to be completed; **OR**
- Planned transcatheter treatment and the patient has valvular heart disease with **ANY** of the following:
 - Mitral replacement or repair; **OR**
 - Pulmonary replacement or repair; **OR**
 - Transcatheter aortic; **OR**
 - Tricuspid replacement or repair; **OR**
- ◆ Congenital anomalies and variants (e.g., cardiac, vascular) including **ANY** of the following as indicated in cited references^{1,6,7}:
 - **ANY** of the following:
 - Aortic and pulmonary anomalies; **OR**
 - Atrial and ventricular septal defects; **OR**
 - Coronary artery anomalies; **OR**
 - Left-sided cardiac obstructive disorders; **OR**
 - Right-sided cardiac obstructive disorders; **OR**

- Systemic and pulmonary venous anomalies; **OR**
- Other complex structural disorders of the cardiac chambers, morphology, and valves (e.g., heterotaxy);

OR

- Follow-up of corrected or palliated congenital heart disease and assessment of postoperative complications (e.g., shunt or conduit stenosis, thrombosis, pseudoaneurysms) in children and adults; **OR**
- Postoperative evaluation of corrected or palliated congenital heart disease including **ANY** of the following:
 - Pseudoaneurysms; **OR**
 - Stenosis (shunt/conduit); **OR**
 - Thrombosis; **OR**
- ◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
 - New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
 - One-time clarifying follow-up of a prior indeterminate finding; **OR**
 - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

→ **Computed tomography (CT), cardiac without contrast** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Cardiac surgical preoperative planning; **OR**
- ◆ Detection or evaluation of **ANY** of the following:
 - Ascending aorta; **OR**
 - Calcification of coronary arteries; **OR**
 - Cardiac masses; **OR**
 - Cardiac valves; **OR**
 - Pericardium; **OR**
- ◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
 - New or worsening symptoms, such that repeat imaging would influence treatment; **OR**

- One-time clarifying follow-up of a prior indeterminate finding; **OR**
- In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

→ **Computed tomography (CT), cardiac** is not considered appropriate if **ANY** of the following is **TRUE** if contrast is used:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms⁸; **OR**
- ◆ The request is for a calcium scoring scan or electron beam CT (EBCT); **OR**
- ◆ History of anaphylactic allergic reaction to iodinated contrast media.

*NOTE: The referring professional and radiologist should discuss the risks and benefits of contrast media administration, including possible prophylaxis, in patients with chronic or worsening kidney disease or severe renal failure.⁹

**NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.

***NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Disclaimer on Radiation Exposure in Pediatric Population

Due to the heightened sensitivity of pediatric patients to ionizing radiation, minimizing exposure is paramount. At Cohere, we are dedicated to ensuring that every patient, including the pediatric population, has access to appropriate imaging following accepted guidelines. Radiation risk is dependent mainly on the patient's age at exposure, the organs exposed, and the patient's sex, though there are other variables. The following technical guidelines are provided to ensure safe and effective imaging practices:

Radiation Dose Optimization: Adhere to the lowest effective dose principle for pediatric imaging. Ensure that imaging protocols are specifically tailored for pediatric patients to limit radiation exposure.¹⁰⁻¹¹

Alternative Modalities: Prioritize non-ionizing imaging options such as

ultrasound or MRI when clinically feasible, as they are less likely to expose the patient to ionizing radiation. For instance, MRI or ultrasound should be considered if they are more likely to provide an accurate diagnosis than CT, fluoroscopy, or radiography.¹⁰⁻¹¹

Cumulative Dose Monitoring: Implement systems to track cumulative radiation exposure in pediatric patients, particularly for those requiring multiple imaging studies. Regularly reassess the necessity of repeat imaging based on clinical evaluation.¹⁰⁻¹¹

CT Imaging Considerations: When CT is deemed the best method for achieving a correct diagnosis, use the lowest possible radiation dose that still yields reliable diagnostic images.¹⁰⁻¹¹

Cohere Imaging Gently Guideline

The purpose of this guideline is to act as a potential override when clinically indicated to adhere to Imaging Gently and Imaging Wisely guidelines and As Low As Reasonably Possible (ALARA) principles.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75571	Computed tomography (CT) of heart; without contrast material, with quantitative evaluation of coronary calcium
75572	Computed tomography (CT), heart; with contrast material, for evaluation of cardiac structure and morphology (including 3-dimensional [3D] image postprocessing, assessment of cardiac function, and evaluation of venous structures, if performed)
75573	Computed tomography (CT), heart; with contrast material, for evaluation of cardiac structure and morphology in the setting of congenital heart disease (including 3D image postprocessing, assessment of LV cardiac function, RV structure and function and evaluation)

76380	Computed tomography, limited or localized follow-up study
S8092	Electron beam computed tomography (also known as EBCT or Ultrafast CT)

Medical Evidence

Baldassarre et al. (2022) conducted a state-of-the-art review on the advances in multimodality imaging in cardio-oncology. Cardiac computed tomography (CT) is used to evaluate cardiac tumors, pericardial conditions, valve functionality/disorders, and preplanning for transcatheter valve interventions. The modality can produce imaging quickly and is widely available. In addition, cardiac CT can be assessed for non-cardiovascular consequences of radiation exposure. These include the identification of a porcelain aorta, detection of carotid artery disease, and evaluation for radiation-induced pulmonary fibrosis, all of which can elevate the risks associated with surgical interventions. Complementary imaging modalities such as contrast-enhanced cardiac CT and positron emission tomography (PET) with 18F-fluorodeoxyglucose (FDG) can aid in distinguishing between benign lesions and malignant cardiac tumors, mainly when cardiac magnetic resonance (CMR) evaluation is not feasible.¹²

Grandhi et al. (2022) performed a study that sought to assess the efficacy of coronary artery calcium (CAC) as an initial diagnostic modality for excluding obstructive coronary artery disease (CAD). The study specifically examined the utilization of CAC to rule out obstructive CAD in the emergency department (ED). A total of 2902 participants were identified from an extensive registry of patients admitted to the ED due to acute chest pain and deemed at low to intermediate risk for acute coronary syndrome. Fifty-six percent had a CAC score of 0. The diagnosis among participants included CAD (4.6%), non-obstructive CAD (3.9%), and obstructive CAD (0.7%). Among participants with a CAC score greater than 0, obstructive CAD was reported in 23%. The authors conclude that implementing CAC testing at the outset of CP evaluation may enhance patient triage by determining who can safely delay further testing and invasive procedures.¹³

Korsholm et al. (2020) published a review of expert recommendations on cardiac CT for planning transcatheter left atrial appendage occlusion. Guidance is provided on preparing for, conducting, reconstructing, and interpreting cardiac CT scans before left atrial appendage occlusion (LAAO) procedures. This presents a consistent protocol for physicians seeking to integrate 3D cardiac CT seamlessly into their workflow for LAAO. Despite the benefits associated with cardiac CT, widespread implementation before procedures has been difficult. Challenges include the absence of a standardized imaging protocol, limited familiarity with image and software adjustments, and apprehensions regarding radiation exposure, contrast utilization, and financial considerations. Before the LAAO procedure, cardiac

CT should be conducted to assess the anatomical suitability, accurately measuring LAA dimensions to aid in device selection and procedural planning, and confirm the absence of LAA thrombus. Cardiac CT holds promise as a potential replacement for the current gold standard in preprocedural planning for LAAO.¹⁴

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Clinical Guideline Revision History/Information

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Version 3	10/30/2024	Edited repeat imaging criteria language.