Cohere Medicare Advantage Policy - Computed Tomography Angiography (CTA), Chest

Clinical Policy for Medical Necessity Review

Version: 2
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Important Notices

Notices & Disclaimers:

GUIDELINES ARE 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 the 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. This policy may be superseded by existing and applicable Centers for Medicare & Medicaid Services (CMS) statutes.

Other Notices:

Policy Information:

Specialty Area: Diagnostic Imaging
Policy Name: Cohere Medicare Advantage Policy - Computed Tomography Angiography (CTA), Chest
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Chest

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.

- There are no NCDs and/or LCDs for CTA of the chest.

Description

The referring clinician is responsible for indicating the appropriate clinical indication (e.g., Wells criteria for intermediate and high probability for pulmonary embolism) for computed tomography angiogram (CTA), CTA of the aorta, and computed tomography venography (CTV). The patient's pertinent history should justify the exam and select phase(s) of post-contrast imaging. The radiologist should protocol the examination before the patient arrives at the CT scanner.

Medical Necessity Criteria

Indications

Computed tomography angiography (CTA)or venography (CTV), chest is considered appropriate if **ANY** of the following is **TRUE**[1]:

- Trauma to the chest with suspected thoracic vascular injury[2]; **OR**
- Non-traumatic thoracic arterial disease and **ALL** of the following[3]:
  - The patient requires **ANY** of the following:
    - Further imaging evaluation of suspected disease (based on history and physical exam or prior imaging); **OR**
    - Assessment of treatment response in known disease; **OR**
    - Evaluation of suspected complications in known disease; **AND**
  - **ANY** of the following:
    - Congenital conditions (e.g., vascular anomaly)[3]; **OR**
    - Rupture[4]; **OR**
    - Dissection[4]; **OR**

        - Mediastinal hematoma[4]; **OR**
        - Intramural hematoma[4]; **OR**
        - Penetrating atherosclerotic ulcer (PAU)[4]; **OR**
        - Pseudoaneurysm[5]; **OR**
        - Non-aortic aneurysm; **OR**
        - Infectious vasculitis (e.g., syphilis, mycotic aneurysm); **OR**
        - Inflammatory vasculitis[6]; **OR**
        - Large-vessel vasculitis (e.g., giant cell arteritis, Takayasu arteritis)[6]; **OR**
        - Medium-vessel vasculitis (e.g., polyarteritis nodosa [PAN], Kawasaki disease), suspected[6]; **OR**
        - Neoplastic condition; **OR**
- Suspected arterial embolism that impacts **ANY** of the following[7]:
    - Upper or lower extremity; **OR**
    - Mesenteric system; **OR**
    - Renal arterial system; **OR**
    - Multiorgan distribution; **OR**
- Pulmonary venous abnormalities (including suspected pulmonary arteriovenous malformation [PAVM]) based on prior imaging or risk factors (e.g., hereditary hemorrhagic telangiectasia, genetic mutations, post-surgical, hepatopulmonary syndrome)[9]; **OR**
- Pulmonary embolism (PE), including **ANY** of the following[9,10]:
    - Evaluation of PE in a pregnant patient[11]; **OR**
    - High-risk probability of PE by Wells criteria (D-dimer not needed)[9,12]; **OR**
    - **ALL** of the following[9]:
        - Low or intermediate pretest probability of PE by Wells criteria; **AND**
        - Positive D-dimer; **OR**
- Suspected pulmonary hypertension, including chronic thromboembolic pulmonary hypertension (CTEPH)[8,13,14]; **OR**
- Evaluation of known CTEPH in a patient being considered for surgery[13,14]; **OR**
- Subclavian steal syndrome or suspected subclavian artery stenosis based on history, examination, or Doppler ultrasound[15,16]; **OR**
- Central thoracic venous thrombosis or occlusion (includes superior vena cava [SVC] syndrome) based on clinical features or prior imaging; **OR**
- Clinical concern for subclavian venous thrombosis or occlusion with indeterminate findings on Doppler, and further evaluation is necessary; **OR**
- Vascular thoracic outlet syndrome suspected based on clinical features or prior imaging; **OR**

- Evaluation of massive, non-massive, or recurrent hemoptysis[17]; **OR**
- **ANY** of the following:
  - Initial diagnosis of a suspected thoracic aortic aneurysm based on an abnormality on **ANY** of the following:
    - Chest radiograph; **OR**
    - Echocardiogram; **OR**
  - Evaluation of known or suspected thoracic aortic disease progression/complication based on signs, symptoms, or other imaging studies (e.g., chest pain, suspicion for rupture)[8]; **OR**
  - Surveillance of known thoracic aortic aneurysm (TAA) in a patient with non-syndromic/non-hereditary cause for **ANY** of the following:
    - At baseline, if the ascending aorta is not adequately imaged on a transthoracic echocardiogram (TTE); **OR**
    - 6 months after the initial diagnosis; **OR**
    - Annual surveillance for thoracic aortic aneurysms less than 5.0 cm; **OR**
    - Surveillance every 6 months for thoracic aortic aneurysm greater than or equal to 5 cm; **OR**
    - Surveillance every 6 months for aneurysms that are growing by more than 0.5 cm/year; **OR**
    - Surveillance of known syndromic/hereditary/genetic aortic disease for **ANY** of the following:
      - Marfan syndrome with **ANY** of the following:
        - At baseline, if the ascending aorta is not adequately imaged on TTE; **OR**
        - 6 months after baseline imaging; **OR**
        - Surveillance every 2 years if the patient does not have a thoracic aortic aneurysm; **OR**
        - Annual surveillance if aneurysm is growing by less than 0.3 cm/year; **OR**
        - Annual surveillance if aneurysm is less than 4.5 cm in size; **OR**
        - Surveillance every 6 months if aneurysm is growing by more than 0.3 cm/year; **OR**
        - Surveillance every 6 months if aneurysm is greater than 4.5 cm; **OR**
      - Bicuspid aortic valve (BAV) with **ANY** of the following:
        - At baseline, if the ascending aorta is not adequately imaged on TTE; **OR**

    - 6 months after baseline imaging; **OR**
    - Surveillance every 2 years if the patient does not have a thoracic aortic aneurysm; **OR**
    - Annual surveillance if the aneurysm is growing by less than 0.3 cm/year; **OR**
    - Annual surveillance if the aneurysm is less than 4.5 cm in size; **OR**
    - Surveillance every 6 months if the aneurysm is growing by more than 0.3 cm/year; **OR**
    - Surveillance every 6 months if the aneurysm is greater than 4.5 cm; **OR**
- Turner syndrome with **ANY** of the following:
    - At baseline, if the ascending aorta is not adequately imaged on TTE; **OR**
    - 6 months after baseline imaging; **OR**
    - Surveillance every 2 years if the patient does not have a thoracic aortic aneurysm; **OR**
    - Annual surveillance if the thoracic aortic aneurysm has an indexed diameter (aortic size index - ASI) greater than 2 cm/m^2; **OR**
- Loeys-Dietz syndrome with **ANY** of the following:
    - At baseline, if the ascending aorta is not adequately imaged on TTE; **OR**
    - 6 months after baseline imaging; **OR**
    - Annual surveillance if the aneurysm is less than 4.0 cm
    - Annual surveillance if the aneurysm is growing less than 0.3 cm growth/year; **OR**
    - Surveillance every 6 months if the aneurysm is greater than 4 cm; **OR**
    - Surveillance every 6 months if the aneurysm is growing by more than 0.3 cm/year; **OR**
- Vascular Ehlers-Danlos syndrome (VEDS) with **ANY** of the following:
    - At baseline, if the ascending aorta is not adequately imaged on TTE; **OR**
    - At 6 months after baseline imaging; **OR**
    - Annual surveillance if the aneurysm is less than 5.0 cm; **OR**

        - Annual surveillance if the aneurysm is growing less than 0.5 cm growth/year; **OR**
        - Surveillance every 6 months if the aneurysm is greater than 5 cm; **OR**
        - Surveillance every 6 months if the aneurysm is growing by more than 0.5 cm/year; **OR**
    - Initial screening CTA for a first-degree relative (parent, sibling, or child) of a patient with confirmed aortic disease attributable to a heritable or genetic cause[18]; **OR**
    - Surveillance of known thoracic aortic dissection; **OR**
- Preoperative imaging for surgical planning when cardiothoracic/vascular surgery or endovascular intervention is already planned; **OR**
- Post-procedure evaluation following endovascular or open repair of thoracic aortic aneurysm at **ANY** of the following intervals[18,21,22]:
    - For surveillance 1 month after repair; **OR**
    - 12 months after repair; **OR**
    - If stable, annual surveillance starting 12 months after repair; **OR**
- Post-treatment (surgical or medical) of acute aortic dissection at **ANY** of the following intervals[18,21]:
    - 1 month post-treatment; **OR**
    - 6 months post-treatment; **OR**
    - If stable, annual surveillance starting 6 months after repair; **OR**
- Congenital or acquired conditions as indicated by **ANY** of the following[3,23]:
    - Pulmonary sequestration[24]; **OR**
    - **ALL** of the following:
        - Inadequate TTE for assessment of cardiovascular morphology and function[24]; **AND**
        - **ANY** of the following[24]:
            - Known single ventricle physiology; **OR**
            - Known or suspected anomalous pulmonary venous return; **OR**
            - Repaired tetralogy of Fallot or pulmonary valve stenosis with concern for pulmonary valve dysfunction or branch pulmonary artery stenosis[25]; **OR**
            - Aortic coarctation; **OR**
            - Transposition of the great arteries after arterial switch; **OR**
            - Transposition of the great arteries after atrial switch; **OR**
    - Non-invasive clinical staging of tumor to define vascular invasion[26]; **OR**

- Repeat imaging (defined as a repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
  - There are no established guidelines; **AND**
  - **ANY** of the following:
    - There are new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
    - There is a need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
    - In the absence of a change in symptoms, there is an established need for monitoring, which would influence management.

Non-Indications

Computed tomography angiography (CTA), chest with contrast, is not considered if **ANY** of the following is **TRUE**:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms.[27]

*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.
**NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.
***NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.
**** For additional guidance, refer to the table below.[12]

Wells Clinical Decision	
Variable	**Points**
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3.0
Alternative diagnosis less likely than pulmonary embolism (PE)	3.0
Heart rate > 100/min	1.5
Immobilization (>3 days) or surgery in the previous 4 weeks	1.5
Previous PE or DVT	1.5
Haemoptysis 1	1.0
Malignancy (receiving treatment, treated in the last 6 months or palliative)	1.0
Clinical probability of PE: Unlikely ≤ 4 points Likely >4 points Low <2 points Intermediate 2-6 points High >6 points Abbreviations: DVT, deep vein thrombosis; PE, pulmonary embolism	

Disclaimer on Radiation Exposure in Pediatric Populations

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.[28,29]

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.[28,29]

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.[28,29]

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.[28,29]

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 and Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71275	Computed tomographic angiography (CTA), chest; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established" Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely-accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria for computed tomography angiography (CTA), chest may include:

- Adverse effects from delayed or denied treatment may result from the speed at which CTA is performed. Although generally regarded as a fast method to comprehensively evaluate the chest, CTA is far slower than similar, lower-intensity, less-invasive modalities such as chest radiograph.[30,31]
- Inherent risk of procedure: There are inherent risks of imaging, including cumulative radiation exposure, contrast, allergy, nephrotoxicity, and contrast extravasation into surrounding tissues.[28,32]
- Potential danger to pregnancy: CT imaging completed during pregnancy confers a dose of ionizing radiation to the fetus and is generally only utilized when the potential benefits of this specific imaging modality outweigh the risks to the pregnancy.[33] Fetal risk includes fetal demise,

intrauterine growth restriction, microcephaly, delayed intellectual development, risk of childhood cancer, and fetal thyroid injury.[33]
- Increased healthcare costs and complications from the inappropriate use of additional interventions.[34]

The clinical benefits of using these criteria for CTA, chest include:
- Improved patient selection may result in better long-term outcomes. CTA of the chest is highly accurate and thorough as an imaging modality, which is especially critical in clinical scenarios that carry a high-risk of morbidity and mortality, such as acute aortic disease and chest trauma.[30,31] Also, CTA as a first- or second-line imaging strategy appears to be a cost-saving measure over other more invasive testing and may also confer a downstream cost savings due to the avoidance of unnecessary, more costly imaging in the workup of stable chest pain, such as ICA (invasive coronary angiography).[31]
- Appropriate allocation of healthcare resources at the individual beneficiary and population levels.

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 Evidence

Ko et al. (2021) review the utilization of chest CT angiography (CTA) to diagnose acute aortic syndromes. To ensure optimal quality of images, the authors address technical parameters of chest CTA, including non-contrast imaging, timing of contrast-enhanced imaging, volume and type of contrast material used, kilovolt potential, tube-current modulation, and decisions regarding electrocardiographic-gating and ultra-fast imaging. Acute aortic syndromes, especially those involving the ascending aorta, carry high morbidity and mortality rates and encompass conditions such as classic aortic dissection, penetrating atherosclerotic ulcer, and acute intramural hematoma. Recognition of related entities like ulcerated plaque, ulcer-like projections, intramural blood pools, and mimics such as vasculitis and aortic thrombus is crucial to avoid interpretive errors.[30]

Carrabba et al. (2019) present the results of a clinical trial that evaluated the efficacy of CTA for diagnosing coronary artery disease (CAD) in patients with new-onset chest pain. The 208 patients included had an unknown CAD diagnosis. Approximately half of the participants received standard testing care and CTA as a secondary investigation (group A), while the other half underwent CTA as their initial investigation (group B). Patients with obstructive CAD (O-CAD) demonstrated greater than 50% stenosis in the principal branch. According to the CTA results, the rates of CAD in group A compared to group B were as follows (P=0.001): 31.1% versus 27.4% for normal or minimal CAD; 42.5% versus 63.7% for no O-CAD; and 26.4% versus 8.8% for O-CAD.[31]

Baliyan et al. (2018) report on acute aortic syndromes in an emergency setting. CTA is the preferred imaging modality as it can be performed quickly and identify variations in anatomy including coarctation. Incidental findings are often identified (89%) when performing chest CTA. An alternative is MRA when CTA cannot be performed due to allergy to renal dysfunction or iodinated contrast.[35]

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Policy Revision History/Information

Original Date: September 12, 2024		
Review History		
Version 2	09/11/2025	Annual review. Added section for non-traumatic thoracic arterial disease. For suspected arterial embolism, added "multiorgan distribution." Added indication for pulmonary venous abnormalities. Clarified the indications for pulmonary embolism to improve usability, organization. Added indication for "evaluation of known CTEPH in a patient being considered for surgery." Added indication for subclavian venous thrombosis or occlusion with indeterminate findings on Doppler. Simplified the existing indication for "hemoptysis." Augmented existing indication for the "evaluation of thoracic aortic disease", providing more specific surveillance timeframes and disease-specific aortic size cutoffs per medical society guidelines. Revised indications under "surveillance of known syndromic/hereditary/genetic aortic disease" to improve usability and organization.

		Streamlined the existing indications for screening of first-degree relatives for patients with heritable aortic disease. Added indication (including intervals) for "surveillance of known thoracic aortic dissection." Removed indication for transcatheter aortic valve replacement (TAVR) pre-intervention planning and pulmonary vein mapping. Added indications for pre- and post-procedure imaging to better capture appropriate patients. Removed indication for "re-evaluation of known ascending aortic dilation or history of aortic dissection with a change in clinical status." Under the indication for "congenital or acquired conditions", added "inadequate TTE for assessment of cardiovascular morphology and function." Clarified the indication for repeat imaging to improve usability and organization. Added table for Wells criteria. Removed non-indication for contrast anaphylaxis allergy. Added non-indication: "The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms."