Cohere Medical Policy -
Computed Tomography Angiography (CTA), Head

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

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Policy Information:

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

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Medical Necessity Criteria

***Service*: Computed Tomography Angiography (CTA), Head**

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

Computed tomography angiography (CTA) and CT venography (CTV) of the head help detect and characterize vascular disease and anatomy relevant to treating extravascular disorders. CTA may be used as the primary modality for detecting disease, as an adjunctive tool for characterizing a known disease, or to assess changes over time.[1]

Medical Necessity Criteria

Indications

Computed tomography angiography (CTA), head is indicated if **ANY** of the following is **TRUE**:

- Neoplastic conditions, including surgical and radiation therapy localization, planning, and neuronavigation to delineate the vascular anatomy (e.g., tumor is in the vicinity of or encases a major artery or occludes a major vein)[1]; **OR**
- Trauma-related conditions as indicated by **ANY** of the following:
  - Head trauma with suspected intracranial arterial injury due to clinical risk factors or positive findings on prior imaging[2]; **OR**
  - Blunt cerebrovascular injury (BCVI) is suspected based on the mechanism and location of trauma (CT neck is also indicated with CT head)[3]; **OR**
  - Traumatic vascular injuries[1]; **OR**
  - Suspected carotid or vertebral artery dissection secondary to trauma; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
  - Aneurysm with **ANY** of the following[5-10]:
    - Screening for cerebral artery aneurysm when **ANY** of the following is **TRUE**[11-19]:
      - Autosomal dominant polycystic kidney disease (adults); **OR**
      - The patient has two or more first-degree relatives (parent, brother, sister, or child) with a history of intracranial aneurysm; **OR**
      - The patient is symptomatic with one first-degree relative who has a history of intracranial aneurysm[4-7]; **OR**
      - Fibromuscular dysplasia; **OR**
      - Loeys-Dietz syndrome; **OR**
      - Spontaneous coronary arteries dissection (SCAD); **OR**
      - Known aortic coarctation (after age 10); **OR**
    - **ANY** of the following:
      - Diagnosis of intracranial hemorrhage; **OR**
      - Diagnosis of subarachnoid hemorrhage; **OR**
      - Intracerebral hemorrhage, known or suspected[20]; **OR**
      - The patient has a history of subarachnoid hemorrhages[6]; **OR**
  - Cervical bruit or thrill with suspicion of neck carotid stenosis; **OR**
  - Headache with **ANY** of the following:

    - Acute onset worst headache of life/thunderclap headache[21]; **OR**
    - New onset or pattern during pregnancy or peripartum period; **OR**
    - Associated with exercise, exertion, Valsalva, or sexual activity; **OR**
  - Intracranial arterial dissection, suspected; **OR**
  - Intracranial occlusive disease (arterial or venous), suspected[22]; **OR**
  - Intracranial hypertension (idiopathic), suspected; **OR**
  - Pseudoaneurysm[1]; **OR**
  - Recent stroke, up to 6 months (remote history is not an indication unless recent transient ischemic attack [TIA] episodes)[1]; **OR**
  - Cranial neuropathy, when **ALL** of the following are **TRUE**:
    - Prior imaging is suspicious for a vascular pathology (e.g., aneurysm, arteriovenous fistulas [AVF])[1,8,9]; **AND**
    - **ANY** of the following[8]:
      - Lower cranial nerve palsies, weakness or paralysis (cranial nerve [CN] IX-XII) (i.e., glossopharyngeal neuralgia); **OR**
      - Unilateral isolated weakness or paralysis of the tongue (hypoglossal nerve, CN XII); **OR**
      - Refractory trigeminal neuralgia when done for surgical planning; **OR**
      - Isolated third nerve palsy (oculomotor) with pupil involvement to evaluate for aneurysm; **OR**
      - Any combination or isolated involvement of cranial nerves where prior imaging is suspicious for vascular pathology; **OR**
  - Acute or recent unexplained intracranial hemorrhage[1]; **OR**
  - Atherosclerotic stenosis or occlusive disease, including suspected vasospasm or thromboembolism, with **ANY** of the following[1]:
    - Patient has documented symptoms suggestive of stroke or TIA; **OR**
    - Suspected on prior imaging; **OR**
  - Vasculopathy, when **ALL** of the following are **TRUE**[1]:
    - Nonatherosclerotic; **AND**
    - Noninflammatory (e.g., radiation vasculopathy), **AND**
    - Suspected on prior imaging (e.g., CT, magnetic resonance imaging [MRI]); **OR**
  - The patient has **ANY** of the following:
    - Abnormal neurologic signs; **OR**
    - Fever; **OR**
    - Visual disturbance; **OR**
    - Vertigo; **OR**

- Vascular malformation and fistula based on prior imaging[1]; **OR**
- Cerebrovascular disease in a patient 18 years of age or older including **ANY** of the following[10]:
  - Acute subarachnoid hemorrhage (SAH), suspected or known on CT; **OR**
  - Central nervous system (CNS) vasculitis, suspected; **OR**
  - Cerebral aneurysm (treated or untreated), known; **OR**
  - Cerebral vasospasm, suspected; **OR**
  - High-flow vascular malformation (arteriovenous malformation or arteriovenous fistula), known; **OR**
  - Aneurysmal SAH in a younger patient who is at risk of de novo aneurysm formation; **OR**
  - The patient has **ANY** of the following:
    - Moyamoya disease; **OR**
    - Bicuspid aortic valve; **OR**
    - Aortic aneurysm; **OR**
    - Coarctation of the aorta; **OR**
- Cerebrovascular disease in a patient 17 years of age or younger and **ANY** of the following is **TRUE**[23]:
  - Acute stroke is suspected with **ANY** of the following:
    - **ALL** of the following are **TRUE**:
      - Non-sickle–cell-related with new focal fixed or worsening neurologic deficit lasting less than 24 hours from last seen normal state; **AND**
      - No contraindications to emergent intervention; **OR**
    - Known or suspected arteriopathy or Moyamoya disease[9,10] **OR**
    - Known or suspected central nervous system vasculitis; **OR**
    - Known or suspected low- or high-flow vascular anomaly; **OR**
    - The patient is not a candidate for emergent intervention; **OR**
  - Acute subarachnoid hemorrhage (SAH), suspected or known on CT; **OR**
  - Spontaneous cervicocranial arterial dissection based on clinical or imaging findings (CTA head and neck ordered together); **OR**
  - Nontraumatic intracranial hemorrhage (hematoma) of unknown etiology found on CT or MRI and additional imaging study is needed; **OR**
  - Nontraumatic SAH detected by noncontrast CT; **OR**

    - Vertebrobasilar insufficiency (VBI) as indicated by **ANY** of the following[20,22]:
        - Abnormal neurologic examination is consistent with central vertigo; **OR**
        - Associated with other brainstem neurologic deficits; **OR**
        - Head Impulse-Nystagmus-Test of Skew (HINTS)[A] examination is consistent with central vertigo; **OR**
        - Neurological symptoms (central vertigo); **OR**
- For evaluation of **ANY** of the following miscellaneous pathologies when prior testing has failed:
    - Headache with an unrevealing MRI and **ANY** of the following is **TRUE**:
        - Persistent in nature; **OR**
        - Undifferentiated; **OR**
        - Unexplained; **OR**
    - Pulsatile tinnitus (unilateral or bilateral) as evidenced by **ANY** of the following[1,24,25]:
        - Localized to one ear (prior testing not required); **OR**
        - Focal neurological abnormalities (consider MRI brain internal auditory canal [IAC] protocol first); **OR**
        - Asymmetric hearing loss (consider MRI brain IAC protocol first); **OR**
    - Visual impairment including **ANY** of the following[26]:
        - Isolated third nerve palsy (oculomotor) with pupil involvement to evaluate for aneurysm; **OR**
        - Suspected venous thrombosis (e.g., dural sinus thrombosis) when magnetic resonance venography (MRV) is contraindicated or cannot be performed; **OR**
- Preoperative assessment of vascular anatomy or pathology; **OR**
- Post-treatment follow-up to monitor treatment result and surveillance of vascular condition; **OR**
- Congenital conditions or anomalies including vascular abnormality associated with chronic anemic conditions (e.g., sickle cell disease) (magnetic resonance angiography [MRA] head is preferred in pediatric patients).[27,28]

Computed tomography venography (CTV), head is indicated if **ANY** of the following is **TRUE**:

- Vascular conditions, known or suspected, including **ANY** of the following:
  - Venous/dural sinus abnormalities such as **ANY** of the following:
    - Acquired thrombosis/occlusion; **OR**
    - Venous sinus stenosis; **OR**
  - Large vein injury secondary to trauma; **OR**
  - Vascular invasion or displacement by tumor; **OR**
- Headache with **ANY** of the following:
  - New onset or pattern during pregnancy or peripartum period; **OR**
  - Headache with features of intracranial hypertension (e.g., papilledema, pulsatile tinnitus, visual symptoms worse on Valsalva)[23]; **OR**
- Initial diagnostic, one-time pre- or posttreatment evaluation for treatment planning or evidence of clinical concern for vascular malformation.

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) or computed tomography venography (CTV), head, are not considered appropriate if **ANY** of the following is **TRUE**[29]:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[30].

*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.

Definitions

[A]**HINTS:** Three bedside tests (Head Impulse, Nystagmus, Test of Skew) to assess whether acute vestibular symptoms (AVS, e.g., vertigo, nausea) are due to a central cause.
-The head impulse test measures the vestibulo-ocular reflex (VOR) by having the patient focus on a central target during rapid side-to-side head rotation. Inability to maintain fixation in one direction is considered abnormal.
-Nystagmus (i.e. rapid, involuntary eye movements). Nystagmus suggestive of a central cause of AVS includes vertical nystagmus, torsion nystagmus, or nystagmus that changes direction.
-Skew deviation (vertical misalignment of the eyes due to an imbalance of vestibular tone in the oculomotor system) is typically assessed by covering each eye in isolation, assessing for vertical correction of the eye position.

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.[31,32]

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.[31,32]

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.[31,32]

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.[31,32]

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
70496	Computed tomographic angiography (CTA), head; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Medical Evidence

Tu et al. (2022) conducted a retrospective review on the utilization of head and neck computed tomography angiography (CTA) in the emergency department (ED). Head and neck CTA in the ED has shown a disproportionate increase compared to other neuroimaging examinations. The study contrasted utilization and the frequency of communicating non-routine results across the top 50 patient chief concerns. A total of 17,903 CTAs for 833 distinct chief concerns were included, which accounts for 2.5% of 708,145 ED visits. The rates of ordering and communication of non-standard results exhibit significant variability across different chief concerns. Approximately half of the non-standard communications made by radiologists pertain to acute indications. Understanding the trends in ordering head and neck CTA and communicating non-standard results can aid in refining patient selection and enhancing radiologist interactions in the ED.[33]

Schenk et al. (2021) report on a retrospective review of stroke in young adults. The use of CTA head and neck diagnostic yield for anterior circulation ischemic stroke evaluation is discussed. The review included adults aged 18-50 who presented to the Mayo Clinic Rochester ED. Carotid dissection is a predominant cause of anterior circulation ischemic stroke, as evidenced by findings on CTA. Carotid webs were rare findings in the patients studied, and the authors emphasized the importance of distinguishing between carotid webs and intimal flap, given that carotid webs are associated with recurrent stroke. The authors did not cite a significant disparity in the prevalence of carotid atherosclerosis between the symptomatic and asymptomatic sides. Clinicians can recognize high-risk morphological attributes of carotid plaque observed on CT angiography, even in cases with no discernible stenosis.[34]

Heit et al. (2016) conducted an 11-year single-center retrospective review to analyze the yield of digital subtraction angiography (DSA) in patients with subarachnoid hemorrhage. DSA reveals vascular abnormalities in 13% of patients who initially test negative for subarachnoid hemorrhage (SAH) on CTA. Upon subsequent DSA, aneurysms or pseudoaneurysms are found in 4% of cases. Utilization of DSA may be appropriate for all patients with SAH-negative CT scans. To aid the clinician, the type of SAH pattern observed with DSA may offer clues to the underlying cause of the hemorrhage.[35]

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Policy Revision History/Information

Original Date: April 15, 2022		
Review History		
Version 2	08/29/2024	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. Removed relative contraindications (contrast allergy). Renumbered references to reflect order of first appearance.