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2024 Computed Tomography (CT) Heart

Cardiology/Diagnostic Imaging

CTA-Heart-HH

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Computed Tomography (CT) Heart

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT General Contraindications

Computed tomography (CT) may be contraindicated for **ANY** of the following: [2]

- Allergy to contrast (if contrast is used)
- Pregnancy
- Renal impairment and dialysis unmanageable (if contrast is used)

Preamble: Pediatric Diagnostic Imaging

HealthHelp's clinical guidelines for the Diagnostic Imaging program, are intended to apply to both adults and pediatrics (21 years of age or younger), unless otherwise specified within the criteria.

CT Heart Guideline

Computed tomography (CT) of the heart is considered medically appropriate when the documentation demonstrates **ANY** of the following: [3]

1. Aortic pathology (eg, aneurysm, dilation, dissection) is suspected or known. [21]
2. Cardiomyopathy is suspected or known. [17]
3. Congenital heart disease (CHD) is known, for surveillance. (*__NOTE__: *CT or cardiac magnetic resonance [CMR] are appropriate.)* [18] [19] [4] [12]
4. Connective tissue or genetic disorder (eg, Ehler's Danlos syndrome, Loeys-Dietz syndrome, Marfan syndrome) is suspected or known, for aorta evaluation.
5. Infection (eg, endocarditis, paravalvular infection) is suspected or known and transthoracic echocardiogram (TTE) or transesophageal echocardiogram (TEE) is non-diagnostic or indeterminate. [14]
6. Mass or lesion in the heart, cancer or thrombosis is suspected or known **AND** TTE or TEE is non-diagnostic or indeterminate. (*__NOTE__: *CT or CMR may be appropriate.)* [20] [16] [6]
7. Peri-procedure planning and **ANY** of the following: [1] [9]

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a. Evaluation of the heart's structure and function is necessary for treatment planning (eg, ablation, pacemaker planning, revascularization procedures, valve repair, Watchman™ device).

b. Post-procedure follow-up of Watchman™ device for **EITHER** of the following:

i. Placement evaluation

ii. Thrombosis is suspected.

8. Pericardial disease (eg, constriction, effusion, infection, inflammation) is suspected **AND** TEE or TTE is non-diagnostic or indeterminate **OR** there is a known condition to re-evaluate for changes. [8] [13]

9. Pulmonary hypertension is suspected or known. [10]

10. Tricuspid regurgitation is severe, TTE is non-diagnostic or indeterminate **AND** CMR is **unavailable**, for evaluation of right ventricular function, including systolic and diastolic volumes.

11. Valvular heart disease is suspected or known **AND** fluoroscopy, TEE or TTE is non-diagnostic or indeterminate. [15] [5]

12. Vascular disease process of thoracic or abdominal aorta (eg, aneurysm, dissection, penetrating aortic ulcer) is suspected or known **AND** TEE or TTE is non-diagnostic or indeterminate. [7]

LCD 33947
See also, **LCD 33947**: Cardiac Computed Tomography (CCT) and Coronary Computed Tomography Angiography (CCTA) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*. (*__NOTE__: *As of 04/11/2024 there is not criteria in LCD 33947 for CT Heart. The criteria is for CCTA only*.)

L33559
See also, **LCD33559**: Cardiac Computed Tomography (CCT) and Coronary Computed Tomography Angiography (CCTA) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*. (*__NOTE__: *As of 04/11/2024 there is not criteria in LCD 33947 for CT Heart. The criteria is for CCTA only*.)

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L33423 CARDIAC COMPUTED TOMOGRAPHY & ANGIOGRAPHY (CCTA)
See also, **LCD33423**: Cardiac Computed Tomography (CCT) and Coronary Computed Tomography Angiography (CCTA) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.
(*__NOTE__: *As of 04/11/2024 there is not criteria in LCD 33947 for CT Heart or CT Heart with CAC. The criteria is for CCTA only*.)

LCD 35121 CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY (CCTA)
See also, **LCD 35121**:Coronary Computed Tomography Angiography (CCTA) at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.
(*__NOTE__: *As of 04/11/2024 there is not criteria in LCD 33947 for CT Heart. The criteria is for CCTA only*.)

CT Heart Procedure Codes

Table 1. associated procedure codes

Code	Description
75572	Computed tomography, heart, with contrast material, for evaluation of cardiac structure and morphology (including 3D image postprocessing, assessment of cardiac function, and evaluation of venous structures, if performed)
75573	Computed tomography, heart, with contrast material, for evaluation of cardiac structure and morphology in the setting of congenital heart disease (including 3D image postprocessing, assessment of left ventricular [LV] cardiac function, right ventricular [RV] structure and function and evaluation of vascular structures, if performed)

CT Heart Summary of Changes

CT Heart guideline had the following version changes from 2023 to 2024:

- Added "Tricuspid regurgitation" indication to keep in line with current evidence.
- Citations updated per the evidence.
- Mid-cycle update: added Pediatric Preamble

CT Heart Definitions

Ablation is a procedure performed in a cardiac catheterization laboratory during an electrophysiology study (EPS) for the purpose of destroying myocardial tissue by delivery of radio-frequency energy, electrical or cryo-energy. The procedure is used to correct heart arrhythmias.

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Aneurysm refers to weakness in an artery wall, allowing it to abnormally balloon out or widen.
Cardiac Magnetic Resonance (CMR), also known as cardiac MRI, is a non-invasive medical imaging technology that uses magnetic resonance imaging (MRI) techniques to produce detailed images of the beating heart.
Cardiomyopathy is a disease of the heart muscle that makes it harder for the heart to pump blood to the rest of the body. Cardiomyopathy can lead to heart failure. The main types of cardiomyopathy include dilated, hypertrophic and restrictive cardiomyopathy.
Computed tomography (CT) refers to a computerized X-ray imaging procedure in which a three-dimensional image of a body structure is revealed through a series of cross-sectional images or "slices."
Congenital heart disease (CHD) is a term for a variety of birth defects that affect heart anatomy and function. Congenital is defined as present since birth. CHD occurs when the heart, or blood vessels near the heart, do not develop normally. Common heart defects include: atrial septal defect, coarctation of the aorta, d-transposition of the great arteries, Ebstein's anomoly, patent ductus arteriosus, tetralogy of fallot, total anomalous pulmonary venous connection and ventricular septal defect.
Dissection is the abnormal and usually abrupt formation of a tear or separation of the layers inside the wall of an artery.
Effusion is the escape of fluid from anatomical vessels by rupture or exudation.
Ehlers-Danlos syndrome is a group of hereditary connective tissue disorders that manifests clinically with skin hyperelasticity, hypermobility of joints, atrophic scarring, and fragility of blood vessels.
Endocarditis is inflammation of the inside lining of the heart chambers and heart valves (endocardium). It is caused by a bacterial or rarely, a fungal infection.
Fluoroscopy is a medical procedure that makes a real-time video of the movements inside a part of the body by passing x-rays through the body over a period of time.
Indeterminate findings are inconclusive or insufficient for treatment planning.
Loeys-Dietz syndrome is a disorder that affects the connective tissues of the body and increases the risk of aneurysm in arteries such as the aorta.
Magnetic resonance imaging (MRI) is a non-invasive diagnostic technique that produces computerized images of internal body tissues and is based on nuclear magnetic resonance of atoms within the body induced by the application of radio waves.
Marfan syndrome is a disorder of connective tissue inherited as a dominant trait, characterized by abnormal elongation of the long bones and often with ocular and circulatory defects.
Non-diagnostic is a result that does not lead to a confirmed diagnosis.
Pediatric approximate ages are defined by the US Department of Health (USDH), the Food and Drug Administration (FDA), and the American Academy of Pediatrics (AAP) as the following:

- Infancy, between birth and 2 years of age

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- Childhood, from 2 to 12 years of age
- Adolescence, from 12 to 21 years of age, further defined by the AAP into:
    1. Early (ages 11–14 years)
    2. Middle (ages 15–17 years),
    3. Late (ages 18–21 years)
    4. Older ages may be appropriate for children with special healthcare needs.

Pulmonary hypertension is increased pressure in the pulmonary circulation that results in thickening and narrowing of the pulmonary arteries. Pulmonary hypertension can be either primary, the cause being idiopathic (unknown origin) or it can be secondary which occurs as a result of an identified medical condition.
Regurgitation is the backward flow of blood through a defective heart valve.
Surveillance is ongoing systematic collection and analysis of data and the provision of information which leads to action being taken to prevent and control a disease.
Thrombosis is the formation of a blood clot (partial or complete blockage) within blood vessels, whether venous or arterial, limiting the natural flow of blood and resulting in clinical sequela.
Transesophageal echocardiography (TEE) uses high-frequency sound waves (ultrasound) to make detailed pictures of the heart and the blood vessels that lead to and from it. Unlike a standard echocardiogram, the echo transducer that produces the sound waves for TEE is attached to a thin tube that passes through the mouth and throat, and into the esophagus. The esophagus is close to the upper chambers of the heart and clear images of the heart structures and valves can be obtained.
Transthoracic echocardiogram (TTE) involves placing a device called a transducer on the chest. The device sends ultrasound waves through the chest wall to the heart. As the ultrasound waves bounce off the structures of the heart, a computer converts them into pictures on the computer screen. A TTE uses sound waves to create pictures of the heart chambers, valves, walls and the blood vessels attached to your heart. The test is also called echocardiography or diagnostic cardiac ultrasound.
Tricuspid regurgitation is a condition that occurs when the valve's flaps (cusps or leaflets) do not close properly. Blood can leak backward into the atrium from the leaky tricuspid valve, causing the heart to pump harder to move blood through the valve.
Valvular heart disease is a condition when any valve in the heart has damage or is diseased. When heart valves are diseased, the heart cannot effectively pump blood throughout the body and has to work harder to pump, either while the blood is leaking back into the chamber or against a narrowed opening. This can lead to heart failure, sudden cardiac arrest and death.

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CT Heart References

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Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

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