Cohere Medical Policy - Computed Tomography Angiography (CTA), Upper Extremity

Clinical Policy for Medical Necessity Review

Version: 4
Cohere Health UMC Approval Date: September 11, 2025
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Revision: Not Applicable
Next Annual Review: September 11, 2026

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.

Other Notices:

Policy Information:

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Upper Extremity

Cohere Health takes an evidence-based approach to reviewing imaging and procedure requests, meaning that sufficient clinical information must be provided at the time of submission to determine medical necessity. Documentation must include a recent and detailed history, physical examination related to the onset or change in symptoms, relevant lab results, prior imaging, and details of previous treatments. Advanced imaging or procedures should be requested after a clinical evaluation by the treating provider, which may include a referral to a specialist.

- When a specific clinical indication is not explicitly addressed in the Cohere Health medical policy, medical necessity will be determined based on established clinical best practices, as supported by evidence-based literature, peer-reviewed sources, professional society guidelines, and state or national recommendations, unless otherwise directed by the health plan.
- Requests submitted without clinical documentation, or those that do not align with the provided clinical information—such as mismatched laterality, body part, or CPT code—may be denied for lack of medical necessity due to insufficient or inconsistent clinical information.
- Repeat diagnostic testing due to technical issues—such as patient motion, incomplete exams, or incorrect imaging sequences—may not be considered medically necessary, as it is the responsibility of the imaging center to deliver appropriate, high-quality studies as originally authorized. Similarly, repeat imaging requested at a different facility based solely on provider preference may not be approved for medical necessity.
- When there are multiple diagnostic or therapeutic procedures requested simultaneously or within the past three months, each will be reviewed independently. Clinical documentation must clearly justify all of the following:
    - The medical necessity of each individual request

    - Why prior imaging or procedures were inconclusive or why additional/follow-up studies are needed
    - How the results will impact patient management or treatment decisions
- Requests involving adjacent or contiguous body parts may be considered not medically necessary if the documentation demonstrates that the patient's primary symptoms can be adequately assessed with a single study or procedure.
- Cohere Health evaluates imaging exams based on medical necessity, regardless of contrast use. If an initial non-contrast study is completed and the radiologist later determines that contrast is needed to clarify a finding, the original authorization number may be used—provided the contrast-enhanced exam is performed at the same imaging center and within the original request's validity period, unless otherwise directed by the health plan.

Description

Upper extremity computed tomography angiography (CTA) allows for the characterization of vascular morphology and pathology in the upper limbs. It supports the diagnosis of vascular disease, as well as planning for and subsequent monitoring of treatment for such diseases. Similarly, computed tomography venography (CTV) allows for the characterization of venous anatomy and the identification of obstructions and other venous abnormalities.[1]

Medical Necessity Criteria

Indications

Computed tomography angiography (CTA), upper extremity is considered appropriate if **ANY** of the following is **TRUE**[1-4]:

- Neoplastic conditions (including masses or mass-like conditions) when the arterial blood supply needs to be evaluated (e.g., for treatment planning, treatment response, or prognostication); **OR**
- Neoplastic invasion of arteries or veins; **OR**
- Trauma-related conditions as indicated by **ANY** of the following[3]:
  - Expanding hematoma[4]; **OR**
  - Major blunt trauma and the patient is hemodynamically stable[5]; **OR**
  - Neurologic deficit of upper extremity in association with trauma; **OR**
  - Vascular trauma to upper extremity[6]; **OR**
  - Repetitive trauma syndromes with vascular complications (e.g., crutch injury, hypothenar hammer syndrome); **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
  - Aneurysm, seen on ultrasound or where ultrasound is nondiagnostic; **OR**
  - Intramural hematoma; **OR**
  - Dissection; **OR**
  - Clinical suspicion of acute or chronic limb ischemia, when ultrasound is inconclusive or nondiagnostic, with **ANY** of the following:
    - Acute absence of radial or ulnar pulses; **OR**
    - Acute changes in motor or sensory function; **OR**
    - Symptoms with exercise attributable to vascular etiologies such as muscle pain that resolves with rest, coldness, pallor, or fatigue; **OR**
  - Determination of hemorrhage source (including nonsurgical, spontaneous)[4]; **OR**
  - Localization and characterization of vascular malformation or fistula (e.g., assessing treatment response, treatment planning) with **ANY** of the following:
    - Duplex ultrasound indeterminate or nondiagnostic; **OR**
    - High flow lesion suspected clinically or by imaging; **OR**
    - Preoperative planning; **OR**
  - Vasculitis, initial evaluation, when **ANY** of the following is **TRUE**[6]:
    - Biopsy proven; **OR**

        - Rheumatologic panel work-up including, but not limited to, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), is suggestive of vasculitis; **OR**
        - Requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change management and/or treatment plan; **OR**
    - Noninflammatory vasculopathy that is symptomatic, (e.g., Raynaud's, Buerger's disease, fibromuscular dysplasia, scleroderma); **OR**
    - Arterial entrapment syndrome, when ultrasound is inconclusive or contraindicated[7]; **OR**
    - Pre- and postintervention evaluation, when ultrasound is inconclusive or nondiagnostic, and **ANY** of the following is **TRUE**:
        - Postoperative evaluation of the effectiveness of arterial or venous reconstruction or bypass; **OR**
        - Characterization of normal and variant vascular anatomy; **OR**
        - Determination of the patency, location, or integrity of grafts and other vascular devices (e.g., stents); **OR**
        - Planning autografts for musculoskeletal reconstruction; **OR**
        - Treatment of arterial entrapment syndrome; **OR**
    - Nonhealing upper extremity ulcers with abnormal or inconclusive ultrasound results (e.g., arterial Doppler); **OR**
    - Vascular steal syndrome of the upper extremity is suspected and initial imaging is needed to guide therapy[6]; **OR**
    - Hemodialysis access evaluation, if **ALL** of the following are **TRUE**:
        - Duplex ultrasound is inconclusive; **AND**
        - Fistulogram cannot be performed; **AND**
        - Steal syndrome; **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 need for a 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 venogram (CTV), upper extremity is considered appropriate if **ANY** of the following is **TRUE**:

- Neoplastic conditions (including masses or mass-like conditions) when the arterial blood supply needs to be evaluated (e.g., for treatment planning, treatment-response, or prognostication); **OR**
- Neoplastic invasion of arteries or veins; **OR**
- Initial evaluation for known venous upper extremity ulcer, when ultrasound is indeterminate or nondiagnostic; **OR**
- Known or suspected acute or chronic deep venous thrombosis, when results would change management and ultrasound has been completed; **OR**
- Known severe postthrombotic changes incompletely evaluated by ultrasound[7]; **OR**
- Subclavian or central venous obstruction, such as subclavian vein thrombosis, Paget-Schroetter syndrome, or thoracic outlet syndrome, either known or suspected clinically (e.g., edema aggravated by exercise/arm position); **OR**
- Pre- and postintervention evaluation when **ANY** of the following is **TRUE**:
  - Postoperative evaluation of the effectiveness of arterial or venous reconstruction or bypass; **OR**
  - Characterization of normal and variant vascular anatomy; **OR**
  - Determination of the patency, location, or integrity of grafts and other vascular devices (e.g., stents); **OR**
  - Planning autografts for musculoskeletal reconstruction; **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 need for a 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 angiography (CTA), upper extremity is not considered appropriate if **ANY** of the following is **TRUE**[8]:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[9].

*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.

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.[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
73206	Computed tomographic angiography (CTA), upper extremity; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Medical Evidence

Ghouri et al. (2019) review the use of computed tomography (CT) and magnetic resonance angiography (MRA) of the upper extremity vasculature. While less frequent than lower extremity vascular abnormalities, upper extremity vascular issues require comprehensive assessment. Color Doppler is more convenient and bedside-accessible; however, it suffers from operator variability and lacks central vasculature evaluation. Computed tomography angiography (CTA) is the primary imaging tool and allows for optimal results. Contrast enhancement is pivotal in CTA imaging, with adjustments in acquisition methods, contrast injection rates, and patient characteristics (e.g., body mass index [BMI]) all impacting diagnostic accuracy. Advancements in CTA and MRA, including 3D reconstructions and time-resolved techniques, expand the ability to assess vascular pathologies previously reliant on conventional angiography.[2]

Nagpal et al. (2017) discuss the advancements in CT and magnetic resonance imaging (MRI) technology. This type of imaging allows for the assessment of upper extremity vascular conditions noninvasively. CT captures a wide field of view and the widespread availability of CT makes it valuable in emergency scenarios and for patients with contraindications to gadolinium-based contrast agents. The capability of MRI provides dynamic imaging through techniques like time-resolved MRA, and its superior resolution for soft tissues positions it as the preferred choice for diagnosing vascular malformations, dynamic vascular compression disorders, and issues related to digital arteries. The technology of CT and MR ensures better anatomical and functional assessments for patients with upper extremity vascular symptoms.[12]

Dave and Fleischmann (2016) provide an overview of CTA of the upper extremities. While the value of CTA in trauma situations is widely acknowledged, its extensive and diverse clinical applications in subacute settings are equally significant. These include crucial roles in presurgical anatomical mapping, such as identifying variant arterial structures, assessing connective tissue disorders, diagnosing vasculitis, managing overuse syndromes, evaluating arteriovenous fistulae/grafts, diagnosing vascular

malformations, recognizing compression syndromes, and investigating perivascular pathology.[4]

References

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Policy Revision History/Information

Original Date: April 22, 2022		
Review History		
Version 2	08/13/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language
Version 4	09/11/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria. No major changes to criteria.