

Cohere Medical Policy – Radiology Commercial

Clinical Guidelines for Medical Necessity Review

Consolidated Reference • 105 Policies

Updated on 05/26/2026

Important Notices

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Cohere Medical Policy (Tennessee Medicaid) – Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy (Tennessee Medicaid) - Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Date of last literature review: 2/4/2025

Document last updated: 2/19/2025

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Computed tomography (CT) utilizes ionizing radiation to create images based on the varying absorption of X-rays by different tissues. This technology provides detailed cross-sectional views and enables the generation of multidimensional 2-D and 3-D reconstructions. CT scanning is highly valuable in clinical practice, particularly for evaluating spinal structures.¹ CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a two-part procedure – iodinated contrast is first injected into the spinal canal under fluoroscopic guidance before a CT scan covering the region of concern is performed.

Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired, and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).²⁻⁴

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), spine (cervical, thoracic, and lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:

- ◆ Neoplastic conditions (including masses or mass-like conditions), including **ALL** of the following⁵⁻⁶:
 - Primary or metastatic lesion to the spinal cord, canal, bone, or vertebral bodies and **ANY** of the following is needed:
 - Initial diagnosis; **OR**
 - Monitor response to treatment; **OR**
 - Monitor worsening symptoms or pain; **AND**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:

- Abnormal laboratory values; **OR**
- Inconclusive or abnormal prior imaging; **OR**
- ◆ **ALL** of the following to evaluate for infection or an infectious disorder (e.g., discitis, osteomyelitis, epidural abscess):
 - Abnormal or indeterminate initial imaging; **AND**
 - **ANY** of the following⁷⁻⁸:
 - Abnormal lab values; **OR**
 - Decubitus ulcer; **OR**
 - New cauda equina syndrome²; **OR**
 - New neurologic deficit; **OR**
 - New or worsening back or neck pain; **OR**
 - Recent intervention (e.g., hardware, pain injection, stimulator implantation); **OR**
 - Wound overlying spine; **OR**
 - **ANY** of the following “red flags”:
 - ◆ Cancer; **OR**
 - ◆ Diabetes mellitus; **OR**
 - ◆ Dialysis; **OR**
 - ◆ HIV; **OR**
 - ◆ Immunosuppression; **OR**
 - ◆ IV drug use; **OR**
 - ◆ Prior spinal infections (e.g., abscess, discitis, arachnoiditis, osteomyelitis); **OR**
- ◆ Trauma-related conditions, including **ANY** of the following⁹:
 - Following a traumatic event (e.g., accident, surgery, or intervention), and the patient has **ANY** of the following:
 - Neurological deficit (myelopathy); **OR**
 - Radiculopathy; **OR**
 - Follow-up to initial radiographs with positive or indeterminate findings and advanced imaging is needed; **OR**
 - High suspicion for fracture; **OR**
 - Persistent or worsening pain without acute findings on initial imaging and **ANY** of the following apply to the patient:
 - Chronic steroid use; **OR**
 - Elderly; **OR**
 - Osteoporotic; **OR**

- Follow-up to initial radiographs for a known or suspected vertebral compression fracture (asymptomatic or symptomatic)¹⁰; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Spinal cord infarct; **OR**
 - Vascular malformation; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) including **ANY** of the following^{3-4,11-13}:
 - To assist in the diagnostic work-up; **OR**
 - Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment; **OR**
 - Pain or radiculopathy; **OR**
 - Suspicion of **ANY** of the following:
 - Fracture; **OR**
 - Vertebral body subluxation; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy without trauma, and **ALL** of the following¹⁻⁴:
 - Severe radiculopathy or any neurological deficit (myelopathy) and **ANY** of the following⁴:
 - ◆ Abnormal electromyography (EMG); **OR**
 - ◆ **ANY** of the following new or worsening symptoms:
 - Radiculopathy (including sciatica); **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Objective reduction or loss of fine motor skills; **OR**
 - Sexual dysfunction; **AND**
 - **ANY** of the following:
 - ◆ Severe or rapid progression of myelopathy; **OR**

- ◆ At least 8 weeks of conservative treatment, including **ALL** of the following²⁷⁻³⁰:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, including a self-directed home exercise program; **AND**
- Suspicion of compression of **ANY** of the following:
 - ◆ Cauda equina⁴; **OR**
 - ◆ Nerve root; **OR**
 - ◆ Spinal cord; **AND**
- **ANY** of the following^{2,3}:
 - ◆ The patient is a candidate for surgery or intervention and has persistent or progressive symptoms during or following 8 weeks of optimal medical management; **OR**
 - ◆ Cauda equina syndrome, suspected; **OR**
 - ◆ History of prior lumbar surgery with new or progressing clinical findings; **OR**
 - ◆ Ossification of the posterior longitudinal ligament (OPLL); **OR**
 - ◆ Osteoporosis; **OR**
 - ◆ Chronic steroid use; **OR**
 - ◆ Suspicion of **ANY** of the following:
 - Cancer; **OR**
 - Immunosuppression; **OR**
 - Infection; **OR**
 - ◆ Cervicogenic headache with new or increasing non-traumatic cervical or neck pain and no neurologic deficit; **OR**
 - ◆ Chronic cervical or neck pain with no neurologic findings and radiographs show degenerative changes; **OR**
 - ◆ Chronic cervical or neck pain without or with radiculopathy and radiographs show

- ossification in the posterior longitudinal ligament (OPLL); **OR**
- ◆ Known malignancy with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
- ◆ New or increasing pain or radiculopathy with no “red flags”; **OR**
- ◆ Prior cervical spine surgery with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
- ◆ Suspicion for infection with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
- Plexopathy (traumatic) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral; **OR**
- ◆ The patient is post-operative from a spinal surgery with recurrent or worsening symptoms¹⁵; **OR**
- ◆ **ANY** of the following indications for congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications)¹⁶:
 - Chiari malformation; **OR**
 - Neurological symptoms not previously imaged; **OR**
 - Pain that does not improve and imaging previously not performed; **OR**
 - Preoperative assessment needed; **OR**
 - Scoliosis; **OR**
 - Syrinx; **OR**
 - Syringohydromyelia; **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), spine (cervical, thoracic, or lumbar)** is not considered appropriate 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 symptoms¹⁷; **OR**
- ◆ If **ANY** of the following is **TRUE** if contrast is used¹⁸:
 - History of anaphylactic allergic reaction to iodinated contrast media; **OR**
 - Renal insufficiency and no detailed guidelines have been provided; **OR**
- ◆ Chronic neck pain in the absence of other criteria³; **OR**
- ◆ Plexopathy (non-traumatic, with or without malignancy), including **ANY** of the following¹⁴:
 - Brachial plexopathy; **OR**
 - Lumbosacral plexopathy; **OR**
- ◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.

**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.^{[19-20](#)}

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.^{[19-20](#)}

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.^{[19-20](#)}

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.^{[19-20](#)}

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
72125	Computed tomography (CT), cervical spine; without contrast material
72126	Computed tomography (CT), cervical spine; with contrast material
72127	Computed tomography (CT), cervical spine; without contrast material, followed by contrast material(s) and further sections

72128	Computed tomography (CT), thoracic spine; without contrast material
72129	Computed tomography (CT), thoracic spine; with contrast material
72130	Computed tomography (CT), thoracic spine; without contrast material, followed by contrast material(s) and further sections
72131	Computed tomography (CT), lumbar spine; without contrast material
72132	Computed tomography (CT), lumbar spine; with contrast material
72133	Computed tomography (CT), lumbar spine; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Ahmad et al. (2023) conducted a systematic review on the use of computed tomography (CT) and magnetic resonance imaging (MRI) with respect to the correlations between bone mineral density (BMD) derived from scans and Dual-Energy X-ray Absorptiometry (DEXA). A comprehensive analysis of 25 studies was included (15 utilizing CT and 10 utilizing MRI) with a total of 2745 patients. Articles published from 2011 to 2021 were included investigating the associations between CT or MRI measurements such as CT-derived Hounsfield units (CT-HU) values or MRI parameters, and DEXA-derived BMD, specifically focusing on lumbar spine or hip regions. CT-HU exhibits stronger correlations with DEXA measurements than MRI parameters however, both CT and MRI demonstrate moderate correlations with DEXA. Additional research is needed within spine surgery cohorts, including inferior correlations in populations with degenerative spine conditions.²¹

Bäcker et al. (2021) performed a systematic literature review and meta-analysis to assess the sensitivity, specificity, and accuracy of dual-energy computed tomography (DE-CT) in detecting bone marrow edema and disc edema in spinal injuries. Early diagnosis of vertebral injuries is crucial to prevent treatment delays. Imaging modalities such as MRI or DE-CT are necessary to identify bone marrow or disc edemas. The analysis encompassed 13 studies involving 515 patients, 3335 vertebrae, and 926 acute fractures confirmed by MRI, which was used for comparison in 12 publications. DE-CT demonstrated an overall sensitivity of 86.2%, specificity of 91.2%, and accuracy of 89.3%. In addition, five studies reported the accuracy of conventional CT, yielding an overall sensitivity of 81.3%, specificity of 80.7%, and accuracy of 80.9%. Overall, DE-CT shows promise as a diagnostic tool for detecting bone marrow and disc edemas, potentially offering an alternative to MRI, the current gold standard.²²

Ghudasara et al. (2019) review the use of postoperative CT following spine surgery. Scans are useful to identify implant locations and integrity, evaluate the efficacy of decompression and intervertebral arthrodesis procedures, and identify associated complications. While metallic implant artifacts may limit postoperative spinal CT scans, advancements in parameter optimization and metal artifact reduction techniques (e.g., iterative reconstruction and monoenergetic extrapolation methods) offer significant improvements in image quality. Furthermore, they are valuable in detecting and characterizing any postoperative irregularities. Complications following spinal surgery and intervertebral arthroplasty range from issues with implant position and integrity to adjacent segment degeneration, collections, fistulas, pseudo meningoceles, cerebrospinal fluid leaks, and surgical site infections.²³

References

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Clinical Guideline Revision History/Information

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Version 2	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Allowed for “out” from conservative care requirement for patients with CES, OPLL • Added references



Cohere Medical Policy (Tennessee Medicaid) – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 2
Revision Date: February 20, 2025

Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following eight weeks of conservative management, or new or worsening symptoms with a history of spine surgery.¹

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

Medical Necessity Criteria

Indications

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following¹⁻³:
 - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
 - Intramedullary masses; **OR**
 - Other extradural soft-tissue neoplasms of **ANY** of the following:
 - Connective tissues; **OR**
 - Muscles; **OR**
 - Regional nerves; **OR**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
 - Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
 - Known tumor or malignancy with worsening symptoms or pain; **OR**
 - To monitor response to treatment; **OR**
- ◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following²⁻⁵:
- **ANY** of the following¹:
 - Discitis; **OR**
 - Epidural abscess; **OR**
 - Postoperative infections; **OR**
 - Surrounding soft-tissue infection; **OR**
 - Vertebral osteomyelitis; **OR**
 - Spinal cord infection and inflammation, including abscess¹; **OR**
 - Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
 - Follow-up to abnormal initial imaging with suspected infection; **OR**
- ◆ Trauma-related conditions, including **ANY** of the following^{1,3,5-6}:
- Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
 - High suspicion for **ANY** of the following injury types:
 - Fracture; **OR**
 - Ligamentous; **OR**

- Nerve; **OR**
 - Spine; **OR**
- Post-traumatic radiculopathy or neurological deficit (myelopathy) following accident, surgery, injury, or intervention with **ANY** of the following^{3,7}:
 - Severe radiculopathy; **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Physical exam finding of major muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Severe sciatic/dermatomal sensory loss; **OR**
 - Urinary retention or overflow incontinence; **OR**
 - Weakness (bilateral or progressive) in the extremities; **OR**
- Persistent or worsening pain without acute findings on initial imaging among patients who are high-risk (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following¹:
 - Extraspinal vascular malformations; **OR**
 - Spinal cord infarction; **OR**
 - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following¹:
 - Connective tissue disorders (systemic lupus erythematosus); **OR**
 - Muscular dystrophies and myopathies; **OR**
 - **ANY** of the following demyelinating diseases:
 - Transverse myelitis; **OR**
 - Acute disseminated encephalomyelitis; **OR**
 - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**

- Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
- Multiple sclerosis (MS) and its variants (cervical or thoracic); **OR**
- Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
- Neuromyelitis optica spectrum disorder; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/ miscellaneous symptoms when applicable:
 - **ALL** of the following:
 - **ANY** of the following¹³:
 - ◆ Pain or radiculopathy (without trauma or known malignancy); **OR**
 - ◆ Neurological deficit (myelopathy) and **ANY** of the following⁴:
 - Abnormal electromyography (EMG); **OR**
 - **ANY** of the following new or worsening symptoms:
 - Radiculopathy (including sciatica); **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Objective reduction or loss of fine motor skills; **OR**
 - Sexual dysfunction; **AND**
 - **ANY** of the following:
 - ◆ Severe or rapid progression of myelopathy; **OR**
 - ◆ At least 8 weeks of conservative treatment, including **ALL** of the following¹⁸⁻²¹:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**

- Physical therapy, including a self-directed home exercise program; **OR**
- Degenerative conditions including **ALL** of the following¹:
 - **ANY** of the following:
 - ◆ Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
 - ◆ Symptomatic radiculopathy; **AND**
 - At least 8 weeks of conservative treatment, including **ALL** of the following¹⁸⁻²¹:
 - ◆ Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - ◆ Physical therapy, including a self-directed home exercise program; **OR**
- Compression (suspected) in **ANY** of the following⁷:
 - Spinal cord; **OR**
 - Cauda equina; **OR**
 - Nerve root; **OR**
- **ANY** of the following¹:
 - Amyloid deposition in the spine; **OR**
 - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
 - Gout; **OR**
 - Spinal cord herniation⁸; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Planning for treatment fields for radiation therapy; **OR**
 - Postradiation changes (e.g., myelopathy); **OR**
 - Epidural and subdural fluid collection¹; **OR**
 - Follow-up of incidental or concerning findings seen on other imaging examinations¹; **OR**
 - Pre-procedure assessment for vertebroplasty and kyphoplasty⁹; **OR**
 - Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**

- Postoperative with new or worsening neurological symptoms²⁻³; **OR**
- ◆ **ANY** of the following congenital conditions^{1,10}:
 - Chiari malformation; **OR**
 - Scoliosis with **ANY** of the following¹¹:
 - Neurological symptoms; **OR**
 - Requiring preoperative assessment; **OR**
 - Worsening pain not previously imaged; **OR**
 - Syringohydromyelia (syrinx); **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

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate 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; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
 - ◆ The patient has metallic clips on vascular aneurysms; **OR**
 - ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
 - ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
 - ◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the

region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.⁶

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.⁹

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional

research is needed to establish the utility and efficacy of MRI in various types of SCI further.⁸

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Clinical Guideline Revision History/Information

Original Date: November 21, 2024		
Review History		
Version 2	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Replaced repeat imaging criteria with current standard language • Provided “out” from conservative care requirement for patients with progressive or severe myelopathy • Added references



Cohere Medical Policy (Tennessee Medicaid) – Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: November 21, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy (Tennessee Medicaid) - Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Date of last literature review: 8/9/2024

Document last updated: 11/20/2024

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Computed tomography (CT) utilizes ionizing radiation to create images based on the varying absorption of X-rays by different tissues. This technology provides detailed cross-sectional views and enables the generation of multidimensional 2-D and 3-D reconstructions. CT scanning is highly valuable in clinical practice, particularly for evaluating spinal structures.¹ CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a two-part procedure – iodinated contrast is first injected into the spinal canal under fluoroscopic guidance before a CT scan covering the region of concern is performed.

Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired, and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).²⁻⁴

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), spine (cervical, thoracic, and lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Neoplastic conditions (including masses or mass-like conditions), including **ALL** of the following⁵⁻⁶:
 - Primary or metastatic lesion to the spinal cord, canal, bone, or vertebral bodies and **ANY** of the following is needed:
 - Initial diagnosis; **OR**
 - Monitor response to treatment; **OR**
 - Monitor worsening symptoms or pain; **AND**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:

- Abnormal laboratory values; **OR**
- Inconclusive or abnormal prior imaging; **OR**
- ◆ **ALL** of the following indications for infection or an infectious disorder (e.g., discitis, osteomyelitis, epidural abscess):
 - **ANY** of the following⁷⁻⁸:
 - Abnormal lab values; **OR**
 - Decubitus ulcer; **OR**
 - New cauda equina syndrome²; **OR**
 - New neurologic deficit; **OR**
 - New or worsening back or neck pain; **OR**
 - Recent intervention (e.g., hardware, pain injection, stimulator implantation); **OR**
 - Wound overlying spine; **OR**
 - **ANY** of the following “red flags”:
 - ◆ Cancer; **OR**
 - ◆ Diabetes mellitus; **OR**
 - ◆ Dialysis; **OR**
 - ◆ HIV; **OR**
 - ◆ Immunosuppression; **OR**
 - ◆ IV drug use; **OR**
 - ◆ Prior spinal infections (e.g., abscess, discitis arachnoiditis, osteomyelitis); **AND**
 - Follow-up to abnormal or indeterminate initial imaging; **OR**
- ◆ Trauma-related conditions, including **ANY** of the following⁹:
 - Following a traumatic event (e.g., accident, surgery, or intervention), and the patient has **ANY** of the following:
 - Neurological deficit (myelopathy); **OR**
 - Radiculopathy; **OR**
 - Follow-up to initial radiographs with positive or indeterminate findings and advanced imaging is needed; **OR**
 - High suspicion for fracture; **OR**
 - Persistent or worsening pain without acute findings on initial imaging and **ANY** of the following apply to the patient:
 - Chronic steroid use; **OR**
 - Elderly; **OR**
 - Osteoporotic; **OR**

- Follow-up to initial radiographs for a known or suspected vertebral compression fracture (asymptomatic or symptomatic)¹⁰; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Spinal cord infarct; **OR**
 - Vascular malformation; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) including **ANY** of the following^{3-4,11-13}:
 - To assist in the diagnostic work-up; **OR**
 - Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment; **OR**
 - Pain or radiculopathy; **OR**
 - Suspicion of **ANY** of the following:
 - Fracture; **OR**
 - Vertebral body subluxation; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy without trauma, and **ALL** of the following¹⁻⁴:
 - Neurological deficit (myelopathy) or severe radiculopathy and **ANY** of the following⁴:
 - ◆ Abnormal EMG; **OR**
 - ◆ **ANY** of the following new or worsening symptoms:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Radiculopathy (including sciatica); **OR**
 - Saddle anesthesia; **OR**
 - Sexual dysfunction; **AND**
 - At least 8 weeks of conservative treatment; **AND**
 - Suspicion of compression of **ANY** of the following:
 - ◆ Cauda equina⁴; **OR**
 - ◆ Nerve root; **AND**

- ◆ Spinal cord; **AND**
 - **ANY** of the following:
 - ◆ Back pain as evidenced by **ANY** of the following²:
 - Cauda equina syndrome, suspected; **OR**
 - History of prior lumbar surgery with new or progressing clinical findings; **OR**
 - Osteoporosis; **OR**
 - The patient is a candidate for surgery or intervention and has persistent or progressive symptoms during or following 8 weeks of optimal medical management; **OR**
 - Steroid use, chronic; **OR**
 - Suspicion of **ANY** of the following:
 - Cancer; **OR**
 - Immunosuppression; **OR**
 - Infection; **OR**
 - ◆ Cervical or neck pain as evidenced by **ANY** of the following³:
 - Cervicogenic headache with new or increasing non-traumatic cervical or neck pain and no neurologic deficit; **OR**
 - Chronic cervical or neck pain with no neurologic findings and radiographs show degenerative changes; **OR**
 - Chronic cervical or neck pain without or with radiculopathy and radiographs show ossification in the posterior longitudinal ligament (OPLL); **OR**
 - Known malignancy with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
 - New or increasing pain or radiculopathy with no “red flags”; **OR**
 - Prior cervical spine surgery with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**

- Suspicion for infection with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
 - Plexopathy (traumatic) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral; **OR**
- ◆ The patient is post-operative from a spinal surgery with recurrent or worsening symptoms¹⁵; **OR**
- ◆ **ANY** of the following indications for congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications)¹⁶:
 - Arnold Chiari malformation; **OR**
 - Neurological symptoms not previously imaged; **OR**
 - Pain that does not improve and imaging previously not performed; **OR**
 - Preoperative assessment needed; **OR**
 - Scoliosis; **OR**
 - Syrinx; **OR**
 - Syringohydromyelia; **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), spine (cervical, thoracic, or lumbar)** is not considered appropriate 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 symptoms¹⁷; **OR**
 - ◆ If **ANY** of the following is **TRUE** if contrast is used¹⁸:
 - History of anaphylactic allergic reaction to iodinated

- contrast media; **OR**
- Renal insufficiency and no detailed guidelines have been provided; **OR**
- ◆ Chronic neck pain³; **OR**
- ◆ Plexopathy (non-traumatic, with or without malignancy) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral.

*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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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
72125	Computed tomography (CT), cervical spine; without contrast material
72126	Computed tomography (CT), cervical spine; with contrast material
72127	Computed tomography (CT), cervical spine; without contrast material, followed by contrast material(s) and further sections
72128	Computed tomography (CT), thoracic spine; without contrast material
72129	Computed tomography (CT), thoracic spine; with contrast material
72130	Computed tomography (CT), thoracic spine; without contrast material, followed by contrast material(s) and further sections
72131	Computed tomography (CT), lumbar spine; without contrast material
72132	Computed tomography (CT), lumbar spine; with contrast material
72133	Computed tomography (CT), lumbar spine; without contrast material, followed by contrast material(s) and further sections

76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Ahmad et al. (2023) conducted a systematic review on the use of computed tomography (CT) and magnetic resonance imaging (MRI) with respect to the correlations between bone mineral density (BMD) derived from scans and Dual-Energy X-ray Absorptiometry (DEXA). A comprehensive analysis of 25 studies was included (15 utilizing CT and 10 utilizing MRI) with a total of 2745 patients. Articles published from 2011 to 2021 were included investigating the associations between CT or MRI measurements such as CT-derived Hounsfield units (CT-HU) values or MRI parameters, and DEXA-derived BMD, specifically focusing on lumbar spine or hip regions. CT-HU exhibits stronger correlations with DEXA measurements than MRI parameters however, both CT and MRI demonstrate moderate correlations with DEXA. Additional research is needed within spine surgery cohorts, including inferior correlations in populations with degenerative spine conditions.²¹

Bäcker et al. (2021) performed a systematic literature review and meta-analysis to assess the sensitivity, specificity, and accuracy of dual-energy computed tomography (DE-CT) in detecting bone marrow edema and disc edema in spinal injuries. Early diagnosis of vertebral injuries is crucial to prevent treatment delays. Imaging modalities such as MRI or DE-CT are necessary to identify bone marrow or disc edemas. The analysis encompassed 13 studies involving 515 patients, 3335 vertebrae, and 926 acute fractures confirmed by MRI, which was used for comparison in 12 publications. DE-CT demonstrated an overall sensitivity of 86.2%, specificity of 91.2%, and accuracy of 89.3%. In addition, five studies reported the accuracy of conventional CT, yielding an overall sensitivity of 81.3%, specificity of 80.7%, and accuracy of 80.9%. Overall, DE-CT shows promise as a diagnostic tool for detecting bone marrow and disc edemas, potentially offering an alternative to MRI, the current gold standard.²²

Ghudasara et al. (2019) review the use of postoperative CT following spine surgery. Scans are useful to identify implant locations and integrity, evaluate the efficacy of decompression and intervertebral arthrodesis procedures, and identify associated complications. While metallic implant artifacts may limit postoperative spinal CT scans, advancements in parameter optimization and metal artifact reduction techniques (e.g., iterative reconstruction and monoenergetic extrapolation methods) offer significant improvements in image quality. Furthermore, they are valuable in detecting and characterizing any postoperative irregularities. Complications following spinal surgery and intervertebral arthroplasty range from issues with implant position and integrity to adjacent segment degeneration, collections, fistulas, pseudo meningoceles, cerebrospinal fluid leaks, and surgical site infections.²³

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Original Date: November 21, 2024		
Review History		



Cohere Medical Policy (Tennessee Medicaid) – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 1
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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy (Tennessee Medicaid) - Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following six weeks of conservative management, or new or worsening symptoms with a history of spine surgery.¹

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

Medical Necessity Criteria

Indications

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following¹⁻³:
 - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
 - Intramedullary masses; **OR**
 - Other extradural soft-tissue neoplasms of **ANY** of the following:
 - Connective tissues; **OR**
 - Muscles; **OR**
 - Regional nerves; **OR**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
 - Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
 - Known tumor or malignancy with worsening symptoms or pain; **OR**
 - To monitor response to treatment; **OR**
- ◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following²⁻⁵:
- **ANY** of the following¹:
 - Discitis; **OR**
 - Epidural abscess; **OR**
 - Postoperative infections; **OR**
 - Surrounding soft-tissue infection; **OR**
 - Vertebral osteomyelitis; **OR**
 - Spinal cord infection and inflammation, including abscess¹; **OR**
 - Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
 - Follow-up to abnormal initial imaging with suspected infection; **OR**
 - Trauma-related conditions, and **ANY** of the following^{1,3,5-6}:
 - Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
 - High suspicion for **ANY** of the following injury types:
 - ◆ Fracture; **OR**
 - ◆ Ligamentous; **OR**

- ◆ Nerve; **OR**
- ◆ Spine; **OR**
- Neurological deficit (myelopathy) or radiculopathy, following traumatic event including accident, surgery, or intervention or with **ANY** of the following^{3,7}:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Physical exam finding of major muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Severe sciatic/dermatomal sensory loss; **OR**
 - Urinary retention or overflow incontinence; **OR**
 - Weakness (bilateral or progressive) in the lower extremities; **OR**
- Persistent or worsening pain without acute findings on initial imaging (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following¹:
 - Extraspinal vascular malformations; **OR**
 - Spinal cord infarction; **OR**
 - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following¹:
 - Connective tissue disorders (systemic lupus erythematosus); **OR**
 - Muscular dystrophies and myopathies; **OR**
 - **ANY** of the following demyelinating diseases:
 - Acute disseminated encephalomyelitis; **OR**
 - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**
 - Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**

- Multiple sclerosis (MS) and its variants (cervical or thoracic); **OR**
- Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
- Neuromyelitis optica spectrum disorder; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy with **ALL** of the following:
 - At least 8 weeks of conservative treatment; **AND**
 - No trauma or known malignancy with **ANY** of the following^{1,3}:
 - ◆ Discordant pain or radiculopathy to radiograph findings; **OR**
 - ◆ Neurological deficit (myelopathy) or severe radiculopathy with **ANY** of the following:
 - Abnormal EMG; **OR**
 - New or worsening symptoms; **OR**
 - Not previously imaged; **OR**
 - Degenerative conditions including **ANY** of the following¹:
 - Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
 - Symptomatic radiculopathy; **OR**
 - Compression (suspected) in **ANY** of the following⁷:
 - Spinal cord; **OR**
 - Cauda equina; **OR**
 - Myelopathy (acute or progressive); **OR**
 - Nerve root; **OR**
 - **ANY** of the following¹:
 - Amyloid deposition in the spine; **OR**
 - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
 - Gout; **OR**
 - Spinal cord herniation⁸; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Planning for treatment fields for radiation therapy; **OR**
 - Postradiation changes (e.g., myelopathy); **OR**

- Epidural and subdural fluid collection¹; **OR**
- Follow-up of incidental or concerning findings seen on other imaging examinations¹; **OR**
- Pre-procedure assessment for vertebroplasty and kyphoplasty⁹; **OR**
- Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**
- Postoperative with new or worsening neurological symptoms²⁻³; **OR**
- ◆ **ANY** of the following congenital conditions^{1,10}:
 - Chiari malformation; **OR**
 - Scoliosis with **ANY** of the following¹¹:
 - Neurological symptoms; **OR**
 - Requiring preoperative assessment; **OR**
 - Worsening pain not previously imaged; **OR**
 - Syringohydromyelia (syrinx); **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following are **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate 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; **OR**

- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed

	by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.⁶

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.⁹

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional

research is needed to establish the utility and efficacy of MRI in various types of SCI further.⁸

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Clinical Guideline Revision History/Information

Original Date: November 21, 2024		
Review History		



**Cohere Medical Policy –
Coronary Computed Tomography Angiography
(CCTA), With or Without Fractional Flow Reserve
(FFR) or Artificial Intelligence (AI) Plaque Analysis**
Clinical Policy for Medical Necessity Review

Version: 5

Policy Number: CHP-173-5

Cohere Health UMC Approval Date: February 26, 2026

Last Annual Review: August 14, 2025

Revision: February 26, 2026

Next Annual Review: August 14, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Coronary Computed Tomography Angiography (CCTA), With or Without Fractional Flow Reserve (FFR) or Artificial Intelligence (AI) Plaque Analysis

Policy Number: CHP-173-5

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

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Medical Necessity Criteria

Service: Coronary Computed Tomography Angiography (CCTA), With or Without Fractional Flow Reserve (FFR) or Artificial Intelligence (AI) Plaque Analysis

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 due to a lack of medical necessity resulting from 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 multiple diagnostic or therapeutic procedures are requested simultaneously or within the past 3 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.
- Duplicate exams or 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 and/or treated with a single study or procedure.
- Cohere Health evaluates imaging exams based on medical necessity, regardless of whether contrast is used. 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 coronary angiography (CCTA) is a non-invasive alternative to cardiac catheterization performed with iodinated contrast. The radiologist may consider additional phases, dynamic sequences, positioning of the patient, and the use of markers. The physician laboratory director may choose a scanning protocol for the study prior to imaging. CCTA creates detailed images of the coronary arteries using CT technology, which is augmented by the intravenous injection of contrast dye.¹⁻⁵

Medical Necessity Criteria

Indications

Computed tomography coronary angiography (CCTA) is considered appropriate if **ANY** of the following is **TRUE**:

- Initial evaluation of stable chest pain (or ischemic equivalent) in patients with intermediate or higher pre-test probability of coronary artery disease (CAD) (See the [Pre-Test Probability of CAD Calculator](#) published by the CAD Consortium) without known CAD³⁻⁷; **OR**
- Stable chest pain (or ischemic equivalent) in patients with intermediate or higher pre-test probability of CAD (See the [Pre-Test Probability of CAD Calculator](#) published by the CAD Consortium) following an inconclusive or abnormal exercise electrocardiogram (ECG) or stress imaging study, if such imaging will influence subsequent patient care³⁻⁷; **OR**
- Stable chest pain (or ischemic equivalent) after a negative stress test but with high pre-test probability of CAD (See the [Pre-Test Probability of CAD Calculator](#) published by the CAD Consortium)³⁻⁷; **OR**
- Worsening clinical symptoms suggestive of angina, and CAD is known and previously determined to be non-obstructive (less than 50%)³⁻⁷; **OR**
- Anginal symptoms in a patient with previous coronary revascularization, if revascularization was performed with bypass grafts or stented vessels with a diameter greater than 3 mm³⁻⁷; **OR**
- Possible acute coronary syndrome (ACS) or unstable angina³⁻⁷; **OR**
- Acute chest pain with suspected aortic or coronary dissection³⁻⁷; **OR**
- Newly diagnosed cardiomyopathy or unexplained congestive heart failure and **ALL** of the following^{7,8}:
 - No known history of CAD⁷; **AND**
 - Left ventricular ejection fraction (LVEF) is less than 50%; **AND**
 - No prior cardiac catheterization, single photon emission computed tomography (SPECT), cardiac positron emission tomography (PET), or stress echocardiogram⁷; **OR**
- There is a suspicion of congenital coronary artery anomalies³⁻⁷; **OR**
- Evaluation of patients suspected of having large, medium, or variable vessel vasculitis involving the coronary arteries (including giant cell arteritis, Takayasu's arteritis, polyarteritis nodosum, or Behçet's disease)^{3-7,9}; **OR**

- Pre-operative evaluation of coronary artery disease as an equivalent alternative to catheter-based angiography prior to **ANY** of the following^{7,10-12}:
 - Non-coronary cardiac surgery in patients with low-intermediate probability of CAD⁷; **OR**
 - Re-do cardiac bypass surgery with the need to visualize grafts or other structures⁷; **OR**
 - Transcatheter aortic valve implantation/replacement (TAVI/TAVR)¹⁰; **OR**
 - Aortic dissection or aneurysm repair¹¹; **OR**
 - Liver or renal transplant surgery.¹²

Fractional flow reserve computed tomography (FFR_{CT}) is considered appropriate if **ALL** of the following are **TRUE**^{3,13-14}:

- FFR_{CT} is performed only after the CCTA has been completed and interpreted; **AND**
- Functional evaluation of patients with chest pain (or ischemic equivalent) with coronary CTA lesions that are 40–90% stenosed in a proximal or middle coronary segment³; **AND**
- CCTA was performed within 90 days prior to FFR_{CT}.

Artificial intelligence (AI)-enabled computed tomography (CT)-based quantitative coronary topography or coronary plaque analysis is considered appropriate if **ALL** of the following are **TRUE**:

- The request is for a recent CCTA study in which the results are available and should include CAD-RAD scoring; **AND**
- CCTA results are of adequate quality (i.e., not CAD-RADS N^B) to perform AI plaque analysis; **AND**
- Results from the completed CCTA indicate **ANY** of the following risk categories:
 - Intermediate risk^{A,3}; **OR**
 - CAD-RADS 1^{B,15}; **OR**
 - CAD-RADS 2^{B,15}; **OR**
 - CAD-RADS 3^{B,15}; **AND**
- Acute or stable chest pain with no known CAD³; **AND**
- Cardiac evaluation is negative or inconclusive for acute coronary syndrome (ACS).³

Repeat imaging is considered appropriate when **ALL** of the following are **TRUE**:

- Repeat request following recent imaging within the past 3 months of the same anatomic region with the same or similar modality; **AND**
- No established guidelines for repeat imaging; **AND**
- **ANY** of the following:
 - Need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
 - New or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
 - No change in symptoms and a well-established clinical need for ongoing monitoring that will influence management.

Non-Indications

Computed tomography coronary angiography (CCTA) is not considered appropriate if **ANY** of the following is **TRUE**³⁻⁷:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms; **OR**
- The patient has uncontrolled rapid atrial fibrillation; **OR**
- Normal coronary angiogram or CCTA with no stenosis or plaque was performed within the last two years with stable symptoms; **OR**
- Normal stress test was performed within the previous year (given adequate stress) with stable symptoms.

Fractional flow reserve computed tomography (FFR_{CT}) is not considered appropriate if **ANY** of the following is **TRUE**^{13,14}:

- The original CCTA was of suboptimal quality; **OR**
- The patient is not a candidate for revascularization; **OR**
- The patient has a metal intracoronary stent in the vessel to be studied^{16,17}; **OR**
- There is a suspicion of acute coronary syndrome¹³; **OR**
- The patient has complex congenital heart disease; **OR**
- Prior placement of prosthetic valves; **OR**
- Prior placement of grafts in coronary bypass surgery; **OR**
- Suspicion of ACS (where myocardial infarction [MI] or unstable angina has not been ruled out)¹³; **OR**

- Status post-heart transplantation; **OR**
- Recent MI (30 days or less)¹³; **OR**
- Prior pacemaker or defibrillator lead placement; **OR**
- Newly diagnosed systolic heart failure, with no prior left heart catheterization; **OR**
- Non-obstructing stenosis (less than 50% of all major epicardial vessels) on CTA or catheterization in the past 12 months, in the absence of a new symptom complex; **OR**
- Coronary anatomy seen on CCTA demonstrates stenoses less than 30% or greater than 90%^{13,14}; **OR**
- When turnaround times may impact prompt clinical care decisions.

Artificial intelligence (AI)-enabled computed tomography (CT)-based quantitative coronary topography or coronary plaque analysis is not considered appropriate if **ANY** of the following is **TRUE**:

- CAD-RADS 4^B; **OR**
- CAD-RADS 5^B; **OR**
- Disease surveillance; **OR**
- High-grade stenosis (greater than or equal to 70%); **OR**
- In conjunction with invasive coronary catheterization; **OR**
- Normal CCTA results (i.e., CAD-RADS 0 or no plaque disease); **OR**
- Screening in the absence of signs, symptoms, or disease; **OR**
- The request is in conjunction with a CCTA study, as CCTA must be complete prior to plaque analysis; **OR**
- Unstable coronary symptoms; **OR**
- Within 30 days of an MI.

Definitions and Notes

^AIntermediate risk: Pre-test probability of 15–50%, to be calculated with the [Pre-Test Probability of CAD Calculator](#) published by the CAD Consortium.³

^BCAD-RADS 2.0 categories include¹⁵:

- CAD-RADS 0: Absence of CAD (0%), no plaque or stenosis
- CAD-RADS 1: Minimal stenosis (1–24%), plaque with no stenosis, or presence of plaque with positive remodeling and no evidence of stenosis
- CAD-RADS 2: Mild stenosis (25–49%)
- CAD-RADS 3: Moderate stenosis (50–69%)
- CAD-RADS 4: Severe stenosis (70–99%), left main 50% stenosis, or 3-vessel obstructive (70%) disease
- CAD-RADS 5: Total occlusion or sub-total occlusion (100%)
- CAD-RADS N (Non-diagnostic): Uninterpretable scan

Disclaimer on Radiation Exposure in Pediatric Populations

Cohere Health is committed to ensuring that every patient has access to appropriate and safe imaging studies in accordance with established guidelines. While radiographic studies, such as computed tomography (CT), can provide critical clinical information, exposure to ionizing radiation has the potential to increase lifetime cancer risk. Risk is higher in pediatric patients due to their greater radiosensitivity and longer expected lifespan.

Radiation-induced risks can be reduced by ensuring that imaging is medically necessary and by optimizing procedures to use the lowest dose necessary to achieve diagnostic quality images, consistent with ALARA (As Low As Reasonably Achievable) principles. Alternative modalities that do not involve ionizing radiation should be considered when clinically feasible, such as ultrasound or magnetic resonance imaging (MRI). Providers should adjust equipment and dose to pediatric body sizes and track cumulative radiation exposure for patients requiring multiple imaging studies.

These measures align with guidance from the US Food and Drug Administration (FDA) initiative to reduce unnecessary radiation exposure, the National Cancer Institute pediatric CT risk guidelines, and the Image Gently Alliance and Image Wisely Alliance recommendations for pediatric radiation safety.¹⁸⁻²²

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75574	Computed tomographic angiography (CTA), heart, coronary arteries and bypass grafts (when present); with contrast material, including 3D image postprocessing (including evaluation of cardiac structure and morphology, assessment of cardiac function, and evaluation)
75577	Quantification and characterization of coronary atherosclerotic plaque to assess severity of coronary disease derived from augmentative software analysis of the data set from a coronary CTA, with interpretation and report by a physician or other qualified healthcare professional
75580	Noninvasive estimate of coronary fractional flow reserve (FFR) derived from augmentative software analysis of the data set from a coronary computed tomography angiography, with interpretation and report by a physician or other qualified healthcare professional

Medical Evidence

In the 2021 chest pain guideline for the American College of Cardiology, Gulati et al. gave several recommendations for the use of coronary computed tomography angiography (CCTA), including for intermediate-risk patients with acute chest pain and no known coronary artery disease (CAD) who require diagnostic testing following a negative evaluation for acute coronary syndrome. Additionally, CCTA was confirmed as a proven approach for evaluating patients with stable chest pain with a strong (Class 1) strength of recommendation. The authors state that CCTA helps exclude atherosclerotic plaque and obstructive CAD. A recommendation was given for CCTA to diagnose obstructive CAD in patients at intermediate risk with acute pain and mildly abnormal previous stress testing.³

Chen et al. (2021) reviewed the current status of fractional flow reserve-computed tomography (FFR_{CT}). Studies validating the technology included the DEFER trial (2001), which concluded that patients with an FFR greater than 0.75 did not benefit from percutaneous intervention. The FAME trial (2009) found an 18% reduction in the 1-year composite endpoint of myocardial infarction (MI), death, and repeat revascularization with FFR of 0.80 compared to visual interpretation when planning stent placement. The review included evidence that supports the diagnostic accuracy of FFR_{CT} from a number of large-scale multicenter trials of 50 to 5083 patients between 2011 and 2019.¹⁵

Driessen et al. (2019) published post hoc results from a single-center study comparing CCTA, FFR, and perfusion imaging for ischemia diagnosis. The 208 patients were enrolled with suspicion of CAD and underwent CCTA, single-photon emission computed tomography (SPECT), and positron emission tomography (PET) scans with a routine FFR study of all major coronary arteries. All patients were prospectively tested noninvasively and invasively with FFR within 2 weeks, regardless of their results. CCTA images of 75% of patients were sufficient for noninvasive FFR evaluation. The authors concluded that noninvasive FFR showed high diagnostic performance for vessel-specific ischemia, provided that the CCTA images were adequate for FFR evaluation.²³

Taylor et al. (2010) developed appropriate use criteria for cardiac computed tomography. The use of CCTA in low- or intermediate-risk patients with a pretest probability of CAD may be considered. Testing in high-risk patients, routine retesting, and use for general cardiac screening were not viewed favorably. Lowest appropriateness ratings were assigned in urgent presentations with acute symptoms with suspicion of acute coronary syndrome, such as in definite myocardial infarction (MI), persistent ST-segment elevation on ECG (MI excluded), and acute chest pain of uncertain cause, prompting the test to rule out pulmonary embolism, aortic dissection, and acute coronary syndrome.¹⁶

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Policy Revision History/Information

Original Date: April 15, 2022		
Review History		
Version 2	08/02/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/14/2025	Annual Review. CCTA indications and non-indications rewritten per current society guidelines. Included the CAD Consortium's Pre-Test Probability of CAD calculator in the indications section. FFR_{CT} indications and non-indications rewritten per current society guidelines. Reviewed literature, updated references, and added citations. Removed the following non-indications as they were deemed relative contraindications: History of anaphylactic allergic reaction to iodinated contrast media; renal insufficiency with no provided detailed guidelines; metformin use (if not held).
Version 5	02/26/2026	Revision. Policy name changed. Formerly "Cohere Medicare Advantage Policy - Coronary Computed Tomography Angiography

		(CCTA), With or Without Fractional Flow Reserve (FFR)." Added CPT 75577. Added indications and non-indications for "Artificial intelligence (AI)-enabled computed tomography (CT)-based quantitative coronary topography or coronary plaque analysis." Added Definitions. Updated Disclaimer on Radiation Exposure in Pediatric Populations (added references 18–22). Updated Medical Evidence (added reference 23).



Cohere Medical Policy – 3D Rendering of Imaging Studies

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: November 21, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - 3D Rendering of Imaging Studies

Date of last literature review: 11/18/2024

Document last updated: 11/21/2024

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

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Medical Necessity Criteria

Service: 3D Rendering of Imaging Studies

Recommended Clinical Approach

Three-dimensional (3D) rendering of imaging studies is a technique that is performed by organizing thin sections of 2D images to reconstruct a 3D image. The resulting 3D image can enhance hard-to-visualize structures and therefore help to better visualize a pathology and guide clinical management. This technique is also known as 3D reconstruction or 3D reformation. 3D rendering can be performed for ultrasound (US), echocardiography, CT, MRI, MRA, CTA, DSA, and other tomographic imaging modalities. 3D reconstruction is not to be utilized to report coronal, sagittal, multiplanar, or oblique reformats constructed from axial imaging. 3D reformatting should not be standard protocol for US, MRI, and CT scanning.

Indications

→ **3D Imaging** is considered medically necessary if **ALL** of the following are **TRUE**:

- ◆ When 3D imaging is required in order to obtain complete diagnostic information that would be critical to clinical management and cannot be ascertained through traditional (2D or multiplanar reformatted) imaging; **AND**
- ◆ **ANY** of the following is true:
 - The patient requires preoperative planning for a complex surgical case; **OR**
 - The patient has a known or suspected tumor with invasion of adjacent structure, such that 3D imaging may impact treatment¹⁻⁵; **OR**
 - The patient has vascular system pathology with planned procedural intervention, including **ANY** of the following⁶⁻¹⁵:
 - Aneurysms; **OR**
 - Vascular abnormalities or malformations; **OR**
 - Preprocedural and postprocedural evaluation of organ transplantation; **OR**
 - Orthopedic imaging for **ANY** of the following¹⁶⁻²¹:

- Spine surgery; **OR**
- Acetabular osteotomy; **OR**
- Wrist fracture; **OR**
- Facial trauma; **OR**
- Intra-articular fracture; **OR**
- Other complex fractures with or without dislocation of any joint; **OR**
- Evaluation of congenital craniofacial abnormalities; **OR**
- Other not previously specified conditions wherein 3D image rendering would provide information that cannot otherwise be obtained by traditional 2D imaging or multiplanar reformatted images, and such information is critical to clinical management²²⁻²⁴; **OR**
- Repeat 3D imaging (defined as repeat request following recent 3D 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

→ **3D Imaging** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has undergone 3D imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms; **OR**
- ◆ When used with an imaging study that is considered not medically necessary; **OR**
- ◆ For routine use by the imaging facility without specifically being ordered by the requesting physician.

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
76376	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; not requiring image postprocessing on an independent workstation
76377	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; requiring image postprocessing on an independent workstation

Medical Evidence

Three-dimensional (3D) rendering of imaging studies is an enhanced visualization technique that generates a reconstructed 3D image. This is utilized to provide a better view of specific structures and guide clinical management in certain clinical scenarios. 3D imaging is most commonly used in the preoperative setting to aid in surgical or procedural planning. It is also beneficial when visualizing congenital anomalies, including vascular malformations. Importantly, 3D reconstruction is distinct from coronal, sagittal, multiplanar, or oblique reformatting constructed from axial imaging. It is a highly specialized adjunct to traditional imaging that is limited in use due to the excellent diagnostic accuracy of 2D imaging.

3D imaging is of particular use with musculoskeletal pathologies, such as a patient with traumatic fractures. The principal intent of 3D imaging in this setting is to improve patient outcomes by limiting the need for post-operative revision. Certain fracture locations – including orbital fractures – are unable to be visualized directly and therefore benefit from 3D reconstruction. 3D imaging of eligible pathologies allows orthopedic surgeons to optimize their surgical approach, reduce operative time, and improve precision.¹⁶⁻²¹

A 2020 study in the *Journal of Vascular Surgery* provided clinical validation of 3D reconstruction of abdominal aortic aneurysms (AAAs), demonstrating a significantly improved reproducibility as compared to 2D imaging and mitigating the known challenges associated with 2D imaging, including operator-dependent variability which impacts accurate visualization and diagnosis of potentially unstable aneurysms.¹²

When reserved for clinical scenarios that benefit most from complete, three-dimensional visualization, 3D rendering of imaging studies can be a valuable adjunct for diagnosing and treating specific pathologies.

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Clinical Guideline Revision History/Information

Original Date: November 21, 2024		
Review History		



Cohere Medical Policy – 3D Rendering of Imaging Studies

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: November 21, 2024

Important Notices

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Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - 3D Rendering of Imaging Studies

Date of last literature review: 11/18/2024

Document last updated: 11/21/2024

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

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Medical Necessity Criteria

Service: 3D Rendering of Imaging Studies

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Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
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When reserved for clinical scenarios that benefit most from complete, three-dimensional visualization, 3D rendering of imaging studies can be a valuable adjunct for diagnosing and treating specific pathologies.

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Clinical Guideline Revision History/Information

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Review History		



Cohere Medical Policy – Cardiac Contractility Modulation (CCM)

Clinical Guidelines for Medical Necessity Review

Version: 1
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Important Notices

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Guideline Information:

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Guideline Name: Cohere Medical Policy - Cardiac Contractility Modulation (CCM)

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

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Medical Necessity Criteria

Service: Cardiac Contractility Modulation (CCM)

Recommended Clinical Approach

This service is clinically unproven and not medically necessary. Cardiac contractility modulation (CCM) is a device-based therapy proposed for use in heart failure (HF) patients with decreased ejection fraction who are not candidates for other treatment such as cardiac resynchronization therapy.¹ Electrical impulses delivered to the heart muscle are purported to assist the heart in pumping blood more effectively and potentially reduce symptoms such as breathlessness, fatigue, and lower extremity edema.²⁻⁵

Medical Necessity Criteria

Indications

- **Cardiac contractility monitoring** is considered appropriate if **ANY** of the following is **TRUE**:
 - ◆ This procedure is clinically unproven and not medically necessary. There is inconclusive evidence of its effectiveness.

Non-Indications

- **Cardiac contractility monitoring** is not considered appropriate if **ANY** of the following is **TRUE**:
 - ◆ This procedure is clinically unproven and not medically necessary. There is inconclusive evidence of its effectiveness.

Level of Care Criteria

None

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
0408T	Insertion or replacement of permanent cardiac contractility modulation system, including contractility evaluation when performed, and programming of sensing and therapeutic parameters; pulse generator with transvenous electrodes
0409T	Insertion or replacement of permanent cardiac contractility modulation system, including contractility evaluation when performed, and programming of sensing and therapeutic parameters; pulse generator only
0410T	Insertion or replacement of permanent cardiac contractility modulation system, including contractility evaluation when performed, and programming of sensing and therapeutic parameters; atrial electrode only
0411T	Insertion or replacement of permanent cardiac contractility modulation system, including contractility evaluation when performed, and programming of sensing and therapeutic parameters; ventricular electrode only
0412T	Removal of permanent cardiac contractility modulation system; pulse generator only
0413T	Removal of permanent cardiac contractility modulation system; transvenous electrode (atrial or ventricular)
0414T	Removal and replacement of permanent cardiac contractility modulation system pulse generator only
0415T	Repositioning of previously implanted cardiac contractility modulation transvenous electrode, (atrial or ventricular lead)
0416T	Relocation of skin pocket for implanted cardiac contractility modulation pulse generator

0417T	Programming device evaluation (in person) with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with analysis, including review and report, implantable cardiac contractility modulation system
0418T	Interrogation device evaluation (in person) with analysis, review and report, includes connection, recording and disconnection per patient encounter, implantable cardiac contractility modulation system

Medical Evidence

Nadeem and colleagues (2020) conducted a systematic review and updated meta-analysis of randomized controlled trials regarding all-cause mortality outcomes of usage of cardiac contractility monitoring (CCM) in patients with dilated cardiomyopathy who were ineligible for cardiac resynchronization therapy (CRT). Patients in this group had dilated cardiomyopathy and were divided into a CCM group and a standard therapy group and were followed for 12 weeks or longer. In their analysis of 930 patients, the CCM therapy group showed no significant reduction in all-cause mortality compared to the standard therapy group. The researchers concluded that there was a need for a large, randomized controlled trial to determine CCM efficacy.²

Pipilas et al. (2023) published a systematic review of the literature regarding current and future directions of CCM for heart failure. At the time of their review, only two devices, the Optimizer Smart and the Optimizer Smart Mini had received FDA approval. Their review concluded that in both randomized and nonrandomized clinical trials, New York Heart Association (NYHA) Class II-III patients with left ventricular ejection fraction between 25% and 45% most often benefited from CCM therapy. They stated that a positive effect exists with use of CCM; however, verification and further study in prospective, randomized controlled trials is necessary.⁵

In a 2016 systematic review, Abi-Samra and Gutterman discussed clinical results of the current literature at that time. FDA-approved pharmacological and device-based treatments for heart failure with reduced ejection fraction (HFrEF) were stated to be limited, and CCM could fill the gap in current treatment for selected patients. Regarding long-term outcomes, the writers discuss retrospective trial outcomes, and acknowledge that at that time, there had been no prospective CCM trials with mortality as a primary outcome. The need for such a prospective randomized trial is emphasized. Special applications and evaluations in CCM use include expansion of duration of daily CCM stimulus, use in cardiac resynchronization therapy (CRT) failures, heart failure with preserved ejection fraction, and atrial fibrillation.⁴

According to the 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure, four randomized controlled trials (RCTs) have shown benefits in

exercise capacity and quality of life (QOL), however, as of yet, no benefits in reduction death or hospitalizations.^{[6-9](#)}

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Review History		



Cohere Medical Policy– Computed Tomography (CT), Abdomen/Pelvis

Clinical Guidelines for Medical Necessity Review

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Computed Tomography (CT), Abdomen/Pelvis

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Medical Necessity Criteria

Service: Computed Tomography (CT), Abdomen/Pelvis

Recommended Clinical Approach

Computed tomography (CT) of the abdomen/pelvis should be initiated by the referring physician or an appropriate allied healthcare professional involved in the patient's care. The request should contain all the necessary information regarding the patient's signs and symptoms, history, and known and suspected diagnoses to determine the appropriate imaging modalities.¹

Bosniak Classification²⁻³

Stage	Malignancy Risk (%)	Features
I	0	Hairline-thin wall; water attenuation; no septa, calcifications, or solid components; non-enhancing.
II	0	1. Few thin septa with or without perceived (not measurable) enhancement; fine calcification or a short segment of slightly thickened calcification in the wall or septa. 2. Homogeneously high-attenuating masses less than or equal to 3 cm that are sharply margined and do not enhance.
IIIF	5	1. Minimally thickened or more than a few thin septa with or without perceived (not measurable) enhancement that may have thick or nodular calcification. 2. Intrarenal non-enhancing hyperattenuating renal masses greater than 3 cm.
III	50	Thickened (less than 3 mm) wall or septa with enhancement.
IV	90	Soft tissue components (e.g., nodules) with measurable enhancement.

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), abdomen/pelvis** is considered appropriate if **ANY** of the following is **TRUE**¹:

- ◆ Conditions related to the mesentery or peritoneum, including **ANY** of the following:
 - Suspicion of peritonitis with peritoneal symptoms/signs (e.g., rebound tenderness or severe pain)⁴; **OR**
 - Followup of abdominal lymph node enlargement if symptoms have not resolved; **OR**
 - Internal hernia⁵; **OR**
- ◆ Conditions related to the hepatobiliary system (liver, bile ducts, gallbladder, and associated structures) with right upper quadrant pain, where ultrasound is indeterminate or abnormal and further imaging is needed for **ANY** of the following:
 - A previously imaged indeterminate liver lesion that remains indeterminate; **OR**
 - Clinical features and lab findings are suspicious of cholangitis or hepatitis; **OR**
 - Autoimmune (e.g., autoimmune hepatitis, primary biliary cirrhosis); **OR**
 - Preoperative or postoperative evaluation (e.g., liver resection, donor or transplant, hepatic shunt placement); **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis where ultrasound is inconclusive, limited, or requires further work-up and triple phase CT liver protocol is requested; **OR**
 - Primary sclerosing cholangitis after age 20; **OR**

- Diffuse liver disease (e.g., cirrhosis, steatosis, iron deposition disease); **OR**
- Jaundice or hyperbilirubinemia when a biliary obstruction is suspected based on the cholestatic pattern on liver function tests with ultrasound showing biliary duct dilatation and MRI cannot be performed; **OR**
- ◆ Conditions related to the pancreas, including **ANY** of the following⁶:
 - Duct obstruction (e.g., calculi, stricture, or mass) is suspected based on prior imaging, and MRI cannot be performed; **OR**
 - Follow-up of pancreas-related fluid collections (e.g., pseudocysts or walled-off necrosis) detected on prior imaging, including treatment response or when the patient's clinical condition has worsened; **OR**
 - Pancreatitis (acute or chronic) with **ANY** of the following:
 - Concern for complications (e.g., necrosis or abscess); **OR**
 - Lack of response to conservative treatment and management; **OR**
 - Indeterminate cyst in an asymptomatic patient that requires follow-up and meets **ANY** of the following as outlined in the American College of Radiology (ACR) *Management of Incidental Pancreatic Cysts* (available [here](#))⁷:
 - **ANY** of the criteria included in Figure 1 on p. 2; **OR**
 - **ANY** of the criteria included in Figure 2A on p. 3; **OR**
 - **ANY** of the criteria included in Figure 2B on p. 4; **OR**
 - **ANY** of the criteria included in Figure 3 on p. 5; **OR**
 - **ANY** of the criteria included in Figure 4 on p. 6; **OR**

- ◆ Splenic or perisplenic abnormalities and **ANY** of the following is **TRUE**:
 - Detected on prior imaging that requires further workup or follow-up; **OR**
 - Splenomegaly detected clinically, and ultrasound is inconclusive, requiring further workup; **OR**
- ◆ Abnormalities of the kidneys with at least one ultrasound of the kidneys for the present condition that requires further workup when **ANY** of the following is **TRUE**:
 - Renal cysts with classification of Bosniak IIF or above (up to annually for 5 years)²⁻³; **OR**
 - Solid indeterminate renal masses (up to annually if requested by urologist); **OR**
 - Renal angiomyolipomas and **ANY** of the following is **TRUE**:
 - Every 5 years when 2 to 3 cm; **OR**
 - Every 2 years when 3 to 4 cm; **OR**
 - Up to annually when greater than 4 cm; **OR**
 - Characterization of other indeterminate lesions detected with other imaging modalities; **OR**
 - Diagnostic evaluation of concerning signs/symptoms (e.g., pain, concern for rupture, infection, hemorrhage) in a patient with known polycystic kidney disease; **OR**
 - Anatomic abnormalities, congenital or acquired (e.g., horseshoe kidney, ectopic insertion of the ureter, retroperitoneal fibrosis); **OR**
- ◆ Infectious/inflammatory disease (e.g., pyelonephritis) with **ANY** of the following⁸⁻⁹:
 - Concern for complications (e.g., abscess, obstruction, or lack of response to treatment); **OR**
 - Recurrent; **OR**
 - Before a planned procedure or intervention; **OR**

- Factors indicating high-risk for complicated pyelonephritis, (e.g., pregnancy (MRI is preferred), transplant, and known renal/ureteral calculi); **OR**
- Further evaluation of unexplained hydronephrosis when detected on ultrasound; **OR**
- Followup of renal calculi in the setting of predisposing conditions (e.g., medullary nephrocalcinosis, hypercalcemia, hypercalciuria when ultrasound is non-diagnostic); **OR**
- Renal transplant complication¹⁰; **OR**
- Microscopic hematuria¹¹; **OR**
- ◆ Conditions related to the prostate, including **ANY** of the following:
 - Prostatitis when symptoms are worsening despite treatment; **OR**
 - Prostate cancer for **ANY** of the following indications:
 - Initial staging, when cancer is at least unfavorable intermediate-risk when **ANY** of the following is **TRUE**:
 - ◆ **TWO** of the following:
 - T2b–cT2c; **OR**
 - Grade Group 2 or above; **OR**
 - PSA 10–20 ng/mL; **OR**
 - ◆ **ANY** of the following:
 - Grade Group 3 or above (4+3 = 7. Note: 3+4=7 is Grade Group 2); **OR**
 - At least 50% of biopsy cores positive for cancer; **OR**
 - PSA greater than 20 ng/mL; **OR**
 - Assess treatment response when carcinoma is poorly differentiated; **OR**
 - Restaging, when metastases are suspected when **ANY** of the following is **TRUE**:

- ◆ Failure for PSA to become undetectable after complete prostatectomy; **OR**
- ◆ Rise of PSA at least 2 ng/dL above the lowest post-treatment PSA; **OR**
- ◆ Persistently rising PSA levels on two tests; **OR**
- ◆ Poorly differentiated carcinoma (may not produce PSA); **OR**
- ◆ Conditions related to the genitourinary system, including **ANY** of the following:
 - Bladder conditions including **ANY** of the following:
 - Further evaluation of known bladder pathology seen on cystoscopy; **OR**
 - Concern for bladder or urothelial (kidney or ureter) neoplasm, stricture, or stone based on prior imaging or clinical abnormalities (e.g., persistent hematuria)¹²⁻¹³; **OR**
 - Other reproductive organs, including the uterus/ovaries/testicle/fallopian tube/cervix when ultrasound is indeterminate (MRI is preferred); **OR**
 - An undescended testicle, if ultrasound is indeterminate (MRI is preferred); **OR**
 - Postpartum hemorrhage¹⁴; **OR**
 - Ovarian cysts or indeterminate masses, when ultrasound and MRI are indeterminate or cannot be performed; **OR**
- ◆ Conditions related to the vascular conditions, known or suspected, including **ANY** of the following:
 - Unrepaired aortic aneurysm when ultrasound is inconclusive, contraindicated, or requires further workup and follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**¹⁵:
 - 3 to 3.9 cm, every 2 to 3 years; **OR**

- 4 to 4.9 cm, annually; **OR**
- 5 to 5.4 cm, every 6 months; **OR**
- Abdominal aortic aneurysm screening, one-time when ultrasound is non-diagnostic, contraindicated, or inconclusive; **OR**
- Routine surveillance of aneurysm when stable on prior follow-up imaging or contrast is contraindicated (note CTA or MRA is preferred for routine follow-up after repair), and **ANY** of the following is **TRUE**:
 - Endovascular aneurysm repair (EVAR) (annual imaging surveillance); **OR**
 - Open surgical repair (OSR) (imaging surveillance every 5 years); **OR**
- Pulsatile abdominal mass or other high-risk clinical sign or symptom with concern for aneurysm (e.g., severe abdominal pain, hypotension, or suspicion on prior imaging) (CTA is preferred)¹⁶; **OR**
- Aortoenteric fistula, when injury to abdominal organs is being considered (CTA abdomen/pelvis is preferred); **OR**
- Retroperitoneal bleed, suspected¹⁷; **OR**
- Systemic (e.g., IVC) or portal venous thrombosis; **OR**
- Arteriovenous anomalies (e.g., shunts and fistula – CTA preferred); **OR**
- ◆ Conditions related to the gastrointestinal conditions, including **ANY** of the following¹⁸⁻¹⁹:
 - Small bowel conditions including **ANY** of the following:
 - Celiac disease with recurring symptoms despite maintaining a gluten-free diet for 12 months or more; **OR**
 - Suspected or known Crohn's disease when **ANY** of the following is **TRUE**²⁰:
 - ◆ For initial diagnosis when persisting abdominal pain or unexplained diarrhea or bleeding per rectum; **OR**

- ◆ Follow-up when symptomatic or concern for progression (e.g., increased calprotectin); **OR**
- Concern for obstruction with supporting clinical symptoms of **ANY** of the following:
 - ◆ Vomiting or abdominal pain; **OR**
 - ◆ History of prior abdominal surgery and the patient is symptomatic; **OR**
- Large bowel conditions including **ANY** of the following:
 - Acute conditions (e.g., diverticulitis, appendicitis, epiploic appendagitis) in an adult patient based on clinical exam findings including right lower quadrant or left lower quadrant pain when hernia is not suspected¹⁸⁻¹⁹; **OR**
 - Acute appendicitis in a pediatric (age 17 or less) patient, including **ANY** of the following:
 - ◆ Ultrasound is inconclusive, or appendix is not seen; **OR**
 - ◆ Peritoneal signs/symptoms present (e.g., rebound tenderness or severe pain); **OR**
 - Initial or follow-up evaluation of ulcerative colitis or other inflammatory pathology limited to the colon when **ANY** of the following is **TRUE**:
 - ◆ Colonoscopy is contraindicated or inconclusive; **OR**
 - ◆ There is a concern for a complication such as perforation/abscess based on clinical examination (e.g., abdominal pain, peritoneal signs, elevated white count); **OR**
 - Concern for obstruction with supporting clinical symptoms (e.g., severe constipation or lack of flatus or concerning history such as prior abdominal surgery); **OR**

- Mesenteric ischemia or ischemic enteritis/colitis when **ANY** of the following is **TRUE**:
 - High suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - Anion-gap metabolic acidosis and/or high lactate in the setting of severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors or known vascular disease (e.g., age greater than 60 years, known coronary artery disease [CAD] or peripheral artery disease [PAD]) with severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors with post-prandial pain that affects daily life (e.g., fear of food, weight loss); **OR**
 - Symptoms or signs indicating lower GI bleeding; **OR**
- Gastric conditions, when endoscopy is contraindicated or inconclusive, or complication is suspected (e.g., perforated gastric ulcer, gastric outlet obstruction, or volvulus); **OR**
- Bowel volvulus, initial workup when suspected based on clinical symptoms, prior imaging, or planned peri-operative imaging; **OR**
- ◆ Indeterminate adrenal mass (1.0 cm or more) detected incidentally on prior imaging (no follow-up required if a mass contains fat (e.g., myelolipoma), primarily contains calcification, or measures less than 10 HU):
 - If 1 to 4 cm with no prior imaging or history of cancer and **ANY** of the following is **TRUE**:
 - 12-month follow-up adrenal protocol CT if the mass is 1 to 2 cm; **OR**,

- CT adrenal protocol if the mass is 2 to 4 cm; **OR**
- If 1 to 4 cm with prior imaging available and **ANY** of the following is **TRUE**:
 - Mass is new or enlarging with no history of cancer, then, adrenal CT (if history of cancer, then a biopsy or PET/CT); **OR**
 - Mass is stable at more than 1 year, then, no follow-up is required; **OR**
- If more than 4 cm, then, surgery or PET/CT; **OR**
- ◆ Screening, follow-up, and surveillance of malignancies when **ANY** of the following is **TRUE**:
 - Rising alpha-fetoprotein (AFP) in a high-risk patient or patient with known hepatocellular carcinoma (HCC)²¹; **OR**
 - Elevated CA 19-9 or CEA levels and cancer is suspected²¹; **OR**
 - Painless jaundice²¹; **OR**
 - Gross hematuria²¹; **OR**
 - Other biomarker or paraneoplastic syndrome suggestive of underlying malignancy²¹; **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis and **ANY** of the following is **TRUE**²²:
 - ◆ Ultrasound is non-diagnostic or requires further workup; **OR**
 - ◆ Ultrasound is positive, and confirmation is needed; **OR**
 - Primary sclerosing cholangitis; **OR**
 - Known mutation that increases susceptibility (e.g., Von Hippel Lindau, Tuberous Sclerosis, BRCA-1/2); **OR**

- The patient has two or more first-degree or second-degree relatives with the same or related cancer from the same side of the family; **OR**
- ◆ Neoplastic conditions (including masses or mass-like conditions) and **ANY** of the following:
 - Initial staging for known neoplasm; **OR**
 - Surveillance as per nationally accepted guidelines such as National Comprehensive Cancer Network (NCCN); **OR**
- ◆ Pain of unknown source, including **ANY** of the following types of pain:
 - Epigastric pain (e.g., left upper quadrant, right lower quadrant, and left lower quadrant pain not due to hernia – ultrasound recommended if differential diagnosis is abdominal wall hernia)²³; **OR**
 - Pelvic pain, where ultrasound is indeterminate; **OR**
 - Flank pain, acute onset²⁴; **OR**
 - Known hernia with recent onset pain, and there is concern for complication; **OR**
 - Non-localized, acute abdominal pain³; **OR**
 - Pelvic pain in a patient of reproductive age, when ultrasound is indeterminate²⁴⁻²⁵; **OR**
- ◆ Preoperative or postoperative evaluation for **ANY** of the following:
 - Preoperative imaging for surgical planning when surgery is already planned (e.g., liver, kidney transplant); **OR**
 - Post-treatment complications when surgery was recently performed; **OR**
- ◆ Trauma, when injury to abdominal organs is being considered²⁶; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Palpable mass in the abdomen or pelvis with an ultrasound that is non-diagnostic or unlikely to be diagnostic or requires further workup; **OR**

- Follow-up for retroperitoneal fibrosis, suspected or known; **OR**
- Abdominal mass is suspected based on right-sided varicocele; **OR**
- Diffuse edema in the lower extremities with ultrasound Doppler for deep vein thrombosis (DVT) that is non-diagnostic for cause; **OR**
- Suspected hernia (excluding internal and sports hernias) when **ANY** of the following is **TRUE**:
 - Ultrasound is inconclusive or requires workup; **OR**
 - There is a suspected complication (e.g., strangulation, bowel obstruction); **OR**
 - Required for surgical planning; **OR**
- Fistulas (except perianal fistula where MRI is preferred); **OR**
- Lymphadenopathy when **ANY** of the following is **TRUE**:
 - When lymphoproliferative disorder is suspected based on prior imaging or palpable enlarged lymph nodes or B symptoms like night sweats, fever; **OR**
 - Follow-up of known abdominal lymphadenopathy; **OR**
- Fever of unknown origin greater than 101°F for at least 3 weeks where laboratory and clinical workup has been performed and have not revealed a diagnosis²⁷⁻²⁸; **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), abdomen/pelvis with contrast** is **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 symptoms³⁵; **OR**
- ◆ If contrast is used, 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.

**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 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.³⁰⁻³¹

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.³⁰⁻³¹

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.³⁰⁻³¹

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.³⁰⁻³¹

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
72192	Computed tomography (CT), pelvis; without contrast material
72193	Computed tomography (CT), pelvis; with contrast material
72194	Computed tomography (CT), pelvis; without contrast material, followed by contrast material(s) and further sections
74150	Computed tomography (CT), abdomen; without contrast material
74160	Computed tomography (CT), abdomen; with contrast material
74170	Computed tomography (CT), abdomen; without contrast material, followed by contrast material(s) and further sections
74176	Computed tomography (CT), abdomen and pelvis; without contrast material
74177	Computed tomography (CT), abdomen and pelvis; with contrast material
74178	Computed tomography, abdomen and pelvis; without contrast material in one or both body regions, followed by contrast material(s) and further sections in one or both body regions
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Shah et al. (2022) performed a retrospective review of patients who had at least one CT scan of the abdomen ($\pm$ pelvis) or MRI of the abdomen ($\pm$ pelvis) at least 30 days post-diagnosis of Crohn's disease (CD) or ulcerative colitis (UC). The review identified factors associated with patients undergoing more than 5 CT scans of the abdomen between 2010 and 2019 and included 176,110 patients with CD and 143,460 patients with UC. From 2010 to 2019, the prevalence of individuals undergoing at least one annual CT scan of the abdomen increased with a mean annual percentage change of +3.6% for CD and +4.9% for UC. A 3.8% increase was found in the proportion of CD patients receiving greater than or equal to 5 CT scans of the abdomen annually compared to a 2.4% increase among UC patients over the ten years. The authors conclude that the prevalence of CT scans in IBD patients has escalated. Future research is needed regarding the determinants influencing the utilization of CT and MRI scans.³²

Oldroyd et al. (2021) conducted a meta-analysis that focused on using CT to identify underlying asymptomatic cancers. CT scans of thorax, abdomen, or pelvis organs proved to be the most effective in diagnosing cancer cases, accounting for most detections (5 out of 18, 28%). Due to widespread availability and relatively low cost, CT scanning is a potentially valuable approach for cancer screening.³³

Baron et al. (2018) performed a systematic review and meta-analysis on the accuracy of CT in the diagnosis of intra-abdominal injuries in patients presenting to the emergency department (ED) with anterior abdominal stab wounds. The study aimed to assess the precision of abdominal and pelvic computed tomography (CTAP) in diagnosing intra-abdominal injuries that necessitate therapeutic laparotomy (THER-LAP) in ED patients with acute abdominal or abdominal and pelvic blunt trauma. A total of 575 patients were included. For stable patients with suspected abdominal aortic syndromes, relying solely on a negative CT scan without a period of observation is insufficient to rule out significant intra-abdominal injuries.³⁴

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



Cohere Medical Policy– Computed Tomography (CT), Abdomen/Pelvis

Clinical Guidelines for Medical Necessity Review

Version: 2

Effective Date: August 20, 2024

Important Notices

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Medical Necessity Criteria

Service: Computed Tomography (CT), Abdomen/Pelvis

Recommended Clinical Approach

Computed tomography (CT) of the abdomen/pelvis should be initiated by the referring physician or an appropriate allied healthcare professional involved in the patient's care. The request should contain all the necessary information regarding the patient's signs and symptoms, history, and known and suspected diagnoses to determine the appropriate imaging modalities.¹

Bosniak Classification²⁻³		
Stage	Malignancy Risk (%)	Features
I	0	Hairline-thin wall; water attenuation; no septa, calcifications, or solid components; non-enhancing.
II	0	1. Few thin septa with or without perceived (not measurable) enhancement; fine calcification or a short segment of slightly thickened calcification in the wall or septa. 2. Homogeneously high-attenuating masses less than or equal to 3 cm that are sharply margined and do not enhance.
IIIF	5	1. Minimally thickened or more than a few thin septa with or without perceived (not measurable) enhancement that may have thick or nodular calcification. 2. Intrarenal non-enhancing hyperattenuating renal masses greater than 3 cm.
III	50	Thickened (less than 3 mm) wall or septa with enhancement.
IV	90	Soft tissue components (e.g., nodules) with measurable enhancement.

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), abdomen/pelvis** is considered appropriate if **ANY** of the following is **TRUE**¹:

- ◆ Conditions related to the mesentery or peritoneum, including **ANY** of the following:
 - Suspicion of peritonitis with peritoneal symptoms/signs (e.g., rebound tenderness or severe pain)⁴; **OR**
 - Followup of abdominal lymph node enlargement if symptoms have not resolved; **OR**
 - Internal hernia⁵; **OR**
- ◆ Conditions related to the hepatobiliary system (liver, bile ducts, gallbladder, and associated structures) with right upper quadrant pain, where ultrasound is indeterminate or abnormal and further imaging is needed for **ANY** of the following:
 - A previously imaged indeterminate liver lesion that remains indeterminate; **OR**
 - Clinical features and lab findings are suspicious of cholangitis or hepatitis; **OR**
 - Autoimmune (e.g., autoimmune hepatitis, primary biliary cirrhosis); **OR**
 - Preoperative or postoperative evaluation (e.g., liver resection, donor or transplant, hepatic shunt placement); **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis where ultrasound is inconclusive, limited, or requires further work-up and triple phase CT liver protocol is requested; **OR**
 - Primary sclerosing cholangitis after age 20; **OR**

- Diffuse liver disease (e.g., cirrhosis, steatosis, iron deposition disease); **OR**
- Jaundice or hyperbilirubinemia when a biliary obstruction is suspected based on the cholestatic pattern on liver function tests with ultrasound showing biliary duct dilatation and MRI cannot be performed; **OR**
- ◆ Conditions related to the pancreas, including **ANY** of the following⁶:
 - Duct obstruction (e.g., calculi, stricture, or mass) is suspected based on prior imaging, and MRI cannot be performed; **OR**
 - Follow-up of pancreas-related fluid collections (e.g., pseudocysts or walled-off necrosis) detected on prior imaging, including treatment response or when the patient's clinical condition has worsened; **OR**
 - Pancreatitis (acute or chronic) with **ANY** of the following:
 - Concern for complications (e.g., necrosis or abscess); **OR**
 - Lack of response to conservative treatment and management; **OR**
 - Indeterminate cyst in an asymptomatic patient that requires follow-up and meets **ANY** of the following as outlined in the American College of Radiology (ACR) *Management of Incidental Pancreatic Cysts* (available [here](#))⁷:
 - **ANY** of the criteria included in Figure 1 on p. 2; **OR**
 - **ANY** of the criteria included in Figure 2A on p. 3; **OR**
 - **ANY** of the criteria included in Figure 2B on p. 4; **OR**
 - **ANY** of the criteria included in Figure 3 on p. 5; **OR**
 - **ANY** of the criteria included in Figure 4 on p. 6; **OR**

- ◆ Splenic or perisplenic abnormalities and **ANY** of the following is **TRUE**:
 - Detected on prior imaging that requires further workup or follow-up; **OR**
 - Splenomegaly detected clinically, and ultrasound is inconclusive, requiring further workup; **OR**
- ◆ Abnormalities of the kidneys with at least one ultrasound of the kidneys for the present condition that requires further workup when **ANY** of the following is **TRUE**:
 - Renal cysts with classification of Bosniak IIF or above (up to annually for 5 years)²⁻³; **OR**
 - Solid indeterminate renal masses (up to annually if requested by urologist); **OR**
 - Renal angiomyolipomas and **ANY** of the following is **TRUE**:
 - Every 5 years when 2 to 3 cm; **OR**
 - Every 2 years when 3 to 4 cm; **OR**
 - Up to annually when greater than 4 cm; **OR**
 - Characterization of other indeterminate lesions detected with other imaging modalities; **OR**
 - Diagnostic evaluation of concerning signs/symptoms (e.g., pain, concern for rupture, infection, hemorrhage) in a patient with known polycystic kidney disease; **OR**
 - Anatomic abnormalities, congenital or acquired (e.g., horseshoe kidney, ectopic insertion of the ureter, retroperitoneal fibrosis); **OR**
- ◆ Infectious/inflammatory disease (e.g., pyelonephritis) with **ANY** of the following⁸⁻⁹:
 - Concern for complications (e.g., abscess, obstruction, or lack of response to treatment); **OR**
 - Recurrent; **OR**
 - Before a planned procedure or intervention; **OR**

- Factors indicating high-risk for complicated pyelonephritis, (e.g., pregnancy (MRI is preferred), transplant, and known renal/ureteral calculi); **OR**
- Further evaluation of unexplained hydronephrosis when detected on ultrasound; **OR**
- Followup of renal calculi in the setting of predisposing conditions (e.g., medullary nephrocalcinosis, hypercalcemia, hypercalciuria when ultrasound is non-diagnostic); **OR**
- Renal transplant complication¹⁰; **OR**
- Microscopic hematuria¹¹; **OR**
- ◆ Conditions related to the prostate, including **ANY** of the following:
 - Prostatitis when symptoms are worsening despite treatment; **OR**
 - Prostate cancer for **ANY** of the following indications:
 - Initial staging, when cancer is at least unfavorable intermediate-risk when **ANY** of the following is **TRUE**:
 - ◆ **TWO** of the following:
 - T2b–cT2c; **OR**
 - Grade Group 2 or above; **OR**
 - PSA 10–20 ng/mL; **OR**
 - ◆ **ANY** of the following:
 - Grade Group 3 or above (4+3 = 7. Note: 3+4=7 is Grade Group 2); **OR**
 - At least 50% of biopsy cores positive for cancer; **OR**
 - PSA greater than 20 ng/mL; **OR**
 - Assess treatment response when carcinoma is poorly differentiated; **OR**
 - Restaging, when metastases are suspected when **ANY** of the following is **TRUE**:

- ◆ Failure for PSA to become undetectable after complete prostatectomy; **OR**
- ◆ Rise of PSA at least 2 ng/dL above the lowest post-treatment PSA; **OR**
- ◆ Persistently rising PSA levels on two tests; **OR**
- ◆ Poorly differentiated carcinoma (may not produce PSA); **OR**
- ◆ Conditions related to the genitourinary system, including **ANY** of the following:
 - Bladder conditions including **ANY** of the following:
 - Further evaluation of known bladder pathology seen on cystoscopy; **OR**
 - Concern for bladder or urothelial (kidney or ureter) neoplasm, stricture, or stone based on prior imaging or clinical abnormalities (e.g., persistent hematuria)¹²⁻¹³; **OR**
 - Other reproductive organs, including the uterus/ovaries/testicle/fallopian tube/cervix when ultrasound is indeterminate (MRI is preferred); **OR**
 - An undescended testicle, if ultrasound is indeterminate (MRI is preferred); **OR**
 - Postpartum hemorrhage¹⁴; **OR**
 - Ovarian cysts or indeterminate masses, when ultrasound and MRI are indeterminate or cannot be performed; **OR**
- ◆ Conditions related to the vascular conditions, known or suspected, including **ANY** of the following:
 - Unrepaired aortic aneurysm when ultrasound is inconclusive, contraindicated, or requires further workup and follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**¹⁵:
 - 3 to 3.9 cm, every 2 to 3 years; **OR**

- 4 to 4.9 cm, annually; **OR**
 - 5 to 5.4 cm, every 6 months; **OR**
- Abdominal aortic aneurysm screening, one-time when ultrasound is non-diagnostic, contraindicated, or inconclusive; **OR**
- Routine surveillance of aneurysm when stable on prior follow-up imaging or contrast is contraindicated (note CTA or MRA is preferred for routine follow-up after repair), and **ANY** of the following is **TRUE**:
 - Endovascular aneurysm repair (EVAR) (annual imaging surveillance); **OR**
 - Open surgical repair (OSR) (imaging surveillance every 5 years); **OR**
- Pulsatile abdominal mass or other high-risk clinical sign or symptom with concern for aneurysm (e.g., severe abdominal pain, hypotension, or suspicion on prior imaging) (CTA is preferred)¹⁶; **OR**
- Aortoenteric fistula, when injury to abdominal organs is being considered (CTA abdomen/pelvis is preferred); **OR**
- Retroperitoneal bleed, suspected¹⁷; **OR**
- Systemic (e.g., IVC) or portal venous thrombosis; **OR**
- Arteriovenous anomalies (e.g., shunts and fistula – CTA preferred); **OR**
- ◆ Conditions related to the gastrointestinal conditions, including **ANY** of the following¹⁸⁻¹⁹:
 - Small bowel conditions including **ANY** of the following:
 - Celiac disease with recurring symptoms despite maintaining a gluten-free diet for 12 months or more; **OR**
 - Suspected or known Crohn's disease when **ANY** of the following is **TRUE**²⁰:
 - ◆ For initial diagnosis when persisting abdominal pain or unexplained diarrhea or bleeding per rectum; **OR**

- ◆ Follow-up when symptomatic or concern for progression (e.g., increased calprotectin); **OR**
- Concern for obstruction with supporting clinical symptoms of **ANY** of the following:
 - ◆ Vomiting or abdominal pain; **OR**
 - ◆ History of prior abdominal surgery and the patient is symptomatic; **OR**
- Large bowel conditions including **ANY** of the following:
 - Acute conditions (e.g., diverticulitis, appendicitis, epiploic appendagitis) in an adult patient based on clinical exam findings including right lower quadrant or left lower quadrant pain when hernia is not suspected¹⁸⁻¹⁹; **OR**
 - Acute appendicitis in a pediatric (age 17 or less) patient, including **ANY** of the following:
 - ◆ Ultrasound is inconclusive, or appendix is not seen; **OR**
 - ◆ Peritoneal signs/symptoms present (e.g., rebound tenderness or severe pain); **OR**
 - Initial or follow-up evaluation of ulcerative colitis or other inflammatory pathology limited to the colon when **ANY** of the following is **TRUE**:
 - ◆ Colonoscopy is contraindicated or inconclusive; **OR**
 - ◆ There is a concern for a complication such as perforation/abscess based on clinical examination (e.g., abdominal pain, peritoneal signs, elevated white count); **OR**
 - Concern for obstruction with supporting clinical symptoms (e.g., severe constipation or lack of flatus or concerning history such as prior abdominal surgery); **OR**

- Mesenteric ischemia or ischemic enteritis/colitis when **ANY** of the following is **TRUE**:
 - High suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - Anion-gap metabolic acidosis and/or high lactate in the setting of severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors or known vascular disease (e.g., age greater than 60 years, known coronary artery disease [CAD] or peripheral artery disease [PAD]) with severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors with post-prandial pain that affects daily life (e.g., fear of food, weight loss); **OR**
 - Symptoms or signs indicating lower GI bleeding; **OR**
- Gastric conditions, when endoscopy is contraindicated or inconclusive, or complication is suspected (e.g., perforated gastric ulcer, gastric outlet obstruction, or volvulus); **OR**
- Bowel volvulus, initial workup when suspected based on clinical symptoms, prior imaging, or planned peri-operative imaging; **OR**
- ◆ Indeterminate adrenal mass (1.0 cm or more) detected incidentally on prior imaging (no follow-up required if a mass contains fat (e.g., myelolipoma), primarily contains calcification, or measures less than 10 HU):
 - If 1 to 4 cm with no prior imaging or history of cancer and **ANY** of the following is **TRUE**:
 - 12-month follow-up adrenal protocol CT if the mass is 1 to 2 cm; **OR**,

- CT adrenal protocol if the mass is 2 to 4 cm; **OR**
- If 1 to 4 cm with prior imaging available and **ANY** of the following is **TRUE**:
 - Mass is new or enlarging with no history of cancer, then, adrenal CT (if history of cancer, then a biopsy or PET/CT); **OR**
 - Mass is stable at more than 1 year, then, no follow-up is required; **OR**
- If more than 4 cm, then, surgery or PET/CT; **OR**
- ◆ Screening, follow-up, and surveillance of malignancies when **ANY** of the following is **TRUE**:
 - Rising alpha-fetoprotein (AFP) in a high-risk patient or patient with known hepatocellular carcinoma (HCC)²¹; **OR**
 - Elevated CA 19-9 or CEA levels and cancer is suspected²¹; **OR**
 - Painless jaundice²¹; **OR**
 - Gross hematuria²¹; **OR**
 - Other biomarker or paraneoplastic syndrome suggestive of underlying malignancy²¹; **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis and **ANY** of the following is **TRUE**²²:
 - ◆ Ultrasound is non-diagnostic or requires further workup; **OR**
 - ◆ Ultrasound is positive, and confirmation is needed; **OR**
 - Primary sclerosing cholangitis; **OR**
 - Known mutation that increases susceptibility (e.g., Von Hippel Lindau, Tuberous Sclerosis, BRCA-1/2); **OR**

- The patient has two or more first-degree or second-degree relatives with the same or related cancer from the same side of the family; **OR**
- ◆ Neoplastic conditions (including masses or mass-like conditions) and **ANY** of the following:
 - Initial staging for known neoplasm; **OR**
 - Surveillance as per nationally accepted guidelines such as National Comprehensive Cancer Network (NCCN); **OR**
- ◆ Pain of unknown source, including **ANY** of the following types of pain:
 - Epigastric pain (e.g., left upper quadrant, right lower quadrant, and left lower quadrant pain not due to hernia – ultrasound recommended if differential diagnosis is abdominal wall hernia)²³; **OR**
 - Pelvic pain, where ultrasound is indeterminate; **OR**
 - Flank pain, acute onset²⁴; **OR**
 - Known hernia with recent onset pain, and there is concern for complication; **OR**
 - Non-localized, acute abdominal pain³; **OR**
 - Pelvic pain in a patient of reproductive age, when ultrasound is indeterminate²⁴⁻²⁵; **OR**
- ◆ Preoperative or postoperative evaluation for **ANY** of the following:
 - Preoperative imaging for surgical planning when surgery is already planned (e.g., liver, kidney transplant); **OR**
 - Post-treatment complications when surgery was recently performed; **OR**
- ◆ Trauma, when injury to abdominal organs is being considered²⁶; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Palpable mass in the abdomen or pelvis with an ultrasound that is non-diagnostic or unlikely to be diagnostic or requires further workup; **OR**

- Follow-up for retroperitoneal fibrosis, suspected or known; **OR**
- Abdominal mass is suspected based on right-sided varicocele; **OR**
- Diffuse edema in the lower extremities with ultrasound Doppler for deep vein thrombosis (DVT) that is non-diagnostic for cause; **OR**
- Suspected hernia (excluding internal and sports hernias) when **ANY** of the following is **TRUE**:
 - Ultrasound is inconclusive or requires workup; **OR**
 - There is a suspected complication (e.g., strangulation, bowel obstruction); **OR**
 - Required for surgical planning; **OR**
- Fistulas (except perianal fistula where MRI is preferred); **OR**
- Lymphadenopathy when **ANY** of the following is **TRUE**:
 - When lymphoproliferative disorder is suspected based on prior imaging or palpable enlarged lymph nodes or B symptoms like night sweats, fever; **OR**
 - Follow-up of known abdominal lymphadenopathy; **OR**
- Fever of unknown origin greater than 101°F for at least 3 weeks where laboratory and clinical workup has been performed and have not revealed a diagnosis²⁷⁻²⁸; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status (e.g., worsening symptoms

- or the emergence of new symptoms, that may influence the treatment approach); **OR**
- The requirement for interval reassessment, which may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), abdomen/pelvis with contrast** is **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; **OR**
- ◆ If contrast is used, 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.

**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 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. [30-31](#)

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. [30-31](#)

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. [30-31](#)

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. [30-31](#)

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
72192	Computed tomography (CT), pelvis; without contrast material
72193	Computed tomography (CT), pelvis; with contrast material
72194	Computed tomography (CT), pelvis; without contrast material, followed by contrast material(s) and further sections
74150	Computed tomography (CT), abdomen; without contrast material
74160	Computed tomography (CT), abdomen; with contrast material
74170	Computed tomography (CT), abdomen; without contrast material, followed by contrast material(s) and further sections
74176	Computed tomography (CT), abdomen and pelvis; without contrast material
74177	Computed tomography (CT), abdomen and pelvis; with contrast material
74178	Computed tomography, abdomen and pelvis; without contrast material in one or both body regions, followed by contrast material(s) and further sections in one or both body regions
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Shah et al. (2022) performed a retrospective review of patients who had at least one CT scan of the abdomen ($\pm$ pelvis) or MRI of the abdomen ($\pm$ pelvis) at least 30 days post-diagnosis of Crohn's disease (CD) or ulcerative colitis (UC). The review identified factors associated with patients undergoing more than 5 CT scans of the abdomen between 2010 and 2019 and included 176,110 patients with CD and 143,460 patients with UC. From 2010 to 2019, the prevalence of individuals undergoing at least one annual CT scan of the abdomen increased with a mean annual percentage change of +3.6% for CD and +4.9% for UC. A 3.8% increase was found in the proportion of CD patients receiving greater than or equal to 5 CT scans of the abdomen annually compared to a 2.4% increase among UC patients over the ten years. The authors conclude that the prevalence of CT scans in IBD patients has escalated. Future research is needed regarding the determinants influencing the utilization of CT and MRI scans.^{[32](#)}

Oldroyd et al. (2021) conducted a meta-analysis that focused on using CT to identify underlying asymptomatic cancers. CT scans of thorax, abdomen, or pelvis organs proved to be the most effective in diagnosing cancer cases, accounting for most detections (5 out of 18, 28%). Due to widespread availability and relatively low cost, CT scanning is a potentially valuable approach for cancer screening.^{[33](#)}

Baron et al. (2018) performed a systematic review and meta-analysis on the accuracy of CT in the diagnosis of intra-abdominal injuries in patients presenting to the emergency department (ED) with anterior abdominal stab wounds. The study aimed to assess the precision of abdominal and pelvic computed tomography (CTAP) in diagnosing intra-abdominal injuries that necessitate therapeutic laparotomy (THER-LAP) in ED patients with acute abdominal or abdominal and pelvic blunt trauma. A total of 575 patients were included. For stable patients with suspected abdominal aortic syndromes, relying solely on a negative CT scan without a period of observation is insufficient to rule out significant intra-abdominal injuries.^{[34](#)}

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Review History		
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Cohere Medical Policy - Computed Tomography (CT), Brain

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

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

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Brain

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 (CT) is a common noninvasive imaging modality that allows for the creation of detailed cross-sectional images of the brain. It allows for the evaluation of the morphology and pathology of brain structures, especially as related to diagnosing and monitoring cerebral trauma or hemorrhage. It can be performed both with and without contrast, depending on the structures being visualized.¹

Medical Necessity Criteria

Indications

Computed tomography (CT), brain is considered appropriate if **ANY** of the following is **TRUE**:

- For diagnosis, treatment, or staging of neoplastic conditions (including brain masses or mass-like lesions if magnetic resonance imaging [MRI] is contraindicated or cannot be performed)¹; **OR**
- Lesion with atypical features on prior imaging for further evaluation or follow-up; **OR**
- Bone tumor or abnormality of the skull; **OR**
- Known or suspected pituitary tumors or sella turcica tumor (MRI is contraindicated or cannot be performed); **OR**
- Skull lesion (e.g., fibrous dysplasia, Paget disease, histiocytosis, osteolytic lesion, skeletal tumors)¹; **OR**
- Suspected recurrence with prior history of central nervous system [CNS] cancer (either primary or secondary) based on neurological symptoms or examination findings (MRI is contraindicated or cannot be performed); **OR**
- Suspected elevated intracranial pressure¹; **OR**
- Histiocytic neoplasms (e.g., Langerhans cell histiocytosis, Erdheim-Chester disease, Rosai-Dorfman disease) to assess treatment response and surveillance of known brain/skull lesions when MRI is contraindicated or cannot be performed; **OR**
- Infection or an infectious disorder, known or suspected, with **ALL** of the following¹:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - Suspected intracranial abscess or brain infection with altered mental status or abnormal lab findings; **OR**
 - Follow-up assessment during or after treatment completed; **OR**
 - Endocarditis with suspected septic emboli; **OR**
 - Suspected primary CNS vasculitis based on neurological signs and symptoms with completed infectious or inflammatory lab work-up; **OR**
- Trauma-related conditions as indicated by **ANY** of the following:
 - Head trauma, acute¹⁻³; **OR**
 - Nonaccidental trauma (e.g., abuse)¹⁻³; **OR**
 - Known coagulopathy or on anticoagulation; **OR**

- Repeat scan 24-hour post head trauma for anticoagulated or coagulopathic patients with a suspected diagnosis of delayed subdural hematoma; **OR**
- Postconcussive syndrome with **ALL** of the following⁴:
 - MRI is contraindicated or cannot be performed; **AND**
 - Symptoms are worsening or not improving; **AND**
 - Previous imaging has not been performed; **OR**
- Subacute or chronic traumatic brain injury with **ALL** of the following:
 - MRI is contraindicated or cannot be performed; **AND**
 - Unexplained cognitive and/or neurologic deficit; **OR**
- Known or suspected skull fracture by physical exam and/or prior imaging; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Intraparenchymal hemorrhage, known or suspected⁵; **OR**
 - Intracranial hemorrhage, known or suspected, including follow-up¹; **OR**
 - Ischemic infarct, known or suspected⁵; **OR**
 - Stroke or transient ischemic attack (TIA), suspected⁵; **OR**
 - Venous sinus thrombosis, known or suspected⁵; **OR**
- For evaluation of **ANY** of the following miscellaneous pathologies when prior testing has failed:
 - Syncope with clinical concern for seizure or associated neurological signs and symptoms when MRI is contraindicated or cannot be performed; **OR**
 - For evaluation of cranial nerve and visual abnormalities when MRI is contraindicated or cannot be performed; **OR**
 - Congenital skull and brain lesions (e.g., craniosynostosis, macrocephaly, and microcephaly)¹; **OR**
 - Established initial clinical diagnosis of dementia including **ALL** of the following:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - Abnormal cognitive status testing according to objective screening tool including **ANY** of the following⁶⁻⁸:
 - Montreal cognitive assessment (MoCA) less than 26; **OR**
 - Mini-mental state examination (MMSE) score less than 23⁸; **OR**
 - Saint Louis University mental status (SLUMS) score less than 19⁹; **OR**,

- Informant questionnaire on cognitive decline in the elderly (IQCODE) score greater than or equal to 3.4¹⁰; **OR**
- Mini-cog score less than 3; **OR**
- Formal neuropsychological testing; **OR**
- Detailed history showing 6 months longer of cognitive decline, memory loss, or impairment of daily activities; **AND**
- Completed screen for depression; **AND**
- Completed metabolic workup (e.g., testing for anemia, thyroid function testing, liver and kidney function testing, complete blood count, electrolytes, diabetes mellitus, and B12 deficiency); **OR**
- The patient has, or is suspected to have, a seizure disorder and **ALL** of the following:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - New onset of seizures or newly identified change in seizure activity/pattern; **OR**
 - Known seizure disorder without prior imaging; **OR**
 - Medically refractory epilepsy; **OR**
 - New neurologic deficit or no return to previous neurologic baseline; **OR**
 - Repeat testing for “Epilepsy Protocol” or preoperative or treatment planning; **OR**
- Headaches as indicated by **ANY** of the following¹¹:
 - New onset headache in an adult patient (18 years of age or older) with **ALL** of the following:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - With optic disc edema; **OR**
 - Patient is aged 50 years or older; **OR**
 - History of head trauma; **OR**
 - Headache preceded by cough, sneeze, valsalva, physical exertion or sexual activity; **OR**
 - Pregnant or less than 3 months postpartum; **OR**
 - Cancer history or immunosuppression; **OR**
 - Headache awakens the patient from sleep; **OR**
 - Chronic headache with significant change in character, severity or frequency of headache; **OR**

- Primary trigeminal autonomic cephalalgias (e.g., cluster headache); **OR**
- Headache accompanied by seizures, vomiting, focal neurological symptoms, vision changes, altered mental status, or acute hypertension; **OR**
- Acute headache and **ANY** of the following are **TRUE**¹¹:
 - Sudden onset (worst, most severe headache ever experienced or thunderclap-type); **OR**
 - Aneurysm, suspected with a family history (brother, sister, parent, or child) of a brain aneurysm or arteriovenous malformation (AVM); **OR**
 - Bleeding, suspected (known coagulopathy or on anticoagulation) with a prior history of stroke or intracranial hemorrhage; **OR**
- Headaches in a pediatric patient with **ALL** of the following:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - 5 years of age or younger; **OR**
 - Headaches awakening from sleep or always present upon waking; **OR**
 - Focal findings or symptoms on neurologic examination including diplopia; **OR**
 - Clumsiness (common description of gait or coordination problems in young children); **OR**
 - Headaches associated with morning nausea/vomiting; **OR**
 - Seizures; **OR**
 - Papilledema on physical exam; **OR**
 - Headache precipitated by coughing, sneezing, physical exertion or Valsalva; **OR**
 - Progressive worsening in headache frequency and severity without period of temporary improvement; **OR**
 - Systemic symptoms (e.g., persistent fever, weight loss, rash, or joint pain); **OR**
 - The patient is immunocompromised; **OR**
 - Known history of cancer of any type; **OR**
 - Known autoimmune or rheumatologic disease; **OR**
 - Known genetic disorder with predisposition to intracranial mass lesions; **OR**

- History of stable chronic headaches with recent significant change in frequency or severity; **OR**
- Focal neurological complaints including dizziness, visual change, acute hypertension or altered mental status; **OR**
- Thunderclap headache; **OR**
- Hypercoagulable state or bleeding disorder; **OR**
- Movement disorders with **ALL** of the following⁷:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following neurodegenerative diseases:
 - Acute onset of a movement disorder with concern for stroke or hemorrhage; **OR**
 - For evaluation of Parkinson's disease with atypical features or other movement disorders (e.g., suspected Huntington's disease, chorea, hemiballismus, atypical dystonia) to exclude an underlying structural lesion; **OR**
- The patient has ataxia or other signs of focal neurological disease with **ALL** of the following¹⁵:
 - MRI is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - Acute, new, or fluctuating neurologic symptoms or deficits that suggest a localizing neurologic process, including **ANY** of the following:
 - Sensory deficits including ANY of the following:
 - Involvement of two limbs on the same side of the body; **OR**
 - Face and limb involvement; **OR**
 - Limb weakness including **ANY** of the following:
 - Involvement of two limbs on the same side of the body; **OR**
 - Face and limb involvement; **OR**
 - Abnormal reflexes (pathological, asymmetric, hyperreflexia); **OR**
 - Speech difficulties; **OR**
 - Lack of coordination or gait disturbance; **OR**
 - Mental status changes; **OR**
 - Babinski/Hoffman sign; **OR**
 - Increased tone in affected limb; **OR**
 - Bladder or bowel dysfunction; **OR**
 - Cranial nerve palsy, not otherwise explained (e.g., Bell's palsy or diabetic CN III palsy); **OR**

- Horner syndrome (unilateral miosis, ptosis, facial anhidrosis); **OR**
 - Papilledema; **OR**
 - New visual disturbance (e.g., diplopia, visual field defect, nystagmus, visual loss); **OR**
 - Chronic disequilibrium with signs of cerebellar ataxia¹²; **OR**
 - Pathology involving the cranial nerve¹³; **OR**
 - Brain structural abnormality identified or suspected on prior imaging; **OR**
- Vertigo, unexplained by history or physical examination with **ANY** of the following:¹⁴
 - Worsening; **OR**
 - Affected daily function; **OR**
 - Associated hearing loss or other neurological deficits; **OR**
 - History of prior infection (e.g., otitis or meningitis); **OR**
 - History of prior trauma; **OR**
- With developmental delay in a child less than 18 years of age when MRI is contraindicated or cannot be performed¹; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following¹:
 - CT guidance and image integration for procedure or surgery; **OR**
 - Postoperative evaluation following intracranial surgery; **OR**
- Congenital conditions (e.g., hydrocephalus, including shunt malfunctions or shunt revision), and **ANY** of the following is **TRUE**^{1,15,16}:
 - Perioperatively if indicated based on the underlying disease and preoperative radiographic findings; **OR**
 - 6–12 months after placement; **OR**
 - With neurologic symptoms that suggest shunt malfunction; **OR**
 - Annual follow-up if the patient continues to exhibit symptoms (more frequent follow-up may be necessary if symptoms persist); **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 (CT), brain with contrast is not considered appropriate if **ANY** of the following is **TRUE**¹⁷:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹⁸.

*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 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.^{19,20}

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.^{19,20}

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.^{[19,20](#)}

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.^{[19,20](#)}

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
70450	Computed tomography (CT), head or brain; without contrast material
70460	Computed tomography (CT), head or brain; with contrast material(s)
70470	Computed tomography (CT), head or brain; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Bedernik et al. (2022) conducted a randomized control trial (RCT) to assess image quality by comparing single-energy computed tomography (SECT) with automated tube voltage adaptation (TVA) to dual-energy CT (DECT) weighted average images. A total of 80 patients underwent SECT or radiation dose-matched DECT. The effective radiation dose showed no significant difference between the SECT and DECT study groups. Compared to the SECT group, the DECT group exhibited significantly higher contrast-to-noise ratio differences (CNRD) for jugular veins relative to fatty tissue and muscle tissue relative to fatty tissue. However, the CNRD for jugular veins relative to muscle tissue was comparable between groups. Image artifacts were also less pronounced, and overall diagnostic acceptability was higher in the DECT group. Overall, DECT-weighted average images demonstrate superior objective and subjective image quality compared to SECT performed with TVA in head and neck imaging.²¹

Smith-Bindman et al. (2020) performed an RCT to study the efficacy of interventions to lower radiation doses in patients undergoing a CT scan. The RCT included 864,080 adults at 100 facilities who underwent a CT scan, including CT of the head (1,156,657 total scans). The study included two primary measures: the percentage of high-dose CT scans and the average effective dose administered at the facility level. The study's secondary measure included the doses received by specific organs. The authors examined the change in outcomes following interventions, contrasting the data with preintervention data, utilizing hierarchical generalized linear models that accounted for temporal patterns and patient attributes. In conclusion, data regarding CT radiation dosage and practical recommendations may improve quality, including significant dose reductions, especially for organ-specific doses.²²

Tranvinh et al. (2019) examined the evidence backing the utilization of neuroimaging in adult patients experiencing a new-onset seizure. In the acute setting, unenhanced CT serves as the primary imaging modality for adults encountering their first unprovoked seizure, prioritizing the exclusion of urgent or emergent conditions. An initial unenhanced head CT scan may rule out treatable intracranial abnormalities promptly. If the CT findings are

negative but clinical suspicion persists for a structural cause of the seizure, MRI should be considered, particularly in acute cases. MRI offers supplementary advantages and is helpful for patients with negative initial CT findings in acute scenarios and those experiencing new-onset seizures in nonacute circumstances.²³

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Policy Revision History/Information

Original Date: April 29, 2022		
Review History		
Version 2	08/08/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language
Version 4	08/28/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria Added criteria for headaches for adult and pediatric patients, epilepsy, dementia screening and non-focal neurological signs to align with Brain MRI Removed CMS references and updated reference numbering accordingly



Cohere Medical Policy – Computed Tomography (CT), Cardiac

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: April 17, 2025

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

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

Date of last literature review: 4/8/2025

Document last updated: 4/17/2025

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 echocardiogram is indeterminate³; **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 transesophageal echocardiogram (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; **OR**

→ **Computed tomography (CT), cardiac without contrast** is considered appropriate if **ANY** of the following is **TRUE**¹:

- ◆ Cardiac surgical preoperative planning; **OR**
- ◆ Detection or evaluation of **ANY** of the following:
 - Ascending aorta; **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**:

- ◆ 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.¹⁰

**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

Original Date: April 29, 2022		
Review History		
Version 2	8/5/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	4/17/2025	• Removed “if contrast is used” from top line of non-indications to prevent inadvertent, inappropriate approval • Removed indication for coronary artery calcification for CT without contrast to prevent inadvertent, inappropriate approval



Cohere Medical Policy - Computed Tomography (CT), Cerebral Perfusion Analysis

Clinical Policy for Medical Necessity Review

Version: 1

Policy Number: CHP-316-1

Cohere Health UMC Approval Date: February 26, 2026

Last Annual Review: February 26, 2026

Revision: Not Applicable

Next Annual Review: February 26, 2027

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Tomography (CT), Cerebral Perfusion Analysis

Policy Number: CHP-316-1

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Cerebral Perfusion Analysis

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 due to a lack of medical necessity resulting from 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 multiple diagnostic or therapeutic procedures are requested simultaneously or within the past 3 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.
- Duplicate exams or 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 and/or treated with a single study or procedure.
- Cohere Health evaluates imaging exams based on medical necessity, regardless of whether contrast is used. 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 (CT), cerebral perfusion analysis is an advanced imaging technique that rapidly evaluates blood flow in the brain. Cerebral perfusion is measured during a CT scan by injecting iodinated contrast to detect changes in blood flow. These measurements are used to generate perfusion maps that show cerebral blood flow, cerebral blood volume, and mean transit time. From there, clinicians can characterize perfusion health and tissue viability.¹⁻³

Medical Necessity Criteria

Indications

Computed tomography (CT), cerebral perfusion analysis is considered appropriate if **ANY** of the following is **TRUE**:

- Acute ischemic stroke, known or suspected, within the first 6–24 hours of symptom onset^{4–7}; **OR**
- Cerebral vasospasm, suspected, following recent subarachnoid hemorrhage^{8,9}; **OR**
- Evaluation of intra-axial brain tumors and **ALL** of the following:
 - Magnetic resonance imaging (MRI), including MR perfusion, is contraindicated or cannot be performed^{10,11}; **AND**
 - **ANY** of the following:
 - Differentiation between brain metastasis and radiation necrosis¹²; **OR**
 - Follow-up when there is a new or enlarging lesion on post-treatment surveillance imaging^{10,11,13}; **OR**
 - Pre-treatment evaluation after initial imaging^{10,11,13}; **OR**
 - Post-treatment surveillance for known history of brain tumor.^{10,11,13}

Repeat imaging is considered appropriate when **ALL** of the following are **TRUE**:

- Repeat request following recent imaging within the past 3 months of the same anatomic region with the same or similar modality; **AND**
- No established guidelines for repeat imaging; **AND**
- **ANY** of the following:
 - Need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
 - New or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
 - No change in symptoms and a well-established clinical need for ongoing monitoring that will influence management.

Non-Indications

Computed tomography (CT), cerebral perfusion analysis is not considered appropriate if **ANY** of the following is **TRUE**:

- Confirmation of brain death¹⁴; **OR**
- If cerebral perfusion is being performed in conjunction with CT or CTA, CPT 70473 cannot be used; **OR**

- Known or suspected ischemic stroke, less than 6 hours after symptom onset⁴; **OR**
- MRI cerebral perfusion analysis has already been performed⁴; **OR**
- Recent ischemic infarct, greater than 24 hours after symptom onset⁴; **OR**
- Routine post-procedure surveillance following carotid artery revascularization procedures¹⁵; **OR**
- Surveillance imaging for prior ischemic infarct.⁴

Disclaimer on Radiation Exposure in Pediatric Populations

Cohere Health is committed to ensuring that every patient has access to appropriate and safe imaging studies in accordance with established guidelines. While radiographic studies, such as computed tomography (CT), can provide critical clinical information, exposure to ionizing radiation has the potential to increase lifetime cancer risk. Risk is higher in pediatric patients due to their greater radiosensitivity and longer expected lifespan.

Radiation-induced risks can be reduced by ensuring that imaging is medically necessary and by optimizing procedures to use the lowest dose necessary to achieve diagnostic quality images, consistent with ALARA (As Low As Reasonably Achievable) principles. Alternative modalities that do not involve ionizing radiation should be considered when clinically feasible, such as ultrasound or magnetic resonance imaging (MRI). Providers should adjust equipment and dose to pediatric body sizes and track cumulative radiation exposure for patients requiring multiple imaging studies.

These measures align with guidance from the US Food and Drug Administration (FDA) initiative to reduce unnecessary radiation exposure,^{16,17} the National Cancer Institute pediatric CT risk guidelines,¹⁸ and the Image Gently Alliance and Image Wisely Alliance recommendations for pediatric radiation safety.^{19,20}

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70472	Computed tomographic (CT) cerebral perfusion analysis with contrast material(s), including image postprocessing performed with concurrent CT or CT angiography of the same anatomy (List separately in addition to code for primary procedure)
70473	Computed tomographic (CT) cerebral perfusion analysis with contrast material(s), including image postprocessing performed without concurrent CT or CT angiography of the same anatomy

Medical Evidence

Bobbe et al. (2025) performed a systematic literature review to assess the effectiveness of computed tomography perfusion (CTP) for the evaluation and management of acute ischemic stroke. A total of 39 articles were included for analysis, and most studies involved CTP in combination with CT, CT angiography (CTA), or magnetic resonance imaging (MRI). CTP showed promising results for estimating infarct core and penumbra volumes, particularly within 6 hours of the stroke. CTP-derived parameters, such as cerebral blood volume (CBV), cerebral blood flow (CBF), and mean transit time (MTT), showed positive correlations with clinical outcome and hemorrhagic transformation risk. CTP was limited in its precision for core estimation, and the authors noted that multimodal imaging (e.g., diffusion-weight imaging [DWI] or standard MRI) provides optimal results. This review, comprising mostly retrospective studies and post hoc analyses, showed that CTP is an effective but still evolving tool for the comprehensive evaluation of stroke and stroke-related outcomes.²¹

Bergin et al. (2023) conducted a systematic literature review and meta-analysis comparing CTA and CTP for the diagnosis of cerebral vasospasm, a common complication following aneurysmal subarachnoid hemorrhage. A total of 22 studies were included in the systematic review, most of which compared CTA or CT perfusion with digital subtraction angiography (DSA), the gold standard for diagnosing cerebral vasospasms. Only 7 CTA studies and 6 CTP studies were included in the meta-analysis due to differences in reporting outcomes and heterogeneity across diagnostic thresholds (e.g., stenosis percentages used to define vasospasm). This analysis found that CTP had superior sensitivity (0.81–0.92) and specificity (0.72–0.80) compared with CTA (0.95–0.98 and 0.92–0.95, respectively). The authors demonstrated that CTP may be superior to CTA for diagnosing cerebral vasospasm after aneurysmal subarachnoid hemorrhage.³

Nogueira et al. (2018) conducted the DAWN randomized controlled trial evaluating endovascular thrombectomy (EVT) in acute ischemic stroke patients presenting 6–24 hours after onset. Patients with a clinical mismatch between the severity of the clinical deficit and infarct volume were randomized to thrombectomy plus standard care or standard care alone. The

trial was stopped early for efficacy because interim results showed overwhelming benefit: 49% of EVT patients achieved functional independence (i.e., global disability on a modified Rankin Scale score of 0–2 at 90 days) versus 13% of controls, without increased symptomatic intracranial hemorrhage.⁶

Albers et al. (2017) conducted the DEFUSE 3 randomized controlled trial to evaluate patients with internal carotid artery (ICA) or middle cerebral artery (MCA) occlusion 6–16 hours after symptom onset. Patients were randomized to endovascular therapy plus medical management or medical management alone. Significant improvements in functional outcomes were observed at 90 days among the endovascular therapy plus medical management group compared with the control group (45% versus 17% functional independence). The trial was stopped early for efficacy, with no significant increase in mortality or symptomatic intracranial hemorrhage. Like the DAWN trial, this study confirmed CTP as the dominant tool for triaging late-window EVT candidates.⁷

The 2024 ACR Appropriateness Criteria rated CTP as “may be appropriate” for evaluating suspected ischemia in stroke, especially beyond early windows or when advanced imaging alters management.⁵ The 2023 AHA/ASA aneurysmal subarachnoid hemorrhage guideline acknowledged advanced imaging, including CTP, as a reasonable option for detecting cerebral vasospasm or delayed cerebral ischemia in the neurocritical care phase.¹¹ The 2018 American Heart Association/American Stroke Association (AHA/ASA) acute ischemic stroke guideline recommended against routine perfusion imaging in the first 6 hours but supports CTP (or MR perfusion) for selected patients 6–24 hours after onset with large vessel occlusion (LVO) to identify salvageable brain tissue and to guide patient selection for mechanical thrombectomy.⁴

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Policy Revision History/Information

Original Date: February 26, 2026		
Review History		



Cohere Medical Policy - Computed Tomography (CT), Chest

Clinical Policy for Medical Necessity Review

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Cohere Health UMC Approval Date: August 21, 2025

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Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

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

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Chest

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.

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- 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 (CT) of the chest can be performed as a screening examination in high-risk patients and to diagnose and evaluate a myriad of thoracic processes involving the lungs, mediastinum/hilum, pleura, and chest wall. Contrast usage is guided by the clinical scenario being investigated.¹

Medical Necessity Criteria

Indications

Computed tomography (CT), chest is considered appropriate when **ANY** of the following is **TRUE**:

- Abnormality discovered or partially imaged on other imaging modalities (excluding pulmonary nodules and masses, see below)^{2,3}; **OR**
- Neoplastic conditions (including masses or mass-like conditions), including **ANY** of the following⁴:
 - Chest wall mass with **ANY** of the following³:
 - Palpable chest wall mass with non-diagnostic chest radiograph or ultrasound; **OR**
 - Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
 - Preoperative planning following biopsy; **OR**
 - Pulmonary nodule or mass and **ANY** of the following is **TRUE**^{1,5}:

- Incidentally detected pulmonary nodule on prior CT chest, and the patient meets criteria specified in Fleischner Society Guidelines¹ (see Table 1); **OR**
- Pulmonary nodules detected on lung cancer screening CT, and the patient meets Lung-RADS® (2022) criteria⁵ (see Table 2); **OR**
- Incidentally detected pulmonary nodule or mass seen on imaging other than dedicated Chest CT (e.g., CT abdomen/pelvis, CT neck, MRI, etc.) and lesion measures greater than 8 mm⁶; **OR**
- Incidentally detected pulmonary nodule seen on imaging other than dedicated Chest CT and measures less than or equal to 8 mm on non-CT chest imaging, and the patient meets criteria specified in Fleischner Society Guidelines⁶; **OR**
- Other thoracic mass lesions when detected on prior imaging, including **ANY** of the following¹:
 - Mediastinal mass; **OR**
 - Pancoast tumor; **OR**
 - Pleural mass; **OR**
 - Thymoma; **OR**
 - Tracheal or endobronchial lesion; **OR**
- Concern for thymoma in a patient with myasthenia gravis⁷; **OR**
- Staging, management, or surveillance of known primary malignancy (except for invasive breast cancer without pulmonary symptoms; or for asymptomatic very-low-, low-, and intermediate-risk prostate cancer with a life expectancy of 5 years or less)^{8,9}; **OR**
- Staging, management, or surveillance of lung cancer or other primary thoracic malignancy¹⁰⁻¹³; **OR**
- Cardiothoracic manifestation of known extrathoracic diseases with **ALL** of the following^{1,14-16}:
 - Chest radiograph has been performed and is **ANY** of the following:
 - Nondiagnostic; **OR**
 - Further evaluation is indicated; **AND**
 - **ANY** of the following¹⁴:
 - Systemic lupus erythematosus (SLE); **OR**
 - Rheumatoid arthritis (RA); **OR**
 - Progressive systemic sclerosis; **OR**
 - Polymyositis and dermatomyositis; **OR**
 - Sjögren's syndrome; **OR**
 - Ankylosing spondylitis (AS); **OR**

- Granulomatosis with polyangiitis; **OR**
 - Eosinophilic Granulomatosis with Polyangiitis (EGPA); **OR**
 - Anti-glomerular basement membrane antibody disease; **OR**
- Infection or an infectious disorder for **ANY** of the following:
 - Pneumonia when **ANY** of the following is **TRUE**:
 - Repeat chest radiograph shows no improvement following at least 4–6 weeks of medical treatment⁵; **OR**
 - Recurrence of pneumonia on chest radiograph in the same location within 6 months¹⁷; **OR**
 - Evaluation of known or suspected complications of pneumonia following nondiagnostic chest radiograph; **OR**
 - Immunosuppressed patients with signs or symptoms of pneumonia following chest radiograph^{18,19}; **OR**
 - For the diagnosis and management of miscellaneous infectious or inflammatory conditions, including **ANY** of the following³:
 - Lung abscess; **OR**
 - Sternal wound infection/dehiscence; **OR**
 - Mediastinitis; **OR**
 - Other infectious or inflammatory condition that is symptomatic; **OR**
- For the diagnosis and management of blunt or penetrating trauma to the thorax and further evaluation is needed following chest radiograph; **OR**
- For the management (including treatment response), suspected or known, of a parenchymal lung disease, including **ALL** of the following^{20–22}:
 - Chest radiograph is non-diagnostic; **AND**
 - **ANY** of the following are suspected:
 - Bronchiectasis; **OR**
 - Bronchiolitis obliterans; **OR**
 - Sarcoidosis; **OR**
 - Interstitial lung disease (including idiopathic pulmonary fibrosis [IPF]); **OR**
 - Occupational lung disease (e.g., silicosis, asbestosis, coal workers' pneumoconiosis); **OR**
- Vascular conditions, known or suspected, including **ANY** of the following (CTA preferred)^{2–4,7}:
 - Pulmonary hypertension; **OR**
 - Pulmonary vascular malformations; **OR**
 - Pulmonary venous abnormalities; **OR**
- For evaluation of **ANY** of the following uncategorized/miscellaneous

symptoms when applicable:

- The patient has **ALL** of the following:
 - Non-diagnostic chest radiograph; **AND**
 - **ANY** of the following:
 - Shortness of breath; **OR**
 - Chest pain that persists despite treatment; **OR**
 - Hemoptysis (CTA preferred)²³; **OR**
 - Other symptoms that are unlikely to be cardiac in origin; **OR**
- Cough (chronic or persistent lasting more than 8 weeks) and **ALL** of the following:
 - Cough does not respond to appropriate treatment; **AND**
 - Cough is unexplained by clinical evaluation (including, but not limited to, reflux disease, post-nasal drip, medications causing cough); **AND**
 - Chest radiograph, and/or pulmonary function testing or spirometry does not explain symptoms^{24,25}; **OR**
- Cough (chronic or persistent) in immunosuppressed individuals unexplained by chest radiograph^{19,26}; **OR**
- Fever of unknown origin with **ANY** of the following:
 - Unexplained fever in an immunocompromised patient; **OR**
 - **ALL** of the following:
 - Duration greater than 3 weeks; **AND**
 - Fever remains unexplained following a standard diagnostic evaluation (including chest radiograph) to identify the source; **OR**
- Vocal cord paralysis with **ALL** of the following:
 - Confirmed on direct laryngoscopy by ENT; **AND**
 - CT neck is also being ordered or has been performed²⁷; **OR**
- Pleural disease including **ANY** of the following^{3,28}:
 - Pleural effusion when further evaluation is required for etiology and/or is not resolving on chest radiograph; **OR**
 - Hemothorax; **OR**
 - Empyema; **OR**
 - Chylothorax; **OR**
 - Bronchopulmonary fistula suspected based on radiographs and clinical parameters; **OR**
 - Recurrent or unexplained pneumothorax; **OR**
- Unintentional weight loss exceeding 5% of the patient's body weight within a 12-month interval and **ANY** of the following is **TRUE**^{29,30}:

- Persistent weight loss after a period of observation with a negative comprehensive clinical evaluation and **ALL** of the following:
 - Documentation of complete history and physical examination; **AND**
 - Patient is up-to-date on age-appropriate cancer screening³¹⁻³³; **AND**
 - Chest radiograph has been performed; **AND**
 - Initial laboratory evaluation has been performed; **OR**
- Positive findings of malignancy on history, physical exam, imaging, or laboratory evaluation; **OR**
- Preoperative imaging for surgical (interventional or bronchoscopic included) planning when surgery is already planned or a bronchoscopy procedure is already approved^{28,34}; **OR**
- Postoperative evaluation for **ANY** of the following³:
 - Postoperative complications; **OR**
 - Post-transplant if complications or infection are suspected and chest radiograph is non-diagnostic; **OR**
 - Response to therapies including chemotherapy, immunotherapy, and lung-directed ablative therapies³; **OR**
- Evaluation of thoracic aortic disease with **ALL** of the following (CTA preferred)³⁵:
 - **ANY** of the following:
 - The patient has renal insufficiency; **OR**
 - The request explicitly states that dye is not wanted; **OR**
 - Cardiothoracic surgeon preference; **AND**
 - **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)³; **OR**
 - Surveillance of known thoracic aortic aneurysm 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 transthoracic echocardiogram (TTE); **OR**
 - Six months after the initial diagnosis; **OR**

- Annual surveillance for thoracic aortic aneurysms less than 5 cm; **OR**
- Surveillance every six months for thoracic aortic aneurysm greater than or equal to 5 cm; **OR**
- Surveillance every six 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 following³⁵:
 - Marfan syndrome with **ANY** of the following³⁵:
 - At baseline if the ascending aorta is not adequately imaged on TTE; **OR**
 - Six months after baseline imaging; **OR**
 - Surveillance every two 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 six months if aneurysm is growing by more than 0.3 cm/year; **OR**
 - Surveillance every six months if aneurysm is greater than 4.5 cm; **OR**
 - Bicuspid aortic valve (BAV) with **ANY** of the following³⁵:
 - At baseline if the ascending aorta is not adequately imaged on TTE; **OR**
 - Six months after baseline imaging; **OR**
 - Surveillance every two 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 six months if the aneurysm is growing by more than 0.3 cm/year; **OR**
 - Surveillance every six months if the aneurysm is greater than 4.5 cm; **OR**
 - Turner Syndrome with **ANY** of the following³⁵:
 - At baseline if the ascending aorta is not adequately imaged on TTE; **OR**

- Six months after baseline imaging; **OR**
- Surveillance every two 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/m²; **OR**
- Loeys-Dietz syndrome with **ANY** of the following; **OR**³⁵:
 - At baseline if the ascending aorta is not adequately imaged on TTE; **OR**
 - Six 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 following³⁵:
 - At baseline if the ascending aorta is not adequately imaged on TTE; **OR**
 - At six 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 CT for a first-degree relative (parent, sibling, or child) of a patient with confirmed aortic disease attributable to a heritable or genetic cause; **OR**
- Surveillance of known thoracic aortic dissection; **OR**
- Congenital thoracic anomalies, including **ANY** of the following:
 - Congenital pulmonary airway malformation (pediatric); **OR**
 - Chest wall deformities including but not limited to pectus excavatum (pediatric only); **OR**
 - Evaluation and management of diaphragmatic hernia; **OR**

- Pulmonary sequestration; **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 (CT), chest with contrast is not considered appropriate if **ANY** of the following is **TRUE**³⁶:

- The patient has undergone advanced imaging of the same body part and for the same indication within 3 months without undergoing treatment or developing new or worsening symptoms.³⁷

*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.^{[38,39](#)}

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.^{[38,39](#)}

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.^{[38,39](#)}

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.^{[38,39](#)}

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.^{[38,39](#)}

Definitions

Age-appropriate cancer screening includes the below imaging. If the screenings are completed and there are concerning findings, a CT chest would be appropriate to order³¹⁻³³:

- Breast Cancer: Ages 40–74, a screening mammography is performed biennially
- Colorectal Cancer: Ages 50–75, a screening colonoscopy is performed every 10 years
- Cervical Cancer:
 - Ages 21–29: screening with cervical cytology every 3 years
 - Ages 30–65: screening with cervical cytology every 3 years, screening with high-risk papillomavirus (hrHPV) testing alone every 5 years, or screening every 5 years with hrHPV testing in combination with cytology (cotesting).

Tables

Table 1.

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults ¹				
Solid Nodules*				
	Size			
Nodule Type	<6mm (<100 mm ³)	6–8 mm (100–250 mm ³)	>8 mm (>250 mm ³)	Comments
Single				
Low Risk**	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A).
High Risk**	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high-risk with suspicious nodule morphology, upper lobe location, or both may warrant a 12-month follow-up (recommendation 1A).

<i>Multiple</i>				
Low Risk**	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High Risk**	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
Subsolid Nodules*				
	Size			
Nodule Type	<6mm (<100 mm³)	≥ 6 mm (≥100 mm³)	Comments	
<i>Single</i>				
Ground Glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules <6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).	
Part Solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component remain <6 mm, annual CT should be performed for 5 years.	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components 6mm should be considered highly suspicious (recommendations 4A–4C).	
<i>Multiple</i>	CT at 3–6 months. If stable, consider CT at 2 and 4 years	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s)	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).	

Table 2.

Lung-RADS® (2022)			
Lung-RADS	Category Descriptor	Findings	Management
0	Incomplete Estimated Population Prevalence: ~1%	Prior chest CT examination being located for comparison (see note 9)	Comparison to prior chest CT
		Part of all of the lungs cannot be evaluated	Additional lung cancer screening CT imaging needed
		Findings suggestive of an inflammatory or infectious process (see note 10)	1-3 month LDCT
1	Negative Estimated Population Prevalence: 39%	No lung nodules; OR	12-month screening LDCT
		Nodule with benign features: - Complete, central, popcorn, or concentric ring calcifications; OR - Fat-containing	
2	Benign Based on imaging features or indolent behavior Estimated Population Prevalence: 45%	Juxtapleural Nodule < 10 mm (524 mm³) mean diameter at baseline or new; AND - Solid; smooth margins; and oval, lentiform, or triangular shape	
		Solid Nodule < 6 mm (< 113 mm³) at baseline; OR - New < 4 mm (< 34 mm³)	
		Part Solid Nodule < 6 mm (< 113 mm³) total mean diameter at baseline	
		Non-Solid Nodule (GGN) < 30 mm (< 14,137 mm³) at baseline, new or growing; OR ≥ 30 mm (≥ 14,137 mm³) stable or slowly growing (see note 7)	
		Airway nodule , subsegmental - at baseline, new, or stable (see note 11)	
3	Probably	- Category 3 lesion that is stable or decreased in size at 6-month follow-up CT; OR - Category 4B lesion proven to be benign in etiology following appropriate diagnostic workup	
		Solid Nodule	6-month LDCT

	Benign Based on imaging features or behavior Estimated Population Prevalence: 9%	• ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New 4 mm to < 6 mm (34 to < 113 mm³)	
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component < 6 mm (< 113 mm³) at baseline • New < 6 mm (< 113 mm³) total mean diameter	
		Non-Solid Nodule (GGN) • ≥ 30 mm ($\geq 14,137$ mm³) at baseline or new	
		Atypical Pulmonary Cyst (see note 12) • Growing cystic component (mean diameter) of a thick-walled cyst	
		Category 4A lesion that is stable or decreased in size at 3-month follow-up CT (excluding airway nodules)	
4A	Suspicious Estimated Population Prevalence: 4%	Solid Nodule • ≥ 8 mm to < 15 mm (≥ 268 to < 1767 mm³) at baseline; OR • Growing < 8 mm (< 268 mm³) • New 6 to < 8 mm (113 to < 268 mm³)	3-month LDCT; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodule or solid component
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New or growing < 4 mm (< 34 mm³) solid component	
		Airway Nodule , segmental or more proximal – at baseline (see note 11)	
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst; OR • Multilocular cyst at baseline; OR • Thin- or thick-walled cyst that becomes multilocular	
4B	Very Suspicious Estimated Population	Airway Nodule , segmental or more proximal – stable or growing (see note 11)	Referral for further clinical evaluation
		Solid Nodule • ≥ 15 mm (≥ 1767 mm³) at baseline; OR • New or growing ≥ 8 mm (≥ 268 mm³)	Diagnostic chest CT with or without contrast;
		Part Solid Nodule • Solid component ≥ 8 mm (≥ 268 mm³) at baseline; OR • New or growing ≥ 4 mm (≥ 34 mm³) solid component	PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodules or solid component;
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst with growing wall	

	Prevalence: 2%	thickness/nodularity; OR • Growing multilocular cyst (mean diameter); OR • Multilocular cyst with increased loculation or new/increased opacity (nodular, ground glass, or consolidation)	Tissue sampling; and/or referral for further clinical evaluation;
		Slow-growing solid or part-solid nodule that demonstrates growth over multiple screening exams (see note 8)	Management depends on clinical evaluation, patient preference, and the probability of malignancy (see note 13)
4X	Estimated Population Prevalence: <1%	Category 3 or 4 nodules with additional features or imaging findings that increase suspicion for lung cancer (see note 14)	
S	Significant or Potentially Significant Estimated Population Prevalence: 10%	Modifier: May add to category 0–4 for clinically significant or potentially clinically significant findings unrelated to lung cancer (see note 15)	As appropriate to the specific finding

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71250	Computed tomography (CT), thorax; without contrast material
71260	Computed tomography (CT), thorax; with contrast material(s)
71270	Computed tomography (CT), thorax; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Hassankhani et al. (2023) conducted a systematic review and meta-analysis of the diagnostic utility of multidetector computed tomography (MDCT) scans in penetrating diaphragmatic injuries. The study investigates the diagnostic efficacy of MDCT in detecting diaphragmatic injuries caused by penetrating trauma, with a focus on the potential risks of missed injuries and complications in cases managed nonoperatively despite the recognized value of CT scans for stable patients. The progression of CT technology, notably with the emergence of MDCT, has significantly improved the capacity to identify and assess diaphragmatic injuries caused by penetrating trauma. Although CT has solidified its role in evaluating blunt abdominal trauma patients who are hemodynamically stable, becoming the preferred imaging method in this regard, utilization in cases of penetrating thoracoabdominal trauma remains an ongoing subject of investigation. The study underscores the efficacy of MDCT in identifying diaphragmatic injury resulting from penetrating trauma with moderate to high diagnostic accuracy.⁴⁰

Cramer et al. (2021) provide a secondary analysis of a randomized controlled trial (RCT) on the incidence of second primary lung cancer after low-dose CT versus chest X-ray screening in head and neck cancer survivors. A total of 53,452 participants were enrolled in the study; 171 survivors of head and neck cancer were identified (82 had screening via low-dose CT of the chest and 89 via chest X-ray). The average age of participants was 61 years, with 132 being male (77%). The incidence of lung cancer was notably higher among head and neck cancer survivors compared to those without. In head and neck cancer survivors, the incidence of second primary lung cancer was 2610 cases per 100,000 person-years in the low-dose CT group versus 1594 cases per 100,000 person-years in the chest X-ray group. Overall survival in head and neck cancer survivors was 7.07 years with low-dose CT compared to 6.66 years with chest X-ray. The secondary analysis of the RCT indicates that head and neck cancer survivors face a heightened risk of developing second primary lung cancer. Low-dose CT screening is essential for such survivors, particularly individuals with a significant history of cigarette smoking who are deemed suitable for curative treatment.⁴¹

Oldroyd et al. (2021) performed a systematic review and meta-analysis to determine the clinical factors linked with cancer susceptibility in idiopathic

inflammatory myopathies (IIMs) and conducted a comprehensive review of the available evidence concerning cancer screening within this context. The meta-analysis assessed the cancer risk linked with numerous clinical risk factors and myositis-specific autoantibodies (MSAs), providing insights for cancer screening strategies among IIM patients. The authors note that findings can collectively contribute to refining cancer screening guidelines, potentially facilitating earlier cancer detection and enhancing patient outcomes.⁴²

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Policy Revision History/Information

Original Date: April 15, 2022		
Review History		
Version 2	08/20/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual Review. Age-appropriate cancer screenings have been defined in the Definitions section. The Tables section has been moved to after the Definitions. Certain indications were updated for clarity, such as for pulmonary nodules and thoracic mass lesions. Staging, management, or surveillance of known primary malignancy indication has been rewritten to exclude “invasive breast cancer without pulmonary symptoms; or for asymptomatic very-low-, low-, and intermediate-risk prostate cancer with a life expectancy of 5 years or less.” The occupational lung disease indication has been updated to include silicosis, asbestosis and coal workers’ pneumoconiosis.



Cohere Medical Policy - Computed Tomography (CT), Colonography

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

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

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Colonography

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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. A recent clinical evaluation may not be necessary if the request is supported by relevant guidelines.

- 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 will 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 (CT) colonography (also known as virtual colonoscopy) is a diagnostic imaging procedure that uses detailed images of the colon and rectum. The procedure typically begins with bowel preparation to cleanse the colon, followed by the insertion of a small tube into the rectum to gently inflate the colon with air or carbon dioxide. Images are obtained while the patient lies in different positions on the CT scanner, such as on the back and stomach. Specialized software reconstructs the CT images into a two- or three-dimensional view of the colon's interior, allowing visualization of the mucosal surface and detection of abnormalities such as polyps or masses.¹ The procedure should be conducted in a facility compliant with the standards of the American College of Radiology (ACR), and performed by a physician trained in CT colonography.²

Medical Necessity Criteria

Indications

Computed tomography (CT) colonography is considered appropriate if **ANY** of the following is **TRUE**:

- The procedure is a screening for colorectal cancer, and **ALL** of the following:
 - **ANY** of the following:
 - The patient is at average risk for colorectal cancer, and **ALL** of the following:
 - The patient is 45–85 years of age³; **AND**
 - The patient has no personal history of colorectal predisposing conditions (e.g., colorectal cancer, adenomatous polyps, inflammatory bowel disease); **AND**
 - The patient has no known hereditary syndrome (e.g., Lynch syndrome, familial adenomatous polyposis); **AND**
 - The patient has no known family history of colorectal cancer or advanced adenoma in a first-degree relative; **OR**
 - The patient is at moderate or increased risk for colorectal cancer, and **ALL** of the following⁴:
 - **ANY** of the following:
 - The patient has one first-degree relative with colorectal cancer or an advanced adenoma diagnosed before age 60; **OR**
 - The patient has two or more first-degree relatives with colorectal cancer or advanced adenoma at any age; **AND**
 - **ANY** of the following:
 - The patient is no more than 10 years younger than the age of the youngest affected relative at their diagnosis; **OR**
 - The patient is greater than or equal to 40 years of age; **AND**
 - **ANY** of the following:
 - The procedure is an initial screening; **OR**
 - The patient had a prior CT colonography at least 5 years ago^{5,6}; **OR**
- Post-surgical follow-up of a patient for a colonic stoma or after a colectomy²; **OR**
- Before colorectal cancer surgery for the identification of the tumor or to search for synchronous lesions²; **OR**
- **ALL** of the following:

- Colonoscopy is contraindicated or incomplete due to **ANY** of the following reasons:
 - Prior optical colonoscopy was incomplete due to **ANY** of the following^{2,5}:
 - An obstructing neoplasm; **OR**
 - Intrinsic scarring; **OR**
 - Stricture; **OR**
 - Redundant or tortuous colon; **OR**
 - Spasm; **OR**
 - Obstruction from prior surgery, radiation, or diverticular disease; **OR**
 - Extrinsic compression; **OR**
 - The patient is at increased risk for complications during an optical colonoscopy due to **ANY** of the following²:
 - Anticoagulant use that cannot be safely reversed before the procedure; **OR**
 - Coagulopathy; **OR**
 - Complications from prior optical colonoscopy; **OR**
 - Increased risk of bowel perforation; **OR**
 - Sedation risk as indicated by an American Association of Anesthesiologists (ASA) Physical Status classification of IV or above⁷; **OR**
 - The patient is 76 to 85 years of age, and medical necessity is determined based on symptoms or risk factors⁸; **AND**
- **ANY** of the following:
 - Evaluation of a submucosal abnormality detected on colonoscopy or another imaging study; **OR**
 - The procedure is for surveillance in moderate and high-risk individuals as defined by **ALL** of the following:
 - Documented discussion with the patient that optical colonoscopy is considered the gold standard in this setting; **AND**
 - **ANY** of the following:
 - Biopsy-proven precancerous polyps on prior colonoscopy; **OR**
 - Prior therapeutic abdominal or pelvic radiation - every 5 years beginning at age 35 for at-risk survivors or 10 years after the completion of radiotherapy (whichever occurs last)⁹; **OR**

- Personal or family history (first or second-degree relative) of hereditary syndromes that do NOT cause polyposis, including **ANY** of the following:
 - Bloom syndrome; **OR**
 - PTEN hamartoma tumor syndrome (PHTS) when colonoscopy is contraindicated; **OR**
- The procedure is a diagnostic examination in symptomatic patients with **ALL** of the following²:
 - Documented discussion with the patient that optical colonoscopy is considered the gold standard in this setting; **AND**
 - The patient has signs or symptoms suggesting colorectal cancer, including **ANY** of the following²:
 - The positive test result indicates a relative elevation in risk (e.g., positive fecal immunochemical test, positive fecal occult blood test [FOBT]); **OR**
 - Iron-deficiency anemia; **OR**
 - Weight loss; **OR**
 - Hematochezia (Blood in stool); **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** 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 (CT) colonography is **NOT** considered appropriate 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 symptoms¹⁰; **OR**
- Attempted colonoscopy within 48 hours; **OR**
- Known or suspected current colon perforation^{2,11}; **OR**
- Routine follow-up of inflammatory bowel disease^{2,11}; **OR**
- Hereditary polyposis or Lynch syndromes (applies to virtual colonoscopy as it is unlikely to provide clinical benefit)^{2,11}; **OR**
- Evaluation of anal canal disease (e.g., perianal fissure).^{2,11}

*NOTE: CT Colonography should not be performed if the patient has symptomatic acute conditions such as colitis, diarrhea, recent acute diverticulitis, abdominal wall hernia, history of recent colorectal surgery, high-grade or symptomatic small bowel obstruction, or history of recent colonoscopic biopsy, polypectomy. The imaging center and the ordering provider should consider these conditions prior to ordering a CT colonography.^{2,11}

**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.

Definitions

First-degree relative: A relative who shares approximately 50% of your genes (e.g., a parent, sibling, or child).⁴

Second-degree relative: A relative who shares approximately 25% of your genes (e.g., a grandparent, grandchild, aunt, uncle, niece, nephew, or half-sibling).⁴

Average risk: Individuals with no personal history of colorectal cancer, adenomatous polyps, inflammatory bowel disease, hereditary colorectal syndromes, other colorectal predisposing conditions, or first-degree relative family history of colorectal cancer.^{4,6}

Moderate or increased risk: Individuals with one first-degree relative with colorectal cancer or an advanced adenoma diagnosed before age 60, or two or more first-degree relatives with colorectal cancer or adenomatous polyps at any age.^{4,6}

High-risk: Individuals with a hereditary colorectal cancer syndrome (such as Lynch syndrome, familial adenomatous polyposis, or hereditary polyposis or nonpolyposis), or with long-standing inflammatory bowel disease involving the colon.^{4,6}

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.^{12,13}

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.^{12,13}

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.^{12,13}

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.^{12,13}

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.^{[12](#)[13](#)}

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
74261	Computed tomography (CT) colonography, diagnostic; without contrast material, with image post-processing
74262	Computed tomography (CT) colonography, diagnostic; with contrast material and non-contrast images, with image post-processing
74263	Computed tomographic (CT) colonography, screening, including image postprocessing
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Jain et al. (2022) outline the updated colorectal cancer (CRC) screening strategies recommended by the United States Preventive Services Task Force (USPSTF) in 2021. Average-risk individuals should start screening at age 45. The Task Force suggests several screening methods: high-sensitivity guaiac fecal occult blood test (HSgFOBT), fecal immunochemical test (FIT), multi-target stool DNA (mt-sDNA) test, computed tomographic (CT) colonography (virtual colonoscopy), flexible sigmoidoscopy, flexible sigmoidoscopy with FIT, or traditional colonoscopy. Numerous emerging and innovative screening approaches are being researched and are on the horizon for primary screening in average-risk individuals. These include blood-based screening or "liquid biopsy," colon capsule endoscopy, urinary metabolomics, and stool-based microbiome testing to detect colorectal polyps or CRC. Compared to traditional colonoscopy, the advantages of CT colonography include a lower risk of complications, less invasive, sedation not required, and the clinician being able to visualize the entire colon. In addition, CT colonography requires a less frequent testing interval than stool-based modalities and is relatively safe for individuals with medical comorbidities that preclude colonoscopy. Same-day endoscopic evaluation may also be performed if indicated.¹⁴

Gupta et al. (2022) review CRC screening for identifying polyps and cancer within the colon. The sensitivity for detecting lesions greater than or equal to 1 cm varies between 67 and 94%, while specificity ranges from 86 to 98%. Notably, an estimated incidence of potentially significant extracolonic findings necessitating further investigation, ranging from 3.4–26.9%, with 1.3–11.4% possibly requiring follow-up due to incomplete characterization. Several studies have shown superior sensitivity in detecting colorectal cancer compared to colonoscopy, mainly when the endoscopist is unaware of CT colonography results. Repeat screening every 5 years is recommended by the USPSTF.¹⁵

Shaukat et al. (2022) discuss CT colonography to facilitate the identification and pinpointing of polyps and cancers within the colon through a reconstructed 3D or 4D visualization. Two extensive trials have evaluated the diagnostic efficacy of CT colonography against optical colonoscopy conducted on the same day. One study involving 1233 individuals at average

risk showcased CT colonography's test characteristics, revealing 92% sensitivity and 96% specificity for adenomas measuring 10mm or larger as detected by optical colonoscopy. Additionally, it demonstrated 86% sensitivity and 80% specificity for adenomas measuring 6mm or larger. The National CT Colonography Trial (NCTC), sponsored by the American College of Radiology Imaging Network (ACRIN), comprised 2600 asymptomatic participants undergoing same-day CT colonography and optical colonoscopy. Results revealed a sensitivity of 84% for adenomas or colorectal cancer (CRC) measuring 10mm or larger, with a specificity of 85%. Furthermore, a sensitivity of 70% was observed for adenomas measuring 6mm or larger, with a specificity of 86%. A notable critique of CT colonography is the failure to report lesions smaller than 6mm, the clinical significance of which remains uncertain.¹⁶

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Policy Revision History/Information

Original Date: April 29, 2022		
Review History		
Version 2	08/02/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual review. Minor adjustments were made to the indications in alignment with ACR guidelines. A few indications were repositioned to the beginning of the policy and no longer require a failed or contraindicated optical colonoscopy: the screening section, post-surgical follow-up for stoma or post-colectomy, and pre-surgery to search for tumor or lesions. The screening section was updated to better differentiate risk and age groups. Indications for the timeline of evaluating polyps were removed, as these indications are better suited for optical colonoscopy, not CT colonography. The repeat imaging section was updated to the revised standard language. Relative contraindications were removed from the non-indications section and placed in the notes section. Literature review - Description section updated and References added.



Cohere Medical Policy - Computed Tomography (CT), Face/Sinus

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 2026

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Tomography (CT), Face/Sinus

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

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- 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 (CT) is a common noninvasive imaging modality that allows for the creation of detailed cross-sectional images of the extracranial structures of the head and neck. It allows for the evaluation of the morphology and pathology of osseous and soft tissue structures. It can be performed both with and without contrast, depending on the structures being visualized.¹

Medical Necessity Criteria

Indications

Computed tomography (CT), face/sinus (including soft tissues of the extracranial head and neck) is considered appropriate for **ANY** of the following:

- Conditions, known or suspected, including **ANY** of the following¹:
 - Anatomic abnormalities (e.g., deviated septum), suspected as a cause of patient symptoms, and surgical management is being considered; **OR**
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve (magnetic resonance imaging [MRI] is contraindicated or cannot be performed); **OR**
 - Congenital conditions and craniofacial abnormalities²; **OR**
 - Infective sinusitis, and **ANY** of the following is **TRUE**²⁻⁵:
 - Four or more acute episodes per year and surgery/biologic therapy are contemplated; **OR**
 - Persists following completion of 2 courses of antibiotics; **OR**
 - Acute or subacute rhinosinusitis with a known or suspected complication (e.g., abscess formation, extension to orbits, cavernous sinus, or intracranial involvement); **OR**
 - The patient is immunocompromised, and invasive fungal sinusitis is suspected; **OR**
 - Allergic fungal sinusitis (AFS) suspected, with failed medical treatment or when surgery is contemplated; **OR**
 - Chronic rhinosinusitis, symptomatic (discharge, congestion, anosmia, pain), severity staging or restaging when management change is contemplated; **OR**
 - Suspected osteonecrosis when the patient is on bisphosphonates or post radiation treatments; **OR**
 - Osteomyelitis; **OR**
 - Odontogenic infections with suspected complications (e.g., abscess formation, facial swelling, nerve, sinus involvement); **OR**
 - Unexplained facial swelling (e.g., over the mandible); **OR**
 - Foreign body (suspected), clinically or seen on prior imaging; **OR**
 - Neoplastic conditions for initial staging, treatment planning, response assessment, and surveillance; **OR**
 - Mass or lymphadenopathy when **ANY** of the following is **TRUE**²:

- Has been present for at least 2 weeks; **OR**
- Not felt to be due to infection; **OR**
- Mass does not resolve after treatment with antibiotics for suspected infection; **OR**
- Lymphadenopathy or mass is larger than 1.5 cm; **OR**
- Ulceration of skin over the mass; **OR**
- Mass or lesion detected on laryngoscopy; **OR**
- Sinonasal polyposis detected on nasal endoscopy with **ALL** of the following^{3,6}:
 - The patient is symptomatic; **AND**
 - No relief with appropriate medical therapy (e.g., corticosteroids, antihistamines, antibiotics); **AND**
 - Surgical intervention or biologic therapy is being contemplated; **OR**
- Known sinonasal polyposis with complications suspected, (e.g., involvement of the orbits); **OR**
- Noninfectious inflammatory involvement of the sinus is suspected based on clinical history and symptoms (e.g., history of granulomatosis with polyangiitis)¹; **OR**
- Salivary stones, suspected, when ultrasound is non-diagnostic or further evaluation is needed¹; **OR**
- Salivary gland inflammation (sialadenitis)¹; **OR**
- Trigeminal neuralgia with **ANY** of the following²:
 - MRI is contraindicated or cannot be performed; **OR**
 - Atypical features present (e.g., symptoms outside of typical short-duration trigeminal nerve distribution pain); **OR**
 - 40 years of age or younger; **OR**
 - Failure of conservative management with failure of at least two concurrent agents (e.g., gabapentin, duloxetine) and surgery is being considered; **OR**
- Vascular malformations (e.g., arteriovenous malformations)^{1,8}; **OR**
- For evaluation of **ANY** of the following symptoms when applicable:
 - Anosmia with **ANY** of the following⁹:
 - Persistent anosmia with nondiagnostic endoscopy; **OR**
 - Abnormal endoscopy with further evaluation needed; **OR**
 - Known or suspected neoplasm; **OR**
 - History of head or facial trauma; **OR**

- Cerebrospinal fluid (CSF) leak, confirmed on testing or strong clinical history (e.g., prior trauma or CSF leak that increases after Valsalva maneuvers)³; **OR**
- Epistaxis with failure of conservative management (e.g., nasal packing/tampon, cautery); **OR**
- Epistaxis with detection of mass, polyp, or other pathology on examination that requires further evaluation¹; **OR**
- Preoperative, postoperative, and pretreatment evaluation for surgery, radiation, or chemotherapy; **OR**
- Maxillofacial trauma based on history, swelling, prior imaging, and need for further evaluation; **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 (CT), face/sinus (including soft tissues of the extracranial head and neck) with contrast is not considered appropriate if **ANY** of the following is **TRUE**:¹⁰

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹¹.

*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

Rhinosinusitis classification by symptom duration:¹²

- **Acute:** symptoms lasting less than 4 weeks
- **Subacute:** symptoms lasting more than 4 weeks but less than 12 weeks
- **Chronic:** symptoms lasting more than 12 weeks

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.^{13,14}

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.^{13,14}

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.^{13,14}

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.^{13,14}

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
70486	Computed tomography (CT), maxillofacial area; without contrast material
70487	Computed tomography (CT), maxillofacial area; with contrast material(s)
70488	Computed tomography (CT), maxillofacial area; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Bedernik et al. (2022) conducted a randomized controlled trial (RCT) to assess image quality by comparing single-energy computed tomography (SECT) with automated tube voltage adaptation (TVA) to dual-energy CT (DECT) weighted average images. A total of 80 patients underwent SECT or radiation dose-matched DECT. The effective radiation dose showed no significant difference between the SECT and DECT study groups. Compared to the SECT group, the DECT group exhibited significantly higher contrast-to-noise ratio differences (CNRD) for jugular veins relative to fatty tissue and muscle tissue relative to fatty tissue. However, the CNRD for jugular veins relative to muscle tissue was comparable between groups. Image artifacts were also less pronounced, and overall diagnostic acceptability was higher in the DECT group. Overall, DECT-weighted average images demonstrate superior objective and subjective image quality compared to SECT performed with TVA in head and neck imaging.¹⁵

Smith-Bindman et al. (2020) performed an RCT to study the efficacy of interventions to lower radiation doses in patients undergoing a CT scan. The RCT included 864,080 adults at 100 facilities who underwent a CT scan, including CT of the head (n = 1,156,657 scans). The study included two primary measures: the percentage of high-dose CT scans and the average effective dose administered at the facility level. The study's secondary measure included the doses received by specific organs. The authors examined the change in outcomes following interventions, contrasting the data with preintervention data, utilizing hierarchical generalized linear models that accounted for temporal patterns and patient attributes. In conclusion, data regarding CT radiation dosage and practical recommendations may improve quality, including significant dose reductions, especially for organ-specific doses.¹⁶

Aulino et al. (2018) reported on a clinical trial that focused on an assessment tool for the late effect continuum of lymphedema and fibrosis (LEF) for patients with head and neck cancer (HNC) undergoing CT. The tool evaluates areas of soft tissue damage resulting from tumors, surgical interventions, or radiation therapy. The tool analyzed CT scans taken before and after treatment in 10 patients with HNC. The finalized tool comprised 11 elements,

including the assessment of fat stranding at six specific sites, epiglottic thickness measurement, and measurement of prevertebral soft tissue thickness at C3. A total of 176 CT scans from the 20 patients (with a range of 4-14 scans per patient) were evaluated. The final version of the LEF assessment tool (CT-LEFAT) offers a standardized approach to assess critical sites affected by soft tissue damage. Studies continue to evaluate reliability and validity.¹⁷

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Policy Revision History/Information

Original Date: May 6, 2022		
Review History		
Version 2	08/20/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language
Version 4	08/28/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria



Cohere Medical Policy – Computed Tomography (CT), Lower Extremity

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: February 20, 2025

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

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

Date of last literature review: 9/3/2024

Document last updated: 2/19/2025

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Lower Extremity

Recommended Clinical Approach

Computed tomography (CT) of the lower extremity for trauma and fracture generally does not require contrast. IV contrast should be used at the request of the ordering provider with guidance from the radiologist. Common indications for administering contrast include infectious and inflammatory conditions, as well as fractures, tumors, palpable abnormalities, and concern for malignancy of the soft tissues. CT scan coverage can be modified to include the region of clinical suspicion. Intra-articular contrast may be useful in patients for whom internal joint derangement or cartilage loss is suspected, but in whom MR is not possible (e.g., incompatible pacemaker, unable to tolerate MR exam, metallic artifact).

Medical Necessity Criteria

Indications

- **Computed tomography (CT), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Neoplastic conditions (including masses and mass-like conditions) requiring evaluation (e.g., for treatment planning, treatment response, or prognostication) and **ANY** of the following is **TRUE**¹⁻³:
 - Malignant or aggressive primary bone tumor¹; **OR**
 - Malignant or aggressive primary soft tissue tumor¹; **OR**
 - Metastatic lesions of the lower extremity; **OR**
 - Nonsuperficial (deep) soft tissue mass²; **OR**
 - Soft tissue mass and MRI or ultrasound is unable to be performed or is contraindicated²; **OR**
 - A primary bone tumor is suspected, and radiographs indicate **ANY** of the following³:
 - Radiograph is negative; **OR**
 - Benign features (osteoid osteoma is not suspected); **OR**
 - Osteoid osteoma is suspected; **OR**

- Lesion is present on plain radiographs; **OR**
- Indeterminate or aggressive appearance for malignancy; **OR**
- “Incidental” osseous lesion on MRI or CT scan for unrelated indication; **OR**
- Presence of a mass with **ANY** of the following²:
 - Absence of trauma; **OR**
 - Rapid growth; **OR**
 - Recurrence after prior surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
- Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on the initial radiologic exam, including radiograph, ultrasound, magnetic resonance (MR), and nuclear medicine studies³; **OR**
- Known malignancy with unexpected, localized lower extremity pain or swelling; **OR**
- Persistent palpable abnormality with non-diagnostic imaging (e.g., radiograph, ultrasound); **OR**
- Routine surveillance of known malignancy; **OR**
- ◆ Acute traumatic lower extremity injury (e.g., fracture, dislocation, etc.) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**⁴⁻⁵:
 - Bony injury and **ANY** of the following is **TRUE**⁴:
 - Fracture (known) and additional detail needed; **OR**
 - Acute injury with occult fracture suspected; **OR**
 - Joint dislocation or instability; **OR**
 - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
 - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
 - Suspected soft tissue injury (e.g., peroneal tendon injury, etc.) and MRI or ultrasound is unable to be performed or is contraindicated; **OR**
- ◆ Preoperative imaging prior to surgical management of congenital condition, injury, recurrent instability, malignancy, mass, infectious disorder, or vascular abnormality; **OR**
- ◆ Chronic injury with ongoing symptoms for greater than or equal to 6 weeks and **ALL** of the following are **TRUE**⁶⁻⁷:

- Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, including a self-directed home exercise program; **AND**
- Radiographs are negative for osseous injury, an alignment abnormality is suspected based on physical examination, and **ALL** of the following are **TRUE**:
 - MRI and/or ultrasound are contraindicated or cannot be performed; **AND**
 - Radiographs that suggest **ANY** of the following:
 - ◆ Dislocation; **OR**
 - ◆ Syndesmotic injury; **OR**
 - ◆ Other ligamentous injury; **OR**
- ◆ The patient requires a CT with arthrogram for a knee meniscal tear, and **ALL** of the following are **TRUE**:
 - Concern for rupture or tear based on clinical history, imaging, or physical exam; **AND**
 - Joint-specific orthopedic evaluation and maneuvers suggest a tear; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Diagnosis, surveillance, and follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)⁸; **OR**
 - Osteonecrosis, known or suspected, with negative radiographs⁹; **OR**
 - MRI and/or ultrasound are contraindicated or cannot be performed, and the patient requires evaluation for vascular malformation (with or without pain) due to **ANY** of the following findings¹⁰:
 - Diffuse or focal enlargement; **OR**
 - Discoloration; **OR**
 - Soft-tissue mass; **OR**
 - Ulceration; **OR**
 - Vascular bruit or thrill; **OR**

- ◆ Post-intervention evaluation when **ANY** of the following is **TRUE**:
 - Imaging after hip arthroplasty and **ANY** of the following is **TRUE**¹¹:
 - Hardware fracture; **OR**
 - History of acute injury; **OR**
 - Metal-on-metal prosthesis with an adverse reaction to metal debris; **OR**
 - Trunnionosis (corrosion or metallosis), suspected; **OR**
 - Pain with **ANY** of the following (infection excluded):
 - ◆ Aseptic loosening; **OR**
 - ◆ Instability; **OR**
 - ◆ Osteolysis; **OR**
 - Periprosthetic fracture; **OR**
 - Imaging after knee arthroplasty and **ANY** of the following are suspected (with or without pain)¹²:
 - Hardware fracture; **OR**
 - Infection; **OR**
 - Pain with **ANY** of the following (infection excluded):
 - ◆ Aseptic loosening; **OR**
 - ◆ Instability; **OR**
 - ◆ Osteolysis; **OR**
 - Periprosthetic fracture; **OR**
 - Concern for injury to extensor mechanism; **OR**
- ◆ Infection or an infectious disorder including **ANY** of the following:
 - Septic arthritis with **ANY** of the following:
 - Elevated laboratory markers (e.g., ESR/CRP, white blood cell count); **OR**
 - Findings are suggestive of joint effusion or soft tissue swelling¹³; **OR**
 - Clinical history of **ANY** of the following:
 - ◆ Adjacent infection; **OR**
 - ◆ Diabetes; **OR**
 - ◆ IV drug use; **OR**
 - ◆ Previous surgery on the suspected joint of concern (e.g., joint replacement/ ligament, labral, meniscus repair); **OR**
 - Physical exam that supports suspicion of septic arthritis; **OR**
 - Positive joint aspiration; **OR**

- Septic arthritis is suspected with normal initial radiographs¹³; **OR**
 - Osteomyelitis, suspected¹²⁻¹³; **OR**
 - Soft tissue infection suspected with a history of puncture wound with possible retained foreign body (radiographs normal)¹³; **OR**
 - Soft tissue infection suspected with high clinical suspicion of necrotizing fasciitis¹³; **OR**
- ◆ Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when MRI is contraindicated or cannot be performed, and the patient requires evaluation¹⁴:
 - Marrow abnormalities⁹; **OR**
 - Pain or weakness of a lower extremity as indicated by **ALL** of the following:
 - Nondiagnostic or indeterminate imaging (e.g. radiographs, US); **AND**
 - Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
 - ◆ Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - ◆ Physical therapy, including a self-directed home exercise program; **AND**
 - Concern for rupture or tear based on **ALL** of the following:
 - ◆ Clinical history; **AND**
 - ◆ Physical exam; **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), lower extremity** is not considered appropriate if **ANY** of the following is **TRUE**¹⁵:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹⁶; **OR**
- ◆ If contrast is used, 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.

**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 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.¹⁷⁻¹⁸

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.¹⁷⁻¹⁸

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.^{[17-18](#)}

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.^{[17-18](#)}

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/Definition
73700	Computed tomography (CT), lower extremity; without contrast material
73701	Computed tomography (CT), lower extremity; with contrast material
73702	Computed tomography (CT), lower extremity; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Drezin et al. (2022) review the role of computed tomography (CT) and computed tomography angiography (CTA) in trauma and salvaging a threatened or mangled extremity. When reviewing CT scans to assess complications around the amputation site, attention should focus on signs such as surgical wound opening, ulceration, infection, post-surgical blood collections, lingering bone fragments, abnormal bone growth, excessive scarring, and the maintenance of vascular function. Damage control techniques involve swift actions to manage bleeding and restore blood circulation. Early implementation of fasciotomies may be required, along with immediate temporary realignment and stabilization using splints, traction, or external fixation. The measures aim to safeguard the repaired blood vessels and ensure a smooth connection without tension.¹⁹

Allen et al. (2020) performed an observational study to evaluate the incidence of fractures and ligament injuries among patients presenting with an acute ankle injury and normal findings on radiographic examination while also exploring optimal examination protocols. A total of 100 patients were enrolled in the study – 19 were diagnosed with major fractures, and 42 had small avulsion fractures. Further, 42 patients exhibited ankle effusions, alongside a notable occurrence of soft tissue injuries. CT scans and ultrasound can identify fractures and soft tissue injuries yet may be utilized less frequently in standard clinical practice. The authors also discuss advances in imaging techniques. Research indicates that cone beam CT surpasses ultrasound examination and the traditional combination of clinical assessment and radiography in fracture detection sensitivity. Despite this heightened sensitivity, cone beam CT maintains a radiation exposure level comparable to conventional radiography, suggesting it is a safer and more precise imaging alternative.²⁰

Kellock et al. (2019) conducted a meta-analysis on the diagnostic accuracy of CT to identify occult proximal femoral fractures. The authors report 13 studies of varied reporting quality that included 1248 patients (496 with hip fractures, 752 without) with MRI or clinical follow-up serving as the reference standard. Fifty false-negative examinations were identified. The pooled sensitivity estimate was 94%, with specificity reaching 100%. The authors conclude that when clinical suspicion arises for occult proximal femoral fracture, and MRI is either contraindicated or inaccessible, CT represents a viable option. In cases where clinical concern persists despite normal CT results, MRI may be indicated.²¹

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Clinical Guideline Revision History/Information

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Review History		
Version 2	9/5/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Replaced conservative care requirement with current standard language. Provided avenue for approval for preoperative imaging. Loosened requirement for injury evaluation - no longer requires suspicion of "high-grade" tear.



Computed Tomography (CT), Neck- Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: May 6, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography (CT), Neck – Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

Literature review current through: 5/2/2022

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Neck

General Guidelines

- **Imaging Modality:** Computed tomography (CT) is a useful imaging modality for initial evaluation of many disorders of the head and neck.
- **Criteria for Subsequent Requests:** CT of the head and neck is useful for treatment planning, treatment response assessment, end-of-treatment assessment, re-staging, and surveillance.
- **Recommended Clinical Approach:** CT is often the first-line imaging exam for many disorders of the neck due to its speed, availability, and high resolution. CT neck for soft issue evaluation will routinely be performed with contrast and compared to MR is not as sensitive to patient motion.¹
- **Exclusions:** CTA neck and CT cervical spine are covered under separate guideline documents.

Medical Necessity Criteria

→ **CT Neck** is considered appropriate if **ANY** of the following is **TRUE**¹⁻³³:

- ◆ The patient presents with **ANY** of the following:
 - Palpable neck mass¹⁵⁻¹⁸
 - Enlarged lymph node¹⁵⁻¹⁸
 - Hemorrhage and/or epistaxis
 - Cranial nerve dysfunction
 - Thyroid or parathyroid disease
 - Trauma to the neck¹³
 - Infection or inflammatory process of the neck¹¹⁻¹²
 - Benign or malignant neoplasm of the neck³⁻¹⁰
- ◆ The patient has **ANY** of the following complications:
 - Vascular malformation¹⁴
 - Congenital anomaly
- ◆ Radiation therapy treatment planning^{9,19-20}
- ◆ Follow-up after **ANY** of the following interventions¹⁹⁻²²:
 - Surgery
 - Chemotherapy
 - Radiation therapy
- ◆ Preoperative and intraoperative planning and/or guidance^{11,22}

Non-Indications

→ **CT Neck** with contrast may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁴
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)³⁵
- ◆ Current pregnancy

Site of Service Criteria

Inpatient or Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70490	Computed tomography (CT) of soft tissue of neck without contrast material
70491	Computed tomography (CT) of soft tissue of neck with contrast material
70492	Computed tomography (CT) of soft tissue of neck without contrast material, followed by contrast material and further sections

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Cohere Medical Policy – Computed Tomography (CT), Orbit/Ear/Sella

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: October 30, 2024

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Guideline Information:

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Date of last literature review: 8/20/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Orbit/Ear/Sella

Recommended Clinical Approach

Computed tomography (CT) is often the first-line imaging exam for many disorders of the extra-cranial head due to its speed, availability, and high resolution. In the setting of trauma and other primary osseous abnormalities, contrast is not routinely employed. For many, soft-tissue processes, contrast will be preferred. The specific area imaged, reformations performed, and radiation dose will depend upon the clinical question being addressed and deferred to the supervising radiologist.¹

Medical Necessity Criteria

→ **Computed tomography (CT), orbit/ear/fossa** is considered appropriate if **ANY** of the following is **TRUE**¹:

◆ Orbital indications, including **ANY** of the following:

- Trauma-related conditions, including traumatic visual defect with suspected orbital injury²; **OR**
- **ANY** of the following if MRI is contraindicated or cannot be performed:
 - Congenital conditions (e.g. capillary hemangioma, optic nerve hypoplasia); **OR**
 - Optic neuritis; **OR**
 - Eye pain, with history or other sign or symptom, indicating non-ischemic pathology; **OR**
 - Ophthalmoplegia; **OR**
 - Eye movement abnormality in a child (e.g., strabismus, nystagmus in a child 6 months or older); **OR**
 - Vision loss or visual field deficit with history or other signs or symptoms indicating non-ischemic intra-orbital pathology; **OR**
- Conditions, known or suspected, including **ANY** of the following²:
 - Initial staging, treatment response, surveillance, complication, recurrence, treatment planning, or

- treatment response of an orbital mass (e.g., dermoid, melanoma, lymphoma, metastases)³; **OR**
 - Orbital pseudotumor or orbital inflammatory disease; **OR**
 - Osseous lesions (e.g., fibrodysplasia, Paget's); **OR**
 - Foreign-body, suspected clinically or seen on prior imaging; **OR**
 - Orbital infectious process, suspected or known, that has failed medical management (e.g. orbital cellulitis not responding appropriately to antibiotics) or patient is pediatric or immunocompromised; **OR**
 - Scleritis confirmed clinically with failure of medical management or with complication suspected⁴; **OR**
 - Uveitis, confirmed clinically with complication suspected; **OR**
 - Thyroid orbitopathy; **OR**
 - Venous conditions (e.g., orbital varices); **OR**
- Additional evaluation is needed when etiology remains unclear following a complete eye examination that includes funduscopy, including **ANY** of the following:
 - Diplopia; **OR**
 - Enophthalmos⁵; **OR**
 - Exophthalmos; **OR**
 - Orbital asymmetry; **OR**
 - Preseptal or post-septal orbital mass, otherwise unexplained; **OR**
 - Proptosis; **OR**
 - Unilateral papilledema; **OR**
 - Orbital hemorrhage; **OR**
- Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy; **OR**
- ◆ Temporal bone and inner ear indications including **ANY** of the following:
 - Conditions, known or suspected, including **ANY** of the following⁶; **OR**
 - Aberrant and symptomatic congenital or acquired anatomy (e.g., stenosis of the EAC or dehiscence of the superior semicircular canal, facial nerve canal, carotid canal, or jugular bulb); **OR**

- Cholesteatoma, initial and 9 to 12-month postoperative follow-up; **OR**
- Tympanosclerosis; **OR**
- Neoplastic conditions, detection, and follow-up (including tumors of the internal or external auditory canal, inner ear, and mastoid); **OR**
- Otitis media, recurrent with at least 3 episodes in the past 12 months, with complications suspected (e.g. hearing loss, intracranial extension, mastoiditis)⁷; **OR**
- Malignant otitis externa, unresponsive to antibiotics; **OR**
- Mastoiditis; **OR**
- Other infectious processes involving the middle or inner ear, where imaging is needed to direct appropriate management; **OR**
- Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve (MRI is contraindicated or cannot be performed); **OR**
- Tinnitus, unexplained by history or physical examination, and is worsening or affects daily function (MRI is contraindicated or cannot be performed)⁸; **OR**
- Symptoms or signs evaluated by complete auditory examination, including **ANY** of the following⁶:
 - Conductive, mixed-conductive, or congenital hearing loss; **OR**
 - Sensorineural hearing loss, acquired or congenital, (MRI is contraindicated or cannot be performed); **OR**
 - Total deafness, otherwise unexplained; **OR**
 - Vertigo, unexplained by history or physical examination with **ANY** of the following:
 - ◆ Worsening; **OR**
 - ◆ Affects daily function; **OR**
 - ◆ Associated hearing loss or other neurological deficits; **OR**
 - ◆ History of prior infection (e.g., otitis or meningitis); **OR**
 - ◆ History of prior trauma; **OR**

- Trauma-related conditions related to the ear, including evaluation of cerebrospinal fluid leak⁸⁻¹⁰; **OR**
 - Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy (including evaluation for cochlear implant); **OR**
 - Vascular conditions, known or suspected, related to the ear or temporal bone, including evaluation of pulsatile tinnitus¹¹; **OR**
- ◆ Sellar and posterior fossa indications, including **ANY** of the following indications related to a sella or posterior fossa:
- Sellar mass (including pituitary masses) is suspected due to documented clinical or laboratory findings (e.g., prolactinemia); **OR**
 - Visual field deficit (e.g., bitemporal hemianopsia) indicating optic nerve compression; **OR**
 - Other neoplastic conditions, known, suspected, or suggested by prior imaging (e.g., meningioma); **OR**
 - Trauma-related conditions; **OR**
 - Pituitary dysfunction, suggested by documented laboratory or clinical abnormalities (e.g., pituitary failure due to conditions such as pituitary apoplexy); **OR**
 - Vascular conditions, known or suspected, including aberrant anatomy; **OR**
 - Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy (including pre-operative planning for removal of the pituitary tumor); **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), orbit/ear/fossa** with contrast is not considered appropriate if **ANY** of the following is **TRUE** if contrast is used¹²:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹⁸; **OR**
- ◆ If contrast is used, 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.

**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 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.¹³⁻¹⁴

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.¹³⁻¹⁴

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.¹³⁻¹⁴

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.¹³⁻¹⁴

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
70480	Computed tomography (CT), orbit, sella, or posterior fossa or outer, middle, or inner ear; without contrast material
70481	Computed tomography (CT), orbit, sella, or posterior fossa; with contrast material(s)
70482	Computed tomography (CT), orbit, sella, or posterior fossa; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Bedernik et al. (2022) conducted a randomized control trial (RCT) to assess image quality by comparing single-energy computed tomography (SECT) with automated tube voltage adaptation (TVA) to dual-energy CT (DECT) weighted average images. A total of 80 patients underwent SECT or radiation dose-matched DECT. The effective radiation dose (ED) showed no significant difference between the SECT and DECT study groups. Compared to the SECT group, the DECT group exhibited significantly higher contrast-to-noise ratio differences (CNRD) for jugular veins relative to fatty tissue and muscle tissue relative to fatty tissue. However, the CNRD for jugular veins relative to muscle tissue was comparable between groups. Image artifacts were also less pronounced, and overall diagnostic acceptability was higher in the DECT group. Overall, DECT-weighted average images demonstrate superior objective and subjective image quality compared to SECT performed with TVA in head and neck imaging.¹⁵

Smith-Bindman et al. (2020) performed an RCT to study the efficacy of interventions to lower the amount of radiation exposure. The RCT included 864,080 adults at 100 facilities who underwent a CT scan, including CT Head (n = 1,156,657 scans). The study included two primary measures: the percentage of high-dose CT scans and the average effective dose administered at the facility level. The study's secondary measure included the doses received by specific organs - outcomes assessed for the impact of the interventions and outcomes post-intervention. Data were contrasted with pre-intervention data, utilizing hierarchical generalized linear models that accounted for temporal patterns and patient attributes. In conclusion, data regarding CT radiation dosage and practical recommendations may improve quality, including significant dose reductions, especially for organ-specific doses.¹⁶

Aulino et al. (2018) reported on a clinical trial that focused on an assessment tool for the late effect continuum of lymphedema and fibrosis (LEF) for patients with head and neck cancer (HNC) undergoing CT. The tool evaluates areas of soft tissue damage resulting from tumors, surgical interventions, or radiation therapy. The tool analyzed CT scans taken before and after treatment in 10 patients with HNC. The finalized tool has 11 elements, including assessing fat stranding at six specific sites, measuring epiglottic thickness, and measuring prevertebral soft tissue thickness at C3. The trial includes 176 CT scans from 20 patients (with a range of 4-14 scans per patient). The final version of the LEF assessment tool (CT-LEFAT) offers a standardized approach to assess critical sites affected by soft tissue damage. Studies continue to evaluate reliability and validity.¹⁷

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Clinical Guideline Revision History/Information

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Version 2	8/20/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.



Computed Tomography (CT), Orbit/Ear/Fossa – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: May 6, 2022

Important Notices

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Care Path Name: Computed Tomography (CT), Orbit/Ear – Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Orbit/Ear/Fossa

General Guidelines

- **Imaging Modality:** Computed tomography (CT) provides superior resolution for evaluating a wide variety of osseous pathologies in the extra-cranial head. It is also frequently employed to evaluate soft-tissue abnormalities of the same region alone and in concert with MR imaging as clinically appropriate.
- **Criteria for Subsequent Requests:** CT of the head and neck is useful for treatment planning, treatment response assessment, end-of-treatment assessment, re-staging, and surveillance.
- **Recommended Clinical Approach:** CT is often the first-line imaging exam for many disorders of the extra-cranial head due to its speed, availability, and high resolution. In the setting of trauma and other primary osseous abnormalities, contrast is not routinely employed. For many, soft-tissue processes contrast will be preferred. The specific area imaged, reformations performed, and radiation dose will be dependent upon the clinical question being addressed and deferred to the supervising radiologist.
- **Exclusions:** CT head, CTA Head, and CT face/sinuses are covered under separate guideline documents.

Medical Necessity Criteria

→ **CT Orbit/Ear/Fossa** is considered appropriate if **ANY** of the following is **TRUE**¹⁻³³:

- ◆ The CT is focused on the orbits and **ANY** of the following is **TRUE**:
 - The patient presents with **ANY** of the following:
 - Exophthalmos (proptosis), enophthalmos, or orbital asymmetry
 - Vision loss, visual defect, ophthalmoplegia or diplopia
 - Trauma²³
 - Foreign body
 - The patient has **ANY** of the following complications:
 - Congenital anomaly
 - Vascular malformation or hemorrhage³⁰
 - The patient has infection and inflammation as indicated by **ANY** of the following:

- Infection and inflammation of orbit or adjacent structure affecting orbit
 - Complication of sinusitis and sinus surgeries²⁴⁻²⁷
 - Thyroid orbitopathy
- Benign or malignant neoplasm of the orbital and ocular structures
- Follow-up after **ANY** of the following:
 - Surgery
 - Chemotherapy
 - Radiation therapy
- Radiation therapy treatment planning
- Preoperative and intraoperative planning or guidance²⁸⁻²⁹
- Fibro-osseous disease
- ◆ The CT is for the ear and **ANY** of the following is **TRUE**:
 - Conductive or mixed conductive and sensorineural hearing loss
 - Pulsatile tinnitus
 - Preoperative or postoperative evaluation for auditory device
 - Suspected inner ear disease
 - Congenital anomaly
 - Trauma
 - Hemorrhage or other vascular pathology
 - Acute or chronic otomastoid inflammatory disease
 - Preoperative evaluation prior to mastoidectomy
 - Benign or malignant neoplasm
 - Radiation therapy treatment planning
 - Follow-up after **ANY** of the following:
 - Surgery
 - Chemotherapy
 - Radiation therapy
 - Preoperative and intraoperative planning or guidance
- ◆ The CT is for sella or posterior fossa and **ANY** of the following is **TRUE**:
 - Pituitary abnormality
 - Congenital anomaly
 - Trauma
 - Hemorrhage or other vascular pathology
 - Benign or malignant neoplasm

- Radiation therapy treatment planning
- Follow-up after **ANY** of the following:
 - Surgery
 - Chemotherapy
 - Radiation therapy
- Preoperative and intraoperative planning or guidance

Non-Indications

→ **CT Orbit/Ear/Fossa** with contrast may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁴
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)³⁵
- ◆ Current pregnancy

Site of Service Criteria

Inpatient or Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70480	Computed tomography (CT) of orbit/ear/fossa without contrast material
70481	Computed tomography (CT) of orbit/ear/fossa with contrast material
70482	Computed tomography (CT) of orbit/ear/fossa without contrast material, followed by contrast material and further sections

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Cohere Medical Policy – Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: February 20, 2025

Important Notices

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Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Computed tomography (CT) utilizes ionizing radiation to create images based on the varying absorption of X-rays by different tissues. This technology provides detailed cross-sectional views and enables the generation of multidimensional 2-D and 3-D reconstructions. CT scanning is highly valuable in clinical practice, particularly for evaluating spinal structures.¹ CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a two-part procedure – iodinated contrast is first injected into the spinal canal under fluoroscopic guidance before a CT scan covering the region of concern is performed.

Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired, and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).²⁻⁴

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), spine (cervical, thoracic, and lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:

- ◆ Neoplastic conditions (including masses or mass-like conditions), including **ALL** of the following⁵⁻⁶:
 - Primary or metastatic lesion to the spinal cord, canal, bone, or vertebral bodies and **ANY** of the following is needed:
 - Initial diagnosis; **OR**
 - Monitor response to treatment; **OR**
 - Monitor worsening symptoms or pain; **AND**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**

- Inconclusive or abnormal prior imaging; **OR**
- ◆ **ALL** of the following to evaluate for infection or an infectious disorder (e.g., discitis, osteomyelitis, epidural abscess):
 - Abnormal or indeterminate initial imaging; **AND**
 - **ANY** of the following⁷⁻⁸:
 - Abnormal lab values; **OR**
 - Decubitus ulcer; **OR**
 - New cauda equina syndrome²; **OR**
 - New neurologic deficit; **OR**
 - New or worsening back or neck pain; **OR**
 - Recent intervention (e.g., hardware, pain injection, stimulator implantation); **OR**
 - Wound overlying spine; **OR**
 - **ANY** of the following “red flags”:
 - ◆ Cancer; **OR**
 - ◆ Diabetes mellitus; **OR**
 - ◆ Dialysis; **OR**
 - ◆ HIV; **OR**
 - ◆ Immunosuppression; **OR**
 - ◆ IV drug use; **OR**
 - ◆ Prior spinal infections (e.g., abscess, discitis arachnoiditis, osteomyelitis); **OR**
- ◆ Trauma-related conditions, including **ANY** of the following⁹:
 - Following a traumatic event (e.g., accident, surgery, or intervention), and the patient has **ANY** of the following:
 - Neurological deficit (myelopathy); **OR**
 - Radiculopathy; **OR**
 - Follow-up to initial radiographs with positive or indeterminate findings and advanced imaging is needed; **OR**
 - High suspicion for fracture; **OR**
 - Persistent or worsening pain without acute findings on initial imaging and **ANY** of the following apply to the patient:
 - Chronic steroid use; **OR**
 - Elderly; **OR**
 - Osteoporotic; **OR**
 - Follow-up to initial radiographs for a known or suspected vertebral compression fracture (asymptomatic or symptomatic)¹⁰; **OR**

- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Spinal cord infarct; **OR**
 - Vascular malformation; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) including **ANY** of the following^{3-4,11-13}:
 - To assist in the diagnostic work-up; **OR**
 - Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment; **OR**
 - Pain or radiculopathy; **OR**
 - Suspicion of **ANY** of the following:
 - Fracture; **OR**
 - Vertebral body subluxation; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy without trauma as indicated by **ALL** of the following¹⁻⁴:
 - Severe radiculopathy or any neurological deficit (myelopathy) and **ANY** of the following⁴:
 - ◆ Abnormal electromyography (EMG); **OR**
 - ◆ **ANY** of the following new or worsening symptoms:
 - Radiculopathy (including sciatica); **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Objective reduction or loss of fine motor skills; **OR**
 - Sexual dysfunction; **AND**
 - **ANY** of the following:
 - ◆ Severe or rapid progression of myelopathy; **OR**
 - ◆ At least 6 weeks of conservative treatment, including **ALL** of the following²⁷⁻³⁰:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription

- medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, including a self-directed home exercise program; **AND**
 - Suspicion of compression of **ANY** of the following:
 - ◆ Cauda equina⁴; **OR**
 - ◆ Nerve root; **OR**
 - ◆ Spinal cord; **AND**
 - **ANY** of the following^{2,3}:
 - ◆ The patient is a candidate for surgery or intervention and has persistent or progressive symptoms during or following 6 weeks of optimal medical management; **OR**
 - ◆ Cauda equina syndrome, suspected; **OR**
 - ◆ History of prior lumbar surgery with new or progressing clinical findings; **OR**
 - ◆ Ossification of the posterior longitudinal ligament (OPLL); **OR**
 - ◆ Osteoporosis; **OR**
 - ◆ Chronic steroid use; **OR**
 - ◆ Suspicion of **ANY** of the following:
 - Cancer; **OR**
 - Immunosuppression; **OR**
 - Infection; **OR**
 - ◆ Cervicogenic headache with new or increasing non-traumatic cervical or neck pain and no neurologic deficit; **OR**
 - ◆ Chronic cervical or neck pain with no neurologic findings and radiographs show degenerative changes; **OR**
 - ◆ Chronic cervical or neck pain without or with radiculopathy and radiographs show ossification in the posterior longitudinal ligament (OPLL); **OR**
 - ◆ Known malignancy with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**

- ◆ New or increasing pain or radiculopathy with no “red flags”; **OR**
- ◆ Prior cervical spine surgery with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
- ◆ Suspicion for infection with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
 - Plexopathy (traumatic) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral; **OR**
- ◆ The patient is post-operative from a spinal surgery with recurrent or worsening symptoms¹⁵; **OR**
- ◆ **ANY** of the following indications for congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications)¹⁶:
 - Chiari malformation; **OR**
 - Neurological symptoms not previously imaged; **OR**
 - Pain that does not improve and imaging previously not performed; **OR**
 - Preoperative assessment needed; **OR**
 - Scoliosis; **OR**
 - Syrinx; **OR**
 - Syringohydromyelia; **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), spine (cervical, thoracic, or lumbar)** is not considered appropriate 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 symptoms¹⁷; **OR**
- ◆ If **ANY** of the following is **TRUE** if contrast is used¹⁸:
 - History of anaphylactic allergic reaction to iodinated contrast media; **OR**
 - Renal insufficiency and no detailed guidelines have been provided; **OR**
- ◆ Chronic neck pain in the absence of other criteria³; **OR**
- ◆ Plexopathy (non-traumatic, with or without malignancy) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral; **OR**
- ◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.

**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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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.¹⁹⁻²⁰

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
72125	Computed tomography (CT), cervical spine; without contrast material
72126	Computed tomography (CT), cervical spine; with contrast material
72127	Computed tomography (CT), cervical spine; without contrast material, followed by contrast material(s) and further sections
72128	Computed tomography (CT), thoracic spine; without contrast material
72129	Computed tomography (CT), thoracic spine; with contrast material
72130	Computed tomography (CT), thoracic spine; without contrast material, followed by contrast material(s) and

	further sections
72131	Computed tomography (CT), lumbar spine; without contrast material
72132	Computed tomography (CT), lumbar spine; with contrast material
72133	Computed tomography (CT), lumbar spine; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Ahmad et al. (2023) conducted a systematic review on the use of computed tomography (CT) and magnetic resonance imaging (MRI) with respect to the correlations between bone mineral density (BMD) derived from scans and Dual-Energy X-ray Absorptiometry (DEXA). A comprehensive analysis of 25 studies was included (15 utilizing CT and 10 utilizing MRI) with a total of 2745 patients. Articles published from 2011 to 2021 were included investigating the associations between CT or MRI measurements such as CT-derived Hounsfield units (CT-HU) values or MRI parameters, and DEXA-derived BMD, specifically focusing on lumbar spine or hip regions. CT-HU exhibits stronger correlations with DEXA measurements than MRI parameters however, both CT and MRI demonstrate moderate correlations with DEXA. Additional research is needed within spine surgery cohorts, including inferior correlations in populations with degenerative spine conditions.²¹

Bäcker et al. (2021) performed a systematic literature review and meta-analysis to assess the sensitivity, specificity, and accuracy of dual-energy computed tomography (DE-CT) in detecting bone marrow edema and disc edema in spinal injuries. Early diagnosis of vertebral injuries is crucial to prevent treatment delays. Imaging modalities such as MRI or DE-CT are necessary to identify bone marrow or disc edemas. The analysis encompassed 13 studies involving 515 patients, 3335 vertebrae, and 926 acute fractures confirmed by MRI, which was used for comparison in 12 publications. DE-CT demonstrated an overall sensitivity of 86.2%, specificity of 91.2%, and accuracy of 89.3%. In addition, five studies reported the accuracy of conventional CT, yielding an overall sensitivity of 81.3%, specificity of 80.7%, and accuracy of 80.9%. Overall, DE-CT shows promise as a diagnostic tool for detecting bone marrow and disc edemas, potentially offering an alternative to MRI, the current gold standard.²²

Ghudasara et al. (2019) review the use of postoperative CT following spine surgery. Scans are useful to identify implant locations and integrity, evaluate the efficacy of decompression and intervertebral arthrodesis procedures, and identify associated complications. While metallic implant artifacts may limit postoperative spinal CT scans, advancements in parameter optimization and metal artifact reduction techniques (e.g., iterative reconstruction and monoenergetic extrapolation methods) offer significant improvements in image quality. Furthermore, they are valuable in detecting and characterizing any postoperative irregularities. Complications following spinal surgery and intervertebral arthroplasty range from issues with implant position and integrity to adjacent segment degeneration, collections, fistulas, pseudo meningoceles, cerebrospinal fluid leaks, and surgical site infections.²³

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Clinical Guideline Revision History/Information

Original Date: April 29, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Allowed for “out” from conservative care requirement for patients with CES, OPLL • Added references



Cohere Medical Policy – Computed Tomography (CT), Upper Extremity

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: February 20, 2025

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Computed Tomography (CT), Upper Extremity

Date of last literature review: 7/31/2024

Document last updated: 2/19/2025

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Upper Extremity

Recommended Clinical Approach

Computed tomography (CT) of the upper extremity for trauma typically does not require contrast. IV contrast is used if requested by the ordering provider and guided by the radiologist. Common reasons for using contrast include detecting infectious and inflammatory conditions, or suspected malignancy. In cases where internal joint derangement or cartilage loss is suspected but MRI is not feasible (e.g., due to an incompatible implanted device, inability to tolerate an MRI exam or metallic artifacts), intra-articular contrast may be beneficial.

Medical Necessity Criteria

Indications

- **Computed tomography (CT), upper extremity** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Traumatic upper extremity injury (e.g., fracture, dislocation) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**¹⁻³:
 - Bony injury and **ANY** of the following is **TRUE**⁴:
 - Fracture (known) and additional detail needed; **OR**
 - Acute injury with occult fracture suspected; **OR**
 - Joint dislocation or instability; **OR**
 - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
 - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
 - Suspected soft tissue injury (e.g., rotator cuff tear), and MRI and ultrasound are contraindicated or cannot be performed^{1,3,5-6}; **OR**

- ◆ Preoperative imaging for **ANY** of the following:
 - Prior to shoulder arthroplasty; **OR**
 - Prior to non-arthroplasty surgical management of glenohumeral osteoarthritis (e.g. arthroscopy, distal clavicle resection/excision) only when there is clinical concern for rotator cuff compromise, or when there is advanced glenoid wear; **OR**
 - Prior to surgical management of congenital condition, injury, recurrent instability, malignancy, mass, infectious disorder, or vascular abnormality; **OR**
- ◆ Detection, screening, or surveillance of neoplasms, masses, and cysts of an upper extremity, and **ANY** of the following is **TRUE**⁷:
 - Malignant or aggressive primary tumor⁷; **OR**
 - A bone tumor is suspected with indeterminate or aggressive appearance of an incidental osseous lesion on MRI or radiographs for unrelated indication⁸; **OR**
 - Presence of a mass with **ANY** of the following⁹:
 - Absence of trauma; **OR**
 - Rapid growth; **OR**
 - Recurrence after prior surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
 - Known malignancy and **ANY** of the following is required:
 - Monitor response to treatment; **OR**
 - Surveillance after treatment or surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
 - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study⁸⁻⁹; **OR**
- ◆ Infectious disorder, including **ANY** of the following:
 - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling; **OR**
 - Osteomyelitis suspected¹⁰; **OR**
 - Soft tissue infection suspected with **ANY** of the following¹⁰:
 - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling; **OR**
 - History of puncture wound with possible retained foreign body; **OR**

- High clinical suspicion of necrotizing fasciitis; **OR**
- ◆ Vascular conditions, known or suspected, when ultrasound and MRI are contraindicated or inconclusive; **OR**
- ◆ Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Marrow abnormalities¹²⁻¹³; **OR**
 - Pain or weakness of an upper extremity as indicated by **ALL** of the following^{5,14}:
 - Nondiagnostic or indeterminate imaging (e.g. radiographs, US); **AND**
 - Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
 - ◆ Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - ◆ Physical therapy, including a self-directed home exercise program; **AND**
 - Concern for rupture or tear based on **ALL** of the following:
 - ◆ Clinical history; **AND**
 - ◆ Physical exam; **OR**
 - Diagnosis, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)¹¹; **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), upper extremity** 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 symptoms¹⁶; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to iodinated contrast media; **OR**
- ◆ Renal insufficiency and no detailed guidelines have been provided.

*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.¹⁶⁻¹⁷

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.¹⁶⁻¹⁷

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.^{[16-17](#)}

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.^{[16-17](#)}

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
73200	Computed tomography (CT), upper extremity; without contrast material
73201	Computed tomography (CT), upper extremity; with contrast material
73202	Computed tomography (CT), upper extremity; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Drezin et al. (2022) review the role of computed tomography (CT) and computed tomography angiography (CTA) in trauma and salvaging a threatened or mangled extremity. When reviewing CT scans to assess complications around the amputation site, close attention should be paid to signs such as surgical wound opening, ulceration, infection, post-surgical blood collections, lingering bone fragments, abnormal bone growth, excessive scarring, and the maintenance of vascular function. Damage control techniques involve swift actions to manage bleeding and restore blood circulation. Early implementation of fasciotomies may be required, along with immediate temporary realignment and stabilization using splints, traction, or external fixation. The measures aim to safeguard the repaired blood vessels and ensure a smooth connection without tension.¹⁹

Saliken et al. (2015) performed a systematic review of glenohumeral instability related to traumatic anterior shoulder dislocation. Among the primary risk factors contributing to recurrent instability are glenoid and Hill-Sachs bone loss. The efficacy of arthroscopic Bankart repairs is notably impacted by the extent of bone loss, with larger degrees of bone loss correlating with higher failure rates. The review addressed optimal imaging techniques for quantifying glenohumeral bone loss. Various imaging modalities such as radiography, CT scans, and MRI scans are utilized; however, there is currently no universally accepted gold standard method. The authors concluded that radiography serves as a valuable tool in screening patients for significant glenoid bone loss, while CT imaging, employing methods such as the Glenoid Index or Pico Method, demonstrates substantial evidence supporting its efficacy in accurately quantifying glenoid bone loss. Further research is needed to establish the optimal imaging modality and method for precisely quantifying glenohumeral bone loss.²⁰

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Clinical Guideline Revision History/Information

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Version 2	8/29/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Replaced conservative care requirement with current standard language. Provided avenue for approval for preoperative imaging. Loosened requirement for injury evaluation – no longer requires suspicion of “high-grade” tear.



**Cohere Medical Policy –
Computed Tomography Angiography (CTA),
Abdomen/Pelvis, including Lower Extremity Runoff**
Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 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.

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Angiography (CTA), Abdomen/Pelvis

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Abdomen/Pelvis

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) is a preferred imaging test for various aortic conditions because of its excellent spatial resolution, rapid image acquisition, and wide availability. CTA provides a robust tool for planning aortic interventions and diagnosing acute and chronic vascular diseases in the abdomen. CTA is the standard for imaging aneurysms before intervention and evaluating the aorta in the acute setting to assess the traumatic injury, dissection, and aneurysm rupture. Knowledge of the imaging features of these disease processes, inflammatory vasculitides, and occlusive atherosclerotic disease is essential for guiding the surgical and medical management of patients. Computed tomography venography (CTV) is a diagnostic imaging procedure that uses computed tomography (CT) to visualize the veins in the body. CTV can detect deep vein thrombosis (DVT) and evaluate venous insufficiency. Advantages include the ability to capture high-resolution images and are non-invasive and efficient.¹

Medical Necessity Criteria

Indications

Computed tomography angiography or venography (CTA/CTV) of the abdomen/pelvis (CPT 74191, 74174) is considered appropriate when **ANY** of the following is **TRUE**:

- **ALL** of the following are **TRUE**:
 - Ultrasound is incomplete, inconclusive, or abnormal; **AND**
 - Vascular conditions, known or suspected, including **ANY** of the following:
 - Suspected renal artery stenosis, when intervention is planned if diagnosed, including **ANY** of the following:
 - Previous imaging (e.g., ultrasound, captopril scintigraphy) indicates small kidney or unequal kidney sizes^{2,3}; **OR**
 - Renal artery Doppler ultrasound suggests renal artery stenosis³; **OR**
 - Early-onset hypertension (age less than 35, diastolic greater than 110 mmHg)³; **OR**
 - Late-onset hypertension (age greater than 50)³; **OR**
 - Renal artery bruit³; **OR**
 - Malignant or accelerated hypertension³; **OR**
 - Sudden development or worsening of hypertension³; **OR**
 - Deterioration of renal function in response to angiotensin-converting enzyme (ACE) inhibitors³; **OR**
 - Hypertension resistant to medication, and the patient must be currently taking **ALL** of the following at maximally tolerated doses^{3,4}:
 - Long-acting calcium channel blocker; **AND**
 - Long-acting ACE inhibitor or angiotensin receptor blocker (ARB); **AND**
 - Diuretic (e.g., loop or thiazide); **OR**
 - Thromboembolic disease; **OR**
 - Concern for aneurysm when ultrasound is inconclusive or nondiagnostic, based on documented clinical or imaging findings; **OR**
 - Unrepaired aortic aneurysm when ultrasound and noncontrast CT are inconclusive. Follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**^{5,6}:

- 3 to 3.9 cm, every 3 years; **OR**
 - 4–4.9 cm for male patients or 4–4.4 cm in female patients, annually; **OR**
 - Greater than 5 cm in male patients or greater than 4.5 cm in female patients, every 6 months; **OR**
- Other vascular conditions, including **ANY** of the following:
 - Preoperative planning for thoracoabdominal aortic aneurysm (TAAA) or dissection (with or without symptoms) and **ANY** of the following is **TRUE**⁷:
 - CTA of the chest has been performed; **OR**
 - Endovascular repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Open repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Follow-up after **ANY** of the following:
 - Endovascular repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Known thoracoabdominal aortic aneurysm (TAAA) or dissection without repair; **OR**
 - Open repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Preoperative planning for abdominal aortic aneurysm (AAA) or dissection (with or without symptoms), and **ANY** of the following⁸:
 - Endovascular repair of abdominal aortic aneurysm (EVAR); **OR**
 - Open repair of abdominal aortic aneurysm; **OR**
 - Follow-up after **ANY** of the following:
 - Endovascular repair of abdominal aortic aneurysm (TAAA); **OR**
 - Known thoracoabdominal aortic aneurysm (TAAA) or dissection without repair; **OR**
 - Open repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Concern for aneurysm as evidenced by **ANY** of the following⁶:
 - Pulsatile abdominal mass; **OR**
 - Other high-risk clinical sign or symptom concerning for aneurysm (e.g., severe abdominal pain, hypotension, suspicion on prior imaging)⁹; **OR**
 - Aortoenteric fistula⁶; **OR**
 - Arteriovenous anomalies (e.g., shunt, fistula, malformation); **OR**
 - Vascular invasion or displacement by tumor or other process; **OR**
 - Assessment of patients with spontaneous coronary artery dissection (SCAD), one-time; **OR**

- Trauma, with concern for solid organ or vascular injury^{1,10,11}; **OR**
- Vasculitis, initial evaluation, when **ANY** of the following is **TRUE**^{1,6,11-13}:
 - Biopsy proven; **OR**
 - Rheumatologic panel work-up is suggestive of vasculitis (e.g., erythrocyte sedimentation rate [ESR] and C-reactive protein [CRP]); **OR**
 - The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change the management and/or treatment plan; **OR**
- Evaluation of hepatic arteries, when ultrasound is inconclusive, nondiagnostic, or abnormal requiring confirmation; **OR**
- Evaluation of other visceral arteries, including, but not limited to, suspected superior mesenteric artery (SMA) syndrome and median arcuate ligament syndrome (MAL)^{14,15}; **OR**
- Evaluation of the portal venous system (hepatic portal system) after Doppler ultrasound has been performed; **OR**
- Diffuse unexplained lower extremity edema with negative or inconclusive ultrasound; **OR**
- Large vein thrombosis of the major abdominal or pelvic veins, including IVC, iliac, renal, portal, hepatic, and mesenteric veins, when Doppler ultrasound is inconclusive or needs additional evaluation; **OR**
- Vascular invasion or displacement by tumor; **OR**
- Other, unspecified vascular findings that were inconclusive on prior imaging; **OR**
- Pelvic venous disease with **ANY** of the following¹⁶:
 - Unexplained chronic pelvic pain; **OR**
 - Symptomatic perineal or pelvic varicosities; **OR**
 - Left flank or abdominal pain with hematuria; **OR**
 - Venous claudication; **OR**
 - Suspected May-Thurner syndrome (iliac vein compression)¹⁷; **OR**
- Persistent postpartum hemorrhage, following caesarian or vaginal delivery, with **ALL** of the following¹⁸:
 - Ultrasound is incomplete, inconclusive, or abnormal; **AND**
 - For preprocedure planning for planned endovascular embolization or to evaluate persistent bleeding after endovascular embolization is completed; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:

- Surveillance imaging following endovascular aortic repair (EVAR) with **ALL** of the following:
 - Ultrasound is incomplete, inconclusive, or abnormal; **AND**
 - **ANY** of the following:
 - At one month postprocedure; **OR**
 - If a Type II endoleak is detected on first postprocedure screening, then repeat imaging at 6 months; **OR**
 - If a Type II endoleak is associated with a stable or shrinking aneurysm sac, then repeat imaging every 6 months for 2 years; **OR**
 - Annual imaging is recommended if no endoleak or aneurysm sac enlargement; **OR**
- Following open aortic aneurysm surgical repair (OSR), cross-sectional CT (or MR) imaging surveillance should be performed once every 5 years; **OR**
- Planning for vascular surgery, interventional procedure; **OR**
- Other procedures involving arteries (e.g., inferior epigastric arteries for breast reconstruction, ureteropelvic junction [UPJ] obstruction, solid organ transplant); **OR**
- Renal transplant rejection/dysfunction, when ultrasound and nuclear medicine (e.g., MAG3, DTPA) scans are inconclusive or are indicative of a vascular cause of rejection or dysfunction¹⁹; **OR**
- Anastomotic integrity or stent patency; **OR**
- Other vascular graft complication (e.g., suspected infection, pseudoaneurysm, or thrombosis)⁶; **OR**
- Gastrointestinal conditions, including **ANY** of the following:
 - Acute presentation of mesenteric ischemia or ischemic enteritis/colitis with **ANY** of the following¹⁵:
 - Suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - High clinical suspicion for mesenteric ischemia and severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - **ALL** of the following:
 - **ANY** of the following:
 - Known risk factors (e.g., hypercoagulable states, portal hypertension, recent surgery); **OR**

- Known vascular disease (e.g., known coronary artery disease [CAD] or peripheral artery disease [PAD]); **AND**
 - Severe abdominal pain/pain that is out of proportion to the physical exam; **OR**
- Suspicion for chronic mesenteric ischemia with **ALL** of the following:
 - Known risk factors (e.g., greater than or equal to 60 years of age, risk factors for atherosclerosis [i.e., hypertension, hyperlipidemia, and smoking history])²⁰; **AND**
 - **ANY** of the following:
 - Post-prandial abdominal pain causing weight loss or fear of food; **OR**
 - Nausea and vomiting; **OR**
 - Diarrhea; **OR**
 - Hematochezia; **OR**
- Lower gastrointestinal tract bleeding with **ANY** of the following^{5,21}:
 - Active bleeding is clinically observed as hematochezia or melena in a hemodynamically stable patient, where colonoscopy is contraindicated or unavailable²²; **OR**
 - Active bleeding in a hemodynamically unstable patient or a patient who has required more than 5 units of blood within 24 hours; **OR**
 - Concern for ongoing or recurrent bleeding after treatment (e.g., colonoscopy or transcatheter angiography); **OR**
- Upper gastrointestinal bleeding (nonvariceal) with **ANY** of the following^{5,23}:
 - High suspicion of an arterial source, endoscopy is contraindicated (e.g., post-surgical or traumatic cause), or inconclusive; **OR**
 - Source of bleeding is not identified on endoscopy; **OR**
- Known or suspected syndromes with increased risk of vascular anomalies, including **ALL** of the following⁶:
 - MRA is contraindicated or cannot be performed; **AND**
 - **ANY** of the following:
 - As a one-time screening for syndromes with a vascular component (e.g., fibromuscular dysplasia, neurofibromatosis, Williams syndrome, tuberous sclerosis); **OR**
 - Vascular Ehlers-Danlos syndrome (vEDS) (biannually; surveillance as indicated depending on abnormalities found)^{24,25}; **OR**
 - Marfan syndrome (initial CTA at time of diagnosis, then every 3 years depending on abnormalities found)²⁶; **OR**

- Loeys–Dietz syndrome (every 2 years for screening; surveillance as indicated depending on abnormalities found); **OR**
- Other syndromes not otherwise specified, follow-up as clinical documentation supports; **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 angiogram and/or venography (CTA/CTV) of the abdomen/pelvis with runoff (CPT 74175, 75635) is considered appropriate when **ANY** of the following is **TRUE**:

- Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm, seen on ultrasound or where ultrasound is nondiagnostic; **OR**
 - Dissection; **OR**
 - Critical limb ischemia strongly suspected, and **ANY** of the following lower extremity signs or symptoms²⁷:
 - Sudden onset of a cold leg with pain; **OR**
 - Gangrene; **OR**
 - Rest pain; **OR**
 - Nonhealing lower extremity ulceration; **OR**
 - Suspected peripheral arterial disease, and **ALL** of the following²⁸:
 - Leg pain worsens with activity and is relieved with rest (claudication); **AND**
 - **ALL** of the following:
 - Limitation of performance of daily activities; **AND**
 - Expected mobility after treatment warrants revascularization; **AND**
 - Revascularization is planned⁹; **AND**

- Abnormal ankle-brachial index (ABI) as evidenced by **ANY** of the following:
 - ABI is inconclusive or nondiagnostic; **OR**
 - ABI less than 0.9 or greater than 1.4 on at least one leg; **OR**
 - ABI less than 1.1 in patients with risk factors for atherosclerosis (e.g., personal history of diabetes or known cardiac disease); **AND**
- Symptoms persist despite participation in guideline-directed medical therapy (GDMT); **OR**
- **ALL** of the following:
 - Evidence of severe venous reflux disease, including venous leg ulcer, when pelvic or abdominal etiology is suspected; **AND**
 - Doppler ultrasound is non-diagnostic; **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 angiogram and/or venography (CTA/CTV) of the abdomen/pelvis with contrast is not considered appropriate 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.^{[29](#)}

*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.[30,31](#)

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.[30,31](#)

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.[30,31](#)

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.[30,31](#)

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
72191	Computed tomographic angiography (CTA), pelvis; with contrast material(s) including non-contrast images, if performed, and image postprocessing
74174	Computed tomographic angiography (CTA), abdomen and pelvis; with contrast material(s), including non-contrast images, if performed, and image postprocessing
74175	Computed tomographic angiography (CTA), abdomen; with contrast material(s), including non-contrast images, if performed, and image postprocessing
75635	Computed tomographic angiography (CTA), abdominal aorta, and bilateral iliofemoral lower extremity runoff; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Medical Evidence

Reintam Blaser et al. (2025) performed a systematic literature review and meta-analysis on the sensitivity and specificity of various radiological diagnostic practices of acute mesenteric ischemia in adults. A total of 81 studies (from 14 meta-analyses) were included for this analysis. Many studies included patients with strangulated bowel obstruction developing bowel ischemia under the definition of acute mesenteric ischemia, although there is no consensus on this subtype inclusion. Overall, the diagnostic accuracy of computed tomography angiography (CTA) was high, with a sensitivity of 92.0% and specificity of 98.8%. This study found that CTA is the method of choice for diagnosing acute mesenteric ischemia in adults.³²

Allam et al. (2024) reviewed multiple imaging modalities in vasculitis. Advantages of computed tomography angiography (CTA) include its high availability and rapid execution, along with excellent spatial and temporal resolution.³³ Additionally, coronary CTA can be performed simultaneously if there is a suspicion of coronary artery disease (CAD). A prospective study by Lariviere et al. (2016) demonstrates that CTA can identify late complications such as stenosis, dissection, or aneurysms. In another prospective study, CTA showed a sensitivity of 73% and a specificity of 78% for diagnosing giant cell arteritis compared to clinical diagnosis.³⁴

Fernando et al. (2022) conducted a meta-analysis to assess the effectiveness of various diagnostic methods, including presenting symptoms, physical examination findings, CTA, and point-of-care ultrasound (PoCUS) in accurately identifying ruptured abdominal aortic aneurysm (rAAA). A total of 2077 patients from 20 studies were included. While classic clinical symptoms related to rAAA may lack sensitivity, their absence does not always exclude the diagnosis. CTA exhibits reasonable accuracy but may still fail to detect some instances of rAAA. PoCUS may be a valuable resource when determining the transfer of suspected rAAA patients to a vascular center.³⁵

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Policy Revision History/Information

Original Date: April 15, 2022		
Review History		
Version 2	08/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/28/2025	Annual review. Reviewed indications and references for alignment with the most recent guidelines from ACR and aligned throughout (minor wording changes and restructuring). Aligned a few sections with Cohere Medical Policy – CT, Abdomen/Pelvis, or Cohere Medical Policy – MRA, Abdomen/Pelvis, including indications for: acute and chronic mesenteric ischemia, abdominal aortic aneurysm, vascular anomalies (e.g., Vascular Ehlers-Danlos syndrome, Marfan syndrome), and postpartum hemorrhage. Revised CTA/CTV with runoff section. Updated repeat imaging criteria to align with new standard language. Removed relative contraindication (contrast allergy). Literature review – Medical Evidence section updated.



Cohere Medical Policy – Computed Tomography Angiography (CTA), Chest

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: September 11, 2025

Last Annual Review: September 11, 2025

Revision: Not Applicable

Next Annual Review: September 11, 2026

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Tomography Angiography (CTA), Chest

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Chest

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

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 injury²; **OR**
- Non-traumatic thoracic arterial disease and **ALL** of the following^{3,4}:
 - 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^{5,6}:
 - Congenital conditions (e.g., vascular anomaly); **OR**
 - Rupture; **OR**
 - Dissection; **OR**
 - Mediastinal hematoma; **OR**
 - Intramural hematoma; **OR**
 - Penetrating atherosclerotic ulcer; **OR**
 - Pseudoaneurysm; **OR**
 - Non-aortic aneurysm; **OR**
 - Infectious vasculitis (syphilis, mycotic aneurysm)⁷; **OR**
 - Inflammatory vasculitis⁷; **OR**
 - Large-vessel vasculitis (giant-cell arteritis and Takayasu arteritis) suspected⁷; **OR**
 - Medium-vessel vasculitis (Polyarteritis nodosa (PAN) and Kawasaki disease) suspected⁷; **OR**
 - Neoplastic condition; **OR**
- Suspected arterial embolism involving **ANY** of the following⁸:
 - Upper or lower extremity; **OR**
 - Mesenteric system; **OR**
 - Renal arterial system; **OR**
 - Multiorgan distribution; **OR**
- Suspected pulmonary arteriovenous malformation (PAVM) based on prior imaging or risk factors (e.g., hereditary hemorrhagic telangiectasia, genetic mutations, post-surgical, hepatopulmonary syndrome); **OR**
- Pulmonary embolism (PE), including **ANY** of the following⁹⁻¹²:

- Evaluation of suspected PE in a pregnant patient; **OR**
- High pretest probability of PE by Wells criteria (D-dimer not needed); **OR**
- **ALL** of the following⁹:
 - Low or intermediate pretest probability of PE by Wells criteria; **AND**
 - Positive D-dimer; **OR**
- Suspected pulmonary hypertension, including chronic thromboembolic pulmonary hypertension (CTEPH)¹³⁻¹⁵; **OR**
- Evaluation of known CTEPH in a patient being considered for surgery¹³⁻¹⁵; **OR**
- Subclavian steal syndrome or suspected subclavian artery stenosis based on history, examination, or Doppler ultrasound^{3,16}; **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 necessary; **OR**
- Vascular thoracic outlet syndrome suspected based on clinical features or prior imaging; **OR**
- Evaluation of massive, non-massive, or recurrent hemoptysis¹⁷; **OR**
- Initial diagnosis of a suspected thoracic aortic aneurysm based on an abnormality on **ANY** of the following¹⁸:
 - 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)¹⁸; **OR**
- Surveillance of known thoracic aortic aneurysm in a patient with non-syndromic/non-hereditary cause for **ANY** of the following¹⁸:
 - At baseline, if the ascending aorta is not adequately imaged on transthoracic echocardiogram (TTE); **OR**
 - 6 months after the initial diagnosis; **OR**
 - Annual surveillance for thoracic aortic aneurysms less than 5 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 following¹⁸:

- 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 following¹⁸:
 - 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 following¹⁸:
 - 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/m²; **OR**
- Loeys–Dietz syndrome with **ANY** of the following¹⁸; **OR**
 - 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; **OR**

- 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 following¹⁸:
 - 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 cause¹⁸; **OR**
- Surveillance of known thoracic aortic dissection¹⁸; **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^{18,19}:
 - 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^{18,19}:
 - 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^{20,21}:
 - Pulmonary sequestration²²; **OR**
 - **ALL** of the following:
 - Inadequate TTE for assessment of cardiovascular morphology and function²⁰; **AND**
 - **ANY** of the following:

- Known single ventricle physiology²⁰; **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 stenosis²³; **OR**
- Aortic coarctation²⁴; **OR**
- Transposition of the great arteries after arterial switch; **OR**
- Transposition of the great arteries after atrial switch; **OR**
- Non-invasive clinical staging of a tumor to define vascular invasion^{25,26}; **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 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), 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.

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

Medical Evidence

Ko et al. (2021) reviewed 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 Type A aortic dissection, penetrating atherosclerotic ulcer, and acute intramural hematoma. CTA-guided recognition of related entities like ulcerated plaque, ulcer-like projections, intramural blood pools, and mimics such as vasculitis and aortic thrombus is crucial to appropriately treat the patient.³⁰

Carrabba et al. (2019) presented 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 with 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) reported on acute aortic syndromes in an emergency setting. CTA is the preferred imaging modality in emergent situations as it can be performed quickly and identify variations in anatomy, including aortic coarctation. Incidental findings are often identified (89%) when performing chest CTA. An alternative modality is MRA if CTA cannot be performed due to allergy to iodinated contrast or renal dysfunction.³²

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Version 2	08/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	09/11/2025	Annual review. Minor revisions to indications for detail and clarity. Minor addition to existing indication for arterial embolism: "multiorgan distribution." Modified existing pulmonary embolism indication to reflect current medical society guidelines. Simplified existing indication for hemoptysis. Augmented existing indication for thoracic aortic disease, providing more specific surveillance timeframes and disease-specific aortic size cutoffs per medical society guidelines. Streamlined existing indication for screening of first-degree relatives for patients with heritable aortic disease. Expanded existing indications for preprocedure and postprocedure imaging to better capture appropriate patients. Slight modification to existing congenital heart disease to ensure lower-risk imaging is completed prior to higher-risk CTA. Removed relative non-indication for contrast anaphylaxis allergy.



Cohere Medical Policy – Computed Tomography Angiography (CTA), Head and Neck

Clinical Policy for Medical Necessity Review

Version: 5

Policy Number: CHP-259-5

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Next Annual Review: September 11, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Tomography Angiography (CTA), Head and Neck

Policy Number: CHP-259-5

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Head and Neck

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 due to a lack of medical necessity resulting from 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 multiple diagnostic or therapeutic procedures are requested simultaneously or within the past 3 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.
- Duplicate exams or 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 and/or treated with a single study or procedure.
- Cohere Health evaluates imaging exams based on medical necessity, regardless of whether contrast is used. 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) is a noninvasive imaging technique that rapidly evaluates head and neck vasculature. Radiographic technology, combined with an iodinated contrast dye injected into a vein, is used to reconstruct detailed images of blood vessels. A scanner takes radiographic images of the patient and captures the contrast as it travels through the arteries of the head and neck. CTA can identify and characterize vascular diseases and evaluate vascular anatomy for the management of extravascular disorders.¹

Medical Necessity Criteria

Indications

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

- Known or suspected recent stroke or transient ischemic attack (TIA)²; **OR**
- Neoplastic conditions, including surgical and radiation therapy localization, planning, and neuronavigation to delineate the vascular anatomy¹; **OR**
- Trauma-related conditions, including **ANY** of the following:
 - Blunt cerebrovascular injury (BCVI) is suspected based on the mechanism and location of trauma^{3,4}; **OR**
 - Head trauma with suspected intracranial arterial injury based on clinical risk factors or positive findings on initial imaging⁵; **OR**
 - Traumatic and nontraumatic orbital pathology with clinical or imaging findings that indicate vascular involvement⁶; **OR**
 - Traumatic vascular injuries¹; **OR**
 - Suspected carotid or vertebral artery dissection secondary to trauma⁵; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm, known or suspected, with **ANY** of the following^{2,7-9}:
 - Screening for cerebral artery aneurysm with **ALL** of the following:
 - Screening is no more than every 5 years⁶; **AND**
 - **ANY** of the following:
 - Aortic aneurysm^{9,10}; **OR**
 - Aortic dissection^{9,11}; **OR**
 - Autosomal dominant polycystic kidney disease¹²; **OR**
 - Bicuspid aortic valve¹³; **OR**
 - Coarctation of the aorta⁹; **OR**
 - Fibromuscular dysplasia¹⁴; **OR**
 - Known aortic coarctation (after age 16)¹⁵; **OR**
 - Loeys-Dietz syndrome¹⁶; **OR**
 - Marfan syndrome¹⁶; **OR**
 - Microcephalic osteoblastic primordial dwarfism¹⁷; **OR**
 - Moyamoya disease⁹; **OR**

- Two or more first-degree relatives (parent, brother, sister, or child) with a history of intracranial aneurysm or subarachnoid hemorrhage^{18,19}; **OR**
- Type 4 Ehlers-Danlos syndrome¹⁶; **OR**
- **ANY** of the following:
 - Intracerebral hemorrhage⁹; **OR**
 - Subarachnoid hemorrhage⁹; **OR**
- Surveillance of known intracerebral aneurysm; **OR**
- Intracranial arterial dissection, suspected; **OR**
- Intracranial occlusive disease, suspected; **OR**
- Pseudoaneurysm¹; **OR**
- Cranial neuropathy, with initial imaging suspicious for a vascular pathology²⁰; **OR**
- Acute unexplained intracranial hemorrhage¹; **OR**
- Known or suspected atherosclerotic stenosis or occlusive disease based on initial imaging¹; **OR**
- Intracranial vasculopathy when MRI is contraindicated or cannot be performed, and **ANY** of the following²:
 - Inflammatory (e.g., vasculitis, infection)²¹; **OR**
 - Noninflammatory (e.g., radiation vasculopathy); **OR**
- Vascular malformation and fistula based on initial imaging¹; **OR**
- Cerebrovascular disease, known or suspected, including **ANY** of the following⁹:
 - Central nervous system (CNS) vasculitis, if MRI is contraindicated; **OR**
 - Cerebral aneurysm, treated or untreated; **OR**
 - Cerebral vasospasm; **OR**
 - Moyamoya disease or suspected arteriopathy; **OR**
 - Vascular malformation; **OR**
- Headache with **ANY** of the following²²:
 - Acute onset worst headache of life/thunderclap headache; **OR**
 - New onset or pattern during pregnancy or peripartum period; **OR**
 - Associated with exercise, exertion, Valsalva, or sexual activity; **OR**
- Vertigo, known or suspected, as indicated by **ANY** of the following^{23,24}:
 - Acute persistent vertigo, when abnormal neurologic examination or Head Impulse-Nystagmus-Test of Skew (HINTS)^A is consistent with central vertigo; **OR**

- Chronic recurrent vertigo associated with other brainstem neurologic deficits; **OR**
- Persistent vertigo with or without neurological symptoms (central vertigo); **OR**
- Pulsatile tinnitus, unilateral or bilateral²⁵; **OR**
- Hearing impairment, including **ANY** of the following²⁴:
 - Asymmetric hearing loss; **OR**
 - Surgical planning for acquired conductive hearing loss secondary to cholesteatoma or neoplasm with suspected intracranial or inner ear extension; **OR**
- Preoperative assessment of vascular anatomy or pathology, with **ANY** of the following:
 - Open vascular or endovascular procedure; **OR**
 - Procedure with a high risk for vascular injury (including radiation treatment); **OR**
- Post-treatment follow-up to monitor treatment results and surveillance of vascular condition; **OR**
- Congenital conditions associated with cerebrovascular abnormalities (e.g., chronic anemic conditions) when MRI (and MRA) is contraindicated.⁷

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

- Vascular conditions, known or suspected, including **ANY** of the following^{2,9}:
 - 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 following²²:
 - 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); **OR**
- Initial diagnostic, one-time pre- or post-treatment evaluation for treatment planning or evidence of clinical concern for vascular malformation.

Computed tomography angiography (CTA), neck is considered appropriate for **ANY** of the following:

- Evaluation of a pulsatile neck mass²⁶; **OR**
- Trauma-related conditions as indicated by **ANY** of the following:
 - Trauma-related spine injuries (cervical and upper thoracic)⁴; **OR**
 - Blunt cerebrovascular injury (BCVI) is suspected based on the mechanism and location of trauma⁴; **OR**
 - Suspected carotid or vertebral artery dissection secondary to trauma or spontaneous due to weakness of the vessel wall; **OR**
 - Traumatic vascular injury¹; **OR**
 - Acute hemorrhage²; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Screening for cerebral artery aneurysm with **ANY** of the following^{1,2}:
 - Fibromuscular dysplasia¹⁴; **OR**
 - Loeys-Dietz syndrome¹⁶; **OR**
 - Spontaneous coronary artery dissection (SCAD)¹⁴; **OR**
 - Type 4 Ehlers-Danlos syndrome¹⁶; **OR**
 - Arterial aneurysm; **OR**
 - Pseudoaneurysm¹; **OR**
 - Known or suspected atherosclerotic stenosis or occlusive disease based on initial imaging¹; **OR**
 - Cerebrovascular disease, known or suspected, including **ANY** of the following⁹:
 - Asymptomatic carotid stenosis, when ultrasound is nondiagnostic; **OR**
 - Asymptomatic cervical bruit, when ultrasound is nondiagnostic; **OR**
 - Cervical vascular dissection or injury, known or suspected; **OR**
 - Noninflammatory vasculopathy; **OR**
 - Giant cell and Takayasu arteritis⁹; **OR**
 - Subclavian steal syndrome for treatment planning⁹; **OR**
 - Vascular malformation or fistula based on initial imaging; **OR**
 - Horner syndrome without localizing neurological abnormalities²⁷; **OR**
- Cranial neuropathy, with initial imaging suspicious for a vascular pathology²⁰; **OR**
- Preoperative assessment of vascular anatomy or pathology, with **ANY** of the following:
 - Open vascular or endovascular procedure; **OR**

- Procedure with a high risk for vascular injury (including radiation treatment); **OR**
- Post-treatment follow-up to monitor treatment results and surveillance of vascular condition.

Computed tomography angiography (CTA), head and neck is considered appropriate for **ANY** of the following:

- Known or suspected recent stroke or transient ischemic attack (TIA)²; **OR**
- Trauma-related conditions as indicated by **ANY** of the following:
 - Blunt cerebrovascular injury (BCVI) is suspected based on the mechanism and location of trauma^{3,4}; **OR**
 - Head trauma with suspected intracranial arterial injury based on clinical risk factors or positive findings on initial imaging⁵; **OR**
 - Trauma of the head with a suspected intracranial arterial injury based on clinical findings or initial imaging⁵; **OR**
 - Traumatic and nontraumatic orbital pathology with clinical or imaging findings that indicate vascular involvement⁶; **OR**
 - Traumatic vascular injuries¹; **OR**
 - Suspected carotid or vertebral artery dissection secondary to trauma or spontaneous due to weakness of the vessel wall⁹; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Screening for cerebral artery aneurysm with **ANY** of the following:
 - Fibromuscular dysplasia¹⁴; **OR**
 - Loeys-Dietz syndrome¹⁶; **OR**
 - Spontaneous coronary artery dissection (SCAD)¹⁴; **OR**
 - Type 4 Ehlers-Danlos syndrome¹⁶; **OR**
- Cervical bruit or thrill with suspicion of carotid stenosis²; **OR**
- Horner syndrome without localizing neurological abnormalities²⁶; **OR**
- Vertigo, known or suspected, as indicated by **ANY** of the following^{23,24}:
 - Acute persistent vertigo, when abnormal neurologic examination or Head Impulse-Nystagmus-Test of Skew (HINTS)^A is consistent with central vertigo; **OR**
 - Chronic recurrent vertigo associated with other brainstem neurologic deficits; **OR**
 - Persistent vertigo with or without neurological symptoms (central vertigo); **OR**
- Pulsatile tinnitus, unilateral or bilateral²⁵; **OR**

- Preoperative assessment of vascular anatomy or pathology, with **ANY** of the following:
 - Open vascular or endovascular procedure; **OR**
 - Procedure with a high risk for vascular injury (including radiation treatment); **OR**
- Post-treatment follow-up to monitor treatment results and surveillance of vascular condition; **OR**
- Congenital conditions associated with cerebrovascular abnormalities (e.g., chronic anemic conditions) when MRI (and MRA) is contraindicated.⁶

Repeat imaging is considered appropriate when **ALL** of the following are **TRUE**:

- Repeat request following recent imaging within the past 3 months of the same anatomic region with the same or similar modality; **AND**
- No established guidelines for repeat imaging; **AND**
- **ANY** of the following:
 - Need for a one-time clarifying follow-up of a prior indeterminate finding; **OR**
 - New or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
 - No change in symptoms and a well-established clinical need for ongoing monitoring that will influence management.

Non-Indications

Computed tomography angiography (CTA), head and neck, or computed tomography venography (CTV), head are not considered appropriate if **ANY** of the following is **TRUE**:

- The request is for CPT 70496 and 70498 when CTA head and neck are being performed together.

Definitions and Notes

^AHINTS: 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, torsional 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

Cohere Health is committed to ensuring that every patient has access to appropriate and safe imaging studies in accordance with established guidelines. While radiographic studies, such as computed tomography (CT), can provide critical clinical information, exposure to ionizing radiation has the potential to increase lifetime cancer risk. Risk is higher in pediatric patients due to their greater radiosensitivity and longer expected lifespan.

Radiation-induced risks can be reduced by ensuring that imaging is medically necessary and by optimizing procedures to use the lowest dose necessary to achieve diagnostic quality images, consistent with ALARA (As Low As Reasonably Achievable) principles. Alternative modalities that do not involve ionizing radiation should be considered when clinically feasible, such as ultrasound or magnetic resonance imaging (MRI). Providers should adjust equipment and dose to pediatric body sizes and track cumulative radiation exposure for patients requiring multiple imaging studies.

These measures align with guidance from the US Food and Drug Administration (FDA) initiative to reduce unnecessary radiation exposure, the National Cancer Institute pediatric CT risk guidelines, and the Image Gently Alliance and Image Wisely Alliance recommendations for pediatric radiation safety.^{28–32}

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70471	Computed tomographic angiography (CTA), head and neck, with contrast material(s), including noncontrast images, when performed, and image postprocessing
70496	Computed tomographic angiography (CTA), head; with contrast material(s), including non-contrast images, if performed, and image postprocessing
70498	Computed tomographic angiography (CTA), of neck; with contrast material(s), including non-contrast images, if performed, and image post-processing

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 them from intimal flaps, as 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

Paladino et al. (2021) performed a systematic review to determine the efficacy of CTA neck in determining vascular or aerodigestive injuries (ADI). CTA covering the entire neck region is now an integral component of the standard diagnostic approach for patients with penetrating neck trauma (PNT) who do not necessitate immediate surgical intervention for ADI. While many studies have highlighted the usefulness of CTA to rule out arterial injuries, consensus is lacking regarding the capability of CTA neck to detect ADI.³⁵

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.³⁶

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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	Revision. 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.
Version 5	02/26/2026	Revision. Added CPT 70471 and 70498. Policy title changed (formerly "Cohere Medical Policy - Computed Tomography Angiography (CTA), Head"). Incorporated indications for CTA Neck from the retired Cohere policy "Cohere Medical Policy - Computed Tomography Angiography (CTA), Neck." Created new "CTA, head and neck" section. Aligned criteria across sections where appropriate.

		Added requirement that screening for cerebral artery aneurysm in patients with vascular conditions should be performed no more than every 5 years. Added specific genetic disorders to the vascular conditions section. Combined pediatric and adult indications and consolidated criteria for both populations. Broadened cranial neuropathy indication and removed specifics for cranial nerve symptoms. Added MRI prerequisite for intracranial vasculopathy. Added non-indication for when the request is for CPT 70496 and 70498 when CTA head and neck are being performed together, as CPT 70471 should be used for the combined service. Updated references for ACR appropriateness criteria and NCCN clinical practice guidelines.



Computed Tomography Angiography (CTA), Head – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 15, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography Angiography (CTA), Head - Single Service

Physician author: Max Wintermark, MD

Peer reviewed by: Giovanni Lorenz, DO; Jonathan Kraas, MD

Literature review current through: 4/14/2022

Document last updated: 6/10/2022

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Head

General Guidelines

- **Imaging Modality:** Computed Tomographic Angiography (CTA) of the head is a non-invasive imaging technique in which iodinated contrast material is injected intravenously before time-sensitive high-resolution computed tomographic imaging to obtain detailed images of intracranial arteries or veins (CTV). The vascular images can be reconstructed and rotated in different planes.
- **Criteria for Subsequent Requests:** New, persistent, or worsening symptoms suggestive of vascular disease. Subsequent orders can be placed before, during, or after treatment.
- **Recommended Clinical Approach:** Head CTA/CTV is a proven and useful procedure for detecting and characterization vascular disease and vascular anatomy relevant to the treatment of extravascular disorders. CTA may be used as the primary modality for detecting disease, as an adjunctive tool for characterizing a known disease, or as a tool to assess changes over time. When possible, MRA or MRV is preferred due to lack of ionizing radiation.
- **Exclusions:** CTA neck, chest, et al. are covered under separate guideline documents, as is MRA head.

Medical Necessity Criteria

Indications

- **CTA Head** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Patient requires the diagnosis, characterization, or surveillance of **ANY** the following conditions:
 - Ischemic stroke¹⁻⁵
 - Transient ischemic attack¹⁻⁵
 - Vasospasm¹⁻⁵
 - Thromboembolism¹⁻⁵
 - Atherosclerotic stenosis/occlusive disease (e.g., atherosclerotic plaque localization and characterization)⁶⁻⁷
 - Vertebrobasilar Insufficiency (VBI)
 - Vertebral Basilar Ischemia
 - Nonatherosclerotic, noninflammatory vasculopathy (e.g., radiation vasculopathy)

- Vasculitis⁸
- Collagen vascular disease with intracranial symptomatology⁸
- Meningitis with suspicion of vasospasm⁸
- Intracranial hemorrhage⁹⁻¹³
- Traumatic vascular injury and dissection¹⁴⁻¹⁶
- Venous and dural sinus thrombosis and stenosis when performed as a dedicated CT venogram (CTV)¹⁷⁻¹⁸
- Arterial aneurysm suggested by **ANY** of the following¹⁹⁻²⁶:
 - Follow-up of known or suspected intra-cranial aneurysm
 - Family history of intracranial aneurysm
 - Intracranial infection with suspicion of mycotic aneurysm
 - Postoperative evaluation of coiled or clipped aneurysm
 - Condition associated with **ANY** of the following hereditary disorders, including:
 - Autosomal dominant Polycystic Kidney Disease (10–20% occurrence of aneurysm)
 - Ehlers Danlos syndrome type IV and Neurofibromatosis type I
 - Fibromuscular dysplasia
 - Complications of ruptured aneurysm, as indicated by **ANY** of the following:
 - Vasospasm
 - Delayed cerebral ischemia²⁷⁻²⁹
- Vascular malformation and fistula³⁰
- Congenital anomalies of the cerebral circulation³¹
- Vascular abnormality associated with chronic anemic conditions (e.g., sickle cell disease)
- Moyamoya disease
- Coagulopathy as indicated by **ANY** of the following:
 - Protein s
 - Protein c
 - Antithrombin 3
 - Antiphospholipid antibody
- Vascular anatomic variants

- Vascular tumor to assess vascular supply and infiltration of venous sinuses³²
- Carotid body tumor or other mass such as **ANY** of the following:
 - Paraganglioma
 - Arteriovenous fistula pseudoaneurysm
 - Venolymphatic malformation
- Postsurgical/posttreatment vascular complication
- Brain death³³
- ◆ Patient has **ANY** positive findings from the clinical presentation and typical physical exam findings lists:
 - Subclavian steal syndrome or subclavian stenosis
 - Headache and **ANY** of the following is **TRUE**:
 - Sudden or persistent
 - Unexplained
 - Undifferentiated
 - Pulsatile tinnitus³⁴
 - Visual disturbance, particularly in one eye
 - New onset ptosis
- ◆ Evaluation for **ANY** of the following:
 - Vascular compression vertebrobasilar insufficiency³⁵⁻³⁶
 - Vascular intervention and follow-up, as indicated by **ANY** of the following³⁷:
 - Percutaneous
 - Surgical
 - Surgical and radiation therapy localization, planning, and neuronavigation³⁸⁻⁴⁰

Non-Indications

- **CTA Head** may not be considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))⁴¹
 - ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)⁴²
 - ◆ Current Pregnancy⁴³

Site of Service Criteria

Outpatient and Inpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70496	Computed tomographic angiography (CTA) of head with contrast material and image postprocessing

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Cohere Medical Policy – Computed Tomography Angiography (CTA), Lower Extremity

Clinical Policy for Medical Necessity Review

Version: 4

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Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Computed Tomography Angiography (CTA), Lower Extremity

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Lower 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

Lower extremity computed tomography angiography (CTA) is indicated for peripheral artery disease (PAD), trauma, assessment of vascular anatomy and congenital malformations, vasculitis, and surgical planning.¹ After the intravenous injection of an iodinated contrast medium, CTA employs a thin-section CT scan timed to capture peak arterial and/or venous enhancement, depending on the targeted vascular structures. The resulting volumetric data set is analyzed using primary transverse reconstructions along with multiplanar reformations and 3D renderings.¹

Medical Necessity Criteria

Indications

Computed tomography angiography (CTA), lower extremity is considered appropriate if **ANY** of the following is **TRUE**:

- Ultrasound is incomplete, inconclusive, or abnormal with **ANY** of the following:
 - 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 following²:
 - Expanding hematoma³; **OR**
 - Major blunt trauma and the patient is hemodynamically stable⁴; **OR**

- Neurologic deficit of lower extremity in association with trauma⁵; **OR**
- Known or suspected knee dislocation⁶; **OR**
- Vascular trauma to a lower extremity⁷; **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**
 - Critical limb ischemia strongly suspected with **ANY** of the following lower extremity signs or symptoms:⁸
 - Sudden onset of a cold leg with pain; **OR**
 - Gangrene; **OR**
 - Rest pain; **OR**
 - Nonhealing lower extremity ulceration; **OR**
 - Suspected peripheral arterial disease with lower extremity ischemic symptoms when **ALL** of the following are **TRUE**:
 - Leg pain worsens with activity and is relieved with rest (claudication); **AND**
 - **ALL** of the following:
 - Limitation of performance of daily activities; **AND**
 - Expected mobility after treatment warrants revascularization; **AND**
 - Revascularization is planned⁹; **AND**
 - Abnormal ankle-brachial index (ABI) as evidenced by **ANY** of the following:
 - ABI is inconclusive or nondiagnostic; **OR**
 - ABI less than 0.9 or greater than 1.4 on at least one leg; **OR**
 - ABI less than 1.1 in patients with risk factors for atherosclerosis (e.g., personal history of diabetes or known cardiac disease)¹⁰; **AND**
 - Symptoms persist despite participation in guideline directed medical therapy (GDMT)¹⁰; **AND**
 - Either low concern for aortic and iliac artery disease or aorta and iliac arteries previously imaged; **OR**
 - Determination of hemorrhage source (including nonsurgical, spontaneous)³; **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**⁷:
 - 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**
 - The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change management and/or treatment plan; **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**
 - Treatment of popliteal entrapment syndrome; **OR**
- Hemodialysis access evaluation when **ALL** of the following are **TRUE**:
 - Duplex ultrasound is inconclusive; **AND**
 - Fistulogram cannot be performed; **AND**
 - Vascular steal syndrome is suggested by ischemic symptoms in the toes distal to the fistula; **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 venography (CTV), lower extremity is considered appropriate for **ANY** of the following is **TRUE**:

- Ultrasound is incomplete, inconclusive, or abnormal with **ANY** of the following:
 - Neoplastic conditions (including masses or mass-like conditions) when the blood supply needs to be evaluated (e.g., for treatment planning, treatment response, or prognostication); **OR**
 - Neoplastic invasion of arteries or veins; **OR**
 - Known or suspected acute or chronic deep venous thrombosis, when results would change management and ultrasound has been completed¹¹; **OR**
 - Known severe postthrombotic changes incompletely evaluated by ultrasound¹¹; **OR**
 - Evidence of severe venous reflux disease and **ALL** of the following¹¹:
 - Duplex ultrasound evaluation indeterminate, incomplete, or nondiagnostic; **AND**
 - Surgical or endovascular intervention planned; **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**
 - Treatment of popliteal entrapment 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.

Non-Indications

Computed tomography angiography (CTA)/computed tomography venography (CTA/CTV), lower extremity with contrast is not considered appropriate if **ANY** of the following is **TRUE**¹²:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹³; **OR**
- Evaluation of lower extremity arterial perfusion, such as for claudication, when there may be a concern for aorta or iliac disease and aorta and iliac have not been imaged.

*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.^{14,15}

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.^{14,15}

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.^{14,15}

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.^{14,15}

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
73706	Computed tomographic angiography (CTA), lower extremity; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Medical Evidence

Jayaraj et al. (2024) evaluate using CT venography (CTV) to diagnose chronic iliac venous obstruction. Advantages of CTV include acquisition and postprocessing functionalities, including multiplanar reconstruction assessment and image processing techniques (e.g., volume rendering and maximum intensity projection). These serve to ascertain and categorize the features of the lesion. CTV also enables the detection of extravascular structures potentially implicated in compression and obstruction. The identification of congenital anatomical variances was present in 20% of patients with these conditions.¹⁶

Kakkos et al. (2021) discuss the efficacy of CTV as a reliable diagnostic tool for proximal DVT in patients suspected of DVT and pulmonary embolism (PE), exhibiting sensitivity and specificity akin to ultrasound. CTV presents clear advantages over ultrasound in assessing pelvic veins and the inferior vena cava (IVC) while also identifying concurrent medical conditions manifesting as pain and swelling. The superior spatial resolution of CTV facilitates precise vessel measurements and treatment planning when intervention is warranted. Limitations of CTV include the necessity of iodine contrast administration and exposure to radiation, which can be an item of concern, especially in younger patients.¹⁷

Cook et al. (2016) review CTA of the lower extremities for conditions including peripheral artery disease (PAD), trauma, evaluation of variant anatomy and congenital malformations, vasculitis, and presurgical planning. CTA is a crucial and adaptable noninvasive technique with various diagnostic and procedural applications. While it is commonly employed for patients with PAD or lower extremity trauma, the utility of CTA extends to investigating nonischemic conditions and congenital vascular abnormalities. Tailoring CT scanner protocols to specific clinical inquiries, including adjusting bolus timing and employing multiphasic imaging, is essential. Additionally, the utilization of three-dimensional postprocessing techniques is vital for enhancing visualization and interpretation of the detailed imaging data obtained from these examinations.¹⁸

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Policy Revision History/Information

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Version 2	08/13/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual review. Updated content layout to align with revised template, including repeat imaging criteria.



Computed Tomography Angiography (CTA), Neck – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 15, 2022

Important Notices

Notices & Disclaimers:

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography Angiography (CTA), Neck - Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

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

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Single Services & Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Neck

General Guidelines

- **Imaging Modality:**
Cervical computed tomography angiography (CTA) is a proven and useful non-invasive procedure for the detection and characterization of vascular diseases and of the vascular anatomy of the neck.¹
- **Criteria for Subsequent Requests:** New, persistent, or worsening symptoms suggestive of vascular disease. Subsequent orders can be placed before, during, or after treatment.
- **Recommended Clinical Approach:** CTA may be used as the primary modality for detecting disease or as an adjunctive tool for characterizing known diseases or assessing changes over time. Whenever possible, magnetic resonance angiography (MRA) should be considered as an alternative to CTA to reduce radiation exposure.²⁻³
- **Exclusions:** This document only includes criteria for CTA of the neck. CTA of the head, body, and extremities are excluded and discussed separately. CT of the neck is also discussed under a separate guideline.

Medical Necessity Criteria

Indications

→ **CTA Neck** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Patient requires the diagnosis, characterization, or surveillance of **ANY** the following conditions:
 - Vascular anatomic variant⁴⁻⁵
 - Vascular malformation or fistula⁶
 - Traumatic vascular injury^{3-4,7-15}
 - Cervical and upper thoracic spine trauma
 - Brain death¹⁶
 - Arterial aneurysm or pseudoaneurysm²⁻³
 - Venous varix²⁻³
 - Arterial dissection²⁻³
 - Ischemic stroke¹⁷⁻³¹
 - Transient ischemic attack¹⁷⁻³¹
 - Vasospasm¹⁷⁻³¹

- Thromboembolism¹⁷⁻³¹
- Acute head and neck, or cervical spine hemorrhage³²⁻³⁶
- Atherosclerotic stenosis/occlusive disease (e.g., Atherosclerotic plaque localization and characterization)¹³⁷⁻⁴⁶
- Nonatherosclerotic, noninflammatory vasculopathy (e.g., Radiation vasculopathy)
- Vasculitis and collagen vascular disease⁴⁷
- Tumor of vascular origin, with rich vascular supply or involving vascular structures⁴⁸⁻⁵³
- Postsurgical/posttreatment vascular complication
- ◆ Patient requires the evaluation of **ANY** of the following:
 - Vascular intervention and follow-up (percutaneous and surgical)⁵⁴⁻⁶⁶
 - Surgical and radiation therapy localization, planning, and neuronavigation⁶⁶⁻⁶⁷
 - Vascular compression or vertebrobasilar insufficiency⁶⁸⁻⁶⁹

Non-Indications

→ **CTA Neck** may not be considered appropriate if **ANY** of the following are **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))⁷⁰
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)⁷¹
- ◆ Current Pregnancy⁷²

Site of Service Criteria

Outpatient and inpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70498	Computed tomographic angiography (CTA) of neck with contrast material and image postprocessing

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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

Last Annual Review: September 11, 2025

Revision: Not Applicable

Next Annual Review: September 11, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

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

Type: ☒ Adult (18+ yo) | ☐ 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 following³:
 - Expanding hematoma⁴; **OR**
 - Major blunt trauma and the patient is hemodynamically stable⁵; **OR**
 - Neurologic deficit of upper extremity in association with trauma; **OR**
 - Vascular trauma to upper extremity⁶; **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 contraindicated⁷; **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 therapy⁸; **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 ultrasound²; **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 symptoms⁹.

*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/grfts, diagnosing vascular

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

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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.



Cohere Medical Policy – Coronary Computed Tomography Angiography (CCTA), With or Without Fractional Flow Reserve (FFR)

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 14, 2025

Last Annual Review: August 14, 2025

Revision: Not Applicable

Next Annual Review: August 14, 2026

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Coronary Computed Tomography Angiography (CCTA), With or Without Fractional Flow Reserve (FFR)

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

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Medical Necessity Criteria

Service: Coronary Computed Tomography Angiogram (CCTA) With or without Fractional Flow Reserve (FFR)

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 coronary angiography (CCTA) is a non-invasive alternative to cardiac catheterization performed with iodinated contrast. The radiologist may consider additional phases, dynamic sequences, positioning of the patient, and the use of markers. The physician laboratory director may choose a scanning protocol for the study prior to imaging. CCTA creates detailed images of the coronary arteries via CT technology, which is augmented by the intravenous injection of contrast dye.¹⁻⁵

Medical Necessity Criteria

Indications

Computed tomography coronary angiography (CCTA) is considered appropriate if **ANY** of the following is **TRUE**:

- Initial evaluation of stable chest pain (or ischemic equivalent) in patients with intermediate or higher pre-test probability of coronary artery disease (CAD) (See the [Pre-Test Probability of CAD](#) published by the CAD Consortium) without known CAD³⁻⁷; **OR**
- Stable chest pain (or ischemic equivalent) in patients with intermediate or higher pre-test probability of CAD (See the [Pre-Test Probability of CAD](#) published by the CAD Consortium) following an inconclusive or abnormal exercise ECG or stress imaging study, if such imaging will influence subsequent patient care³⁻⁷; **OR**

- Stable chest pain (or ischemic equivalent) after a negative stress test but with high pre-test probability of CAD (See the [Pre-Test Probability of CAD](#) published by the CAD Consortium)³⁻⁷; **OR**
- Worsening clinical symptoms suggestive of angina and CAD is known and previously determined to be non-obstructive (less than 50%)³⁻⁷; **OR**
- Anginal symptoms in a patient with previous coronary revascularization if revascularization was performed with bypass grafts or stented vessels with a diameter greater than 3 mm³⁻⁷; **OR**
- Possible acute coronary syndrome (ACS) or unstable angina³⁻⁷; **OR**
- Acute chest pain with suspected aortic or coronary dissection³⁻⁷; **OR**
- Newly diagnosed cardiomyopathy or unexplained congestive heart failure and **ALL** of the following^{7,8}:
 - No known history of CAD⁷; **AND**
 - Left ventricular ejection fraction (LVEF) is less than 50%; **AND**
 - No prior cardiac catheterization, single photon emission computed tomography (SPECT), cardiac positron emission tomography (PET), or stress echocardiogram⁷; **OR**
- There is a suspicion of congenital coronary artery anomalies³⁻⁷; **OR**
- Evaluation of patients suspected of having large, medium or variable vessel vasculitis involving the coronary arteries (including giant cell arteritis, Takayasu's arteritis, polyarteritis nodosum, or Behçet's disease)^{3-7,9}; **OR**
- Pre-operative evaluation of coronary artery disease as an equivalent alternative to catheter-based angiography in **ANY** of the following scenarios:^{7,10-12}
 - Prior to non-coronary cardiac surgery in patients with low-intermediate probability of CAD⁷; **OR**
 - Prior to re-do cardiac bypass surgery with the need to visualize grafts or other structures⁷; **OR**
 - Prior to transcatheter aortic valve implantation/replacement (TAVI/TAVR)¹⁰; **OR**
 - Prior to aortic dissection or aneurysm repair¹¹; **OR**
 - Prior to liver or renal transplant surgery.¹²

Fractional flow reserve computed tomography (FFR_{CT}) is considered appropriate if **ALL** of the following are **TRUE**^{3,13-14}:

- FFR_{CT} is performed only after the CCTA has been completed and interpreted; **AND**

- Functional evaluation of patients with chest pain (or ischemic equivalent) with patients with chest pain (or ischemic equivalent) with coronary CTA lesions which are 40–90% stenosed in a proximal or middle coronary segment³; **AND**
- CCTA was performed within 90 days prior to FFR_{CT}.

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 finding¹⁵; **OR**
 - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

Computed tomography coronary angiography (CCTA) is not considered appropriate if **ANY** of the following is **TRUE**³⁻⁷:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹⁶; **OR**
- The patient has uncontrolled rapid atrial fibrillation; **OR**
- Normal coronary angiogram or CCTA with no stenosis or plaque was performed within the last two years and stable symptoms; **OR**
- Normal stress test was performed within the previous year (given adequate stress) with stable symptoms.

Fractional flow reserve computed tomography (FFR_{CT}) is not considered appropriate if **ANY** of the following is **TRUE**^{13,14}:

- The original CCTA was of suboptimal quality; **OR**
- The patient is not a candidate for revascularization; **OR**
- The patient has a metal intracoronary stent in the vessel to be studied¹⁵; **OR**
- There is a suspicion of acute coronary syndrome¹³; **OR**
- The patient has complex congenital heart disease; **OR**

- Prior placement of prosthetic valves; **OR**
- Prior placement of grafts in coronary bypass surgery; **OR**
- Suspicion of acute coronary syndrome (where myocardial infarction [MI] or unstable angina have not been ruled out)¹³; **OR**
- Status post-heart transplantation; **OR**
- Recent MI (30 days or less)¹³; **OR**
- Prior pacemaker or defibrillator lead placement; **OR**
- Newly diagnosed systolic heart failure, with no prior left heart catheterization; **OR**
- Non-obstructing stenosis (less than 50% of all major epicardial vessels) on CTA or catheterization in the past twelve months, in the absence of a new symptom complex; **OR**
- Coronary anatomy seen on CCTA demonstrates stenoses less than 30% or greater than 90%^{13,14}; **OR**
- When turnaround times may impact prompt clinical care decisions.

*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.¹⁷⁻¹⁸

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. [17-18](#)

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. [17-18](#)

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. [17-18](#)

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

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75574	Computed tomographic angiography (CTA), heart, coronary arteries and bypass grafts (when present); with contrast material, including 3D image postprocessing (including evaluation of cardiac structure and morphology, assessment of cardiac function, and evaluation)
75580	Noninvasive estimate of coronary fractional flow reserve (FFR) derived from augmentative software analysis of the data set from a coronary computed tomography angiography, with interpretation and report by a physician or other qualified healthcare professional

Medical Evidence

In the 2021 chest pain guideline for the American College of Cardiology, Gulati et al. give several recommendations for the use of coronary computed tomography angiography (CCTA), including for intermediate-risk patients with acute chest pain and no known coronary artery disease (CAD) who require diagnostic testing following a negative evaluation for acute coronary syndrome. Additionally, CCTA is a proven approach for evaluating patients with stable chest pain with a strong (Class 1) strength of recommendation³. The writers state that CCTA helps exclude atherosclerotic plaque and obstructive CAD. A recommendation was given for CCTA to diagnose obstructive CAD in patients at intermediate risk with acute pain and mildly abnormal previous stress testing. When evaluating patients in the emergency department with acute chest pain, CCTA may reduce the time to diagnosis and result in earlier safe discharge.³

Taylor et al. (2010) developed appropriate use criteria for cardiac computed tomography. The use of CCTA in low or intermediate-risk patients with pretest probability for CAD may be considered. Testing in high-risk patients, routinely repeating testing, and use for general cardiac screening were not viewed favorably. Lowest appropriateness ratings were assigned in urgent presentations with acute symptoms with suspicion of acute coronary syndrome, such as in definite myocardial infarction (MI), persistent ST-segment elevation on ECG (when MI excluded), and acute chest pain of uncertain cause prompting rule out of pulmonary embolism, aortic dissection and acute coronary syndrome.¹⁸

In a 2020 review by Chen et al., the current status of FFR_{CT} was evaluated. Studies that validated the efficacy of the technology included the 2001 DEFER trial which concluded that patients having FFR greater than 0.75 did not benefit from percutaneous intervention. The FAME trial (2009) found an 18% reduction in the 1-year composite endpoint of MI, death, and repeat revascularization based upon FFR of 0.80 compared to visual interpretation when planning for stent placement. The review includes supportive evidence of diagnostic accuracy of FFR_{CT} from a number of large-scale multicenter trials of 50 to 5083 patients between 2011 and 2019.¹⁵

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Clinical Guideline Revision History/Information

Original Date: April 15, 2022		
Review History		
Version 2	08/02/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/14/2025	Annual Review CCTA indications and non-indications rewritten per current society guidelines. Included the CAD Consortium's Pre-Test Probability of CAD calculator in the indications section. FFR_{CT} indications and non-indications rewritten per current society guidelines. Reviewed literature, updated references, and added citations. Removed the following non-indications as they were deemed relative contraindications: History of anaphylactic allergic reaction to iodinated contrast media; renal insufficiency with no provided detailed guidelines; metformin use (if not held).



Coronary Computed Tomography Angiography (CCTA)- Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 15, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Coronary Computed Tomography Angiography (CCTA)- Single Service

Physician author: Giovanni Lorenz, DO

Peer reviewed by: Andrew Kompel, MD; Jonathan Kraas, MD

Literature review current through: 4/14/2022

Document last updated: 6/10/2022

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

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Single Service & Medical Necessity Criteria

Service: Coronary Computed Tomography Angiogram (CCTA)

General Guidelines

- **Imaging Modality:** Computed tomography coronary angiography (CCTA) is a non-invasive alternative to cardiac catheterization which is performed with iodinated contrast. Considerations of additional phases, dynamic sequences, positioning of the patient, and the use of markers at the discretion of the protocoling radiologist.
- **Criteria for Subsequent Requests:** Clinical reason and judgment according to college and clinical practice and usage of the ACR Appropriateness Criteria and ACC guidelines.
- **Recommended Clinical Approach:** The referring clinician is responsible for the appropriate clinical indication in consultation with a cardiac imaging expert. This should include pertinent history to justify the exam. The radiologist should protocol the examination prior to the patient's arrival.
- **Exclusions:** CTA chest, cardiac CT, cardiac SPECT, and cardiac PET are covered under separate guideline documents.

Medical Necessity Criteria

Indications

- **Coronary CTA** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The patient has **ANY** of the following positive findings²⁻¹⁸:
 - Congenital coronary artery anomaly
 - Coronary artery disease within congestive heart failure/ cardiomyopathy/left ventricular dysfunction
 - Chest pain in patients with **ANY** of the following:
 - Intermediate to high pretest likelihood of CAD
 - Disease commonly associated with or predispose to CAD (e.g., diabetes, peripheral vascular disease, and renal failure)
 - Chest pain including **ANY** of the following:
 - Unexplained or atypical chest pain with any risk level for coronary artery anomaly or atherosclerotic disease

- Typical or atypical chest pain with normal or equivocal stress test and normal or equivocal ECG findings
- Unexplained acute chest pain in a patient with negative cardiac enzymes and normal or equivocal ECG findings with or without increased coronary disease risk
- Unexplained acute chest pain requiring exclusion of coronary artery disease versus other thoracic vascular causes of chest pain, such as pulmonary embolism and acute aortic pathology
- ◆ The patient requires evaluation of **ANY** of the following:
 - Course and origin of known or suspected coronary anomaly following ECG or inconclusive cardiac MRI or invasive coronary angiography
 - Reimplanted coronary artery
 - Known or suspected coronary involvement in patients with Kawasaki disease
 - Ischemic etiology following a new diagnosis of cardiomyopathy, left bundle branch block or heart failure
 - Coronary arteries prior to noncoronary cardiac surgery with low or intermediate coronary artery atherosclerotic disease risk
 - Post-endovascular or post-surgical evaluation of the coronary arteries, stents, bypass grafts, or cardiac structure (e.g., cardiac chambers and valves, systemic veins, pulmonary veins and arteries, aortic root, and proximal aorta)

Non-Indications

→ **Coronary CTA** may not be considered appropriate if **ANY** of the following is true:

- ◆ High-risk patients with unstable angina where cardiac catheterization is indicated
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))¹⁹

- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)²⁰
- ◆ Current Pregnancy²¹

Site of Service Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
75574	Computed tomographic angiography (CTA) of coronary arteries and bypass grafts, with contrast material and 3-dimensional (3D) image postprocessing

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Cohere Medical Policy– Computed Tomography (CT), Abdomen/Pelvis

Clinical Guidelines for Medical Necessity Review

Version: 2

Effective Date: August 20, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Abdomen/Pelvis

Recommended Clinical Approach

Computed tomography (CT) of the abdomen/pelvis should be initiated by the referring physician or an appropriate allied healthcare professional involved in the patient's care. The request should contain all the necessary information regarding the patient's signs and symptoms, history, and known and suspected diagnoses to determine the appropriate imaging modalities.¹

Bosniak Classification ²⁻³		
Stage	Malignancy Risk (%)	Features
I	0	Hairline-thin wall; water attenuation; no septa, calcifications, or solid components; non-enhancing.
II	0	1. Few thin septa with or without perceived (not measurable) enhancement; fine calcification or a short segment of slightly thickened calcification in the wall or septa. 2. Homogeneously high-attenuating masses less than or equal to 3 cm that are sharply margined and do not enhance.
IIIF	5	1. Minimally thickened or more than a few thin septa with or without perceived (not measurable) enhancement that may have thick or nodular calcification. 2. Intrarenal non-enhancing hyperattenuating renal masses greater than 3 cm.
III	50	Thickened (less than 3 mm) wall or septa with enhancement.
IV	90	Soft tissue components (e.g., nodules) with measurable enhancement.

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), abdomen/pelvis** is considered appropriate if **ANY** of the following is **TRUE**¹:

- ◆ Conditions related to the mesentery or peritoneum, including **ANY** of the following:
 - Suspicion of peritonitis with peritoneal symptoms/signs (e.g., rebound tenderness or severe pain)⁴; **OR**
 - Followup of abdominal lymph node enlargement if symptoms have not resolved; **OR**
 - Internal hernia⁵; **OR**
- ◆ Conditions related to the hepatobiliary system (liver, bile ducts, gallbladder, and associated structures) with right upper quadrant pain, where ultrasound is indeterminate or abnormal and further imaging is needed for **ANY** of the following:
 - A previously imaged indeterminate liver lesion that remains indeterminate; **OR**
 - Clinical features and lab findings are suspicious of cholangitis or hepatitis; **OR**
 - Autoimmune (e.g., autoimmune hepatitis, primary biliary cirrhosis); **OR**
 - Preoperative or postoperative evaluation (e.g., liver resection, donor or transplant, hepatic shunt placement); **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis where ultrasound is inconclusive, limited, or requires further work-up and triple phase CT liver protocol is requested; **OR**
 - Primary sclerosing cholangitis after age 20; **OR**

- Diffuse liver disease (e.g., cirrhosis, steatosis, iron deposition disease); **OR**
- Jaundice or hyperbilirubinemia when a biliary obstruction is suspected based on the cholestatic pattern on liver function tests with ultrasound showing biliary duct dilatation and MRI cannot be performed; **OR**
- ◆ Conditions related to the pancreas, including **ANY** of the following⁶:
 - Duct obstruction (e.g., calculi, stricture, or mass) is suspected based on prior imaging, and MRI cannot be performed; **OR**
 - Follow-up of pancreas-related fluid collections (e.g., pseudocysts or walled-off necrosis) detected on prior imaging, including treatment response or when the patient's clinical condition has worsened; **OR**
 - Pancreatitis (acute or chronic) with **ANY** of the following:
 - Concern for complications (e.g., necrosis or abscess); **OR**
 - Lack of response to conservative treatment and management; **OR**
 - Indeterminate cyst in an asymptomatic patient that requires follow-up and meets **ANY** of the following as outlined in the American College of Radiology (ACR) *Management of Incidental Pancreatic Cysts* (available [here](#))⁷:
 - **ANY** of the criteria included in Figure 1 on p. 2; **OR**
 - **ANY** of the criteria included in Figure 2A on p. 3; **OR**
 - **ANY** of the criteria included in Figure 2B on p. 4; **OR**
 - **ANY** of the criteria included in Figure 3 on p. 5; **OR**
 - **ANY** of the criteria included in Figure 4 on p. 6; **OR**

- ◆ Splenic or perisplenic abnormalities and **ANY** of the following is **TRUE**:
 - Detected on prior imaging that requires further workup or follow-up; **OR**
 - Splenomegaly detected clinically, and ultrasound is inconclusive, requiring further workup; **OR**
- ◆ Abnormalities of the kidneys with at least one ultrasound of the kidneys for the present condition that requires further workup when **ANY** of the following is **TRUE**:
 - Renal cysts with classification of Bosniak IIF or above (up to annually for 5 years)²⁻³; **OR**
 - Solid indeterminate renal masses (up to annually if requested by urologist); **OR**
 - Renal angiomyolipomas and **ANY** of the following is **TRUE**:
 - Every 5 years when 2 to 3 cm; **OR**
 - Every 2 years when 3 to 4 cm; **OR**
 - Up to annually when greater than 4 cm; **OR**
 - Characterization of other indeterminate lesions detected with other imaging modalities; **OR**
 - Diagnostic evaluation of concerning signs/symptoms (e.g., pain, concern for rupture, infection, hemorrhage) in a patient with known polycystic kidney disease; **OR**
 - Anatomic abnormalities, congenital or acquired (e.g., horseshoe kidney, ectopic insertion of the ureter, retroperitoneal fibrosis); **OR**
- ◆ Infectious/inflammatory disease (e.g., pyelonephritis) with **ANY** of the following⁸⁻⁹:
 - Concern for complications (e.g., abscess, obstruction, or lack of response to treatment); **OR**
 - Recurrent; **OR**
 - Before a planned procedure or intervention; **OR**

- Factors indicating high-risk for complicated pyelonephritis, (e.g., pregnancy (MRI is preferred), transplant, and known renal/ureteral calculi); **OR**
- Further evaluation of unexplained hydronephrosis when detected on ultrasound; **OR**
- Followup of renal calculi in the setting of predisposing conditions (e.g., medullary nephrocalcinosis, hypercalcemia, hypercalciuria when ultrasound is non-diagnostic); **OR**
- Renal transplant complication¹⁰; **OR**
- Microscopic hematuria¹¹; **OR**
- ◆ Conditions related to the prostate, including **ANY** of the following:
 - Prostatitis when symptoms are worsening despite treatment; **OR**
 - Prostate cancer for **ANY** of the following indications:
 - Initial staging, when cancer is at least unfavorable intermediate-risk when **ANY** of the following is **TRUE**:
 - ◆ **TWO** of the following:
 - T2b–cT2c; **OR**
 - Grade Group 2 or above; **OR**
 - PSA 10–20 ng/mL; **OR**
 - ◆ **ANY** of the following:
 - Grade Group 3 or above (4+3 = 7. Note: 3+4=7 is Grade Group 2); **OR**
 - At least 50% of biopsy cores positive for cancer; **OR**
 - PSA greater than 20 ng/mL; **OR**
 - Assess treatment response when carcinoma is poorly differentiated; **OR**
 - Restaging, when metastases are suspected when **ANY** of the following is **TRUE**:

- ◆ Failure for PSA to become undetectable after complete prostatectomy; **OR**
- ◆ Rise of PSA at least 2 ng/dL above the lowest post-treatment PSA; **OR**
- ◆ Persistently rising PSA levels on two tests; **OR**
- ◆ Poorly differentiated carcinoma (may not produce PSA); **OR**
- ◆ Conditions related to the genitourinary system, including **ANY** of the following:
 - Bladder conditions including **ANY** of the following:
 - Further evaluation of known bladder pathology seen on cystoscopy; **OR**
 - Concern for bladder or urothelial (kidney or ureter) neoplasm, stricture, or stone based on prior imaging or clinical abnormalities (e.g., persistent hematuria)¹²⁻¹³; **OR**
 - Other reproductive organs, including the uterus/ovaries/testicle/fallopian tube/cervix when ultrasound is indeterminate (MRI is preferred); **OR**
 - An undescended testicle, if ultrasound is indeterminate (MRI is preferred); **OR**
 - Postpartum hemorrhage¹⁴; **OR**
 - Ovarian cysts or indeterminate masses, when ultrasound and MRI are indeterminate or cannot be performed; **OR**
- ◆ Conditions related to the vascular conditions, known or suspected, including **ANY** of the following:
 - Unrepaired aortic aneurysm when ultrasound is inconclusive, contraindicated, or requires further workup and follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**¹⁵:
 - 3 to 3.9 cm, every 2 to 3 years; **OR**

- 4 to 4.9 cm, annually; **OR**
- 5 to 5.4 cm, every 6 months; **OR**
- Abdominal aortic aneurysm screening, one-time when ultrasound is non-diagnostic, contraindicated, or inconclusive; **OR**
- Routine surveillance of aneurysm when stable on prior follow-up imaging or contrast is contraindicated (note CTA or MRA is preferred for routine follow-up after repair), and **ANY** of the following is **TRUE**:
 - Endovascular aneurysm repair (EVAR) (annual imaging surveillance); **OR**
 - Open surgical repair (OSR) (imaging surveillance every 5 years); **OR**
- Pulsatile abdominal mass or other high-risk clinical sign or symptom with concern for aneurysm (e.g., severe abdominal pain, hypotension, or suspicion on prior imaging) (CTA is preferred)¹⁶; **OR**
- Aortoenteric fistula, when injury to abdominal organs is being considered (CTA abdomen/pelvis is preferred); **OR**
- Retroperitoneal bleed, suspected¹⁷; **OR**
- Systemic (e.g., IVC) or portal venous thrombosis; **OR**
- Arteriovenous anomalies (e.g., shunts and fistula – CTA preferred); **OR**
- ◆ Conditions related to the gastrointestinal conditions, including **ANY** of the following¹⁸⁻¹⁹:
 - Small bowel conditions including **ANY** of the following:
 - Celiac disease with recurring symptoms despite maintaining a gluten-free diet for 12 months or more; **OR**
 - Suspected or known Crohn's disease when **ANY** of the following is **TRUE**²⁰:
 - ◆ For initial diagnosis when persisting abdominal pain or unexplained diarrhea or bleeding per rectum; **OR**

- ◆ Follow-up when symptomatic or concern for progression (e.g., increased calprotectin); **OR**
- Concern for obstruction with supporting clinical symptoms of **ANY** of the following:
 - ◆ Vomiting or abdominal pain; **OR**
 - ◆ History of prior abdominal surgery and the patient is symptomatic; **OR**
- Large bowel conditions including **ANY** of the following:
 - Acute conditions (e.g., diverticulitis, appendicitis, epiploic appendagitis) in an adult patient based on clinical exam findings including right lower quadrant or left lower quadrant pain when hernia is not suspected¹⁸⁻¹⁹; **OR**
 - Acute appendicitis in a pediatric (age 17 or less) patient, including **ANY** of the following:
 - ◆ Ultrasound is inconclusive, or appendix is not seen; **OR**
 - ◆ Peritoneal signs/symptoms present (e.g., rebound tenderness or severe pain); **OR**
 - Initial or follow-up evaluation of ulcerative colitis or other inflammatory pathology limited to the colon when **ANY** of the following is **TRUE**:
 - ◆ Colonoscopy is contraindicated or inconclusive; **OR**
 - ◆ There is a concern for a complication such as perforation/abscess based on clinical examination (e.g., abdominal pain, peritoneal signs, elevated white count); **OR**
 - Concern for obstruction with supporting clinical symptoms (e.g., severe constipation or lack of flatus or concerning history such as prior abdominal surgery); **OR**

- Mesenteric ischemia or ischemic enteritis/colitis when **ANY** of the following is **TRUE**:
 - High suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - Anion-gap metabolic acidosis and/or high lactate in the setting of severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors or known vascular disease (e.g., age greater than 60 years, known coronary artery disease [CAD] or peripheral artery disease [PAD]) with severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors with post-prandial pain that affects daily life (e.g., fear of food, weight loss); **OR**
 - Symptoms or signs indicating lower GI bleeding; **OR**
- Gastric conditions, when endoscopy is contraindicated or inconclusive, or complication is suspected (e.g., perforated gastric ulcer, gastric outlet obstruction, or volvulus); **OR**
- Bowel volvulus, initial workup when suspected based on clinical symptoms, prior imaging, or planned peri-operative imaging; **OR**
- ◆ Indeterminate adrenal mass (1.0 cm or more) detected incidentally on prior imaging (no follow-up required if a mass contains fat (e.g., myelolipoma), primarily contains calcification, or measures less than 10 HU):
 - If 1 to 4 cm with no prior imaging or history of cancer and **ANY** of the following is **TRUE**:
 - 12-month follow-up adrenal protocol CT if the mass is 1 to 2 cm; **OR**,

- CT adrenal protocol if the mass is 2 to 4 cm; **OR**
- If 1 to 4 cm with prior imaging available and **ANY** of the following is **TRUE**:
 - Mass is new or enlarging with no history of cancer, then, adrenal CT (if history of cancer, then a biopsy or PET/CT); **OR**
 - Mass is stable at more than 1 year, then, no follow-up is required; **OR**
- If more than 4 cm, then, surgery or PET/CT; **OR**
- ◆ Screening, follow-up, and surveillance of malignancies when **ANY** of the following is **TRUE**:
 - Rising alpha-fetoprotein (AFP) in a high-risk patient or patient with known hepatocellular carcinoma (HCC)²¹; **OR**
 - Elevated CA 19-9 or CEA levels and cancer is suspected²¹; **OR**
 - Painless jaundice²¹; **OR**
 - Gross hematuria²¹; **OR**
 - Other biomarker or paraneoplastic syndrome suggestive of underlying malignancy²¹; **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Cirrhosis or chronic viral hepatitis and **ANY** of the following is **TRUE**²²:
 - ◆ Ultrasound is non-diagnostic or requires further workup; **OR**
 - ◆ Ultrasound is positive, and confirmation is needed; **OR**
 - Primary sclerosing cholangitis; **OR**
 - Known mutation that increases susceptibility (e.g., Von Hippel Lindau, Tuberous Sclerosis, BRCA-1/2); **OR**

- The patient has two or more first-degree or second-degree relatives with the same or related cancer from the same side of the family; **OR**
- ◆ Neoplastic conditions (including masses or mass-like conditions) and **ANY** of the following:
 - Initial staging for known neoplasm; **OR**
 - Surveillance as per nationally accepted guidelines such as National Comprehensive Cancer Network (NCCN); **OR**
- ◆ Pain of unknown source, including **ANY** of the following types of pain:
 - Epigastric pain (e.g., left upper quadrant, right lower quadrant, and left lower quadrant pain not due to hernia – ultrasound recommended if differential diagnosis is abdominal wall hernia)²³; **OR**
 - Pelvic pain, where ultrasound is indeterminate; **OR**
 - Flank pain, acute onset²⁴; **OR**
 - Known hernia with recent onset pain, and there is concern for complication; **OR**
 - Non-localized, acute abdominal pain³; **OR**
 - Pelvic pain in a patient of reproductive age, when ultrasound is indeterminate²⁴⁻²⁵; **OR**
- ◆ Preoperative or postoperative evaluation for **ANY** of the following:
 - Preoperative imaging for surgical planning when surgery is already planned (e.g., liver, kidney transplant); **OR**
 - Post-treatment complications when surgery was recently performed; **OR**
- ◆ Trauma, when injury to abdominal organs is being considered²⁶; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Palpable mass in the abdomen or pelvis with an ultrasound that is non-diagnostic or unlikely to be diagnostic or requires further workup; **OR**

- Follow-up for retroperitoneal fibrosis, suspected or known; **OR**
- Abdominal mass is suspected based on right-sided varicocele; **OR**
- Diffuse edema in the lower extremities with ultrasound Doppler for deep vein thrombosis (DVT) that is non-diagnostic for cause; **OR**
- Suspected hernia (excluding internal and sports hernias) when **ANY** of the following is **TRUE**:
 - Ultrasound is inconclusive or requires workup; **OR**
 - There is a suspected complication (e.g., strangulation, bowel obstruction); **OR**
 - Required for surgical planning; **OR**
- Fistulas (except perianal fistula where MRI is preferred); **OR**
- Lymphadenopathy when **ANY** of the following is **TRUE**:
 - When lymphoproliferative disorder is suspected based on prior imaging or palpable enlarged lymph nodes or B symptoms like night sweats, fever; **OR**
 - Follow-up of known abdominal lymphadenopathy; **OR**
- Fever of unknown origin greater than 101°F for at least 3 weeks where laboratory and clinical workup has been performed and have not revealed a diagnosis²⁷⁻²⁸; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status (e.g., worsening symptoms

- or the emergence of new symptoms, that may influence the treatment approach); **OR**
- The requirement for interval reassessment, which may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), abdomen/pelvis with contrast** is **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; **OR**
- ◆ If contrast is used, 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.

**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 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. [30-31](#)

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. [30-31](#)

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. [30-31](#)

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. [30-31](#)

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
72192	Computed tomography (CT), pelvis; without contrast material
72193	Computed tomography (CT), pelvis; with contrast material
72194	Computed tomography (CT), pelvis; without contrast material, followed by contrast material(s) and further sections
74150	Computed tomography (CT), abdomen; without contrast material
74160	Computed tomography (CT), abdomen; with contrast material
74170	Computed tomography (CT), abdomen; without contrast material, followed by contrast material(s) and further sections
74176	Computed tomography (CT), abdomen and pelvis; without contrast material
74177	Computed tomography (CT), abdomen and pelvis; with contrast material
74178	Computed tomography, abdomen and pelvis; without contrast material in one or both body regions, followed by contrast material(s) and further sections in one or both body regions
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Shah et al. (2022) performed a retrospective review of patients who had at least one CT scan of the abdomen ($\pm$ pelvis) or MRI of the abdomen ($\pm$ pelvis) at least 30 days post-diagnosis of Crohn's disease (CD) or ulcerative colitis (UC). The review identified factors associated with patients undergoing more than 5 CT scans of the abdomen between 2010 and 2019 and included 176,110 patients with CD and 143,460 patients with UC. From 2010 to 2019, the prevalence of individuals undergoing at least one annual CT scan of the abdomen increased with a mean annual percentage change of +3.6% for CD and +4.9% for UC. A 3.8% increase was found in the proportion of CD patients receiving greater than or equal to 5 CT scans of the abdomen annually compared to a 2.4% increase among UC patients over the ten years. The authors conclude that the prevalence of CT scans in IBD patients has escalated. Future research is needed regarding the determinants influencing the utilization of CT and MRI scans.^{[32](#)}

Oldroyd et al. (2021) conducted a meta-analysis that focused on using CT to identify underlying asymptomatic cancers. CT scans of thorax, abdomen, or pelvis organs proved to be the most effective in diagnosing cancer cases, accounting for most detections (5 out of 18, 28%). Due to widespread availability and relatively low cost, CT scanning is a potentially valuable approach for cancer screening.^{[33](#)}

Baron et al. (2018) performed a systematic review and meta-analysis on the accuracy of CT in the diagnosis of intra-abdominal injuries in patients presenting to the emergency department (ED) with anterior abdominal stab wounds. The study aimed to assess the precision of abdominal and pelvic computed tomography (CTAP) in diagnosing intra-abdominal injuries that necessitate therapeutic laparotomy (THER-LAP) in ED patients with acute abdominal or abdominal and pelvic blunt trauma. A total of 575 patients were included. For stable patients with suspected abdominal aortic syndromes, relying solely on a negative CT scan without a period of observation is insufficient to rule out significant intra-abdominal injuries.^{[34](#)}

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Computed Tomography (CT), Brain – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
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Important Notices

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Care Path Group: Not applicable.

Care Path Name: Computed Tomography (CT), Brain - Single Service

Physician author: Max Wintermark, MD

Peer reviewed by: Giovanni Lorenz, DO; Jonathan Kraas, MD

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Brain

General Guidelines

- **Imaging Modality:** CT of the brain is a useful screening tool for indications such as acute mental status change, seizure, acute neurologic deficit, acute headache, and nonacute headache with neurologic findings. CT is useful as a screening modality for the presence of neoplasm and mass effect to which the addition of intravenous (IV) contrast may provide added sensitivity in selected circumstances. Certain other indications also require administration of IV contrast during imaging of the brain.
- **Criteria for Subsequent Requests:** New, persistent, or worsening symptoms suggesting acute change or progression of intracranial pathology may require subsequent imaging. Subsequent imaging is also indicated in short-term monitoring of potentially life-threatening intracranial hemorrhage.
- **Recommended Clinical Approach:** CT Brain is often appropriate when MRI is unavailable or contraindicated. The clinical request form for a head CT should be initiated by the referring physician or any appropriate allied health care professional familiar with the patient's clinical problem or question and consistent with the state scope of practice requirements.¹ CT head will often be the initial screening examination to evaluate for acute, life-threatening conditions but will be commonly supplemented by MRI evaluation subsequently.
- **Exclusions:** CT face/sinuses, CT orbits/ear/fossa, and CTA head are discussed in separate guideline documents.

Medical Necessity Criteria

Indications

→ **CT Brain** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Acute head trauma²⁻⁸
- ◆ Acute neurologic deficit and ataxia⁹⁻¹²
- ◆ Suspected stroke or transient ischemic attack (TIA)¹³⁻¹⁴
- ◆ Suspected acute intracranial hemorrhage¹³⁻¹⁶
- ◆ Follow-up for known intracranial hemorrhage
- ◆ Mental status change, including drug toxicity¹⁷⁻²⁰
- ◆ Headache or intractable vomiting²¹⁻²²

- ◆ Intracranial infection²³⁻²⁷
- ◆ Detection or evaluation of calcified lesion²⁸
- ◆ Hydrocephalus, including shunt malfunctions or shunt revision²⁹
- ◆ Suspected mass or tumor (e.g., brain herniation syndromes)³⁰⁻³⁸
- ◆ CT guidance, image integration, and 3-D planning for procedure or surgery³⁹⁻⁴⁷
- ◆ Postoperative evaluation following intracranial surgery⁴⁸
- ◆ Congenital skull and brain lesions (e.g., craniosynostosis, macrocephaly, and microcephaly)⁴⁹⁻⁵¹
- ◆ Skull lesion (e.g., fibrous dysplasia, Paget disease, histiocytosis, osteolytic lesion, and skeletal tumors)
- ◆ Seizure⁵²⁻⁵⁷
- ◆ Abusive head trauma or other non-accidental trauma investigations⁵⁸⁻⁶¹
- ◆ For **ANY** of the following indications:
 - Epilepsy^{57,62-66}
 - Neurodegenerative disease⁶⁷⁻⁷⁰
 - Evaluating psychiatric disorder⁷¹

Non-Indications

→ **CT Brain** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))⁷²
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)⁷³
- ◆ Current pregnancy⁷⁴

Site of Service Criteria

Outpatient or Inpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70450	Computed tomography (CT) of brain without contrast material
70460	Computed tomography (CT) of brain with contrast material

70470	Computed tomography (CT) of brain without contrast material, followed by contrast material and further sections

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Computed Tomography (CT), Cardiac- Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 29, 2022

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Care Path Name: Computed Tomography (CT), Cardiac- Single Service

Physician author: Giovanni Lorenz, DO

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT) - Cardiac

General Guidelines

- **Imaging Modality:** CT Cardiac is used as an initial exam for evaluation of disorders affecting the cardiac structure, cardiac veins, myocardium, pericardium, and cardiac valves. Considerations of additional phase, dynamic sequences, positioning of the patient, and use of markers at the discretion of the protocoling radiologist.
- **Criteria for Subsequent Requests:** Clinical reason and judgment according to college and clinical practice and usage of the ACR Appropriateness Criteria and ACC guidelines. It can be used for post-treatment assessment, suspected persistent or recurrent disease, and surveillance.
- **Recommended Clinical Approach:** The referring clinician determines the appropriate clinical indication in consultation with a cardiac imaging expert. This should include pertinent history to justify the exam. The examination is primarily performed with IV contrast. Non-contrast examinations are typically for calcium scoring but can be used in other limited clinical scenarios.
- **Exclusions:** Coronary CTA, CTA chest, and CT chest are covered under separate guideline documents.

Medical Necessity Criteria

Indications

→ **CT Cardiac with contrast** is considered appropriate if **ANY** of the following is **TRUE**¹⁻¹⁰:

- ◆ Dyspnea of suspected cardiac origin
- ◆ Congenital heart disease
- ◆ Cardiac trauma and iatrogenic injury
- ◆ Heart Failure Cardiomyopathy
- ◆ Valvular heart disease
- ◆ Infective endocarditis
- ◆ Cardiac and paracardiac masses and tumors
- ◆ Cardiac aneurysm and pseudoaneurysm
- ◆ Evaluation of pericardial conditions (pericardial effusion, constrictive pericarditis, or congenital pericardial diseases)
- ◆ Evaluation of cardiac venous anatomy

- ◆ Evaluation of the thoracic aorta
 - ◆ Planned cardiac interventions or coronary intervention
 - ◆ Intracardiac thrombus
 - ◆ Sequelae of ischemic coronary disease (e.g., scarring)
 - ◆ Complications of valve replacement (open or endovascular)
 - ◆ Cardiac surgical preoperative planning
- **CT Cardiac without contrast** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Detection or evaluation of calcification of coronary arteries, ascending aorta, cardiac valves, pericardium, or cardiac masses.
 - ◆ Cardiac surgical preoperative planning

Non-Indications

- **CT Cardiac** may not be considered appropriate if **ANY** of the following is **TRUE**¹⁻¹⁰:
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))¹¹
 - ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)¹²
 - ◆ Current pregnancy¹³

Site of Service Criteria

Inpatient or outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
75572	Computed tomography (CT) of 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
75573	Computed tomography (CT) of heart with contrast material for evaluation of cardiac structure and morphology in congenital heart disease
75571	Computed tomography (CT) of heart without contrast material for evaluation of cardiac structure and morphology in congenital heart disease

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Cohere Medical Policy – Computed Tomography (CT), Chest

Clinical Guidelines for Medical Necessity Review

Version: 2

Effective Date: August 20, 2024

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Computed Tomography (CT), Chest

Date of last literature review: 8/16/2024

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Chest

Recommended Clinical Approach

Computed tomography (CT) of the chest can be performed as a screening examination in high-risk patients and to diagnose and evaluate a myriad of thoracic processes involving the lungs, mediastinum/hilum, pleura, and chest wall. Contrast usage is guided by the clinical scenario being investigated.¹

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults²

Solid Nodules*

	Size			
Nodule Type	<6mm (<100 mm ³)	6–8 mm (100–250 mm ³)	>8 mm (>250 mm ³)	Comments
<i>Single</i>				
Low Risk**	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A).
High Risk**	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high-risk with suspicious nodule morphology, upper lobe location, or both may warrant a 12-month follow-up (recommendation 1A).

<i>Multiple</i>				
Low Risk**	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High Risk**	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
Subsolid Nodules*				
	Size			
Nodule Type	<6mm ($<100\text{ mm}^3$)	$\geq 6\text{ mm}$ ($>100\text{ mm}^3$)	Comments	
<i>Single</i>				
Ground Glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules <6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).	
Part Solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component	In practice, part-solid nodules cannot be defined as such until $\geq 6\text{ mm}$, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components 6mm should be considered highly suspicious (recommendations 4A–4C).	

		remain <6 mm, annual CT should be performed for 5 years.	
<i>Multiple</i>	CT at 3–6 months. If stable, consider CT at 2 and 4 years	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s)	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).

Lung-RADS® (2022) ¹			
Lung-RADS	Category Descriptor	Findings	Management
0	Incomplete Estimated Population Prevalence: ~1%	Prior chest CT examination being located for comparison (see note 9)	Comparison to prior chest CT
		Part of all of the lungs cannot be evaluated	Additional lung cancer screening CT imaging needed
		Findings suggestive of an inflammatory or infectious process (see note 10)	1–3 month LDCT
1	Negative Estimated Population Prevalence: 39%	No lung nodules; OR Nodule with benign features: - Complete, central, popcorn, or concentric ring calcifications; OR - Fat-containing	12-month screening LDCT
2	Benign Based on	Juxtapleural Nodule < 10 mm (524 mm³) mean diameter at baseline or new; AND	

	imaging features or indolent behavior Estimated Population Prevalence: 45%	• Solid; smooth margins; and oval, lentiform, or triangular shape	
		Solid Nodule • < 6 mm (< 113 mm³) at baseline; OR • New < 4 mm (< 34 mm³)	
		Part Solid Nodule • < 6 mm (< 113 mm³) total mean diameter at baseline	
		Non-Solid Nodule (GGN) • < 30 mm (< 14,137 mm³) at baseline, new or growing; OR • ≥ 30 mm (≥ 14,137 mm³) stable or slowly growing (see note 7)	
		Airway nodule, subsegmental – at baseline, new, or stable (see note 11)	
3	Probably Benign Based on imaging features or behavior Estimated Population Prevalence: 9%	• Category 3 lesion that is stable or decreased in size at 6-month follow-up CT; OR • Category 4B lesion proven to be benign in etiology following appropriate diagnostic workup	6-month LDCT
		Solid Nodule • ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New 4 mm to < 6 mm (34 to < 113 mm³)	
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component < 6 mm (< 113 mm³) at baseline • New < 6 mm (< 113 mm³) total mean diameter	
		Non-Solid Nodule (GGN) • ≥ 30 mm (≥ 14,137 mm³) at baseline or new	
		Atypical Pulmonary Cyst (see note 12) • Growing cystic component (mean	

		diameter) of a thick-walled cyst	
		Category 4A lesion that is stable or decreased in size at 3-month follow-up CT (excluding airway nodules)	
4A	Suspicious Estimated Population Prevalence: 4%	Solid Nodule • ≥ 8 mm to < 15 mm (≥ 268 to < 1767 mm³) at baseline; OR • Growing < 8 mm (< 268 mm³) • New 6 to < 8 mm (113 to < 268 mm³)	3-month LDCT; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodule or solid component
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New or growing < 4 mm (< 34 mm³) solid component	
		Airway Nodule , segmental or more proximal – at baseline (see note 11)	
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst; OR • Multilocular cyst at baseline; OR • Thin- or thick-walled cyst that becomes multilocular	
4B	Very Suspicious Estimated Population	Airway Nodule , segmental or more proximal – stable or growing (see note 11)	Referral for further clinical evaluation
		Solid Nodule • ≥ 15 mm (≥ 1767 mm³) at baseline; OR • New or growing ≥ 8 mm (≥ 268 mm³)	Diagnostic chest CT with or without contrast; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodules or solid component;
		Part Solid Nodule • Solid component ≥ 8 mm (≥ 268 mm³) at baseline; OR • New or growing ≥ 4 mm (≥ 34 mm³) solid component	
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst with growing wall thickness/nodularity; OR	

	Prevalence: 2%	• Growing multilocular cyst (mean diameter); OR • Multilocular cyst with increased loculation or new/increased opacity (nodular, ground glass, or consolidation)	Tissue sampling; and/or referral for further clinical evaluation; Management depends on clinical evaluation, patient preference, and the probability of malignancy (see note 13)
		Slow-growing solid or part-solid nodule that demonstrates growth over multiple screening exams (see note 8)	
4X	Estimated Population Prevalence: <1%	Category 3 or 4 nodules with additional features or imaging findings that increase suspicion for lung cancer (see note 14)	
S	Significant or Potentially Significant Estimated Population Prevalence: 10%	Modifier: May add to category 0–4 for clinically significant or potentially clinically significant findings unrelated to lung cancer (see note 15)	As appropriate to the specific finding

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), chest** is considered appropriate when **ANY** of the following is **TRUE**:

- ◆ Abnormality discovered or partially imaged on other imaging modalities and chest CT evaluation is indicated⁴; **OR**
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following:
 - Chest wall mass with **ANY** of the following:
 - Palpable chest wall mass with non-diagnostic chest X-ray or ultrasound; **OR**

- Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
 - Preoperative planning following biopsy; **OR**
- Pulmonary nodule or mass and **ANY** of the following is **TRUE**:
 - Incidentally detected pulmonary nodule on prior CT chest and the patient meets criteria specified in Fleischner Society Guidelines²; **OR**
 - Pulmonary nodules detected on lung cancer screening CT and the patient meets Lung-RADS® (2022) criteria³; **OR**
 - Nodule or mass detected on non-CT chest imaging (e.g., chest X-ray, CT abdomen/pelvis, MRI, etc.) that requires additional workup; **OR**
- Other thoracic mass lesions when suspected on prior imaging or clinical criteria (e.g., myasthenia gravis for thymoma) including **ANY** of the following:
 - Mediastinal mass; **OR**
 - Pancoast tumor; **OR**
 - Pleural mass; **OR**
 - Thymoma; **OR**
 - Tracheal or endobronchial lesion; **OR**
- Cardiothoracic manifestation of known extrathoracic diseases; **OR**
- Detection and evaluation of metastatic disease when primary malignancy is known⁴; **OR**
- Staging and follow-up of lung cancer or other primary thoracic malignancy⁴; **OR**
- ◆ Infection or an infectious disorder for **ANY** of the following:
 - Pneumonia when **ANY** of the following is **TRUE**:

- Repeat chest X-ray shows no improvement following at least 4–6 weeks of medical treatment⁵; **OR**
- Recurrence of pneumonia in the same location within 6 months; **OR**
- Evaluation of known or suspected complications of pneumonia following nondiagnostic chest X-ray; **OR**
- Immunosuppressed patients with signs or symptoms of pneumonia; **OR**
- For the diagnosis and management of other infectious or inflammatory conditions, including **ANY** of the following:
 - Lung abscess; **OR**
 - Sternal wound infection or dehiscence; **OR**
 - Mediastinitis; **OR**
 - Infectious and inflammatory conditions not listed elsewhere in this guideline; **OR**
- ◆ For the diagnosis and management of blunt or penetrating trauma to the thorax and chest X-ray is non-diagnostic; **OR**
- ◆ For the management (including treatment response), suspected or known, of a parenchymal lung disease including **ANY** of the following when chest X-ray is non-diagnostic:
 - Bronchiectasis; **OR**
 - Bronchiolitis obliterans; **OR**
 - Sarcoidosis; **OR**
 - Interstitial lung disease (including idiopathic pulmonary fibrosis [IPF]); **OR**
 - Occupational lung disease; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following (CTA preferred)^{4,6–7}:
 - Pulmonary hypertension; **OR**
 - Pulmonary vascular malformations; **OR**
 - Pulmonary venous abnormalities; **OR**

- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
- Shortness of breath, when symptoms are unlikely to be cardiac in origin with non-diagnostic chest X-ray **OR**
 - Chest pain that persists despite treatment and chest X-ray is non-diagnostic or requires further evaluation; **OR**
 - Cough (chronic or persistent lasting more than 6 weeks) that does not respond to appropriate treatment and is unexplained by clinical evaluation (including but not limited to reflux disease, post-nasal drip), chest X-ray, and/or pulmonary function testing or spirometry; **OR**
 - Cough (chronic or persistent) in immunosuppressed individuals unexplained by chest X-ray; **OR**
 - Fever of unknown origin with **ANY** of the following:
 - Duration greater than 3 weeks and unexplained following a standard diagnostic evaluation (including chest X-ray) to identify the source; **OR**
 - Unexplained fever in an immunocompromised patient; **OR**
 - Hemoptysis, following non-diagnostic chest X-rays; **OR**
 - Vocal cord paralysis when ENT evaluation including CT neck and direct laryngoscopy have been performed; **OR**
 - Pleural disease including **ANY** of the following:
 - Pleural effusion when further evaluation is required for etiology and/or is un-resolving on chest X-ray; **OR**
 - Hemothorax; **OR**
 - Empyema; **OR**
 - Chylothorax; **OR**
 - Bronchopulmonary fistula suspected based on X-rays and clinical parameters; **OR**
 - Recurrent or unexplained pneumothorax; **OR**

- Unintentional weight loss exceeding 5% of the patient's body weight within a 12-month interval and **ANY** of the following is **TRUE**:
 - Persistent weight loss after a period of observation with a negative comprehensive clinical evaluation and **ALL** of the following:
 - ◆ History and physical examination; **AND**
 - ◆ Age-appropriate cancer screening; **AND**
 - ◆ Chest X-ray; **AND**
 - ◆ Initial laboratory evaluation; **OR**
 - Abnormal findings suggestive of malignancy on history, physical exam, imaging, or laboratory evaluation; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Before lung volume reduction (LVR) procedure; **OR**
 - Before lung resection; **OR**
 - Before navigational bronchoscopy; **OR**
 - Identification and location of a device within the lungs and cardiovascular system when chest X-ray are non-diagnostic; **OR**
 - Performance of CT-guided interventional procedures⁴; **OR**
 - Postoperative complications⁴; **OR**
 - Pre-transplant; **OR**
 - Post-transplant if complications or infection are suspected and chest X-ray is non-diagnostic; **OR**
 - Response to therapies including chemotherapy, immunotherapy, and ablative therapies; **OR**
 - Treatment planning and biopsy for surgical or radiation therapy⁴; **OR**

- Follow-up after an established diagnosis of thoracic aortic aneurysm (TAA) for **ANY** of the following reasons (CTA preferred; CT chest may be approved if the patient has renal insufficiency or explicitly states that dye is not wanted)⁸⁻⁹:
 - At 6 months after the initial finding of a dilated thoracic aorta to evaluate the rate of change; **OR**:
 - The patient has no associated condition and **ANY** of the following is **TRUE**:
 - ◆ Annual surveillance of less than 5.0 cm TAA; **OR**
 - ◆ Six-month surveillance of TAA is greater than 5.0 cm or growing more than 0.5 mm a year; **OR**
- ◆ Congenital thoracic anomalies including **ANY** of the following:
 - Congenital pulmonary airway malformation (pediatric); **OR**
 - Chest wall deformities including, but not limited to, pectus excavatum (pediatric only); **OR**
 - Evaluation and management of diaphragmatic hernia; **OR**
 - Pulmonary sequestration; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which

- may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), chest with contrast** is not considered appropriate if **ANY** of the following is **TRUE**¹¹:

- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment; **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.

**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 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.^{[12-13](#)}

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.^{[12-13](#)}

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.^{[12-13](#)}

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.^{[12-13](#)}

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
71250	Computed tomography (CT), thorax; without contrast material

71260	Computed tomography (CT), thorax; with contrast material(s)
71270	Computed tomography (CT), thorax; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Hassankhani et al. (2023) conducted a systematic review and meta-analysis of the diagnostic utility of multidetector computed tomography (MDCT) scans in penetrating diaphragmatic injuries. The study investigates the diagnostic efficacy of MDCT in detecting diaphragmatic injuries caused by penetrating trauma, with a focus on the potential risks of missed injuries and complications in cases managed nonoperatively despite the recognized value of CT scans for stable patients. The progression of CT technology, notably with the emergence of MDCT, has significantly improved the capacity to identify and assess diaphragmatic injuries caused by penetrating trauma. Although CT has solidified its role in evaluating blunt abdominal trauma patients who are hemodynamically stable, becoming the preferred imaging method in this regard, utilization in cases of penetrating thoracoabdominal trauma remains an ongoing subject of investigation. The study underscores the efficacy of MDCT in identifying diaphragmatic injury resulting from penetrating trauma with moderate to high diagnostic accuracy.¹⁴

Cramer et al. (2021) provide a secondary analysis of a randomized control trial (RCT) on the incidence of second primary lung cancer after low-dose CT versus chest X-ray screening in head and neck cancer survivors. A total of 53,452 participants were enrolled in the study; 171 survivors of head and neck cancer were identified (82 had screening via low-dose CT of the chest and 89 via chest X-ray). The average age of participants was 61 years, with 132 being male (77%). The incidence of lung cancer was notably higher among head and neck cancer survivors compared to those without. In head and neck cancer survivors, the incidence of second primary lung cancer was 2610 cases per 100,000 person-years in the low-dose CT group versus 1594 cases per 100,000 person-years in the chest X-ray group. Overall survival in head and neck cancer survivors was 7.07 years with low-dose CT compared to 6.66 years with chest X-ray. The secondary analysis of the RCT indicates that head and neck cancer survivors face a heightened risk of developing second primary lung cancer. Low-dose CT screening is essential for such survivors, particularly individuals with a significant history of cigarette smoking who are deemed suitable for curative treatment.¹⁵

Oldroyd et al. (2021) performed a systematic review and meta-analysis to determine the clinical factors linked with cancer susceptibility in idiopathic inflammatory myopathies (IIMs) and conduct a comprehensive review of the available evidence concerning cancer screening within this context. The meta-analysis assessed the cancer risk linked with numerous clinical risk factors and myositis-specific autoantibodies (MSAs), providing insights for cancer screening strategies among IIM patients. The authors note that findings can collectively contribute to refining cancer screening guidelines, potentially facilitating earlier cancer detection and enhancing patient outcomes.¹⁶

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Clinical Guideline Revision History/Information

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Review History		
Version 2	8/20/2024	Annual review and policy restructure.



Cohere Medical Policy – Computed Tomography (CT), Chest

Clinical Guidelines for Medical Necessity Review

Version: 2

Effective Date: August 20, 2024

Important Notices

Notices & Disclaimers:

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Guideline Information:

Specialty Area: Diagnostic Imaging

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Medical Necessity Criteria

Service: Computed Tomography (CT), Chest

Recommended Clinical Approach

Computed tomography (CT) of the chest can be performed as a screening examination in high-risk patients and to diagnose and evaluate a myriad of thoracic processes involving the lungs, mediastinum/hilum, pleura, and chest wall. Contrast usage is guided by the clinical scenario being investigated.¹

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults²

Solid Nodules*

	Size			
Nodule Type	<6mm (<100 mm ³)	6–8 mm (100–250 mm ³)	>8 mm (>250 mm ³)	Comments
Single				
Low Risk**	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up in low-risk patients (recommendation 1A).
High Risk**	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Certain patients at high-risk with suspicious nodule morphology, upper lobe location, or both may warrant a 12-month follow-up (recommendation 1A).

<i>Multiple</i>				
Low Risk**	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High Risk**	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
Subsolid Nodules*				
	Size			
Nodule Type	<6mm (<100 mm³)	≥ 6 mm (>100 mm³)	Comments	
<i>Single</i>				
Ground Glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules <6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).	
Part Solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components 6mm should be considered highly suspicious (recommendations 4A–4C).	

		remain <6 mm, annual CT should be performed for 5 years.	
<i>Multiple</i>	CT at 3–6 months. If stable, consider CT at 2 and 4 years	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s)	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years(recommendation 5A).

Lung-RADS® (2022) ¹			
Lung-RADS	Category Descriptor	Findings	Management
0	Incomplete Estimated Population Prevalence: ~1%	Prior chest CT examination being located for comparison (see note 9)	Comparison to prior chest CT
		Part of all of the lungs cannot be evaluated	Additional lung cancer screening CT imaging needed
		Findings suggestive of an inflammatory or infectious process (see note 10)	1-3 month LDCT
1	Negative Estimated Population Prevalence: 39%	No lung nodules; OR Nodule with benign features: - Complete, central, popcorn, or concentric ring calcifications; OR - Fat-containing	12-month screening LDCT
2	Benign Based on	Juxtapleural Nodule < 10 mm (524 mm³) mean diameter at baseline or new; AND	

	imaging features or indolent behavior Estimated Population Prevalence: 45%	• Solid; smooth margins; and oval, lentiform, or triangular shape	
		Solid Nodule • < 6 mm (< 113 mm³) at baseline; OR • New < 4 mm (< 34 mm³)	
		Part Solid Nodule • < 6 mm (< 113 mm³) total mean diameter at baseline	
		Non-Solid Nodule (GGN) • < 30 mm (< 14,137 mm³) at baseline, new or growing; OR • ≥ 30 mm (≥ 14,137 mm³) stable or slowly growing (see note 7)	
		Airway nodule, subsegmental – at baseline, new, or stable (see note 11)	
3	Probably Benign Based on imaging features or behavior Estimated Population Prevalence: 9%	• Category 3 lesion that is stable or decreased in size at 6-month follow-up CT; OR • Category 4B lesion proven to be benign in etiology following appropriate diagnostic workup	6-month LDCT
		Solid Nodule • ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New 4 mm to < 6 mm (34 to < 113 mm³)	
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component < 6 mm (< 113 mm³) at baseline • New < 6 mm (< 113 mm³) total mean diameter	
		Non-Solid Nodule (GGN) • ≥ 30 mm (≥ 14,137 mm³) at baseline or new	
		Atypical Pulmonary Cyst (see note 12) • Growing cystic component (mean	

		diameter) of a thick-walled cyst	
		Category 4A lesion that is stable or decreased in size at 3-month follow-up CT (excluding airway nodules)	
4A	Suspicious Estimated Population Prevalence: 4%	Solid Nodule • ≥ 8 mm to < 15 mm (≥ 268 to < 1767 mm³) at baseline; OR • Growing < 8 mm (< 268 mm³) • New 6 to < 8 mm (113 to < 268 mm³)	3-month LDCT; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodule or solid component
		Part Solid Nodule • ≥ 6 mm (≥ 113 mm³) total mean diameter with solid component ≥ 6 mm to < 8 mm (≥ 113 to < 268 mm³) at baseline; OR • New or growing < 4 mm (< 34 mm³) solid component	
		Airway Nodule , segmental or more proximal – at baseline (see note 11)	
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst; OR • Multilocular cyst at baseline; OR • Thin- or thick-walled cyst that becomes multilocular	
4B	Very Suspicious Estimated Population	Airway Nodule , segmental or more proximal – stable or growing (see note 11)	Referral for further clinical evaluation
		Solid Nodule • ≥ 15 mm (≥ 1767 mm³) at baseline; OR • New or growing ≥ 8 mm (≥ 268 mm³)	Diagnostic chest CT with or without contrast; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodules or solid component;
		Part Solid Nodule • Solid component ≥ 8 mm (≥ 268 mm³) at baseline; OR • New or growing ≥ 4 mm (≥ 34 mm³) solid component	
		Atypical Pulmonary Cyst (see note 12) • Thick-walled cyst with growing wall thickness/nodularity; OR	

	Prevalence: 2%	• Growing multilocular cyst (mean diameter); OR • Multilocular cyst with increased loculation or new/increased opacity (nodular, ground glass, or consolidation)	Tissue sampling; and/or referral for further clinical evaluation;
		Slow-growing solid or part-solid nodule that demonstrates growth over multiple screening exams (see note 8)	Management depends on clinical evaluation, patient preference, and the probability of malignancy (see note 13)
4X	Estimated Population Prevalence: <1%	Category 3 or 4 nodules with additional features or imaging findings that increase suspicion for lung cancer (see note 14)	
S	Significant or Potentially Significant Estimated Population Prevalence: 10%	Modifier: May add to category 0–4 for clinically significant or potentially clinically significant findings unrelated to lung cancer (see note 15)	As appropriate to the specific finding

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), chest** is considered appropriate when **ANY** of the following is **TRUE**:

- ◆ Abnormality discovered or partially imaged on other imaging modalities and chest CT evaluation is indicated⁴; **OR**
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following:
 - Chest wall mass with **ANY** of the following:
 - Palpable chest wall mass with non-diagnostic chest X-ray or ultrasound; **OR**

- Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
 - Preoperative planning following biopsy; **OR**
- Pulmonary nodule or mass and **ANY** of the following is **TRUE**:
 - Incidentally detected pulmonary nodule on prior CT chest and the patient meets criteria specified in Fleischner Society Guidelines²; **OR**
 - Pulmonary nodules detected on lung cancer screening CT and the patient meets Lung-RADS® (2022) criteria³; **OR**
 - Nodule or mass detected on non-CT chest imaging (e.g., chest X-ray, CT abdomen/pelvis, MRI, etc.) that requires additional workup; **OR**
- Other thoracic mass lesions when suspected on prior imaging or clinical criteria (e.g., myasthenia gravis for thymoma) including **ANY** of the following:
 - Mediastinal mass; **OR**
 - Pancoast tumor; **OR**
 - Pleural mass; **OR**
 - Thymoma; **OR**
 - Tracheal or endobronchial lesion; **OR**
- Cardiothoracic manifestation of known extrathoracic diseases; **OR**
- Detection and evaluation of metastatic disease when primary malignancy is known⁴; **OR**
- Staging and follow-up of lung cancer or other primary thoracic malignancy⁴; **OR**
- ◆ Infection or an infectious disorder for **ANY** of the following:
 - Pneumonia when **ANY** of the following is **TRUE**:

- Repeat chest X-ray shows no improvement following at least 4–6 weeks of medical treatment⁵; **OR**
- Recurrence of pneumonia in the same location within 6 months; **OR**
- Evaluation of known or suspected complications of pneumonia following nondiagnostic chest X-ray; **OR**
- Immunosuppressed patients with signs or symptoms of pneumonia; **OR**
- For the diagnosis and management of other infectious or inflammatory conditions, including **ANY** of the following:
 - Lung abscess; **OR**
 - Sternal wound infection or dehiscence; **OR**
 - Mediastinitis; **OR**
 - Infectious and inflammatory conditions not listed elsewhere in this guideline; **OR**
- ◆ For the diagnosis and management of blunt or penetrating trauma to the thorax and chest X-ray is non-diagnostic; **OR**
- ◆ For the management (including treatment response), suspected or known, of a parenchymal lung disease including **ANY** of the following when chest X-ray is non-diagnostic:
 - Bronchiectasis; **OR**
 - Bronchiolitis obliterans; **OR**
 - Sarcoidosis; **OR**
 - Interstitial lung disease (including idiopathic pulmonary fibrosis [IPF]); **OR**
 - Occupational lung disease; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following (CTA preferred)^{4,6–7}:
 - Pulmonary hypertension; **OR**
 - Pulmonary vascular malformations; **OR**
 - Pulmonary venous abnormalities; **OR**

- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
- Shortness of breath, when symptoms are unlikely to be cardiac in origin with non-diagnostic chest X-ray **OR**
 - Chest pain that persists despite treatment and chest X-ray is non-diagnostic or requires further evaluation; **OR**
 - Cough (chronic or persistent lasting more than 6 weeks) that does not respond to appropriate treatment and is unexplained by clinical evaluation (including but not limited to reflux disease, post-nasal drip), chest X-ray, and/or pulmonary function testing or spirometry; **OR**
 - Cough (chronic or persistent) in immunosuppressed individuals unexplained by chest X-ray; **OR**
 - Fever of unknown origin with **ANY** of the following:
 - Duration greater than 3 weeks and unexplained following a standard diagnostic evaluation (including chest X-ray) to identify the source; **OR**
 - Unexplained fever in an immunocompromised patient; **OR**
 - Hemoptysis, following non-diagnostic chest X-rays; **OR**
 - Vocal cord paralysis when ENT evaluation including CT neck and direct laryngoscopy have been performed; **OR**
 - Pleural disease including **ANY** of the following:
 - Pleural effusion when further evaluation is required for etiology and/or is un-resolving on chest X-ray; **OR**
 - Hemothorax; **OR**
 - Empyema; **OR**
 - Chylothorax; **OR**
 - Bronchopulmonary fistula suspected based on X-rays and clinical parameters; **OR**
 - Recurrent or unexplained pneumothorax; **OR**

- Unintentional weight loss exceeding 5% of the patient's body weight within a 12-month interval and **ANY** of the following is **TRUE**:
 - Persistent weight loss after a period of observation with a negative comprehensive clinical evaluation and **ALL** of the following:
 - ◆ History and physical examination; **AND**
 - ◆ Age-appropriate cancer screening; **AND**
 - ◆ Chest X-ray; **AND**
 - ◆ Initial laboratory evaluation; **OR**
 - Abnormal findings suggestive of malignancy on history, physical exam, imaging, or laboratory evaluation; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Before lung volume reduction (LVR) procedure; **OR**
 - Before lung resection; **OR**
 - Before navigational bronchoscopy; **OR**
 - Identification and location of a device within the lungs and cardiovascular system when chest X-ray are non-diagnostic; **OR**
 - Performance of CT-guided interventional procedures⁴; **OR**
 - Postoperative complications⁴; **OR**
 - Pre-transplant; **OR**
 - Post-transplant if complications or infection are suspected and chest X-ray is non-diagnostic; **OR**
 - Response to therapies including chemotherapy, immunotherapy, and ablative therapies; **OR**
 - Treatment planning and biopsy for surgical or radiation therapy⁴; **OR**

- Follow-up after an established diagnosis of thoracic aortic aneurysm (TAA) for **ANY** of the following reasons (CTA preferred; CT chest may be approved if the patient has renal insufficiency or explicitly states that dye is not wanted)⁸⁻⁹:
 - At 6 months after the initial finding of a dilated thoracic aorta to evaluate the rate of change; **OR**:
 - The patient has no associated condition and **ANY** of the following is **TRUE**:
 - ◆ Annual surveillance of less than 5.0 cm TAA; **OR**
 - ◆ Six-month surveillance of TAA is greater than 5.0 cm or growing more than 0.5 mm a year; **OR**
- ◆ Congenital thoracic anomalies including **ANY** of the following:
 - Congenital pulmonary airway malformation (pediatric); **OR**
 - Chest wall deformities including, but not limited to, pectus excavatum (pediatric only); **OR**
 - Evaluation and management of diaphragmatic hernia; **OR**
 - Pulmonary sequestration; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which

- may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), chest with contrast** is not considered appropriate if **ANY** of the following is **TRUE**¹¹:

- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment; **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.

**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 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.^{[12-13](#)}

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.^{[12-13](#)}

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.^{[12-13](#)}

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.^{[12-13](#)}

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
71250	Computed tomography (CT), thorax; without contrast material

71260	Computed tomography (CT), thorax; with contrast material(s)
71270	Computed tomography (CT), thorax; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Hassankhani et al. (2023) conducted a systematic review and meta-analysis of the diagnostic utility of multidetector computed tomography (MDCT) scans in penetrating diaphragmatic injuries. The study investigates the diagnostic efficacy of MDCT in detecting diaphragmatic injuries caused by penetrating trauma, with a focus on the potential risks of missed injuries and complications in cases managed nonoperatively despite the recognized value of CT scans for stable patients. The progression of CT technology, notably with the emergence of MDCT, has significantly improved the capacity to identify and assess diaphragmatic injuries caused by penetrating trauma. Although CT has solidified its role in evaluating blunt abdominal trauma patients who are hemodynamically stable, becoming the preferred imaging method in this regard, utilization in cases of penetrating thoracoabdominal trauma remains an ongoing subject of investigation. The study underscores the efficacy of MDCT in identifying diaphragmatic injury resulting from penetrating trauma with moderate to high diagnostic accuracy.¹⁴

Cramer et al. (2021) provide a secondary analysis of a randomized control trial (RCT) on the incidence of second primary lung cancer after low-dose CT versus chest X-ray screening in head and neck cancer survivors. A total of 53,452 participants were enrolled in the study; 171 survivors of head and neck cancer were identified (82 had screening via low-dose CT of the chest and 89 via chest X-ray). The average age of participants was 61 years, with 132 being male (77%). The incidence of lung cancer was notably higher among head and neck cancer survivors compared to those without. In head and neck cancer survivors, the incidence of second primary lung cancer was 2610 cases per 100,000 person-years in the low-dose CT group versus 1594 cases per 100,000 person-years in the chest X-ray group. Overall survival in head and neck cancer survivors was 7.07 years with low-dose CT compared to 6.66 years with chest X-ray. The secondary analysis of the RCT indicates that head and neck cancer survivors face a heightened risk of developing second primary lung cancer. Low-dose CT screening is essential for such survivors, particularly individuals with a significant history of cigarette smoking who are deemed suitable for curative treatment.¹⁵

Oldroyd et al. (2021) performed a systematic review and meta-analysis to determine the clinical factors linked with cancer susceptibility in idiopathic inflammatory myopathies (IIMs) and conduct a comprehensive review of the available evidence concerning cancer screening within this context. The meta-analysis assessed the cancer risk linked with numerous clinical risk factors and myositis-specific autoantibodies (MSAs), providing insights for cancer screening strategies among IIM patients. The authors note that findings can collectively contribute to refining cancer screening guidelines, potentially facilitating earlier cancer detection and enhancing patient outcomes.¹⁶

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Clinical Guideline Revision History/Information

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Review History		
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Cohere Medical Policy - Computed Tomography (CT), Face/Sinus

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: October 30, 2024

Important Notices

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Medical Necessity Criteria

Service: Computed Tomography (CT), Face/Sinus

Recommended Clinical Approach

Computed tomography (CT) of the face/sinus is an advanced imaging modality best utilized per institutional ENT, oncologic, infectious, disease, and radiologic protocols. The specialty guidelines may be consulted before ordering and can direct appropriate contrast utilization patterns.

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), face/sinus (including soft tissues of the extracranial head and neck)** is considered appropriate for **ANY** of the following:

- ◆ Conditions, known or suspected, including **ANY** of the following¹:
 - Anatomic abnormalities (e.g. deviated septum), suspected as a cause of patient symptoms and surgical management is being considered; **OR**
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve (MRI is contraindicated or cannot be performed); **OR**
 - Congenital conditions and craniofacial abnormalities²; **OR**
 - Sinusitis when, if infective, and **ANY** of the following is **TRUE**²⁻⁵:
 - Four or more acute episodes per year and surgery/biologic therapy are contemplated; **OR**
 - Not resolving despite 2 courses of antibiotics; **OR**
 - A complication is suspected (e.g., abscess formation, involvement of adjacent structures such as orbits, cavernous sinus, or intracranial); **OR**
 - The patient is immunocompromised, and invasive fungal sinusitis is suspected; **OR**
 - Allergic fungal sinusitis (AFS) suspected, with failed medical treatment or surgery is contemplated; **OR**

- Chronic rhinosinusitis, symptomatic (discharge, congestion, anosmia, pain), severity staging or restaging when management change is contemplated; **OR**
- Suspected osteonecrosis when the patient is on bisphosphonates or has had radiation; **OR**
- Osteomyelitis; **OR**
- Odontogenic infections with suspected complications (e.g., abscess formation, facial swelling, nerve, sinus involvement); **OR**
- Unexplained facial swelling (e.g. over the mandible); **OR**
- Foreign-body (suspected), clinically or seen on prior imaging; **OR**
- Neoplastic conditions for initial staging, treatment planning, response assessment, and surveillance; **OR**
- Lymphadenopathy with failure of conservative management (e.g., antibiotics, anti-inflammatory) that is documented for a period of greater than two weeks for reactive adenopathy; **OR**
- Sinonasal polyposis detected on nasal endoscopy with **ALL** of the following^{3,6}:
 - The patient is symptomatic; **AND**
 - No relief with appropriate medical therapy (e.g., corticosteroids, antihistamines, antibiotics); **AND**
 - Surgical intervention or biologic therapy is being contemplated; **OR**
- Known sinonasal polyposis with complications suspected, (e.g., involvement of the orbits); **OR**
- Non-infectious inflammatory involvement of the sinus is suspected based on clinical history and symptoms (e.g., history of granulomatosis with polyangiitis)¹; **OR**
- Salivary stones, suspected¹; **OR**
- Salivary gland inflammation (sialadenitis)¹; **OR**
- Trigeminal neuralgia with **ANY** of the following²:
 - MRI is contraindicated or cannot be performed; **OR**
 - Atypical features present (e.g., symptoms outside of typical short-duration trigeminal nerve distribution pain); **OR**
 - Age less than 40; **OR**

- Failure of conservative management with failure of at least two concurrent agents (e.g., gabapentin, duloxetine) and surgery is being considered; **OR**
 - Vascular malformations (e.g., arterio-venous malformations)^{1,8}; **OR**
- ◆ For evaluation of **ANY** of the following symptoms when applicable:
 - Anosmia with **ANY** of the following⁹:
 - Persistent anosmia with nondiagnostic endoscopy; **OR**
 - Abnormal endoscopy with further evaluation needed; **OR**
 - Known or suspected neoplasm; **OR**
 - History of head or facial trauma; **OR**
 - Cerebrospinal fluid (CSF) leak, confirmed on testing or strong clinical history (e.g., prior trauma or CSF leak that increases after Valsalva maneuvers)³; **OR**
 - Epistaxis with failure of conservative management (e.g., nasal packing/tampon, cautery, etc); **OR**
 - Epistaxis with detection of mass, polyp, or other pathology on examination that requires further evaluation¹; **OR**
- ◆ Preoperative, postoperative, and pre-treatment evaluation for surgery, radiation, or chemotherapy; **OR**
- ◆ Maxillo-facial trauma based on history, swelling, prior imaging, and need for further evaluation; **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), face/sinus (including soft tissues of the extracranial head and neck) with contrast** is not considered

appropriate if **ANY** of the following is **TRUE**¹⁰:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹¹; **OR**
- ◆ If contrast is used, 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.

**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 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.¹²⁻¹³

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.¹²⁻¹³

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.^{[12-13](#)}

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.^{[12-13](#)}

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
70486	Computed tomography (CT), maxillofacial area; without contrast material
70487	Computed tomography (CT), maxillofacial area; with contrast material(s)
70488	Computed tomography (CT), maxillofacial area; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Bedernik et al. (2022) conducted a randomized control trial (RCT) to assess image quality by comparing single-energy computed tomography (SECT) with automated tube voltage adaptation (TVA) to dual-energy CT (DECT) weighted average images. A total of 80 patients underwent SECT or radiation dose-matched DECT. The effective radiation dose (ED) showed no significant difference between the SECT and DECT study groups. Compared to the SECT group, the DECT group exhibited significantly higher contrast-to-noise ratio differences (CNRD) for jugular veins relative to fatty tissue and muscle tissue relative to fatty tissue. However, the CNRD for jugular veins relative to muscle tissue was comparable between groups. Image artifacts were also less pronounced, and overall diagnostic acceptability was higher in the DECT group. Overall, DECT-weighted average images demonstrate superior objective and subjective image quality compared to SECT performed with TVA in head and neck imaging.¹⁴

Smith-Bindman et al. (2020) performed an RCT to study the efficacy of interventions to lower the amount of radiation patients are exposed to. The RCT included 864,080 adults at 100 facilities who underwent a CT scan, including CT Head (n = 1,156,657 scans). The study included two primary measures: the percentage of high-dose CT scans and the average effective dose administered at the facility level. The study's secondary measure included the doses received by specific organs. Outcomes were assessed with respect to the impact of the interventions and outcomes post-intervention. Data were contrasted with pre-intervention data, utilizing hierarchical generalized linear models that accounted for temporal patterns and patient attributes. In conclusion, data regarding CT radiation dosage and practical recommendations may improve quality, including significant dose reductions, especially for organ-specific doses.¹⁵

Aulino et al. (2018) report on a clinical trial that focused on an assessment tool for the late effect continuum of lymphedema and fibrosis (LEF) for patients with head and neck cancer (HNC) undergoing CT. The tool evaluates areas of soft tissue damage resulting from tumors, surgical interventions, or radiation therapy. The tool analyzed CT scans taken before and after treatment in 10 patients with HNC. The finalized tool comprised 11 elements, including the assessment of fat stranding at six specific sites, epiglottic thickness measurement, and measurement of prevertebral soft tissue thickness at C3. A total of 176 CT scans from the 20 patients (with a range of 4-14 scans per patient) were evaluated. The final version of the LEF assessment tool (CT-LEFAT) offers a standardized approach to assess critical sites affected by soft tissue damage. Studies continue to evaluate reliability and validity.¹⁶

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Clinical Guideline Revision History/Information

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Review History		
Version 2	8/20/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language



Computed Tomography (CT), Face/Sinus – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: May 6, 2022

Important Notices

Notices & Disclaimers:

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography (CT), Face/Sinuses – Single Service

Physician author: Darko Pucar, MD

Peer reviewed by: Majid Khan, MD; Jonathan Kraas, MD

Literature review current through: 5/2/2022

Document last updated: 6/10/2022

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Face/Sinus

General Guidelines

- **Imaging Modality:** Computed tomography (CT) of the maxillofacial area without contrast material is the exam of choice for the initial evaluation of facial trauma, usually performed in combination with head CT without contrast. Contrast may be used for the evaluation of many other processes.
- **Criteria for Subsequent Requests:** Follow-up exams are typically performed after treatment to assess the response or to establish a post-treatment baseline (particularly after surgery). Follow-exams are also performed if the disease status changes, typically with worsening or recurrence of signs or symptoms or suspected complications. For oncologic cases, the subsequent exams are performed per oncologic protocols.
- **Recommended Clinical Approach:** CT face/sinus is an advanced imaging modality that is best utilized per institutional ENT, oncologic, infectious, disease, and radiologic protocols. The specialty guidelines may be consulted prior to ordering and can direct appropriate contrast utilization patterns.
- **Exclusions:** CT head, CT neck, and MRI face/sinus are covered under separate guideline documents.

Medical Necessity Criteria

Indications

→ **CT Face/Sinus** is considered appropriate if **ANY** of the following is **TRUE**¹⁻¹⁹:

- ◆ Infectious or inflammatory disease, acute and chronic
- ◆ Complications of sinusitis and sinus surgeries
- ◆ Congenital anomaly
- ◆ Neoplasm, benign or malignant including fibro-osseous lesion
- ◆ Vascular pathology or evaluation of hemorrhage/epistaxis
- ◆ Treatment planning for radiation therapy
- ◆ Post-surgery, chemotherapy, or radiation therapy follow-up
- ◆ Operative planning or guidance, including minimally invasive procedures

- ◆ The patient experienced head trauma and **ALL** of the following¹⁰⁻¹⁵:
 - Maxillofacial Injury including sinuses and jaw
 - Initial imaging of head trauma with suspected CSF leak

Non-Indications

→ **CT Face/Sinus** with contrast may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))²⁰
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)²¹
- ◆ Current pregnancy

Site of Service Criteria

Inpatient and outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70486	Computed tomography (CT) of maxillofacial area without contrast material
70487	Computed tomography (CT) of maxillofacial area with contrast material
70488	Computed tomography (CT) of maxillofacial area without contrast material, followed by contrast material and further sections

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Computed Tomography (CT), Lower Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
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Important Notices

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Physician author: Andrew Kompel, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

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Single Services & Medical Necessity Criteria

Service: Computed Tomography (CT), Lower Extremity

General Guidelines

- **Imaging Modality:** CT Lower Extremity is a useful and appropriate imaging study for a variety of indications including screening, evaluation, and follow-up of suspected or proven diagnosis of lower extremity disease. An examination may be performed without contrast, with intravenous (IV) contrast, or with intra-articular contrast depending upon clinical indication and patient ability to tolerate contrast.¹⁻¹⁰
- **Criteria for Subsequent Requests:** New or recurrent symptoms or to monitor response to therapy.
- **Recommended Clinical Approach:** CT of the lower extremity for trauma and fracture generally does not require contrast. Use of IV Contrast should be used at the request of the ordering provider with guidance from the radiologist. Common indications for administering contrast include infectious/inflammatory conditions and tumors/palpable abnormalities/concern for malignancy of the soft tissues. CT scan coverage can be modified to include the region of clinical suspicion. Intra-articular contrast may be useful in patients for whom internal joint derangement or cartilage loss is suspected, but in whom MR is not possible (e.g., incompatible pacemaker, unable to tolerate MR exam, metallic artifact).^{5-8,11-19}
- **Exclusions:** CTA lower extremity and MRI lower extremity are covered in separate guideline documents.

Medical Necessity Criteria

Indications

- **CT Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The patient has known or suspected fracture and **ANY** of the following is **TRUE**^{2,4,6,8,20}:
 - Prior radiographic exam in **ANY** of the following settings:
 - Trauma

- Acute injury
- Delayed fracture healing
- No fracture detected on radiograph and **ANY** of the following:
 - History of injury
 - Clinical suspicion for occult fracture
- ◆ The patient has known or suspected tendon, muscle or ligament injury or abnormality including **ANY** of the following^{13,5,21-22}:
 - Tendinitis
 - Degeneration
 - CT arthrogram for a hip labrum tear and **ALL** of the following²³:
 - Physical exam findings suggesting labral tear without improvement
 - The patient has had conservative treatment for a minimum of three months
 - The patient is less than 50 years of age
 - CT arthrogram for a knee meniscal tear and **ALL** of the following:
 - Concern for rupture or high grade tear based on **ANY** of the following:
 - ◆ Clinical history,
 - ◆ Physical exam and
 - ◆ Imaging
 - Failed conservative treatments
 - Persistent pain for at least 6 weeks
 - Joint-specific orthopedic evaluation and maneuvers suggesting tear
- ◆ Femoral acetabular impingement
- ◆ The patient has an infection or inflammatory condition including **ANY** of the following^{10,12-13,24-26}:
 - Acute osteomyelitis
 - Chronic osteomyelitis and need to evaluate for **ANY** of the following:
 - ◆ Sequestrum
 - ◆ Infected bone fragment
 - Septic arthritis and **ANY** of the following:
 - ◆ Clinical history of **ANY** of the following:
 - IV drug use

- Previous surgery on the suspected joint of concern (e.g., joint replacement/ligament, labral, meniscus repair)
 - Diabetes
 - Adjacent infection
- ◆ Physical exam that supports suspicion of septic arthritis
- ◆ Elevated laboratory markers (e.g., ESR/CRP, white blood cell count)
- ◆ Positive joint aspiration
- Cellulitis, abscess, myositis, fasciitis to further evaluate **ANY** of the following:
 - ◆ Previous imaging findings including ultrasound
 - ◆ Deeper infections in **ANY** of the following areas:
 - Fascia
 - Muscles
- Autoimmune conditions or inflammatory arthritis and **ANY** of the following:
 - ◆ To assist in the diagnosis
 - ◆ To monitor response to treatment
 - ◆ To monitor worsening symptoms
- ◆ The patient has neuropathy, nerve entrapment, or nerve lesion and **ANY** of the following are **TRUE**²⁷⁻²⁸:
 - Persistent symptoms following **ALL** of the following:
 - Conservative treatment for a minimum of three months.
 - Localized electromyography (EMG) abnormality
 - Clinically suspected nerve entrapment and an abnormal electromyography (EMG)
 - Trauma or injury with suspected nerve injury or laceration based of **ALL** of the following:
 - Site of injury
 - Associated neurological deficits (sensory, motor, or both)
 - Known peripheral nerve sheath tumor or syndrome with **ANY** of the following:
 - New or worsening localized pain
 - Enlarging mass
 - Recurrence after prior resection

- ◆ Patient has a mass, malignancy, or palpable abnormality and **ANY** of the following are **TRUE**:
 - Persistent palpable abnormality with **ANY** of the following:
 - Non-diagnostic radiograph
 - Non-diagnostic ultrasound
 - Mass greater than 5 cm and **ANY** of the following:
 - Enlarging lesion,
 - No history of trauma,
 - Deep (not within the skin/ subcutaneous fat)
 - Recurrence after prior surgery
 - Known malignancy with unexpected, localized lower extremity pain or swelling
 - Routine surveillance of known malignancy
 - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial radiologic exam including radiograph, ultrasound, magnetic resonance (MR) and nuclear medicine studies²⁹⁻³⁰
- ◆ Subsequent imaging of abnormal initial imaging finding including **ANY** of the following:
 - Intra-articular body
 - Osteochondral lesion/ osteochondritis dissecans
 - Joint coalition
 - Bone lesion
 - Soft tissue lesion (e.g., foreign body trauma, hematoma, potential non-palpable mass)
- ◆ Osteonecrosis and negative radiographs
- ◆ Joint replacement with clinical concern for dysfunction or loosening
- ◆ Post-operative/procedural evaluation for **ANY** of the following:
 - Suspicion of infection
 - Recurrent symptoms
 - No improvement
 - Abnormal healing

Non-Indications

→ **CT Lower Extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³¹
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)³²
- ◆ Current pregnancy³³

Site of Service Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73700	Computed tomography (CT) of lower extremity without contrast material
73701	Computed tomography (CT) of lower extremity with contrast material
73702	Computed tomography (CT) of lower extremity without contrast material, followed by contrast material and further sections

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Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar) – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 29, 2022

Important Notices

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Physician author: Andrew Kompel, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

General Guidelines

- **Imaging Modality**¹⁻⁷: CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a 2-part procedure: First, iodinated contrast is injected into the spinal canal under fluoroscopic guidance. Second, a CT scan covering the region of concern is performed.
- **Criteria for Subsequent Requests**: For patients with increasing pain or worsening radiculopathy/neurological symptoms (previously imaged with a CT myelogram), a repeat CT myelogram is an appropriate exam. A repeat CT Spine may also be appropriate if a patient with a known vertebral body fracture has a worsening of symptoms and there a concern for additional collapse.
- **Recommended Clinical Approach**^{2-4,8-10}: Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).
- **Exclusions**: MR spine and CT neck/chest/abdomen/pelvis are covered under separate guideline documents.¹¹⁻¹²

Medical Necessity Criteria

Indications

- **CT Spine (Cervical/Thoracic/Lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ If the patient has had trauma and **ANY** of the following are **TRUE**^{1,4,13-14}:
 - High suspicion for fracture
 - Follow-up to initial imaging (radiograph) with positive or indeterminate findings needing advanced imaging
 - Following a traumatic event (e.g., accident, surgery or intervention), the patient has **ANY** of the following:
 - Neurological deficit (myelopathy)

- Radiculopathy
- Persistent or worsening pain without acute findings on initial imaging and the patient is in **ANY** of the following demographics:
 - Elderly
 - Osteoporotic
 - Chronic steroid use
- ◆ If the patient has an infection and **ALL** of the following [2-3,15-17](#):
 - Risk factors for infection including **ANY** of the following:
 - IV drug use
 - Diabetes
 - Immunosuppression
 - Prior spinal infection (e.g., abscess, discitis arachnoiditis, osteomyelitis)
 - Neck or back pain with elevated laboratory markers suspicious for infection
 - Follow-up to abnormal or indeterminate initial imaging
- ◆ If the patient has an autoimmune, inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) and **ANY** of the following [3-4,18-20](#):
 - Pain or radiculopathy
 - Suspicion **ANY** of the following:
 - Fracture
 - Vertebral body subluxation
 - Assist in the diagnostic work-up
 - Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment
- ◆ If the patient has a neoplasm or tumor and **ALL** of the following [2-4,21-23](#):
 - Primary or metastatic lesion to the spinal cord, canal, or vertebral bodies and a need for **ANY** of the following:
 - Initial diagnosis
 - Monitor worsening symptoms/pain
 - Monitor response to treatment
 - Laboratory markers, clinical markers, or prior imaging and **ALL** of the following are **TRUE**:
 - The above suggests the presence of a malignancy or lesion
 - Imaging is to clarify or assist in the diagnosis

- ◆ If the patient has pain or radiculopathy without trauma and **ALL** of the following^{2-4,24-26}:
 - Persistent pain or radiculopathy after at least six weeks of conservative treatment
 - Neurological deficit (myelopathy) or severe radiculopathy and **ANY** of the following:
 - Not previously imaged
 - New or worsening symptoms
 - **ANY** of the following symptoms:
 - ◆ Saddle anesthesia
 - ◆ Bowel/bladder/sexual dysfunction
 - ◆ Severe sciatic/ radiculopathy
 - ◆ Objective muscle weakness
 - ◆ Dermatomal sensory loss
 - Abnormal EMG
 - Suspicion of compression of **ANY** of the following:
 - Spinal cord
 - Cauda equina
 - Nerve root
- ◆ The patient has congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications) and **ANY** of the following²⁷⁻³⁰:
 - Scoliosis, neurological symptoms or worsening pain not previously imaged, or needing preoperative assessment
 - Arnold Chiari malformation
 - Syringohydromyelia/Syrinx
- ◆ The patient is postoperative from a spinal surgery with recurrent or worsening symptoms³¹⁻³²
- ◆ The patient has ANY of the following vascular disorders³³⁻³⁴:
 - Vascular malformation
 - Spinal cord infarct

Non-Indications

→ **CT Spine** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁵

- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)³⁶
- ◆ Current pregnancy³⁷

Site of Service Criteria

Inpatient or outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
72125	Computed tomography (CT) of cervical spine without contrast material
72126	Computed tomography (CT) of cervical spine with contrast material
72127	Computed tomography (CT) of cervical spine without contrast material, followed by contrast material and further sections
72128	Computed tomography (CT) of thoracic spine without contrast material
72129	Computed tomography (CT) of thoracic spine with contrast material
72130	Computed tomography (CT) of thoracic spine without contrast material, followed by contrast material and further sections
72131	Computed tomography (CT) of lumbar spine without contrast material
72132	Computed tomography (CT) of lumbar spine with contrast material
72133	Computed tomography (CT) of lumbar spine without contrast material, followed by contrast material and further sections

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Cohere Medical Policy – Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: August 29, 2024

Important Notices

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Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Date of last literature review: 8/9/2024

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

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Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Computed tomography (CT) utilizes ionizing radiation to create images based on the varying absorption of X-rays by different tissues. This technology provides detailed cross-sectional views and enables the generation of multidimensional 2-D and 3-D reconstructions. CT scanning is highly valuable in clinical practice, particularly for evaluating spinal structures.¹ CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a two-part procedure – iodinated contrast is first injected into the spinal canal under fluoroscopic guidance before a CT scan covering the region of concern is performed.

Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired, and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).²⁻⁴

Medical Necessity Criteria

Indications

→ **Computed tomography (CT), spine (cervical, thoracic, and lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Neoplastic conditions (including masses or mass-like conditions), including **ALL** of the following⁵⁻⁶:
 - Primary or metastatic lesion to the spinal cord, canal, bone, or vertebral bodies and **ANY** of the following is needed:
 - Initial diagnosis; **OR**
 - Monitor response to treatment; **OR**
 - Monitor worsening symptoms or pain; **AND**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**

- Inconclusive or abnormal prior imaging; **OR**
- ◆ **ALL** of the following indications for infection or an infectious disorder (e.g., discitis, osteomyelitis, epidural abscess):
 - **ANY** of the following⁷⁻⁸:
 - Abnormal lab values; **OR**
 - Decubitus ulcer; **OR**
 - New cauda equina syndrome²; **OR**
 - New neurologic deficit; **OR**
 - New or worsening back or neck pain; **OR**
 - Recent intervention (e.g., hardware, pain injection, stimulator implantation); **OR**
 - Wound overlying spine; **OR**
 - **ANY** of the following “red flags”:
 - ◆ Cancer; **OR**
 - ◆ Diabetes mellitus; **OR**
 - ◆ Dialysis; **OR**
 - ◆ HIV; **OR**
 - ◆ Immunosuppression; **OR**
 - ◆ IV drug use; **OR**
 - ◆ Prior spinal infections (e.g., abscess, discitis, arachnoiditis, osteomyelitis); **AND**
 - Follow-up to abnormal or indeterminate initial imaging; **OR**
- ◆ Trauma-related conditions, including **ANY** of the following⁹:
 - Following a traumatic event (e.g., accident, surgery, or intervention), and the patient has **ANY** of the following:
 - Neurological deficit (myelopathy); **OR**
 - Radiculopathy; **OR**
 - Follow-up to initial radiographs with positive or indeterminate findings and advanced imaging is needed; **OR**
 - High suspicion for fracture; **OR**
 - Persistent or worsening pain without acute findings on initial imaging and **ANY** of the following apply to the patient:
 - Chronic steroid use; **OR**
 - Elderly; **OR**
 - Osteoporotic; **OR**
 - Follow-up to initial radiographs for a known or suspected vertebral compression fracture (asymptomatic or symptomatic)¹⁰; **OR**

- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Spinal cord infarct; **OR**
 - Vascular malformation; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) including **ANY** of the following^{3-4,11-13}:
 - To assist in the diagnostic work-up; **OR**
 - Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment; **OR**
 - Pain or radiculopathy; **OR**
 - Suspicion of **ANY** of the following:
 - Fracture; **OR**
 - Vertebral body subluxation; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy without trauma as indicated by **ALL** of the following¹⁻⁴:
 - Neurological deficit (myelopathy) or severe radiculopathy and **ANY** of the following⁴:
 - ◆ Abnormal EMG; **OR**
 - ◆ **ANY** of the following new or worsening symptoms:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Radiculopathy (including sciatica); **OR**
 - Saddle anesthesia; **OR**
 - Sexual dysfunction; **AND**
 - Persistent pain or radiculopathy after at least six weeks of conservative treatment; **AND**
 - Suspicion of compression of **ANY** of the following:
 - ◆ Cauda equina⁴; **OR**
 - ◆ Nerve root; **AND**
 - ◆ Spinal cord; **AND**
 - **ANY** of the following:

- ◆ Back pain as evidenced by **ANY** of the following²:
 - Cauda equina syndrome, suspected; **OR**
 - History of prior lumbar surgery with new or progressing clinical findings; **OR**
 - Osteoporosis; **OR**
 - The patient is a candidate for surgery or intervention and has persistent or progressive symptoms during or following 6 weeks of optimal medical management; **OR**
 - Steroid use, chronic; **OR**
 - Suspicion of **ANY** of the following:
 - Cancer; **OR**
 - Immunosuppression; **OR**
 - Infection; **OR**
- ◆ Cervical or neck pain as evidenced by **ANY** of the following³:
 - Cervicogenic headache with new or increasing non-traumatic cervical or neck pain and no neurologic deficit; **OR**
 - Chronic cervical or neck pain with no neurologic findings and radiographs show degenerative changes; **OR**
 - Chronic cervical or neck pain without or with radiculopathy and radiographs show ossification in the posterior longitudinal ligament (OPLL); **OR**
 - Known malignancy with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
 - New or increasing pain or radiculopathy with no “red flags”; **OR**
 - Prior cervical spine surgery with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
 - Suspicion for infection with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**

- Plexopathy (traumatic) including **ANY** of the following¹⁴:
 - Brachial; **OR**
 - Lumbosacral; **OR**
- ◆ The patient is post-operative from a spinal surgery with recurrent or worsening symptoms¹⁵; **OR**
- ◆ **ANY** of the following indications for congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications)¹⁶:
 - Arnold Chiari malformation; **OR**
 - Neurological symptoms not previously imaged; **OR**
 - Pain that does not improve and imaging previously not performed; **OR**
 - Preoperative assessment needed; **OR**
 - Scoliosis; **OR**
 - Syrinx; **OR**
 - Syringohydromyelia; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), spine (cervical, thoracic, or lumbar)** is not considered appropriate 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; **OR**

◆ If **ANY** of the following is **TRUE** if contrast is used¹⁷:

- History of anaphylactic allergic reaction to iodinated contrast media; **OR**
- Renal insufficiency and no detailed guidelines have been provided; **OR**

◆ Chronic neck pain³; **OR**

◆ Plexopathy (non-traumatic, with or without malignancy) including **ANY** of the following¹⁴:

- Brachial; **OR**
- Lumbosacral.

*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.¹⁸⁻¹⁹

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.¹⁸⁻¹⁹

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.¹⁸⁻¹⁹

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.¹⁸⁻¹⁹

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
72125	Computed tomography (CT), cervical spine; without contrast material
72126	Computed tomography (CT), cervical spine; with contrast material
72127	Computed tomography (CT), cervical spine; without contrast material, followed by contrast material(s) and further sections
72128	Computed tomography (CT), thoracic spine; without contrast material
72129	Computed tomography (CT), thoracic spine; with contrast material
72130	Computed tomography (CT), thoracic spine; without contrast material, followed by contrast material(s) and further sections
72131	Computed tomography (CT), lumbar spine; without contrast material
72132	Computed tomography (CT), lumbar spine; with contrast material
72133	Computed tomography (CT), lumbar spine; without

	contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Ahmad et al. (2023) conducted a systematic review on the use of computed tomography (CT) and magnetic resonance imaging (MRI) with respect to the correlations between bone mineral density (BMD) derived from scans and Dual-Energy X-ray Absorptiometry (DEXA). A comprehensive analysis of 25 studies was included (15 utilizing CT and 10 utilizing MRI) with a total of 2745 patients. Articles published from 2011 to 2021 were included investigating the associations between CT or MRI measurements such as CT-derived Hounsfield units (CT-HU) values or MRI parameters, and DEXA-derived BMD, specifically focusing on lumbar spine or hip regions. CT-HU exhibits stronger correlations with DEXA measurements than MRI parameters however, both CT and MRI demonstrate moderate correlations with DEXA. Additional research is needed within spine surgery cohorts, including inferior correlations in populations with degenerative spine conditions.²⁰

Bäcker et al. (2021) performed a systematic literature review and meta-analysis to assess the sensitivity, specificity, and accuracy of dual-energy computed tomography (DE-CT) in detecting bone marrow edema and disc edema in spinal injuries. Early diagnosis of vertebral injuries is crucial to prevent treatment delays. Imaging modalities such as MRI or DE-CT are necessary to identify bone marrow or disc edemas. The analysis encompassed 13 studies involving 515 patients, 3335 vertebrae, and 926 acute fractures confirmed by MRI, which was used for comparison in 12 publications. DE-CT demonstrated an overall sensitivity of 86.2%, specificity of 91.2%, and accuracy of 89.3%. In addition, five studies reported the accuracy of conventional CT, yielding an overall sensitivity of 81.3%, specificity of 80.7%, and accuracy of 80.9%. Overall, DE-CT shows promise as a diagnostic tool for detecting bone marrow and disc edemas, potentially offering an alternative to MRI, the current gold standard.²¹

Ghudasara et al. (2019) review the use of postoperative CT following spine surgery. Scans are useful to identify implant locations and integrity, evaluate the efficacy of decompression and intervertebral arthrodesis procedures, and identify associated complications. While metallic implant artifacts may limit postoperative spinal CT scans, advancements in parameter optimization and metal artifact reduction techniques (e.g., iterative reconstruction and monoenergetic extrapolation methods) offer significant improvements in image quality. Furthermore, they are valuable in detecting and characterizing any postoperative irregularities. Complications following spinal surgery and intervertebral arthroplasty range from issues with implant position and integrity to adjacent segment degeneration, collections, fistulas, pseudo meningoceles, cerebrospinal fluid leaks, and surgical site infections.¹⁵

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Review History		
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Cohere Medical Policy – Computed Tomography (CT), Upper Extremity

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Medical Necessity Criteria

Service: Computed Tomography (CT), Upper Extremity

Recommended Clinical Approach

Computed tomography (CT) of the upper extremity for trauma typically does not require contrast. IV contrast is used if requested by the ordering provider and guided by the radiologist. Common reasons for using contrast include detecting infectious and inflammatory conditions, or suspected malignancy. In cases where internal joint derangement or cartilage loss is suspected but MRI is not feasible (e.g., due to an incompatible implanted device, inability to tolerate an MRI exam or metallic artifacts), intra-articular contrast may be beneficial.

Medical Necessity Criteria

Indications

- **Computed tomography (CT), upper extremity** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Traumatic upper extremity injury (e.g., fracture, dislocation) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**¹⁻³:
 - Bony injury and **ANY** of the following is **TRUE**⁴:
 - Fracture (known) and additional detail needed; **OR**
 - Acute injury with occult fracture suspected; **OR**
 - Joint dislocation or instability; **OR**
 - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
 - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
 - Suspected soft tissue injury (e.g., rotator cuff tear), and MRI and ultrasound are contraindicated or cannot be performed^{1,3,5-6}; **OR**

- ◆ Detection, screening, or surveillance of neoplasms, masses, and cysts of an upper extremity, and **ANY** of the following is **TRUE**⁷:
 - Malignant or aggressive primary tumor⁷; **OR**
 - A bone tumor is suspected with indeterminate or aggressive appearance of an incidental osseous lesion on MRI or radiographs for unrelated indication⁸; **OR**
 - Presence of a mass with **ANY** of the following⁹:
 - Absence of trauma; **OR**
 - Rapid growth; **OR**
 - Recurrence after prior surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
 - Known malignancy and **ANY** of the following is required:
 - Monitor response to treatment; **OR**
 - Surveillance after treatment or surgery; **OR**
 - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
 - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study⁸⁻⁹; **OR**
- ◆ Infectious disorder, including **ANY** of the following:
 - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling; **OR**
 - Osteomyelitis suspected¹⁰; **OR**
 - Soft tissue infection suspected with **ANY** of the following¹⁰:
 - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling; **OR**
 - History of puncture wound with possible retained foreign body; **OR**
 - High clinical suspicion of necrotizing fasciitis; **OR**
- ◆ Vascular conditions, known or suspected, when ultrasound and MRI are contraindicated or inconclusive; **OR**
- ◆ Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Marrow abnormalities¹²⁻¹³; **OR**
 - Pain or weakness of an upper extremity as indicated by **ALL** of the following^{5,14}:
 - Nondiagnostic or indeterminate imaging (e.g. radiographs, US); **AND**

- Failure of conservative management (e.g., rest, analgesics, physical therapy, oral or injectable corticosteroids) must be documented for a period of greater than 3 months; **AND**
- Concern for rupture or high-grade tear based on **ALL** of the following:
 - ◆ Clinical history; **AND**
 - ◆ Physical exam; **OR**
- Screening, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)¹¹; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography (CT), upper extremity** 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 symptoms; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to iodinated contrast media; **OR**
- ◆ Renal insufficiency and no detailed guidelines have been

provided.

*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.^{[15-16](#)}

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.^{[15-16](#)}

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.^{[15-16](#)}

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.^{[15-16](#)}

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
73200	Computed tomography (CT), upper extremity; without contrast material
73201	Computed tomography (CT), upper extremity; with contrast material
73202	Computed tomography (CT), upper extremity; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Drezin et al. (2022) review the role of computed tomography (CT) and computed tomography angiography (CTA) in trauma and salvaging a threatened or mangled extremity. When reviewing CT scans to assess complications around the amputation site, close attention should be paid to signs such as surgical wound opening, ulceration, infection, post-surgical blood collections, lingering bone fragments, abnormal bone growth, excessive scarring, and the maintenance of vascular function. Damage control techniques involve swift actions to manage bleeding and restore blood circulation. Early implementation of fasciotomies may be required, along with immediate temporary realignment and stabilization using splints, traction, or external fixation. The measures aim to safeguard the repaired blood vessels and ensure a smooth connection without tension.¹⁸

Saliken et al. (2015) performed a systematic review of glenohumeral instability related to traumatic anterior shoulder dislocation. Among the primary risk factors contributing to recurrent instability are glenoid and Hill-Sachs bone loss. The efficacy of arthroscopic Bankart repairs is notably impacted by the extent of bone loss, with larger degrees of bone loss correlating with higher failure rates. The review addressed optimal imaging techniques for quantifying glenohumeral bone loss. Various imaging modalities such as radiography, CT scans, and MRI scans are utilized; however, there is currently no universally accepted gold standard method. The authors concluded that radiography serves as a valuable tool in screening patients for significant glenoid bone loss, while CT imaging, employing methods such as the Glenoid Index or Pico Method, demonstrates substantial evidence supporting its efficacy in accurately quantifying glenoid bone loss. Further research is needed to establish the optimal imaging modality and method for precisely quantifying glenohumeral bone loss.¹⁹

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Version 2	8/29/2024	Annual review and policy restructure.



Computed Tomography (CT), Upper Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 29, 2022

Important Notices

Notices & Disclaimers:

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not Applicable

Care Path Name: CT (Upper Extremity) - Single Service

Physician author: Andrew Kompel, MD

Peer reviewed by: Cindy Lee, MD; Jonathan Kraas, MD

Literature review current through: 4/25/2022

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography (CT), Upper Extremity

General Guidelines

- **Imaging Modality**¹⁻⁴: CT upper extremity is a useful and appropriate imaging study for a variety of indications including screening, evaluation and follow up of suspected or proven diagnosis of upper extremity pathology. An examination may be performed without contrast, with intravenous (IV) contrast, or with intra-articular contrast, depending upon clinical indication and the patient's ability to tolerate contrast.
- **Criteria for Subsequent Requests**: New or recurrent symptoms or to monitor response to therapy.
- **Recommended Clinical Approach**^{2,5-10}: CT of the upper extremity for trauma and fracture generally does not require contrast. Use of IV Contrast should be used at the request of the ordering provider with guidance from the radiologist. Common indications for administering contrast include infectious/inflammatory conditions and tumors/palpable abnormalities/concern for malignancy of the soft tissues. CT scan coverage can be modified to include the region of clinical suspicion. Intra-articular contrast may be useful in patients for whom internal joint derangement or cartilage loss is suspected, but in whom but MR is not possible (e.g., incompatible pacemaker, unable to tolerate MR exam, metallic artifact)
- **Exclusions**^{11,12}: CTA of the upper extremity and MRI of the upper extremity are covered in separate guideline documents.

Medical Necessity Criteria

Indications

→ **CT Upper Extremity** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has a known or suspected fracture based on **ANY** of the following^{1-3,13-15}:
 - Trauma or acute injury with fracture suspected
 - With no fracture detected on radiograph and **ANY** of the following:
 - History of injury

- Clinical suspicion for occult fracture
 - To evaluate suspected fracture malunion including delayed or non-healing
- ◆ The patient has pain or weakness with a suspicion for tendon, muscle or ligament injury or abnormality (e.g., tendinitis, degeneration) including shoulder labrum and triangular fibrocartilage (wrist) tear as indicated by **ANY** of the following^{1-2,16-20}:
 - Concern for acute rupture or high grade tear based on **ALL** of the following:
 - Clinical history
 - Physical exam
 - Prior radiographs (not including chronic pain or suspicion for chronic or low grade injury)
 - Completed a trial of conservative treatment and physical therapy for at least three months and **ALL** of the following:
 - Minimal improvement or worsening of pain
 - Clinical re-evaluation
 - Persistent pain for at least 6 weeks and **ALL** of the following:
 - Joint specific orthopedic evaluation
 - Maneuvers suggesting tear
 - Failed conservative treatments including physical therapy
- ◆ The patient has an infectious or inflammatory condition and **ANY** of the following^{7,21-24}:
 - Suspected acute osteomyelitis
 - Chronic osteomyelitis and need to evaluate for sequestrum or infected bone fragment
 - Suspected septic arthritis indicated by **ANY** of the following:
 - Clinical history of **ANY** of the following:
 - ◆ IV drug use
 - ◆ Previous surgery
 - ◆ Diabetes
 - ◆ Adjacent infection
 - Physical exam
 - Elevated laboratory markers (ESR/CRP, white blood cell count)
 - Positive joint aspiration

- Cellulitis, abscess, myositis, fasciitis to evaluate for **ANY** of the following:
 - To clarify previous imaging findings
 - Deeper infections including the fascia and muscles
- Autoimmune conditions/inflammatory arthritis for **ANY** of the following:
 - Assist in the diagnosis
 - Monitor response to treatment
 - Monitor worsening symptoms (e.g., joint specific pain or localized arm pain for myositis)
- ◆ The patient has a mass, malignancy, palpable abnormality and **ANY** of the following^{6,8,25}:
 - Persistent palpable abnormality with non-diagnostic radiograph or ultrasound
 - A mass greater than 5 cm and a clinical history of **ANY** of the following that may be more concerning:
 - Enlarging lesion
 - No history of trauma
 - Deep (not within the skin/ subcutaneous fat)
 - Recurrence after prior surgery if previously treated
 - Known malignancy with localized upper extremity pain or swelling to assess for **ANY** of the following:
 - Monitor response to treatment
 - Surveillance after treatment or surgery
 - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial radiologic exam (e.g., radiograph, ultrasound and nuclear medicine studies)
- ◆ The patient has neuropathy, nerve entrapment, nerve lesion and **ANY** of the following²⁶⁻²⁸:
 - Persistent neurological symptoms following **ALL** of the following:
 - At least 3 months of conservative treatment
 - Localized EMG abnormality
 - Clinically suspected nerve entrapment indicated by **ALL** of the following:
 - Abnormal EMG to assist in diagnosis and treatment options
 - Indeterminate or abnormal radiograph to assist in diagnosis and treatment options

- Trauma or injury and **ALL** of the following:
 - Suspected nerve injury or laceration
 - Associated neurological deficits
- Known peripheral nerve sheath tumor or syndrome and **ANY** of the following:
 - New or worsening localized pain
 - Enlarging mass
 - Recurrence after prior resection
- ◆ If the patient has **ANY** of the following [1,4-6,16,18,21,29-30](#):
 - Suspected osteonecrosis with negative radiographs
 - Subsequent imaging of abnormal initial imaging finding including **ANY** of the following:
 - Intra-articular body
 - Osteochondral lesion or osteochondritis dissecans
 - Bone or soft tissue lesion
 - Joint replacement with clinical concern for **ANY** of the following:
 - Dysfunction
 - Loosening
 - Shoulder dislocation or instability and **ANY** of the following:
 - Dislocation without prior evaluation
 - Initial imaging with findings of prior dislocation (Bankart lesion or Hill-Sachs deformity)
 - Recurrent symptoms or dislocation after prior surgery
 - Superior labral tear anterior to posterior (SLAP) and **ALL** of the following:
 - Physical exam findings suggesting SLAP injury
 - No improvement after conservative treatment
 - Patient is less than 50 years of age
 - Postoperative or procedural evaluation and **ANY** of the following:
 - Suspicion for infection
 - Recurrent symptoms
 - No improvement or abnormal healing

Non-Indications

→ **CT Upper Extremity** may not be appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³¹
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)³²
- ◆ Current pregnancy³³

Site of Service Criteria

Outpatient or inpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73200	Computed tomography (CT) of upper extremity without contrast material
73201	Computed tomography (CT) of upper extremity with contrast material
73202	Computed tomography (CT) of upper extremity without contrast material, followed by contrast material and further sections

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Cohere Medical Policy–Computed Tomography Angiography (CTA), Abdomen/Pelvis, including Lower Extremity RunOff

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: October 30, 2024

Important Notices

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Abdomen/Pelvis

Recommended Clinical Approach

Computed tomography angiography (CTA) is a preferred imaging test for various aortic conditions because of its excellent spatial resolution, rapid image acquisition, and wide availability. CTA provides a robust tool for planning aortic interventions and diagnosing acute and chronic vascular diseases in the abdomen. CTA is the standard for imaging aneurysms before intervention and evaluating the aorta in the acute setting to assess the traumatic injury, dissection, and aneurysm rupture. Knowledge of the imaging features of these disease processes, inflammatory vasculitides, and occlusive atherosclerotic disease is essential for guiding the surgical and medical management of patients. Computed tomography venography (CTV) is a diagnostic imaging procedure that uses computed tomography (CT) to visualize the veins in the body. CTV can detect deep vein thrombosis (DVT) and evaluate venous insufficiency. Advantages include the ability to capture high-resolution images and are non-invasive and efficient.¹

Medical Necessity Criteria

Indications

→ **Computed tomography angiography or venography (CTA/CTV) of the abdomen/pelvis (CPT 74191, 74174)** is considered appropriate when **ANY** of the following is **TRUE**:

- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Suspected renal artery stenosis, when intervention is planned if diagnosed, including **ANY** of the following:
 - Previous imaging (e.g., ultrasound) indicates small kidney or unequal kidney sizes²⁻³; **OR**
 - Renal artery Doppler ultrasound suggests renal artery stenosis; **OR**
 - Early-onset hypertension (age less than 35, diastolic greater than 110 mmHg)⁴; **OR**
 - Late-onset hypertension (age greater than 50)²⁻⁴; **OR**
 - Renal artery bruit²⁻⁴; **OR**

- Malignant or accelerated hypertension⁴; **OR**
- Sudden development or worsening of hypertension⁴; **OR**
- Deterioration of renal function in response to angiotensin-converting enzyme inhibitors⁴; **OR**
- Hypertension resistant to medication, and the patient must be currently taking **ALL** of the following at maximally tolerated doses⁴⁻⁵;
 - ◆ Long-acting calcium channel blocker; **AND**
 - ◆ Long-acting ace inhibitor or angiotensin receptor blocker (ARB); **AND**
 - ◆ Diuretic (e.g., loop or thiazide); **OR**
- Mesenteric ischemia or ischemic enteritis/colitis when **ANY** of the following is **TRUE**:
 - High suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - Anion-gap metabolic acidosis and/or high lactate in the setting of severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors or known vascular disease (e.g., age greater than 60 years, known coronary artery disease [CAD] or peripheral artery disease [PAD]) with severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors with post-prandial pain that affects daily life (e.g., fear of food, weight loss); **OR**
 - Symptoms or signs indicating lower GI bleeding; **OR**
- Thromboembolic disease; **OR**
- Concern for aneurysm when ultrasound is inconclusive or non-diagnostic, based on documented clinical or imaging findings; **OR**
- Known unrepaired aortic aneurysm over 5.4 cm in size, initial evaluation, if surgical intervention is being planned⁷⁻⁸; **OR**

- Unrepaired aortic aneurysm when ultrasound and non-contrast CT are inconclusive. Follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**⁹:
 - 3 to 3.9 cm, every 3 years; **OR**
 - 4 to 4.9 cm, annually; **OR**
 - 5 to 5.4 cm, every 6 months; **OR**
- Preoperative planning for thoracoabdominal aortic aneurysm (TAAA) or dissection (with or without symptoms) and **ANY** of the following is **TRUE**¹⁰:
 - CTA of the chest has been performed; **OR**
 - Endovascular repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Open repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - Follow-up after **ANY** of the following:
 - ◆ Endovascular repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
 - ◆ Known thoracoabdominal aortic aneurysm (TAAA) or dissection without repair; **OR**
 - ◆ Open repair of thoracoabdominal aortic aneurysm (TAAA); **OR**
- Vascular invasion or displacement by tumor or other process; **OR**
- Assessment of patients with spontaneous coronary artery dissection (SCAD), one-time; **OR**
- Trauma, with concern for solid organ or vascular injury¹¹⁻¹²; **OR**
- Vasculitis, initial evaluation, when **ANY** of the following is **TRUE**^{11,13-15}:
 - 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**
 - The outcome of the imaging is expected to change management and/or treatment plan; **OR**
- Evaluation of hepatic arteries, when ultrasound is inconclusive, nondiagnostic, or abnormal requiring confirmation; **OR**

- Evaluation of other visceral arteries, including, but not limited to, suspected superior mesenteric artery (SMA) syndrome and median arcuate ligament syndrome (MAL)¹⁶⁻¹⁷; **OR**
 - Evaluation of the portal venous system (hepatic portal system) after Doppler ultrasound has been performed; **OR**
 - Diffuse unexplained lower extremity edema with negative or inconclusive ultrasound; **OR**
 - Suspected venous compression syndrome (e.g., Nutcracker syndrome [renal vein compression], May-Thurner syndrome [iliac vein compression syndrome including pelvic CT venography])¹⁸⁻¹⁹; **OR**
 - Large vein thrombosis of the major abdominal or pelvic veins, including inferior vena cava (IVC), iliac, renal, portal, and hepatic veins, when Doppler ultrasound is inconclusive or indicates the presence or complications; **OR**
 - Detailed evaluation for pelvic congestion syndrome; **OR**
 - Other, unspecified vascular findings that were inconclusive on prior imaging; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
- Evaluation post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA) and **ANY** of the following is **TRUE**^{2-3,9}:
 - Follow-up within one month; **OR**
 - Follow-up within one year; **OR**
 - Type II endoleak, every six months for up to two years after diagnosis: **OR**
 - Type II endoleak, annual followup; **OR**
 - Planning for vascular surgery, interventional procedure; **OR**
 - Other procedures involving arteries (e.g., inferior epigastric arteries for breast reconstruction, ureteropelvic junction [UPJ] obstruction, solid organ transplant, prostate embolization); **OR**
 - Renal transplant rejection/dysfunction, when ultrasound and nuclear medicine (e.g., MAG3, DTPA) scans are inconclusive or are indicative of a vascular cause of rejection or dysfunction²⁰; **OR**
 - Anastomotic integrity or stent patency; **OR**

- Other vascular graft complication (e.g., suspected infection, pseudoaneurysm, or thrombosis)¹¹; **OR**
- ◆ Gastrointestinal bleeding including **ANY** of the following⁹:
 - Lower gastrointestinal tract bleeding with **ANY** of the following²¹:
 - Active bleeding is clinically observed as hematochezia or melena in a hemodynamically stable patient, where colonoscopy is contraindicated or unavailable; **OR**
 - Active bleeding in a hemodynamically unstable patient or a patient who has required more than 5 units of blood within 24 hours; **OR**
 - Concern for ongoing or recurrent bleeding after treatment (e.g., colonoscopy or transcatheter angiography); **OR**
 - Upper gastrointestinal bleeding (non-variceal) with **ANY** of the following²²:
 - High suspicion of an arterial source endoscopy is contraindicated (e.g., post-surgical or traumatic cause), or inconclusive; **OR**
 - Source of bleeding is not identified on endoscopy; **OR**
- ◆ Known or suspected syndromes with increased risk of vascular anomalies including **ANY**, but not limited to, the following:
 - As a one-time screening for syndromes with a vascular component (e.g., fibromuscular dysplasia, Ehlers-Danlos syndrome, Marfan syndrome, neurofibromatosis, William's syndrome, tuberous sclerosis); **OR**
 - Loeys Dietz (every two years for screening; surveillance as indicated depending on abnormalities found)²³⁻²⁴; **OR**
 - Other syndromes not otherwise specified, follow-up as clinical documentation supports; **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 angiogram and/or venography (CTA/CTV) of the abdomen/pelvis with runoff (CPT 74175, 75635)** is considered appropriate when **ANY** of the following is **TRUE**:

◆ Lower extremity ischemic symptoms when **ALL** of the following are **TRUE**:

- **ANY** of the following:
 - Leg pain worsens with activity and relief with rest (claudication); **OR**
 - Non-healing lower extremity ulcers; **AND**
- **ALL** of the following:
 - Limitation of performance of daily activities; **AND**
 - Expected mobility after treatment warrants revascularization; **AND**
 - Revascularization is planned²⁵; **AND**
 - Abnormal ABI as evidenced by **ANY** of the following:
 - ◆ ABI is inconclusive or nondiagnostic; **OR**
 - ◆ ABI less than 0.9 or greater than 1.4 on at least one leg; **OR**
 - ◆ ABI less than 1.1 in patients with risk factors for atherosclerosis (e.g., personal history of diabetes or known cardiac disease)²⁶; **OR**
- ◆ Critical limb ischemia strongly suspected (sudden onset of a cold leg with pain, gangrene, rest pain)²⁷; **OR**
- ◆ Evidence of severe venous reflux disease, including venous leg ulcer, when pelvic or abdominal etiology is suspected; **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 angiogram and/or venography (CTA/CTV) of the abdomen/pelvis with contrast** is not considered appropriate if **ANY** of the following is **TRUE**²⁸:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms²⁹; **OR**
- ◆ The request is for CT/CTA with contrast, and the patient has a 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.

**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 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.³⁰⁻³¹

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.^{[30-31](#)}

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.^{[30-31](#)}

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.^{[30-31](#)}

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
72191	Computed tomographic angiography (CTA), pelvis; with contrast material(s) including non-contrast images, if performed, and image postprocessing
74174	Computed tomographic angiography (CTA), abdomen and pelvis; with contrast material(s), including non-contrast images, if performed, and image postprocessing
74175	Computed tomographic angiography (CTA), abdomen; with contrast material(s), including non-contrast images, if performed, and image postprocessing
75635	Computed tomographic angiography (CTA), abdominal aorta, and bilateral iliofemoral lower extremity runoff; with contrast material(s), including non-contrast images, if performed, and image postprocessing

Medical Evidence

Allam et al. (2024) review multiple imaging modalities in vasculitis. Advantages of computed tomography angiography (CTA) include its high availability and rapid execution, along with excellent spatial and temporal resolution. Additionally, coronary CTA can be performed simultaneously if there is a suspicion of coronary artery disease (CAD). A prospective study by Lariviere et al. (2016) demonstrates that CTA can identify late complications such as stenosis, dissection, or aneurysms. In another prospective study, CTA showed a sensitivity of 73% and a specificity of 78% for diagnosing giant cell arteritis compared to clinical diagnosis.³²⁻³³

Fernando et al. (2022) conducted a meta-analysis to assess the effectiveness of various diagnostic methods, including presenting symptoms, physical examination findings, CTA, and point-of-care ultrasound (PoCUS) in accurately identifying ruptured abdominal aortic aneurysm (rAAA). A total of 2077 patients from 20 studies were included. While classic clinical symptoms related to rAAA may lack sensitivity, their absence does not always exclude the diagnosis. CTA exhibits reasonable accuracy but may still fail to detect some instances of rAAA. PoCUS may be a valuable resource when determining the transfer of suspected rAAA patients to a vascular center.¹⁹

Rotzinger et al. (2020) prospectively compared three image acquisition techniques in lower extremity CT angiography. Of the 60 consecutive patients enrolled, each was randomly assigned to one of three groups: the standard anterograde technique (SA), the adaptive anterograde technique (AA), and the retrograde acquisition technique (RA). Quantitative image quality was evaluated by measuring intraluminal attenuation at 536 different levels. Additionally, occlusive or aneurysmal disease was documented for each patient and limb. The RA technique demonstrated lower attenuation compared to the SA and AA techniques. The highest and most consistent attenuation was found with the AA technique. Qualitative analysis revealed that AA had the lowest rate of non-diagnostic vascular segments, followed by SA and RA. Venous contamination was significantly higher with RA, particularly at the aortic level. The presence of stenosis or occlusion did not significantly affect attenuation values across all techniques, whereas aneurysmal disease significantly impacted luminal attenuation in AA (increased attenuation) and RA (decreased attenuation) at the iliac and femoral levels.³⁴

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Version 2	8/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.



Computed Tomography Angiography (CTA), Abdomen/Pelvis – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 15, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography Angiography (CTA), Abdomen/Pelvis – Single Service

Physician author: Vinay Duddalwar, MD

Peer reviewed by: Andrew Kempel, MD; Jonathan Kraas, MD

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Abdomen/Pelvis

General Guidelines

- **Imaging Modality:** Computed tomographic angiography (CTA) is a noninvasive imaging technology used for the evaluation and imaging of vessels in the abdomen and pelvis. It is equivalent to conventional angiography in the evaluation of diseases of many portions of the vascular system, abdominal and pelvic viscera, and for pretreatment planning as well as in the assessment of acute bleeding conditions in the abdomen.¹⁻⁹
- **Criteria for Subsequent Requests:** For follow-up after treatment and surveillance of specific conditions in the list of indications below, a CTA evaluation is appropriate.
- **Recommended Clinical Approach:** The request for the examination must be submitted by a physician or other appropriately licensed healthcare provider. A physician or other appropriately licensed healthcare provider should provide the accompanying clinical information familiar with the patient's clinical problem or question and consistent with the state scope of practice requirements. CT exams can have multi-phase scans for varying indications, with CTA or CTV included as one of the scan phases.
- **Exclusions:** CT abdomen/pelvis and MRA abdomen/pelvis are covered under separate guidelines.

Medical Necessity Criteria

Indications

→ **CTA Abdomen/Pelvis** is considered appropriate if **ANY** of the following is **TRUE**¹⁻⁹:

- ◆ Suspected abnormality of the aorta or major branches including **ANY** of the following:
 - Aneurysm/pseudoaneurysm²
 - Dissection
 - Stenosis or occlusion with or without associated lower extremity claudication within **ANY** of the following categories:
 - Atherosclerotic

- Thromboembolic
- Vasculitis
- Sickle cell associated
- Mesenteric ischemia³⁻⁵
- Renovascular hypertension/renal artery stenosis
- Suspected leak or stenosis following open or endovascular repair which can include stent placement
- Hemorrhage/hematoma, including gastrointestinal bleeding and post-traumatic⁶⁻⁸
- ◆ Planning for embolization procedure (e.g., evaluation of vascular malformations, AV fistulas, tumor, uterine fibroids, and chemo-embolization)
- ◆ Vascular mapping for organ donation or tissue transfer flap
- ◆ Evaluate post-procedure anastomosis, endovascular graft surveillance or for collateral flow
- ◆ Possible tumor involvement

→ **CTV Abdomen/Pelvis** is considered appropriate if **ANY** of the following is **TRUE**⁹:

- ◆ Suspected thrombosis (either independent or malignancy associated) of the major abdominal or pelvic veins as indicated by **ANY** of the following:
 - IVC or IVC filter related
 - Portal and hepatic veins (e.g., Budd Chiari Syndrome)
 - Major pelvic veins (e.g., May-Thurner syndrome)
 - Suspected propagation of known lower extremity deep venous thrombosis (DVT)
- ◆ Pre- or post-treatment assessment as indicated by **ANY** of the following:
 - Vascular mapping for organ donation or prior to procedure/surgery for planning purposes (including TIPS)
 - Anastomotic or stent patency
 - Possible tumor involvement
 - Vascular malformation

Non-Indications

→ **CTA Abdomen/Pelvis** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))¹⁰
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)¹¹

→ **CTA Abdomen/Pelvis** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Current pregnancy¹²

Site of Service Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
74174	Computed tomographic angiography (CTA) of abdomen and pelvis with contrast material and image postprocessing
74175	Computed tomographic angiography (CTA) of abdomen with contrast material and image postprocessing
72191	Computed tomographic angiography (CTA) of pelvis with contrast material and image postprocessing
75635	Computed tomographic angiography (CTA) of abdominal aorta and bilateral iliofemoral lower extremity runoff, with contrast material and image postprocessing

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Cohere Medical Policy – Computed Tomography Angiography (CTA), Chest

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Chest

Recommended Clinical Approach

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), chest** is considered appropriate if **ANY** of the following is **TRUE**¹⁻²:

- ◆ Trauma to the chest and vascular injury is suspected³; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm, known or suspected by prior imaging (ascending, transverse, or thoracic) for initial diagnosis
 - Aortic disease (non-traumatic) for initial diagnosis based on prior imaging or risk factors, surgical planning, or assessing treatment response or complications with **ANY** of the following^{4,6-7}:
 - Congenital conditions (e.g., vascular anomaly); **OR**
 - Aortic rupture; **OR**
 - Dissection; **OR**
 - Mediastinal hematoma; **OR**
 - Intramural hematoma; **OR**
 - Penetrating atherosclerotic ulcer; **OR**
 - Pseudoaneurysm; **OR**
 - Infectious vasculitis (syphilis, mycotic aneurysm); **OR**
 - Inflammatory vasculitis; **OR**

- Large-vessel vasculitis (e.g., Takayasu arteritis, giant cell arteritis, systemic lupus erythematosus)⁵; **OR**
 - Medium-vessel vasculitis (e.g., vasculitis affecting main visceral arteries)⁵; **OR**
 - Neoplastic; **OR**
- Suspected arterial embolism that impacts **ANY** of the following⁸:
 - Upper or lower extremity; **OR**
 - Mesenteric system; **OR**
 - Renal arterial system; **OR**
- Pulmonary arteriovenous malformation (PAVM), suspected, based on prior imaging or risk factors; **OR**
- Pulmonary embolism (PE) as indicated by **ANY** of the following^{7,9-11}:
 - Evaluation of PE in a pregnant patient; **OR**
 - High-risk with a validated Wells score greater than 6 (D-dimer is not needed); **OR**
 - PE likely based on modified Wells criteria (greater than 4 points); **OR**
 - PE suspected, based on modified Wells criteria (less than or equal to 4 points), with a positive D-dimer; **OR**
- Pulmonary hypertension; **OR**
- Chronic thromboembolic pulmonary hypertension; **OR**
- Subclavian steal syndrome based on history, examination, or Doppler ultrasound¹²; **OR**
- Subclavian artery stenosis¹²; **OR**
- Systemic venous thrombosis or occlusion (includes superior vena cava [SVC] syndrome) based on clinical features or prior imaging; **OR**
- Thoracic outlet syndrome based on clinical features or prior imaging; **OR**
- ◆ For evaluation of hemoptysis when chest radiograph or chest CT is inconclusive or requires further evaluation; **OR**
- ◆ Follow-up evaluation of known thoracic aortic aneurysm (TAA) in a patient without syndromic and non-syndromic hereditary thoracic aneurysm disease and **ANY** of the following:
 - Annual surveillance for aneurysm less than 5.0 cm; **OR**
 - Symptoms suggestive of aneurysmal growth/dissection⁶; **OR**

- 6-month evaluation for aneurysm for **ANY** of the following:
 - Greater than or equal to 5.0 cm; **OR**
 - Growing more than 0.5 cm/year; **OR**
- ◆ Follow-up evaluation of known TAA in a patient with syndromic and non-syndromic hereditary thoracic aneurysm disease defined as **ANY** of the following:
 - Vascular Ehlers-Danlos syndrome; **OR**
 - Loeys-Dietz syndrome; **OR**
 - Marfan syndrome; **OR**
 - Coarctation of the aorta; **OR**
 - Tetralogy of Fallot, transposition of the great vessels, truncus arteriosus; **OR**
 - Turner syndrome; **OR**
 - Familial bicuspid aortic valve; **OR**
 - Known predisposition as defined by the presence of genetic markers; **AND**
 - Surveillance CTA at baseline, then follow up at 6-12 months, then every 6-24 months if stable)¹³⁻¹⁴; **OR**
 - Symptoms suggestive of aneurysmal growth/dissection⁶⁻⁷; **OR**
- ◆ Ongoing monitoring for possible TAA in patients at high-risk but no prior documented TAA with **ANY** of the following:
 - Loeys-Dietz syndrome monitoring annually if the patient is stable and low risk (less than 0.3 cm aneurysm growth/year) and less than 4.0 cm; **OR**
 - Turner syndrome every 5 to 10 years; **OR**
 - Bicuspid aortic valve every 2 years if TTE/TEE inconclusive; **OR**
 - Marfan syndrome every 2 years; **OR**
- ◆ Initial screening CTA for a first-degree relative (parent, sibling, or child) of a patient with thoracic aortic disease with **ANY** of the following:
 - Family history of Marfan syndrome, Loeys-Dietz syndrome, or vascular Ehlers-Danlos; **OR**
 - Family history of TAA due to **ANY** of the following:
 - ACTA2, MYH11, PRKG1, MYLK; **OR**
 - TAA without identified pathogenic variants in a known gene for HTAD; **OR**
 - TAA and bicuspid aortic valve; **OR**

- Family history of intracranial or peripheral aneurysm;
OR
- Turner syndrome; **OR**
- Coarctation of the aorta; **OR**
- Congenital heart defects such as tetralogy of Fallot, transposition of the great vessels, truncus arteriosus;
OR
- ◆ Transcatheter aortic valve replacement (TAVR) pre-intervention planning with an assessment of **ANY** of the following¹⁵:
 - Aortic root; **OR**
 - Supravalvular aorta and vascular access; **OR**
- ◆ Pulmonary vein mapping (e.g., prior to atrial fibrillation ablation);
OR
- ◆ Thoracic endovascular repair (TEVAR) for the treatment of thoracic aortic disease and **ANY** of the following is **TRUE**¹⁶⁻¹⁸:
 - Pre-repair; **OR**
 - Post-repair; **OR**
- ◆ Post-treatment of acute aortic dissection at **ANY** of the following intervals:
 - 1 month; **OR**
 - 6 months; **OR**
 - Annually; **OR**
- ◆ Chronic dissection, annually; **OR**
 - Re-evaluation of known ascending aortic dilation or history of aortic dissection with a change in clinical status (including cardiac exam or other findings that may alter management); **OR**
 - Non-invasive clinical staging of a tumor to define vascular invasion; **OR**
- ◆ Congenital or acquired conditions as indicated by **ANY** of the following¹⁹:
 - Pulmonary sequestration; **OR**
 - Heart disease with **ANY** of the following:
 - Known single ventricle physiology and postoperative evaluation needed after stage 3 single ventricle palliation (total cavopulmonary connection); **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; **OR**
- Suspected aortic coarctation; **OR**
- Transposition of the great arteries after arterial switch; **OR**
- Transposition of the great arteries after atrial switch; **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 angiography (CTA), chest with contrast** is not considered if **ANY** of the following is **TRUE**²⁰:
- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms²¹; **OR**
 - ◆ If contrast is used, 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.

**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 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.^{[21-22](#)}

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.^{[21-22](#)}

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.^{[21-22](#)}

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.^{[21-22](#)}

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

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.²³

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.²⁴

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.²⁵

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

Clinical Guidelines for Medical Necessity Review

Version: 2
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Important Notices

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Head

Recommended Clinical Approach

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 Magnetic resonance angiography (MRA) or magnetic resonance venography (MRV) is the preferred imaging study due to the lack of ionizing radiation.

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 or encases a major artery or occludes 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 imaging²; **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 injuries¹; **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 following⁵⁻¹⁰:
 - Screening for cerebral artery aneurysm when **ANY** of the following is **TRUE**²⁶⁻³⁴:

- ◆ 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 aneurysm⁴⁻⁷; **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 suspected¹²; **OR**
 - ◆ The patient has a history of subarachnoid hemorrhages⁶; **OR**
- Cervical bruit or thrill with suspicion of neck carotid stenosis; **OR**
- Headache with **ANY** of the following:
 - Acute onset worst/thunderclap headache¹¹; **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), suspected¹³; **OR**
- Intracranial hypertension (idiopathic), suspected; **OR**
- Pseudoaneurysm¹; **OR**
- Recent stroke, up to 6 months (remote history is not an indication unless recent TIA episodes)¹; **OR**
- Cranial neuropathy as indicated by **ANY** of the following and prior imaging is suspicious for a vascular pathology (e.g., aneurysm, arteriovenous fistulas [AVF])^{1,8-9}:

- Lower cranial nerve palsies, weakness or paralysis (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 hemorrhage¹; **OR**
- Atherosclerotic stenosis or occlusive disease, including suspected vasospasm or thromboembolism with **ANY** of the following¹:
 - Patient has documented symptoms suggestive of stroke or TIA; **OR**
 - Based on prior imaging; **OR**
- Vasculopathy that is non-atherosclerotic, non-inflammatory (e.g., radiation vasculopathy) and suspected on prior imaging (e.g., CT, MRI)¹; **OR**
- The patient has **ANY** of the following:
 - Abnormal neurologic signs; **OR**
 - Fever; **OR**
 - Visual disturbance; **OR**
 - Vertigo; **OR**
 - Weight loss; **OR**
- Vascular malformation and fistula based on prior imaging¹; **OR**
- Cerebrovascular disease in a patient age 18 or older including **ANY** of the following¹⁰:
 - 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 (AVM/AVF), 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 age 17 or under and **ANY** of the following is **TRUE**¹¹:
 - Acute stroke is suspected with **ANY** of the following:
 - ◆ Non-sickle-cell related with new focal fixed or worsening neurologic deficit lasting less than 24 hours from last seen normal state and there are no contraindications to emergent intervention; **OR**
 - ◆ Known or suspected arteriopathy or moyamoya⁹⁻¹⁰ **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 non-contrast CT; **OR**
- Vertebrobasilar insufficiency (VBI) as indicated by **ANY** of the following¹²⁻¹³:
 - Abnormal neurologic examination is consistent with central vertigo; **OR**
 - Associated with other brainstem neurologic deficits; **OR**

- HINTS (Head Impulse–Nystagmus–Test of Skew) 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 following¹⁵⁻¹⁶:
 - 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 internal auditory canal [IAC] protocol first); **OR**
 - Visual impairment including **ANY** of the following¹⁷:
 - Isolated third nerve palsy (oculomotor) with pupil involvement to evaluate for aneurysm; **OR**
 - Suspected venous thrombosis (e.g., dural sinus thrombosis) when 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) (MRA head is preferred in pediatric patients)¹⁸⁻¹⁹.

→ **Computed tomography venography (CTV), head** is indicated when **ALL** of the following are **TRUE**:

- ◆ Ultrasound and CT venography (CTV) are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **AND**
- ◆ **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)¹¹; **OR**
- Initial diagnostic, one-time pre or one-time post-treatment evaluation for treatment planning or evidence of clinical concern for vascular malformation.

→ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:

- ◆ There is documented clinical necessity; **AND**
- ◆ Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
- ◆ **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Computed tomography angiography (CTA) or computed tomography venography (CTV), head**, is not considered appropriate if **ANY** of the following is **TRUE**²⁰:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms; **OR**
- ◆ If contrast is used, 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.

**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 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.²¹⁻²²

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.²¹⁻²²

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.²¹⁻²²

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.²¹⁻²²

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
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 different patient chief concerns. The study identified the top 50 primary concerns leading to the most CTA examinations. A total of 17903 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.²³

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. Studies found that carotid webs were infrequent in the patients studied, while carotid atherosclerosis was relatively rare – the presence of carotid webs, understanding their potential to trigger recurrent strokes. 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.²⁴

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.²⁵

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Computed Tomography Angiography (CTA), Lower Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography Angiography (CTA), Lower Extremity – Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

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

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Single Service & Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Lower Extremity

General Guidelines

- **Imaging Modality:** Computed tomography angiography (CTA) is less invasive but comparable to the gold standard (catheter-based angiography) for the detection of hemodynamically significant vascular stenosis (greater than 50%) with sensitivity, specificity, and accuracy of 99%, 98%, and 98%, respectively.¹ CTA compares favorably to MRA in the evaluation of claudication.¹ Potential drawbacks of CTA include the exposure to ionizing radiation, the use of iodinated contrast, and metallic streak artifact in patients with post-surgical changes or implanted hardware.
- **Criteria for Subsequent Requests:** Subsequent requests can be placed if the patient has new, persistent, or worsening symptoms. This is appropriate before, during, or after treatment.
- **Recommended Clinical Approach:** Lower extremity CTA is indicated in peripheral artery disease, trauma, assessment of variant anatomy and congenital malformations, vasculitis, and surgical planning.¹⁻⁷
Exclusions: This document only includes criteria for CTA of the lower extremities. MRA and CT of the lower extremities and the CTA of the upper extremity chest, abdomen, pelvis, head, and neck are excluded and discussed separately.

Medical Necessity Criteria

Indications

→ **CTA Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has **ANY** of the following clinical presentations, suspicions or diagnoses¹⁻⁷:
 - Aneurysm⁸⁻¹⁵ and **ANY** of the following is **TRUE**:
 - The patient requires **ANY** of the following:
 - ◆ Diagnosis
 - ◆ Localization

- ◆ Characterization
- ◆ Pretreatment planning
- The patient presents with symptoms including **ANY** of the following:
 - ◆ Pulsatile swelling
 - ◆ Symptoms of rupture (e.g., hemorrhage)
 - ◆ Symptoms of thromboembolism including **ANY** of the following:
 - Cold extremity
 - Pulseless extremity
- Dissection and dissection variants⁸⁻¹⁵ and the patient requires **ANY** of the following:
 - Evaluation of the presence, location, extent, and complications of vascular dissection
 - Evaluation of the presence, location, extent and complications of an intramural hematoma
 - Determine appropriate treatment
- Arterial occlusive disease¹⁶⁻²⁰ and **ANY** of the following is **TRUE**:
 - The patient requires **ANY** of the following:
 - ◆ Diagnosis and localization of **ANY** of the following:
 - Peripheral arterial disease
 - Vasculitis
 - Infection
 - Degenerative disorders
 - ◆ Characterization
 - ◆ Treatment planning
 - The patient presents with symptoms including **ANY** of the following:
 - ◆ Claudication of the thigh
 - ◆ Claudication of the buttock
 - ◆ Claudication of the calf
 - ◆ Claudication of the foot
- Trauma **AND** patient requires assessment for **ALL** of the following:
 - Presence and location of vascular, organ injury and hemorrhage
 - Determination of appropriate management options²¹

- Thromboembolic disease²² and **ANY** of the following is **TRUE**:
 - Patient has **ANY** of the following peripheral arterial embolism symptoms:
 - ◆ Sudden onset of pain
 - ◆ Pallor
 - ◆ Paresthesia
 - ◆ Possible paralysis of extremity
 - Patient requires **ALL** of the following:
 - ◆ Diagnosis of presence and extent of **ANY** of the following:
 - Arterial thrombus
 - Venous thrombus
 - Thromboembolus
 - ◆ Guidance for endovascular treatment of thromboembolic and atheroembolic disease.
- Tumor **AND** patient requires **ALL** of the following:
 - Determination of vascular anatomy of tumors for **ANY** of the following:
 - ◆ Prognostication
 - ◆ Planning endovascular and surgical treatment
 - ◆ Assessing treatment response
- Vascular malformation and **ANY** of the following are **TRUE**:
 - Localize and characterize malformation for **ANY** of the following purposes:
 - ◆ Diagnosis
 - ◆ Possible treatment planning
 - ◆ Assessing treatment response
 - Localize and characterize blood supply to congenital abnormalities for **ANY** of the following purposes:
 - ◆ Diagnosis
 - ◆ Treatment planning
- Non-traumatic hemorrhage and assessment of **ANY** of the following:
 - Presence
 - Etiology including **ALL** of the following:
 - ◆ Resulting from **ANY** of the following:
 - Spontaneous
 - Postsurgical

◆ Related to **ANY** of the following:

- Infectious process
- Inflammatory process
- Neoplastic process
- Localization

→ **CTV Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient requires anatomic mapping and presurgical evaluation²³⁻³⁸ for **ANY** of the following:
 - Characterization of normal and variant vascular anatomy
 - Planning autografts for musculoskeletal reconstruction **OR** treatment of popliteal entrapment syndrome
 - Diagnose normal and abnormal venous anatomy prior to venous sampling
 - Determination of the presence of **ANY** of the following in patients with venous hypertension:
 - Intrinsic/extrinsic venous obstruction
 - Acute/chronic venous obstruction
 - Dilated perforators
 - Evaluation of portal hypertension–related venous abnormalities
 - Assessment of the effectiveness of arterial and venous reconstruction or bypass using **ALL** of the following:
 - Traditional surgery
 - Transluminal therapy
 - Determination of the patency, location, or integrity of grafts and other vascular devices, including **ANY** of the following:
 - Stent
 - Vena caval filter
 - Radiopaque embolic material

Non-Indications

→ **CTA Lower Extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁹
- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)⁴⁰

◆ Current pregnancy⁴¹

Site of Service Criteria

Inpatient and Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73706	Computed tomographic angiography (CTA) of lower extremity with contrast material and image postprocessing

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

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: October 30, 2024

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Guideline Information:

Specialty Area: Diagnostic Imaging

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

Date of last literature review: 8/12/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Upper Extremity

Recommended Clinical Approach

For most indications, ultrasound with Doppler is the initial screening modality except in urgent conditions, including acute trauma or an extremity that is cold or painful. Computed tomography angiography (CTA) is most beneficial for the evaluation of peripheral artery disease (PAD), trauma, assessment of variant anatomy and congenital malformations, vasculitis, and surgical planning. CTA is generally preferred over MRA in urgent situations whereas magnetic resonance angiography (MRA) should be considered in non-urgent conditions, including inflammatory or connective tissue disease.¹⁻⁴

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 following³:
 - Expanding hematoma⁴; **OR**
 - Major blunt trauma and the patient is hemodynamically stable⁵; **OR**
 - Neurologic deficit of upper extremity in association with trauma; **OR**
 - Vascular trauma to upper extremity⁶; **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 non-surgical, 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**
 - Pre-operative 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 outcome of the imaging is expected to change management and/or treatment plan; **OR**
- Non-inflammatory vasculopathy that is symptomatic such as Raynaud's, Buerger's disease, fibromuscular dysplasia, or scleroderma; **OR**
- Arterial entrapment syndrome, when ultrasound and MRI/MRA are inconclusive or contraindicated⁷; **OR**
- Pre and post-intervention evaluation, when ultrasound is inconclusive or non-diagnostic 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**
- Non-healing 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 therapy⁶; **OR**
- Hemodialysis access evaluation, when duplex ultrasound inconclusive and fistulogram cannot be performed, for **ANY** of the following conditions:
 - Arteriovenous fistula (AVF) stenosis; **OR**
 - Occlusion; **OR**
 - Pseudoaneurysm; **OR**
 - Steal syndrome (cool and painful extremity); **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 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 post-thrombotic changes incompletely evaluated by ultrasound²; **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 post-intervention 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**
 - Treatment of popliteal entrapment syndrome; **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 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 symptoms⁹; **OR**
 - ◆ The request is for CT/CTA with contrast, and the patient has a 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.

****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 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
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 like BMI enhancing 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 non-invasively. 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

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Clinical Guideline 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



Computed Tomography Angiography (CTA), Upper Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 22, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Computed Tomography Angiography (CTA), Upper Extremity - Single Service

Physician author: Andrew Kompel, MD

Peer reviewed by: Cindy Lee, MD; Andrew Kompel, MD

Literature review current through: 4/20/2022

Document last updated: 6/10/2022

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

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Single Services & Medical Necessity Criteria

Service: Computed Tomography Angiography (CTA), Upper Extremity

General Guidelines

- **Imaging Modality:** Detailed clinical history and physical exam are a critical initial step for deciding which imaging modality is most appropriate. CTA provides high spatial resolution detail of the upper extremity arteries, similar to Digital Subtraction Angiogram (DSA). However, CTA is noninvasive. CTA requires the administration of IV contrast and uses ionizing radiation. Modern computed tomography angiography (CTA) is less invasive but comparable to the gold standard (catheter-based angiography) for the detection of hemodynamically significant vascular stenosis (greater than 50%) with sensitivity, specificity, and accuracy of 99%, 98%, and 98%, respectively.¹ CTA also compares favorably to MRA. Potential drawbacks of CTA include the exposure to ionizing radiation, the use of iodinated contrast, and metallic streak artifact in patients with post-surgical changes or implanted hardware.
- **Criteria for Subsequent Requests:** Mirror CTA may be ordered for new, persistent, or worsening symptoms. This could be before, during, or after treatment.
- **Recommended Clinical Approach:** For most indications, ultrasound (US) with doppler is the initial screening modality except in urgent conditions, including acute trauma or cold/painful extremity. CTA is most beneficial in the evaluation of peripheral artery disease, trauma, assessment of variant anatomy and congenital malformations, vasculitis, and surgical planning. In general, CTA is preferred over MRA in urgent situations; whereas MRA should be considered in non-urgent conditions, including inflammatory or connective tissue disease.²⁻⁴
- **Exclusions:** This document only includes criteria for CTA of the upper extremity. MRA and CT of the upper extremity and CTA of the lower extremities, chest, abdomen, pelvis, head, and neck are excluded and discussed separately.

Medical Necessity Criteria

Indications

→ **CTA Upper Extremity** is considered appropriate if **ANY** of the following is **TRUE**²⁻¹⁵:

- ◆ The patient is known or suspected to have **ANY** of the following:
 - Fibromuscular Dysplasia or noninflammatory vascular disease
 - Known or suspected arterial dissection
 - Connective tissue vascular disease (e.g., rheumatoid arthritis, Sjogren's, scleroderma and Raynaud's)
 - Vasculitis
 - Vascular malformation or tumors
 - Trauma with suspected vascular injury including **ANY** of the following:
 - Frostbite
 - Repetitive/chronic blunt injuries (e.g., crutch injury, hypothenar hammer syndrome)
- ◆ Previous endovascular treatment with concern for stenosis or occlusion including **ANY** of the following:
 - Stent
 - Angioplasty
 - Surgical bypass without symptoms
 - Surgical bypass
- ◆ Hemodialysis access evaluation for **ANY** of the following conditions:
 - Arterio-venous fistula (AVF) stenosis
 - Occlusion
 - Pseudoaneurysm
 - Steal syndrome (cool and painful extremity)
- ◆ Suspected or known thromboembolic disease (e.g., acutely cold and painful hand or extremity)

Non-Indications

→ **CTA Upper Extremity** may not be considered appropriate if **ANY** of the following are **TRUE**:

- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))¹⁶

- ◆ Personal/family history of allergic reaction to iodinated contrast media (e.g., anaphylaxis)¹⁷
- ◆ Current pregnancy¹⁸

Site of Service Criteria

Inpatient and outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73206	Computed tomographic angiography (CTA) of upper extremity with contrast material and image postprocessing

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Cohere Medical Policy – Low-Dose Computed Tomography (LDCT), Chest, for Lung Cancer Screening

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: November 21, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Low-Dose Computed Tomography (LDCT), Chest, for Lung Cancer Screening

Date of last literature review: 11/14/2024

Document last updated: 11/20/2024

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

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Medical Necessity Criteria

Service: Low-Dose Computed Tomography (LDCT), Chest, for Lung Cancer Screening

Recommended Clinical Approach

Lung cancer has historically had a low survival rate due to the frequency of diagnosis at later stages.¹ Screening for lung cancer using low-dose computed tomography (LDCT) has been found to be more sensitive than traditional chest x-ray in the diagnosis of early-stage lung cancers.² LDCT provides appropriate visualization with a lower dose of ionizing radiation compared to standard computed tomography. The benefit of such early detection outweighs the incidence of false positive results found with this radiological testing modality.

Medical Necessity Criteria

Indications

→ **Low-dose computed tomography, chest, for lung cancer screening** is considered appropriate when **ALL** of the following are **TRUE**¹⁻⁸:

- ◆ Asymptomatic adults between the ages of 50 to 80 years; **AND**
- ◆ Screening may occur no more than annually; **AND**
- ◆ **ANY** of the following is **TRUE**:
 - The patient is a current or former smoker with a 20 pack-year* cigarette smoking history; **OR**
 - The patient has quit smoking cigarettes within the past 15 years.

***NOTE:** One pack-year equals smoking one pack of cigarettes per day for one year (20 cigarettes in one pack)

Non-Indications

→ **Low-dose computed tomography, chest, for lung cancer screening** is not considered appropriate if **ANY** of the following is **TRUE**³:

- ◆ The patient has not smoked for more than 15 years; **OR**
- ◆ There is limited life expectancy due to another health problem; **OR**
- ◆ The patient is unable or unwilling to have curative lung surgery.

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71271	Computed tomography, thorax, low dose for lung cancer screening, without contrast material(s)

Medical Evidence

The National Cancer Institute (2024) updated its PDQ guideline for lung cancer screening (Health Professionals Version), in which evidence of the benefit of LDCT is discussed. They state that low-dose computed tomography (LDCT) was shown to be more sensitive than chest radiography, and based upon the Early Lung Cancer Action Project, nearly six times more stage I lung cancers were detected compared to chest radiography, with most of the tumors less than 1 cm in size. Several large-scale studies have been conducted in recent years, including the National Lung Screening Trial in 2011, with 53,454 enrolled individuals, resulting in 3.6% of individuals found to have lung cancer. The NELSON trial in Europe (2020) resulted in 2.1% of the 13,105 men and 2594 women being diagnosed by LDCT. The reviewers state that smaller, randomized trials are currently being conducted or completed in several countries.²

The US Preventive Services Task Force (USPSTF) published a recommendation in 2021 to update their 2013 recommendation. A systematic review was conducted on the accuracy of using LDCT to screen for lung cancer as well as determining the benefits and harms of such screening. The resulting recommendation is for an annual LDCT screening for lung cancer in adults 50 to 80 years of age who have a 20-pack-year history of smoking currently or have quit in the past 15 years. After 15 years of non-smoking, screening is no longer necessary. The former recommendation from 2013 required a 30-pack year smoking history in adults aged 55–80.³

The National Comprehensive Cancer Network (NCCN)(2025 update) lung cancer screening guideline discusses the risks and benefits of lung cancer screening. Risks include false-positive or false-negative results, radiation exposure, cost, and finding of incidental lesions. Benefits were stated as decreased mortality from lung cancer, improvement in anxiety and healthy lifestyles, and the potential of discovery of other undiagnosed health risks, including thyroid nodules and breast cancer. The screening recommendation by NCCN is in agreement with other societies (high-risk greater than or equal to 50 years of age with a greater than or equal to 20 pack-year cigarette smoking history.⁵

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Clinical Guideline Revision History/Information

Original Date: November 21, 2024		
Review History		



Cohere Medical Policy – Low-Dose Computed Tomography (LDCT), Chest, for Lung Cancer Screening

Clinical Guidelines for Medical Necessity Review

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Date of last literature review: 11/14/2024

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

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Medical Necessity Criteria

Service: Low-Dose Computed Tomography (LDCT), Chest, for Lung Cancer Screening

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Medical Necessity Criteria

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***NOTE:** One pack-year equals smoking one pack of cigarettes per day for one year (20 cigarettes in one pack)

Non-Indications

→ **Low-dose computed tomography, chest, for lung cancer screening** is not considered appropriate if **ANY** of the following is **TRUE**³:

- ◆ The patient has not smoked for more than 15 years; **OR**
- ◆ There is limited life expectancy due to another health problem; **OR**
- ◆ The patient is unable or unwilling to have curative lung surgery.

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71271	Computed tomography, thorax, low dose for lung cancer screening, without contrast material(s)

Medical Evidence

The National Cancer Institute (2024) updated its PDQ guideline for lung cancer screening (Health Professionals Version), in which evidence of the benefit of LDCT is discussed. They state that low-dose computed tomography (LDCT) was shown to be more sensitive than chest radiography, and based upon the Early Lung Cancer Action Project, nearly six times more stage I lung cancers were detected compared to chest radiography, with most of the tumors less than 1 cm in size. Several large-scale studies have been conducted in recent years, including the National Lung Screening Trial in 2011, with 53,454 enrolled individuals, resulting in 3.6% of individuals found to have lung cancer. The NELSON trial in Europe (2020) resulted in 2.1% of the 13,105 men and 2594 women being diagnosed by LDCT. The reviewers state that smaller, randomized trials are currently being conducted or completed in several countries.²

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Cohere Medical Policy – Magnetic Resonance (MR) Elastography

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance (MR) Elastography

Date of last literature review:

Document last updated:

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

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Medical Necessity Criteria

Service: Magnetic Resonance (MR) Elastography

Recommended Clinical Approach

Magnetic resonance elastography (MRE) is a non-invasive imaging technique that measures the mechanical properties of tissues, particularly stiffness, which can indicate the presence of fibrosis and other pathologies. This technique is primarily used in the assessment of liver diseases, but it also has applications in diagnosing conditions affecting the brain, muscles, and other organs. MRE provides a quantitative measure of tissue elasticity, which is valuable in evaluating the extent of disease, monitoring disease progression, and guiding treatment decisions.¹

The clinical journey leading to MRE typically starts with the detection of risk factors or symptoms suggestive of liver fibrosis, such as elevated liver enzymes or clinical signs of chronic liver disease. Initial imaging studies like ultrasound or CT may indicate abnormalities, prompting further evaluation with MRE to assess the degree of fibrosis. MRE is particularly useful in patients for whom a liver biopsy is contraindicated or who require a non-invasive method to monitor treatment response over time.²

MRE is a valuable tool in tumor diagnosis by measuring tissue stiffness across various cancers. MRE can detect changes in tissue stiffness before clinical symptoms appear, making it essential for early tumor detection, treatment planning, and assessing resistance to chemoradiotherapy.³

Medical Necessity Criteria

Indications

→ **Magnetic resonance elastography (MRE)** is considered appropriate if **ANY** of the following is **TRUE**¹⁻⁴:

- ◆ The patient has nonalcoholic fatty liver disease (NAFLD), and hepatic fibrosis or cirrhosis known or suspected; **OR**
- ◆ **ALL** of the following are **TRUE**:

- The patient has a chronic liver disease (e.g., chronic hepatitis C virus infection, chronic hepatitis B virus infection) and hepatic fibrosis or cirrhosis is known or suspected; **AND**
- Ultrasound elastography cannot be performed or is nondiagnostic; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance elastography (MRE)** is not considered appropriate 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; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75565	Cardiac magnetic resonance imaging for velocity flow mapping (List separately in addition to code for primary procedure)
76391	Magnetic resonance (eg, vibration) elastography

Medical Evidence

Feuille et al. (2024) analyzed clinical situations where magnetic resonance elastography (MRE) of the liver is indicated. A total of 96 MRE exams and respective follow-ups were included over 14 months. The primary indication for all MREs was non-invasive assessment of liver fibrosis with one additional indication identified in every case. Liver biopsy decreased after MRE however, when liver biopsy was indicated the patient was very likely to undergo the procedure. MRE is a safe alternative for patients however, rare but serious risks may occur.²

Yang et al. (2021) review the advances of MRE as a non-invasive method to diagnose tumors. Tissue stiffness due to pathological changes may be visible sooner with MRE than with other imaging modalities. MRE is often utilized for tumors of the brain, breast, colon, gallbladder, liver, prostate, and uterus. Early detection of tumor changes and resistance to chemoradiotherapy are noted benefits of MRE.³

Venkatesh et al. (2013) review the utilization of magnetic resonance elastography (MRE) of the liver. While adequate to detect and stage liver fibrosis, its use is for additional applications. The authors note that future research is needed to improve three-dimensional imaging quality and resolution to aid in characterizing liver lesions and fibrosis. MRE also shows promise for evaluating patient response to antifibrotic treatments.¹

The diagnostic performance of MRE for advanced ($\geq F3$) fibrosis is excellent, with most studies reporting greater than 80% sensitivity and greater than 90% specificity.³

In a large meta-analysis by Singh et al including 12 studies and 697 individual patients with different chronic liver diseases from Europe and the United States, the area under the receiver operating characteristic curve values for discriminating any ($\geq F1$), significant ($\geq F2$), or advanced fibrosis ($\geq F3$) or cirrhosis ($\geq F4$) were 0.84, 0.88, 0.93, and 0.92, respectively.⁴

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Clinical Guideline Revision History/Information

Original Date: August 13, 2024		
Review History		



Cohere Commercial Policy – Magnetic Resonance (MR) Spectroscopy

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: October 30, 2024

Important Notices

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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.

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Policy - Magnetic Resonance (MR) Spectroscopy

Date of last literature review: 8/14/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Service: Magnetic Resonance (MR) Spectroscopy

Recommended Clinical Approach

Magnetic resonance spectroscopy (MRS) is a non-invasive diagnostic test that measures biochemical changes in the brain, muscles, and other organs. It primarily evaluates metabolic disorders, tumors, and other lesions. MRS provides additional information to conventional MRI by measuring the concentration of specific metabolites, such as N-acetylaspartate (NAA), choline (Cho), creatine (Cr), and myoinositol (mI).¹⁻²

MRS is particularly valuable in grading and assessing types of brain tumors and in assessing metabolic changes associated with tumor progression or response to therapy. For example, high choline levels can indicate increased cell membrane turnover associated with tumor growth, while reduced NAA levels may suggest neuronal loss or dysfunction.² Additionally, MRS can help differentiate between tumor recurrence, abscess, and radiation necrosis, aiding in treatment planning and monitoring.²

Medical Necessity Criteria

Indications

→ **Magnetic resonance spectroscopy (MRS)** is considered appropriate when **ALL** of the following are **TRUE**:

- ◆ Conventional imaging by magnetic resonance imaging (MRI) or computed tomography (CT) is inconclusive; **AND**
- ◆ **ANY** of the following is **TRUE**:
 - Neoplastic conditions (including masses or mass-like conditions) and **ANY** of the following is **TRUE**:
 - Grading of primary glial neoplasm, particularly high-grade versus low-grade glioma²; **OR**
 - Evaluation of brain tumors, including differentiation between tumor recurrence and radiation necrosis²⁻⁴; **OR**

- Vascular conditions, known or suspected, including **ANY** of the following:
 - Neonatal hypoxic ischemic encephalopathy⁵; **OR**
- Congenital condition as indicated by **ANY** of the following:
 - Diagnosis and evaluation of metabolic disorders such as mitochondrial diseases and inborn errors of metabolism⁶; **OR**
 - Inherited metabolic disorders (e.g., Canavan disease, mitochondrial encephalopathies, and other leukodystrophies)⁷; **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

→ **Magnetic resonance spectroscopy (MRS)** is not considered appropriate 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 symptoms⁹; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Presence of metallic implants or devices such as pacemakers that are not MRI-compatible; **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

*NOTE: MRI in patients with claustrophobia should be requested at the

discretion of the ordering provider.

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

*****NOTE:** Patients with renal insufficiency where gadolinium contrast is contraindicated, and MRS requires contrast administration. Alternative imaging modalities should be considered in such cases.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
76390	Magnetic resonance spectroscopy

Medical Evidence

Weinberg et al. (2021) conducted a systematic review of the literature regarding the clinical applications of magnetic resonance spectroscopy (MRS) in brain tumors. The writers state that MRS is utilized in clinical practice as well as research applications. The diagnostic clinical relevance of MRS includes its use as a type of virtual biopsy, as well as distinguishing gliomas from other types of diagnoses such as edema, necrosis, infection or lymphoma. It is recommended by the group to use MRS in conjunction with conventional MRI due to occasional overlap in the appearance of different conditions. In tumor grading, distinction between high and low grade gliomas can be achieved with MRS. Limitations of MRS use in brain tumor imaging include similarities in appearance of different diseases despite differentiation of tissue types. Image quality may be affected by equipment variability and artifact.²

In a 2022 systematic review of the literature, Germano et al. updated the 2014 Congress of Neurological Surgeons evidence-based guidelines on the management of progressive glioblastoma (pGBM) in adults. The literature search range was between 2012 to 2019, with 237 full-text articles extracted from 8786 total abstracts. The group made two new level II recommendations based upon this review, with an additional 21 level III recommendations. The level II recommendations included use of diffusion-weighted images included with magnetic resonance images with and without contrast in diagnosis of patients with GBM as well as for surveillance. The other new level II recommendation related to surgical procedures.⁴

Feldmann and colleagues (2022) examined MR-spectroscopy in metachromatic leukodystrophy (MLD) in a controlled cohort study consisting of 29 patients (10 infants, 19 juveniles) and 12 controls in 53 MRS datasets. MLD spectra were found to differ from the control group. White matter revealed the greatest differences compared to gray matter. Infant patients were found to have more severe changes when compared to later-onset patients in *N*-acetylaspartate (NAA), aspartate, glutamine, and choline intervals. It was concluded that NAA seemed to be the most clinically meaningful biomarker correlating with urine measurements obtained during the study.⁷

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Clinical Guideline Revision History/Information

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Review History		
Version 1	08/15/2024	New policy development
Version 2	10/30/2024	Edited repeat imaging criteria language.



Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

Clinical Guidelines for Medical Necessity Review

Version: 3
Effective Date: October 30, 2024

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

Recommended Clinical Approach

Magnetic resonance angiography (MRA) visualizes the blood vessels in the abdomen and pelvis. It aids in diagnosing and evaluating vascular conditions such as aneurysms, stenosis, occlusions, and vascular malformations. Unlike CT angiography, MRA does not use ionizing radiation yet provides detailed images of blood vessels and surrounding tissues. Magnetic resonance venography (MRV) of the abdomen and pelvis is a non-invasive imaging technique that uses magnetic resonance imaging (MRI) to visualize the veins in these regions. This method is particularly useful for evaluating venous disorders without exposing patients to ionizing radiation. MRA and MRV are less invasive than conventional X-ray digital subtraction angiography.¹

Medical Necessity Criteria

Indications

- **Magnetic resonance angiography (MRA), abdomen/pelvis** is considered appropriate if **ALL** of the following is **TRUE**¹⁻²:
- ◆ Ultrasound and CTA are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **AND**
 - ◆ **ANY** of the following is **TRUE**:
 - Vascular conditions, known or suspected, including **ANY** of the following:
 - Suspected renal artery stenosis when surgical intervention is planned if diagnosed, including **ANY** of the following³:
 - ◆ Previous imaging (including ultrasound, captopril scintigraphy) indicates small kidney or unequal kidney sizes⁴⁻⁵; **OR**
 - ◆ Early-onset hypertension (age less than 35, diastolic greater than 110 mmHg)⁶; **OR**
 - ◆ Late-onset hypertension (age greater than 50)⁴⁻⁶; **OR**

- ◆ Renal artery bruit⁴⁻⁶; **OR**
- ◆ Malignant or accelerated hypertension⁶; **OR**
- ◆ Sudden development or worsening of hypertension⁶; **OR**
- ◆ Deterioration of renal function in response to angiotensin-converting enzyme inhibitors⁶; **OR**
- ◆ Generalized arteriosclerotic occlusive disease with hypertension⁶; **OR**
- ◆ Hypertension resistant to medication, and the patient must be currently taking **ALL** of the following at maximally tolerated doses⁶⁻⁷;
 - Long-acting calcium channel blocker; **AND**
 - Long-acting ace inhibitor or angiotensin receptor blocker (ARB); **AND**
 - Diuretic (e.g., loop or thiazide); **OR**
- Mesenteric ischemia or ischemic enteritis/colitis
- Vasculitis
- Vascular injury secondary to trauma; **OR**
- Thromboembolic Disease; **OR**
- Unrepaired aortic aneurysm, initial evaluation; **OR**
- Unrepaired aortic aneurysm, follow-up evaluation is based on aneurysm size when **ANY** of the following is **TRUE**⁸:
 - ◆ 3-3.9 cm, every 3 years; **OR**
 - ◆ 4-4.9 cm, annually; **OR**
 - ◆ 5-5.4 cm, every 6 months; **OR**
- Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Evaluation post-endovascular repair (EVAR) or open repair of abdominal aortic aneurysm (AAA) and **ANY** of the following is **TRUE**^{4-5,8}:
 - ◆ Follow-up within one month; **OR**
 - ◆ Follow-up within one year; **OR**
 - ◆ Type II endoleak, every six months for up to two years after diagnosis: **OR**
 - ◆ Type II endoleak, annual followup; **OR**

- Planning for vascular surgery, interventional procedure; **OR**
- Other procedures involving arteries (e.g. Inferior epigastric arteries for breast reconstruction, UPJ obstruction, solid organ transplant); **OR**
- Retroperitoneal hematoma or hemorrhage; **OR**
- Known or suspected syndromes with increased risk of vascular anomalies including **ANY**, but not limited to, the following:
 - As a one-time screening for syndromes with a vascular component (e.g., fibromuscular dysplasia, Ehlers-Danlos syndrome, Marfan syndrome, neurofibromatosis, William's syndrome, tuberous sclerosis); **OR**
 - Loeys Dietz (every two years for screening; surveillance as indicated depending on abnormalities found); **OR**
 - Other syndromes not otherwise specified, follow-up as clinical documentation supports; **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.

→ **Magnetic resonance venography (MRV), abdomen/pelvis** is considered appropriate if **ALL** of the following are **TRUE**:

- ◆ Ultrasound and CT venography (CTV) are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **AND**
- ◆ **ANY** of the following is **TRUE**:
 - Vascular conditions, known or suspected, including **ANY** of the following:
 - Diffuse unexplained lower extremity edema with negative or inconclusive ultrasound; **OR**
 - May-Thurner syndrome (iliac vein compression syndrome including pelvic CT venography)⁹; **OR**
 - Retroperitoneal hematoma or hemorrhage; **OR**
 - Large vein injury secondary to trauma; **OR**
 - Large vein thrombosis of the major abdominal or pelvic veins, including IVC, iliac, renal, portal, hepatic, and mesenteric veins, when Doppler ultrasound is inconclusive or indicates presence or complications; **OR**
 - Vascular invasion or displacement by tumor; **OR**
 - Detailed evaluation for Pelvic Congestion Syndrome; **OR**
 - Vascular mapping for organ donation; **OR**
 - Initial diagnostic, one-time pre or one-time post-treatment evaluation for treatment planning or evidence of clinical concern for **ANY** of the following:
 - Anastomotic integrity or stent patency; **OR**
 - Portal venous system (hepatic portal system) after Doppler ultrasound has been performed; **OR**
 - Vascular malformation; **OR**
 - Vascular mapping for organ donation or before procedure/surgery for planning purposes (including TIPS); **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

→ **Magnetic resonance angiography (MRA), abdomen/pelvis** is not considered appropriate 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 symptoms¹²; **OR**
- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72198	Magnetic resonance angiography (MRA) of pelvis, with contrast material
74185	Magnetic resonance angiography (MRA) of abdomen, with contrast material
C8900	Magnetic resonance angiography with contrast, abdomen
C8901	Magnetic resonance angiography without contrast, abdomen
C8902	Magnetic resonance angiography without contrast followed by with contrast, abdomen
C8918	Magnetic resonance angiography with contrast, pelvis
C8919	Magnetic resonance angiography without contrast, pelvis
C8920	Magnetic resonance angiography without contrast followed by with contrast, pelvis

Medical Evidence

Roditi et al. (2022) performed a review on abdominal and pelvic magnetic resonance angiography (MRA). The topics discussed include MRA for assessing renal vasculature in potential kidney donors and hypertensive patients, hepatic and mesenteric MRA for evaluating liver donors, individuals with portal hypertension, and those with chronic mesenteric ischemia. Pelvic MRA is also mentioned for pre-treatment planning in uterine fibroid embolization and patients with pelvic congestion syndrome. Abdominal wall MRA is also highlighted for planning breast reconstructive surgery.¹⁰

Chaikof et al. (2018) discuss updates to practice guidelines published by the Society for Vascular Surgery on the care of patients with an abdominal aortic aneurysm. Recommendations include surveillance imaging at 12-month intervals for AAA between 4.0 to 4.9 cm in diameter and utilizing the Vascular Quality Initiative mortality risk score for decision-making in aneurysm repair. Endovascular repair is also preferred for ruptured aneurysms. Color duplex ultrasound for postoperative surveillance after endovascular repair without complications is also recommended. Overall, the focus is to enhance decision-making and perioperative outcomes.⁸

Zucker et al. (2016) review noninvasive diagnostic imaging for assessing venous compression syndromes, including magnetic resonance venography (MRV). While the exam typically takes longer than CT scans, MRV offers the advantage of reducing ionizing radiation risks. Optimal timing is more easily achieved for venous contrast. Additionally, MRI enables non-contrast exams, which are safer for patients with renal insufficiency, who face a higher risk of nephrogenic systemic fibrosis with gadolinium contrast.¹¹

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Clinical Guideline Revision History/Information

Original Date: March 18, 2022		
Review History		
Version 2	8/2/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.



Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

Notices & Disclaimers:

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Abdomen/Pelvis

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

Magnetic resonance angiography (MRA) visualizes the blood vessels in the abdomen and pelvis. It aids in diagnosing and evaluating vascular conditions such as aneurysms, stenosis, occlusions, and vascular malformations. Unlike CT angiography, MRA does not use ionizing radiation yet provides detailed images of blood vessels and surrounding tissues. Magnetic resonance venography (MRV) of the abdomen and pelvis is a non-invasive imaging technique that uses magnetic resonance imaging (MRI) to visualize the veins in these regions. This method is particularly useful for evaluating venous disorders without exposing patients to ionizing radiation. MRA and MRV are less invasive than conventional radiographic digital subtraction angiography.¹

Medical Necessity Criteria

Indications

Abdomen/Pelvis Magnetic Resonance Angiography (MRA) with Lower Extremity MRA Runoff requires two separate authorization requests: one for Abdomen MRA (CPT 74185) and one for Lower Extremity MRA (CPT 73725). A separate request for Pelvic MRA is not necessary, as this combination provides imaging of the abdomen, pelvis, and both legs.

Magnetic resonance angiography (MRA), abdomen/pelvis is considered appropriate if **ANY** of the following is **TRUE**^{1,2}:

- **ALL** of the following are **TRUE**:
 - Ultrasound is incomplete, inconclusive, or abnormal; **AND**
 - **ANY** of the following:
 - Vascular conditions, known or suspected, including **ANY** of the following:
 - Suspected renal artery stenosis when any surgical intervention is planned, including **ANY** of the following³⁻⁵:
 - Previous imaging (including ultrasound, captopril scintigraphy) indicates small kidney or unequal kidney sizes⁶; **OR**
 - Early-onset hypertension (age less than 35, diastolic greater than 110 mmHg)⁶; **OR**
 - Late-onset hypertension (age greater than 50)⁶; **OR**
 - Renal artery bruit⁶; **OR**
 - Renal function impairment due to angiotensin-converting enzyme (ACE) inhibitor use⁶; **OR**
 - Malignant or accelerated hypertension⁷; **OR**
 - Sudden development or worsening of hypertension⁷; **OR**
 - Generalized arteriosclerotic occlusive disease with hypertension⁷; **OR**
 - Hypertension that is resistant to medication, and the patient must be currently taking **ALL** of the following at maximally-tolerated doses^{7,8}:
 - Long-acting calcium channel blocker; **AND**
 - Long-acting ACE inhibitor or angiotensin receptor blocker (ARB); **AND**
 - Diuretic (e.g., loop or thiazide); **OR**

- Thromboembolic disease¹; **OR**
- Unrepaired abdominal aortic aneurysm, initial evaluation; **OR**
- Unrepaired aortic aneurysm, follow-up evaluation frequency based on aneurysm size, when **ANY** of the following is **TRUE**⁹:
 - 3–3.9 cm, every 3 years; **OR**
 - 4–4.9 cm for male patients or 4–4.4 cm in female patients, annually; **OR**
 - Greater than 5 cm in male patients or greater than 4.5 cm in female patients, every 6 months; **OR**
- **ALL** of the following are **TRUE**:
 - Computed tomography angiography (CTA) is inconclusive or cannot be performed due to allergy; **AND**
 - **ANY** of the following:
 - Suspected mesenteric ischemia or ischemic enteritis/colitis when **ANY** of the following is **TRUE**^{10,11}:
 - High suspicion for ischemic enteritis/colitis or mesenteric/bowel infarct by another imaging study; **OR**
 - Anion-gap metabolic acidosis and/or high lactate in the setting of severe abdominal pain or abdominal pain that is out of proportion to the physical exam; **OR**
 - Peripheral artery disease (PAD) with **ANY** of the following:
 - Severe abdominal pain; **OR**
 - Abdominal pain that is out of proportion to the physical exam; **OR**
 - Known vascular risk factors (e.g., age over 60 years of age) or known vascular disease (e.g., known coronary artery disease) with postprandial pain that affects daily life (e.g., fear of food, weight loss)¹²; **OR**
 - High clinical suspicion of mesenteric ischemia with **ANY** of the following:
 - Nausea; **OR**
 - Vomiting; **OR**
 - Diarrhea; **OR**
 - Hematachezia; **OR**
 - Vasculitis, initial evaluation, when **ANY** of the following is **TRUE**:^{9,13–16}
 - Biopsy-proven vasculitis; **OR**

- Rheumatologic panel work-up including, but not limited to erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), that are suggestive of vasculitis; **OR**
- The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change the management and/or treatment plan; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
 - Surveillance imaging following endovascular aortic repair (EVAR) with **ALL** of the following:
 - CTA and ultrasound are inconclusive or cannot be performed; **AND**
 - **ANY** of the following:
 - At one month postprocedure; **OR**
 - If a Type II endoleak is detected on first postprocedure screening, then repeat imaging at 6 months; **OR**
 - If a Type II endoleak is associated with a stable or shrinking aneurysm sac, then repeat imaging every 6 months for 2 years; **OR**
 - Annual imaging is recommended if no endoleak or aneurysm sac enlargement; **OR**
 - Following open aortic aneurysm surgical repair (OSR), cross-sectional CT (or MR) imaging surveillance should be performed once every 5 years; **OR**
 - Planning for vascular surgery, interventional procedure; **OR**
 - Other procedures involving arteries (e.g., inferior epigastric arteries for breast reconstruction, ureteropelvic junction obstruction, solid organ transplant); **OR**
- Known or suspected syndromes with increased risk of vascular anomalies, including **ANY** of the following⁹:
 - As a one-time screening for syndromes with a vascular component (e.g., fibromuscular dysplasia, neurofibromatosis, Williams syndrome, tuberous sclerosis); **OR**
 - Vascular Ehlers-Danlos syndrome (vEDS) (biannually; surveillance as indicated depending on abnormalities found)^{19,20}; **OR**
 - Marfan syndrome (initial MRA at time of diagnosis, then every 3 years depending on abnormalities found)²¹; **OR**

- Loeys–Dietz syndrome (every 2 years for screening; surveillance as indicated depending on abnormalities found); **OR**
- Other syndromes not otherwise specified, follow-up as clinical documentation supports.

Magnetic resonance venography (MRV), abdomen/pelvis is considered appropriate if **ALL** of the following are **TRUE**:

- Ultrasound is incomplete, inconclusive, or abnormal; **AND**
- **ANY** of the following:
 - Vascular conditions, known or suspected, including **ANY** of the following:
 - Diffuse unexplained lower extremity edema with negative or inconclusive lower extremity ultrasound; **OR**
 - Large vein thrombosis of the major abdominal or pelvic veins, including IVC, iliac, renal, portal, hepatic, and mesenteric veins, when Doppler ultrasound is inconclusive or needs additional evaluation; **OR**
 - Vascular invasion or displacement by tumor; **OR**
 - Pelvic venous disease with **ANY** of the following²²:
 - Unexplained chronic pelvic pain; **OR**
 - Symptomatic perineal or pelvic varicosities; **OR**
 - Left flank or abdominal pain with hematuria; **OR**
 - Venous claudication; **OR**
 - Suspected May–Thurner syndrome (iliac vein compression²³); **OR**
 - Vascular mapping for organ donation; **OR**
 - Initial diagnostic, one-time pre- or one-time post-treatment evaluation for treatment planning or evidence of clinical concern for **ANY** of the following:
 - Anastomotic integrity or stent patency; **OR**
 - Portal venous system (hepatic portal system) abnormalities after Doppler ultrasound has been performed; **OR**
 - Vascular malformation; **OR**
 - Vascular mapping before procedure/surgery for planning purposes (including transjugular intrahepatic portosystemic shunt [TIPS]).

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

Magnetic resonance angiography (MRA) or magnetic resonance venography (MRV), abdomen/pelvis is not considered appropriate 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 symptoms²⁴.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72198	Magnetic resonance angiography (MRA) of pelvis, with contrast material
74185	Magnetic resonance angiography (MRA) of abdomen, with contrast material
C8900	Magnetic resonance angiography with contrast, abdomen
C8901	Magnetic resonance angiography without contrast, abdomen
C8902	Magnetic resonance angiography without contrast followed by with contrast, abdomen
C8918	Magnetic resonance angiography with contrast, pelvis
C8919	Magnetic resonance angiography without contrast, pelvis
C8920	Magnetic resonance angiography without contrast followed by with contrast, pelvis

Medical Evidence

Roditi et al. (2022) performed a review on abdominal and pelvic magnetic resonance angiography (MRA). The topics discussed include MRA for assessing renal vasculature in potential kidney donors and hypertensive patients, hepatic and mesenteric MRA for evaluating liver donors, individuals with portal hypertension, and those with chronic mesenteric ischemia. Pelvic MRA is also mentioned for pre-treatment planning in uterine fibroid embolization and patients with pelvic congestion syndrome. Abdominal wall MRA is also highlighted for planning breast reconstructive surgery.^{[25](#)}

Chaikof et al. (2018) discuss updates to practice guidelines published by the Society for Vascular Surgery on the care of patients with an abdominal aortic aneurysm. Recommendations include surveillance imaging at 12-month intervals for AAA between 4.0 to 4.9 cm in diameter and utilizing the Vascular Quality Initiative mortality risk score for decision-making in aneurysm repair. Endovascular repair is also preferred for ruptured aneurysms. Color duplex ultrasound for postoperative surveillance after endovascular repair without complications is also recommended. Overall, the focus is to enhance decision-making and perioperative outcomes.^{[26](#)}

Zucker et al. (2016) review noninvasive diagnostic imaging for assessing venous compression syndromes, including magnetic resonance venography (MRV). While the exam typically takes longer than CT scans, MRV offers the advantage of reducing ionizing radiation risks. Optimal timing is more easily achieved for venous contrast. Additionally, MRI enables non-contrast exams, which are safer for patients with renal insufficiency, who face a higher risk of nephrogenic systemic fibrosis with gadolinium contrast.^{[27](#)}

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Policy Revision History/Information

Original Date: March 18, 2022		
Review History		
Version 2	08/02/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria. Split out prior imaging requirements by indication. Updated reference citations so that numbers were listed in order of first appearance.



Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Chest

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: September 11, 2025

Last Annual Review: September 11, 2025

Revision: Not Applicable

Next Annual Review: September 11, 2026

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Chest

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

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Medical Necessity Criteria

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- 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

Magnetic resonance angiography (MRA) of the chest allows for visualizing blood vessels, including the arteries and veins. MRA evaluates vascular diseases, aortic pathologies, congenital heart conditions, venous pathologies, pulmonary artery diseases, and other pathologies (e.g., vasculitis, extrinsic compression). MRA does not involve radiation exposure, as compared to a computed tomography angiogram. MRA may be appropriate for patients with renal dysfunction, pregnancy, gadolinium-based contrast agent allergy, and children.¹

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), chest is considered appropriate if **ANY** of the following is **TRUE** when computed tomography angiography (CTA) is contraindicated or cannot be performed:

- Non-traumatic thoracic arterial disease and **ALL** of the following^{2,3}:
 - 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^{4,5}:
 - Congenital conditions (e.g., vascular anomaly)⁶; **OR**
 - Rupture; **OR**
 - Dissection^{7,8}; **OR**
 - Mediastinal hematoma; **OR**
 - Intramural hematoma; **OR**
 - Penetrating atherosclerotic ulcer; **OR**
 - Pseudoaneurysm; **OR**
 - Non-aortic aneurysm; **OR**
 - Infectious vasculitis (syphilis, mycotic aneurysm)⁹; **OR**
 - Inflammatory vasculitis⁹; **OR**
 - Large-vessel vasculitis (giant-cell arteritis and Takayasu arteritis) suspected⁹; **OR**
 - Medium-vessel vasculitis (Polyarteritis nodosa [PAN] and Kawasaki disease) suspected⁹; **OR**
 - Neoplastic condition; **OR**
 - Vascular supply to, or involvement by, tumor; **OR**
- Suspected pulmonary arteriovenous malformation (PAVM) based on prior imaging or risk factors (e.g., hereditary hemorrhagic telangiectasia, genetic mutations, post-surgical, hepatopulmonary syndrome)
- Pulmonary embolism (PE) with **ALL** of the following:
 - CTA and/or ventilation/perfusion (V/Q) scan are contraindicated or cannot be performed¹⁰⁻¹⁶; **AND**
 - **ANY** of the following:
 - Evaluation of suspected PE in a pregnant patient; **OR**

- High pretest probability of PE by Wells criteria (D-dimer not needed); **OR**
- **ALL** of the following¹⁷:
 - Low or intermediate pretest probability of PE by Wells criteria; **AND**
 - Positive D-dimer; **OR**
- Suspected pulmonary hypertension, including chronic thromboembolic pulmonary hypertension (CTEPH)¹⁸⁻²⁰; **OR**
- Evaluation of known CTEPH in a patient being considered for surgery¹⁸⁻²⁰; **OR**
- Subclavian steal syndrome or suspected subclavian artery stenosis based on history, examination, or Doppler ultrasound²¹; **OR**
- Central thoracic venous thrombosis or occlusion (includes superior vena cava [SVC] syndrome) based on clinical features or prior imaging²²; **OR**
- Clinical concern for subclavian venous thrombosis or occlusion with indeterminate findings on Doppler and further evaluation necessary; **OR**
- Vascular thoracic outlet syndrome suspected based on clinical features or prior imaging²³⁻²⁸; **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)^{4,29}; **OR**
- Surveillance of known thoracic aortic aneurysm in a patient with non-syndromic/non-hereditary cause for **ANY** of the following²⁹:
 - At baseline if the ascending aorta is not adequately imaged on transthoracic echocardiogram (TTE); **OR**
 - 6 months after the initial diagnosis; **OR**
 - Annual surveillance for thoracic aortic aneurysms less than 5 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**
- MRA indicated for surveillance of known syndromic/hereditary/genetic aortic disease for **ANY** of the following:
 - Marfan syndrome with **ANY** of the following²⁹:
 - 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 following²⁹:
 - 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 following²⁹:
 - 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/m²; **OR**
- Loeys-Dietz syndrome with **ANY** of the following²⁹; **OR**
 - 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 following²⁹:

- 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 for a first-degree relative (parent, sibling, or child) of a patient with confirmed aortic disease attributable to a heritable or genetic cause²⁹; **OR**
- Transcatheter aortic valve replacement (TAVR) preintervention planning with an assessment of **ANY** of the following³⁰:
 - Aortic root; **OR**
 - Supraaortic aorta and vascular access; **OR**
- Pulmonary vein mapping (e.g., prior to atrial fibrillation ablation); **OR**
- Thoracic endovascular repair (TEVAR) for the treatment of thoracic aortic disease and **ANY** of the following is **TRUE**^{3,29,31}:
 - Prerepair; **OR**
 - Postrepair; **OR**
- Post-treatment (surgical or medical) of acute aortic dissection at **ANY** of the following intervals^{3,29}:
 - 1 month post-treatment; **OR**
 - 6 months post-treatment; **OR**
 - If stable, annual surveillance starting 6 months after repair; **OR**
- Chronic dissection, annually; **OR**
 - Re-evaluation of known ascending aortic dilation or history of aortic dissection with a change in clinical status (including cardiac exam or other findings that may alter management); **OR**
- Congenital or acquired conditions as indicated by **ANY** of the following^{32,33}:
 - Pulmonary sequestration³⁴; **OR**
 - **ALL** of the following:
 - Inadequate TTE for assessment of cardiovascular morphology and function³²; **AND**
 - **ANY** of the following:
 - Known single ventricle physiology³²; **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 stenosis³⁵; **OR**
- Aortic coarctation³⁶; **OR**
- Transposition of the great arteries after arterial switch; **OR**
- Transposition of the great arteries after atrial switch; **OR**
- Noninvasive clinical staging of a tumor to define vascular invasion^{37,38}; **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

Magnetic resonance angiography (MRA), chest may not be considered appropriate 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 symptoms³⁹.

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

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

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71555	Magnetic resonance angiography (MRA), chest (excluding myocardium), with or without contrast material(s)
C8909	Magnetic resonance angiography (MRA) with contrast, chest (excluding myocardium)
C8910	Magnetic resonance angiography (MRA) without contrast, chest (excluding myocardium)
C8911	Magnetic resonance angiography (MRA) without contrast followed by with contrast, chest (excluding myocardium)

Medical Evidence

Londono et al. (2021) performed a retrospective review to evaluate the image quality of the entire thoracic aorta by comparing 3D radial respiratory self-navigated native magnetic resonance angiography (native-SN-MRA) based on a bSSFP sequence with traditional Cartesian 3D contrast-enhanced MRA (CE-MRA) that uses navigator-gated respiration control. Thirty-one aortic native-SN-MRA scans (average age 63.9 years) to 61 CE-MRA scans (average age 63.1 years) were used as a reference. The image quality was evaluated at the aortic root/ascending aorta, aortic arch, and descending aorta. For the 10 patients who underwent both MRA sequences, aortic pathologies were assessed, and both normal and pathological aortic diameters were measured. The study found that native-SN-MRA provides superior image quality for the entire thoracic aorta, especially in areas prone to motion artifacts, while also achieving shorter acquisition times compared to conventional techniques.⁴⁰

Shimohira et al. (2015) present the results of a multicenter study on reperfusion rates of pulmonary arteriovenous malformations (PAVMs) following coil embolization. The study used time-resolved MRA or pulmonary angiography and included patients diagnosed with PAVM who underwent embolization. Sixteen patients in the study cohort underwent coil embolization (24 untreated or reperfused PAVMs). Among these, sac embolization was performed in 12 untreated PAVMs. Primary feeding artery embolization was performed in each of the 12 reperfused PAVMs. Additionally, five PAVMs required 2 to 4 treatments due to reperfusion. The overall study encompassed 32 coil embolizations. Reperfusion rates were examined at 3, 6, 12, and 24 months for both primary embolization (untreated PAVMs) and repeat embolization (reperfused PAVMs). The rates for primary embolization were 8%, 27%, 36%, and 49%, respectively, while for repeat embolization, they were 50%, 50%, 92%, and 100%, respectively. Upon assessment through time-resolved MRA or pulmonary angiography, reperfusion rates following coil embolization for PAVMs were notably elevated, especially in cases of repeat embolization.⁴¹

Poretti et al. (2015) reviewed using MRA to evaluate thoracic outlet syndrome (TOS). The protocol enables an independent review of veins and arteries by employing a single, simultaneous, and bilateral (SB-MRA) contrast injection,

applicable for both abduction and adduction acquisitions. Between 2009 and 2013, 38 MRA studies were conducted for individuals with clinically suspected TOS. The study cohort comprised 13 males and 25 females, with a mean age of 35.9 years (standard deviation equal to 11.13). Out of the total participants, 45% (17 patients) were diagnosed with predominant venous TOS (VTOS), 24% (nine patients) with predominant arterial TOS (ATOS), and 32% (12 patients) exhibited an indeterminate or nonvascular condition. Group A radiologists identified significantly more VTOS cases than Group B ($p = 0.049$). The interobserver agreement was exceptionally high. The employment of the simultaneous bilateral MRA (SB-MRA) protocol proves to be a secure and dependable method for investigating TOS. The protocol, offering an early acquisition phase allowing separate assessment of veins and arteries, enables the examination of collateral venous flow through a single contrast material injection and enhances diagnostic accuracy, particularly for VTOS. SB-MRA emerges as a valuable tool in diagnosing TOS of vascular origin.²⁷

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Policy Revision History/Information

Original Date: March 18, 2022		
Review History		
Version 2	09/05/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	09/11/2025	Annual review Rewrote indications to be parallel with CTA Chest policy, including expansion of criteria for congenital conditions, CTEPH, venous thrombosis, and aortic dissection, among others Removed trauma indication Updated content to align with revised template, including repeat imaging criteria Enhanced reference citations for clarity and comprehensiveness



Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Head

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: September 11, 2025

Last Annual Review: September 11, 2025

Revision: Not Applicable

Next Annual Review: September 11, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Head

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), 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

Imaging analysis utilizing magnetic resonance angiography (MRA) of the head can be performed alone or in conjunction with MRA of the neck. MRA plays a crucial role in the routine assessment of patients experiencing stroke syndrome, specifically for the evaluation of both cervical and intracranial vessels, enabling the identification and diagnosis of vascular anomalies. In conjunction with MRI, MRA enhances the examination by providing a comprehensive analysis of the cerebral parenchyma. MRA also serves as a viable alternative to CT angiography when using iodinated contrast material is not feasible.

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), head is considered appropriate if **ANY** of the following is **TRUE**^{1,2}:

- 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:
 - Trauma of the head with a suspected intracranial arterial injury based on clinical findings or prior imaging³; **OR**
 - Traumatic injury to cervicocerebral vessels, suspected⁴; **OR**
 - Traumatic visual defect (including orbital injury)⁵; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm with **ANY** of the following:
 - Screening for cerebral artery aneurysm when **ANY** of the following is **TRUE**⁶⁻¹³:
 - 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 aneurysm¹⁴⁻¹⁷; **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 suspected¹⁸; **OR**
 - The patient has a history of subarachnoid hemorrhages¹⁹; **OR**
 - Cervical bruit or thrill with suspicion of neck carotid stenosis; **OR**
 - Headache with **ANY** of the following:
 - Acute onset of worst headache of life/thunderclap headache²⁰; **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), suspected²¹ **OR**
- Intracranial hypertension (idiopathic), suspected; **OR**
- Cranial neuropathy, when **ALL** of the following are **TRUE**:
 - Prior imaging is suspicious for a vascular pathology (e.g., aneurysm, arteriovenous fistulas [AVF])^{19,22,23}; **AND**
 - **ANY** of the following²²:
 - 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**
- Vascular malformation of the brain or skull base, including **ANY** of the following occult cerebrovascular malformations:
 - Capillary telangiectasia; **OR**
 - Cavernous angioma; **OR**
 - Developmental venous anomaly; **OR**
- Vascular disease^{21,24,25}; **OR**
- Vasculitis, suspected²⁶; **OR**
- Cerebrovascular disease in a patient 18 years of age or older, including **ANY** of the following²⁶:
 - Moyamoya disease; **OR**
 - Bicuspid aortic valve; **OR**
 - Aortic aneurysm; **OR**
 - Coarctation of the aorta; **OR**
- Signs/symptoms highly suggestive of leaking/ruptured internal carotid artery (ICA) or arteriovenous malformations (AVM) (e.g., blood in the cerebral spinal fluid, stiff neck, sudden explosive headache); **OR**
- Stroke/cerebrovascular accident (CVA); **OR**
- Transient ischemic attack (TIA)²⁷; **OR**
- Vertebrobasilar insufficiency (VBI) as indicated by **ANY** of the following^{28,29}:
 - 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 uncategorized/miscellaneous symptoms when applicable:
 - Massive epistaxis; **OR**
 - Neurological deficit(s) (focal or lateralizing); **OR**
 - Nontraumatic orbital asymmetry, exophthalmos, or enophthalmos⁵; **OR**
 - Ptosis (new-onset); **OR**
 - Pulsatile tinnitus (subjective or objective) for vascular etiology; **OR**
 - Visual loss (e.g., nonischemic)⁵; **OR**
 - Optic nerve symptoms⁵; **OR**
 - Chiasm symptoms (including pre or post chiasm)⁵; **OR**
 - Ophthalmoplegia⁵; **OR**
 - Diplopia⁵; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
 - Refractory trigeminal neuralgia when done for surgical planning; **OR**
 - Follow-up study for **ANY** of the following^{24,25}:
 - Arteriovenous fistula (AVF); **OR**
 - Intracranial aneurysm; **OR**
 - Preoperative evaluation for **ANY** of the following³⁰:
 - Carotid endarterectomy; **OR**
 - Percutaneous intervention; **OR**
 - Acute stroke, and performed in conjunction with neck MRA; **OR**
 - Follow-up for **ANY** of the following duplex (Doppler) scan findings:
 - Findings are indeterminate; **OR**
 - High carotid bifurcation; **OR**
 - High-grade stenosis in an asymptomatic patient; **OR**
 - Kinks; **OR**
 - Loops; **OR**
 - History of neck radiation therapy; **OR**
 - Delineation of the vascular supply of vascular neoplasm^{31,32}; **OR**
 - Vascular malformation of brain or skull base; **OR**
 - Postprocedural evaluation following surgical or endovascular therapy (e.g., coiling)⁶; **OR**

- Vascular anatomy to determine the effect of therapeutic interventions, as indicated by **ANY** of the following:
 - Aneurysm; **OR**
 - Arteriovenous malformation (AVM)³³; **OR**
 - Dissection³⁴; **OR**
 - Endovascular embolization; **OR**
 - Posttreatment changes for **ANY** of the following:
 - Surgical procedures (including interventional); **OR**
 - Radiation therapy; **OR**
 - Stent placement for treatment of stenosis; **OR**
 - Tumor embolization; **OR**
- Congenital conditions or anomalies including vascular abnormality associated with chronic anemic conditions (e.g., sickle cell disease) in pediatric patients^{35,36}
- 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.

Magnetic resonance venography (MRV), head is considered appropriate if **ALL** of the following are **TRUE**:

- **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:
 - With new-onset or pattern during pregnancy or peripartum period; **OR**

- Headache with features of intracranial hypertension (e.g., papilledema, pulsatile tinnitus, visual symptoms worse with Valsalva)²⁰; **OR**
- Initial diagnostic, one-time pre or one-time posttreatment evaluation for treatment planning or evidence of clinical concern for vascular malformation; **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

Magnetic resonance angiography (MRA) or magnetic resonance venography (MRV), head is not considered appropriate 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 symptoms³⁷.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70544	Magnetic resonance angiography (MRA), head; without contrast material(s)
70545	Magnetic resonance angiography (MRA), head; with contrast material(s)
70546	Magnetic resonance angiography (MRA), head; without contrast material(s), followed by contrast material(s) and further sequences

Medical Evidence

Amin et al. (2023) present a scientific statement from the American Heart Association regarding the diagnosis, workup, and risk reduction of transient ischemic attack in the emergency department. Computed tomography angiography (CTA) demonstrates superior sensitivity and positive predictive value compared to magnetic resonance angiography (MRA) in detecting intracranial stenosis and occlusion. As a result, CTA is the recommended imaging modality over time-of-flight (without contrast) MRA. If there is a concern regarding administering iodinated contrast, expedited magnetic resonance imaging (MRI) with MRA is a viable alternative. Time-of-flight MRA may result in images of lower quality as there is a tendency to overestimate cervical carotid stenosis compared to gadolinium-enhanced MRA. However, this type of MRA may be suitable for screening purposes. Gadolinium-enhanced MRA of the neck is the preferred choice for patients who can safely receive gadolinium contrast.³⁸

AbuRahma et al. (2022) review clinical guidelines for managing extracranial cerebrovascular disease published by the Society for Vascular Surgery. Contrast-enhanced MRA can produce three-dimensional images that rival those from a formal arteriography. A key advantage of MRA is less radiation exposure to the individual, and the use of iodinated-based contrast materials is not needed. Further, MRA allows for the integration of MRI of the brain, enabling the identification of clinically silent cerebral infarction. It also facilitates the assessment of plaque morphology, focusing on detecting intraplaque hemorrhage. The severity of carotid stenosis is more identifiable with MRA than CTA. While MRA excels in various aspects, it is unsuitable for screening carotid artery disease due to its substantial cost.³⁹

Cummins et al. (2022) discuss the role of TOF MRA for pulsatile tinnitus (PT) and the identification of vascular causes of PT, including dural arteriovenous fistulas (DAVFs). The annual intracranial hemorrhage risk of DAVFs is over 24%. TOF-MRA is considered one of the most sensitive and specific noninvasive methods for diagnosing DAVF. The diagnosis of arterial aneurysms is aided by the use of TOF MRA, with a sensitivity greater than 90% and specificity over 80%. Stenoses are also detected by MRA (a sensitivity of 95.5% and specificity of 87.2%). When severe carotid artery stenosis is a cause of PT, the sensitivity

and specificity of TOF MRA is nearly 100%. Advantages of MRA include a greater pooled sensitivity for diagnosis than CT as well as excellent spatial resolution and is the most powerful sequence for DAVF diagnosis. In addition, MRA can diagnose intracranial and high cervical arterial etiologies (e.g., fibromuscular dysplasia, carotid stenosis, variant anatomy). Disadvantages include high cost, scanning time, and the dephasing of tortuous vessels.⁶

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Policy Revision History/Information

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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. Added new HINTS definition. Added cranial neuropathy indication. Updated prior imaging requirements in indications. Updated content to align with revised template, including repeat imaging criteria.



Magnetic Resonance Angiography (MRA), Lower Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: March 18, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Angiography (MRA), Lower Extremity – Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Lower Extremity

General Guidelines

- **Imaging Modality:** Magnetic Resonance Angiography is a proven tool for the evaluation, assessment, and follow-up of diseases of the vascular system of the lower extremity. Unlike CT Angiography (CTA), it does not use ionizing radiation and iodinated contrast. Gadolinium Contrast-Enhanced MRA (CE-MRA) is less invasive but equivalent to conventional angiography in evaluating diseases of many portions of the vascular system and pretreatment planning.
- **Criteria for Subsequent Requests:** Subsequent requests may be appropriate when a patient presents with new, worsening, or persistent clinical symptoms. These may also be necessary before, during, and after treatment of vascular disorders of the lower extremities.
- **Recommended Clinical Approach:** MRA Lower Extremity can be performed with or without contrast agents. Although CE-MRA is generally preferred, non-contrast-enhanced techniques are increasingly available and may be a good option for patients with impaired renal function or who cannot tolerate gadolinium-based contrast agents.
- **Exclusions:** MRI of the lower extremity, MRI and MRA of the upper extremity, MRA of the head/neck, MRA of the spinal canal, MRA of the Chest/Abdomen/Pelvis, and cardiac MRI are excluded from this document and addressed separately. MR Arthrogram is also excluded from this document.

Medical Necessity Criteria

Indications

→ **MRA Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**¹⁻²⁸:

- ◆ If the patient has **ANY** of the following clinical presentations:
 - Presence and extent of vascular stenosis or occlusion due to **ANY** of the following:
 - Atherosclerosis
 - Vasculitis
 - Thromboembolic phenomena

- Etiology of hemorrhage
 - Mapping vascular anatomy for preprocedural planning and postprocedural surveillance of treatment
 - Presence, location, and anatomy of aneurysms and vascular malformations
 - Presence, nature, and extent of injury to vessels, including dissection
 - Vascular supply to, or involvement by, tumors
 - Presurgical assessment of vascularity that may be involved by or affected by disorders in proximity
 - Nature and extent of other congenital or acquired vascular abnormality
- ◆ If the patient has **ANY** of the following physical examination finding or diagnoses:
- Atherosclerotic occlusive disease and **ANY** of the following:
 - Intermittent claudication
 - Acute and chronic critical limb ischemia
 - Patients with **ANY** of the following previous interventions (postoperative):
 - ◆ Stent grafts
 - ◆ Bypass grafts
 - Congenital anomalies, including vascular malformations
 - Atheroembolism
 - Vasculitis
 - Arterial fibrodysplasia
 - Post Interventional intimal hyperplasia
 - Arterial entrapment syndromes
 - Adventitial cystic disease
 - Vascular malformations or fistulae
 - Aneurysmal disease
 - Assessment of complications of arterial bypass grafts
 - Assessment of surgically created dialysis fistulas and grafts with unenhanced MRA
 - Preoperative mapping of vascular anatomy for plastic surgery graft procedures

→ **MRV Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**¹⁻²⁸:

- ◆ If the patient has **ANY** of the following clinical presentations:
 - Presence and extent of vascular stenosis or occlusion due to **ANY** of the following:
 - Atherosclerosis
 - Vasculitis
 - Thromboembolic phenomena
 - Etiology of hemorrhage
 - Mapping vascular anatomy for preprocedural planning and postprocedural surveillance of treatment
 - Presence, location, and anatomy of aneurysms and vascular malformations
 - Presence, nature, and extent of injury to vessels, including dissection
 - Vascular supply to, or involvement by, tumors
 - Presence and extent of venous disease, including **ANY** of the following:
 - Occlusion
 - Thrombosis
 - Tumor invasion
 - Venous anatomy, including **ANY** of the following:
 - Congenital abnormalities
 - Extrinsic compression
 - Causes of intrinsic stenosis or obstruction
 - Presurgical assessment of vascularity that may be involved by or affected by disorders in proximity
 - Nature and extent of other congenital or acquired vascular abnormality
- ◆ If the patient has **ANY** of the following physical examination finding or diagnoses:
 - Vasculitis
 - Vascular malformations or fistulae
 - Aneurysmal disease
 - Assessment of complications of arterial bypass grafts
 - Preoperative mapping of vascular anatomy for plastic surgery graft procedures
 - Venous evaluations if **ANY** of the following are **TRUE**:
 - Thrombus (central or peripheral)

- Confirmed or suspected venous condition including **ANY** of the following:
 - Effort thrombosis of the upper extremity
 - Venous compression
 - Venous malformation
- Venous mapping for varicose veins
- For assessment of **ANY** of the following:
 - Vascular involvement with musculoskeletal tumors
 - Patent vessels for venous access and mapping for surgical creation of native dialysis fistulas and grafts with unenhanced MRA
 - Vein suitability as bypass conduits
 - Causes of peripheral edema
 - Thrombus
 - Venous compression
 - Strictures from indwelling catheters

Non-Indications

→ **MRA Lower Extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)²⁹
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))²⁹
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73725	Magnetic resonance angiography (MRA) of lower

	extremity with contrast material
C8912	Mra w/cont, lwr ext
C8913	Mra w/o cont, lwr ext
C8914	Mra w/o fol w/cont, lwr ext

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Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Neck

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Neck

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Neck

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

Magnetic resonance angiography (MRA) of the neck allows for visualizing blood vessels, including the arteries and veins, in the neck. Imaging analysis utilizing MRA of the neck can be performed alone or in conjunction with MRA of the head or magnetic resonance imaging (MRI) of the head. MRA plays a crucial role in the routine assessment of patients experiencing stroke syndrome, specifically for the evaluation of both cervical and intracranial vessels, enabling the identification and diagnosis of vascular anomalies. In conjunction with MRI, MRA enhances the examination by comprehensively analyzing the cerebral parenchyma. MRA is also a viable alternative to computed tomography angiography (CTA) when using iodinated contrast material is not feasible.¹

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), neck is considered appropriate if **ANY** of the following are **TRUE**²⁻⁴:

- Vascular conditions, including **ANY** of the following⁵⁻⁷:
 - Loeys–Dietz syndrome with repeat imaging at least every two years; **OR**
 - Fibromuscular dysplasia; **OR**
 - Spontaneous coronary artery dissection (SCAD); **OR**
- Ultrasound is incomplete, inconclusive, or abnormal, and **ANY** of the following:

- Detection, surveillance, and follow-up of vascular neck mass (e.g., paraganglioma, pulsatile neck mass [not parotid region or thyroid])⁸; **OR**
- Known carotid artery stenosis surveillance; **OR**
- Trauma-related conditions as indicated by **ANY** of the following:
 - Trauma of the head with a suspected intracranial arterial injury based on clinical findings or prior imaging⁹; **OR**
 - Traumatic and nontraumatic orbital pathology with clinical or imaging findings that indicate vascular involvement¹⁰; **OR**
 - Traumatic injury to cervicocerebral vessels, suspected¹¹; **OR**
 - Dissection (carotid or vertebral), known or suspected¹²; **OR**
 - Extracranial vascular disease requiring additional evaluation; **OR**
- Giant cell and Takayasu arteritis (large vessel vasculitis)¹³; **OR**
- Ischemic stroke or transient ischemic attack (TIA) when the patient is a candidate for revascularization^{14,15}; **OR**
- Subclavian steal syndrome for treatment planning¹⁶; **OR**
- Pulsatile tinnitus for the evaluation of vascular etiology¹⁷; **OR**
- Penetrating neck injury; **OR**
- Vascular malformation and **ALL** of the following are **TRUE**^{18,19}:
 - Performed in conjunction with MRI head and MRA head; **AND**
 - To assess the status of neck vasculature; **OR**
- For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Ataxia with suspected arterial pathologies²⁰; **OR**
 - Horner syndrome²¹; **OR**
 - Persistent vertigo with or without neurological symptoms (central vertigo); **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
 - Before surgical procedures that provide detailed vascular mapping of the neck; **OR**
 - Postprocedural evaluation to evaluate the patient's progress following a procedure; **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

Magnetic resonance angiography (MRA), neck is not considered appropriate 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 symptoms²².

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70547	Magnetic resonance angiography (MRA), neck; without contrast material(s)
70548	Magnetic resonance angiography (MRA), neck; with contrast material(s)
70549	Magnetic resonance angiography (MRA), neck; without contrast material(s), followed by contrast material(s) and further sequences

Medical Evidence

Amin et al. (2023) present a scientific statement from the American Heart Association regarding the diagnosis, workup, and risk reduction of transient ischemic attack in the emergency department. Computed tomography angiography (CTA) demonstrates superior sensitivity and positive predictive value compared to magnetic resonance angiography (MRA) in detecting intracranial stenosis and occlusion. As a result, CTA is the recommended imaging modality over time-of-flight (TOF) (without contrast) MRA. If there is a concern regarding administering iodinated contrast, expedited magnetic resonance imaging (MRI) with MRA is a viable alternative. TOF MRA may result in images of lower quality as there is a tendency to overestimate cervical carotid stenosis compared to gadolinium-enhanced MRA. However, this type of MRA may be suitable for screening purposes. Gadolinium-enhanced MRA of the neck is the preferred choice for patients who can safely receive gadolinium contrast.²³

AbuRahma et al. (2022) review clinical guidelines for managing extracranial cerebrovascular disease published by the Society for Vascular Surgery. Contrast-enhanced MRA can produce three-dimensional images that rival those from a formal arteriography. A key advantage of MRA is less radiation exposure to the individual, and the use of iodinated-based contrast materials is not needed. Further, MRA allows for the integration of MRI of the brain, enabling the identification of clinically silent cerebral infarction. It also facilitates the assessment of plaque morphology, focusing on detecting intraplaque hemorrhage. The severity of carotid stenosis is more identifiable with MRA than CTA. While MRA excels in various aspects, it is unsuitable for screening carotid artery disease due to its substantial cost.²⁴

Cummins et al. (2022) discuss the role of TOF MRA for pulsatile tinnitus (PT) and the identification of vascular causes of PT, including dural arteriovenous fistulas (DAVFs). The annual intracranial hemorrhage risk of DAVFs is over 24%. TOF-MRA is one of the most sensitive and specific noninvasive methods for diagnosing DAVF. The diagnosis of arterial aneurysms is aided by the use of TOF MRA, with a sensitivity greater than 90% and specificity over 80%. MRA also detects stenoses (a sensitivity of 95.5% and specificity of 87.2%). When severe carotid artery stenosis is a cause of PT, the sensitivity and specificity of TOF

MRA is nearly 100%. The advantages of MRA include a greater pooled sensitivity for diagnosis compared to CT, excellent spatial resolution, and the most powerful sequence for DAVF diagnosis. In addition, MRA can diagnose intracranial and high cervical arterial etiologies (e.g., fibromuscular dysplasia, carotid stenosis, variant anatomy). Disadvantages include high cost, scanning time, and the dephasing of tortuous vessels.²⁵

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Policy Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	08/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual review Updated content to align with revised template, including repeat imaging criteria



Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Spinal Canal

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Spinal Canal

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Spinal Canal

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

Magnetic resonance angiography (MRA) is a diagnostic technique that allows for the visualization of blood vessels in the spinal canal. Typically used as adjunct to conventional magnetic resonance imaging (MRI), it aids in diagnosing and evaluating vascular conditions, such as aneurysms, stenosis, occlusions, and vascular malformations. Unlike computed tomography angiography (CTA), MRA does not use ionizing radiation yet provides detailed images of blood vessels and surrounding tissues. It also provides an alternative for patients who do not tolerate the iodinated contrast used in CTA. MRA is less invasive than conventional radiographic digital subtraction angiography.

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), spinal canal is considered appropriate if **ANY** of the following is **TRUE**:

- Evaluation and characterization of suspected vascular lesions when detected on prior imaging, including **ANY** of the following:
 - Spinal arteriovenous fistula (AVF), including vascular flow voids on magnetic resonance imaging (MRI) spine that are suspicious for spinal AVF¹; **OR**
 - Spinal arteriovenous malformation (AVM)¹⁻⁶; **OR**

- Diagnosis and evaluation of known or suspected vascular conditions involving the spinal vessels, including **ANY** of the following^{2,7}:
 - Thrombosis; **OR**
 - Dissection; **OR**
 - Embolism; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
 - To localize the spinal arteries before complex spinal surgery or aortic aneurysm repair; **OR**
 - To characterize suspected vascular lesions, including tumors or masses of the spinal canal and its contents⁸; **OR**
 - To assess progressive myelopathy when MRI suggests an underlying vascular cause, such as an AVM⁹; **OR**
 - To guide a subsequent digital subtraction angiography meant to assess for a spinal AVM or AVF; **OR**
- For further evaluation of a previously inconclusive finding on prior imaging (e.g., MRI, digital substance angiography) that necessitates additional clarification; **OR**
- As a follow-up study for **ANY** of the following as needed to assess progression or response to treatment:
 - Known AVM^{10,11}; **OR**
 - Known AVF¹; **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

Magnetic resonance angiography (MRA), spinal canal is not considered appropriate 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 symptoms¹².

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72159	Magnetic resonance angiography (MRA) of spinal canal and contents with contrast material material
C8931	Magnetic resonance angiography with contrast, spinal canal and contents
C8932	Magnetic resonance angiography without contrast, spinal canal and contents
C8933	Magnetic resonance angiography without contrast followed by with contrast, spinal canal and contents

Medical Evidence

Raman et al. (2022) performed a systematic review comparing digital subtraction angiography (DSA) with magnetic resonance angiography (MRA) for the evaluation of cerebral arteriovenous malformations (AVMs). In brain AVMs, there is aberrant communication between arteries and veins, resulting in the formation of a nidus, a complex network of intertwined blood vessels. DSA is generally the preferred method due to its superior spatial resolution and hemodynamic properties, representing the current gold standard. There is a need for further research to determine whether MR studies alone could serve as a diagnostic imaging alternative to the current gold standard, DSA, for AVM diagnosis. Numerous studies have highlighted the combined use of both imaging modalities, and some have suggested that specific MR imaging techniques closely resemble the outcomes of invasive conventional scans.¹³

Sharma et al. (2019) compare computed tomography angiography (CTA) and MRA for traumatic vertebral artery injury (TVAI). The primary diagnostic approach for patients with trauma and meeting screening criteria for potential cervical vascular injury is CTA. At the same time, MRA, DSA, and Doppler duplex ultrasound have supportive roles as complementary imaging modalities. The authors also review anatomic variations and potential mimics. Early detection is crucial, and prompt initiation of therapy can significantly reduce the risk of associated strokes.¹⁴

Mathur et al. (2017) evaluated the effectiveness of first-pass contrast-enhanced MRA in diagnosing and localizing spinal epidural AVFs with intradural venous reflux, as well as differentiating them from other types of spinal AVFs. Of the 42 patients with suspected spinal AVF, 7 patients received a diagnosis. The authors conclude that MRA can identify lesions associated with spinal dural AVFs.¹

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Policy Revision History/Information

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Review History		
Version 2	08/02/2024	Annual review and policy restructure
Version 3	10/30/2024	Edited repeat imaging criteria language
Version 4	08/21/2025	Annual review Reorganized indications to eliminate redundancy and improve clarity Updated content to align with revised template, including repeat imaging criteria



Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Upper Extremity

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Upper Extremity

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), 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

Magnetic resonance angiography (MRA) of the upper extremity is typically performed without and with gadolinium contrast. Although contrast-enhanced MRA (CE-MRA) is generally preferred, non-contrast-enhanced techniques are increasingly available. These may be a good option for patients with impaired renal function or who cannot tolerate gadolinium-based contrast agents. A broad spectrum of upper extremity vascular disorders can be assessed accurately using MRA of the upper extremity.¹

Medical Necessity Criteria

Indications

Magnetic resonance angiography (MRA), upper extremity is considered appropriate if **ANY** of the following is **TRUE**¹:

- **ANY** of the following:
 - Arterial entrapment syndrome, when ultrasound is indeterminate or for pretreatment planning; **OR**
 - Adventitial cystic disease; **OR**
- Ultrasound is incomplete, inconclusive, or abnormal with **ANY** of the following:
 - 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**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm, seen on ultrasound or when 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**
 - Nonhealing upper extremity ulcers with abnormal or inconclusive ultrasound results (e.g., arterial Doppler); **OR**
 - Symptoms with exercise attributable to vascular etiologies such as muscle pain that resolves with rest, coolness, pallor, or fatigue; **OR**
- Localization and characterization of vascular malformation (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 are **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**
 - The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change management and/or treatment plan; **OR**
- Noninflammatory vasculopathies that are symptomatic such as Buerger's disease, fibromuscular dysplasia, or scleroderma; **OR**
- Vascular (subclavian) steal syndrome of the upper extremity, is suspected, and initial imaging is needed to guide therapy⁶; **OR**
- Hemodialysis access evaluation, if **ALL** of the following are **TRUE**:
 - Duplex ultrasound is inconclusive; **AND**
 - Fistulogram cannot be performed; **AND**
 - **ANY** of the following conditions:
 - Arteriovenous fistula (AVF) stenosis; **OR**
 - Occlusion; **OR**
 - Pseudoaneurysm; **OR**
 - Steal syndrome; **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.

Magnetic resonance venography (MRV), upper extremity is considered appropriate if **ALL** of the following are **TRUE**¹:

- Ultrasound is incomplete, inconclusive, or abnormal with **ANY** of the following:
 - Suspected venous entrapment syndrome; **OR**
 - Neoplastic conditions (including masses or mass-like conditions) when the 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, or management and ultrasound have been completed⁶; **OR**
 - Known severe postthrombotic changes incompletely evaluated by ultrasound⁷; **OR**
 - Subclavian or central venous obstruction such as subclavian vein thrombosis, Paget-Schroetter syndrome, thoracic outlet syndrome, either known or suspected clinically (e.g., edema aggravated by exercise/arm position)⁷; **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.

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

Magnetic resonance angiography (MRA), upper extremity is not considered appropriate 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.⁸

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
73225	Magnetic resonance angiography (MRA), upper extremity, with or without contrast material(s)
C8934	Magnetic resonance angiography (MRA), with contrast, upper extremity
C8935	Magnetic resonance angiography (MRA), without contrast, upper extremity
C8936	Magnetic resonance angiography (MRA), without contrast followed by with contrast, upper extremity

Medical Evidence

Nassar et al. (2022) reviewed imaging modalities for preoperative planning. CTA and MRA can generate detailed 3D images of vascular structures and surrounding anatomy, with applications in preoperative planning for breast, head, neck, and extremity reconstructions. While MRA eliminates the need for radiation exposure, it is less precise than CTA in detecting perforators smaller than 1 mm. For assessing venous anatomy, the most effective modalities include duplex ultrasound, MRV, and the outflow phase of conventional angiography. While MR scanners and software continue to advance, the general preference is for 1.5-T scanners in reconstructive applications. Lower-strength scanners allow enhanced fat suppression, contributing to clearer imaging of vascular structures.⁹

Ghouri et al. (2019) review the successes and failures of CTA and MRA of the upper extremities. These modalities are preferred over Doppler or digital subtraction angiography (DSA), especially in patients without contraindications to MRI. Soft tissue characterization is improved with MRA and does not expose the patient to radiation. Venous and neurological compression is also successfully evaluated with MRA. As imaging modalities, particularly CTA and MRA, continue to advance, the authors stress the importance of identifying the strengths and weaknesses of different techniques to obtain the most effective imaging test.⁶

The American College of Radiology, the North American Society for Cardiovascular Imaging (NASCI), and the Society for Pediatric Radiology (SPR) developed a 2020 updated practice parameter for the performance of body magnetic resonance angiography (MRA). They state that contrast-enhanced MRA is as effective as standard angiography in the evaluation of diseases related to the vascular system as well as the planning of treatment. MRA is less invasive than catheter-based angiography, reducing the risk of injury to the vascular system being examined. Noncontrast MRA is available to patients in whom contrast media is contraindicated. Specific extremity MRA evaluations include arterial occlusions, congenital anomalies, and aneurysms, as well as venous malformations, causes of peripheral edema, and varicose veins. MRA is effective in planning for dialysis access placement.¹

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Policy Revision History/Information

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Version 2	08/13/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/21/2025	Annual review. Clarified prior imaging requirements and updated layout to align with updated template.



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)

Clinical Guidelines for Medical Necessity Review

Version: 3
Revision Date: February 20, 2025

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)

Date of last literature review: 7/31/2024

Document last updated: 2/19/25

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Abdomen and Magnetic Resonance Cholangiopancreatography (MRCP)

Recommended Clinical Approach

The use of contrast and the type of magnetic resonance (MR) contrast (e.g., extracellular or hepatobiliary-specific) should be at the request of the ordering provider with guidance from the radiologist. The MR field of view should be limited to the area of interest and, in some cases, may not be the preferred imaging study.

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), abdomen** is considered appropriate if **ALL** of the following are **TRUE**¹:

◆ **ANY** of the following:

- Ultrasound or CT/CTA are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **OR**
- Radiology/ordering provider recommends MRI as optimal imaging modality for specific clinical case; **AND**

◆ **ANY** of the following:

- Suspected appendicitis in a pregnant patient; **OR**
- Suspected appendicitis in a pediatric patient; **OR**
- Unexplained abdominal pain in a pregnant person or pediatric patient with non-diagnostic ultrasound; **OR**
- Suspected abdominal abscess, diverticulitis, complicated UTI in a pregnant person or pediatric patient; **OR**

- Detection, screening, surveillance, and follow-up of malignancies or metastatic involvement in the abdomen for **ANY** of the following²⁻⁴:
 - To further characterize a lesion previously identified on another imaging study when that imaging study is inconclusive; **OR**
 - Metastases, known or suspected, including preoperative mapping for liver resection; **OR**
 - Known or suspected primary malignancies with an assessment of vascular and biliary invasion, including but not limited to **ANY** of the following⁵:
 - ◆ Rising alpha-fetoprotein (AFP) in a high-risk patient or patient with known hepatocellular carcinoma (HCC); **OR**
 - ◆ CA 19-9; **OR**
 - ◆ Painless jaundice; **OR**
 - ◆ Persistent hematuria; **OR**
 - ◆ Other biomarker/sign/symptom suggestive of underlying malignancy; **OR**
 - Tumor response to treatment (e.g., image-guided liver interventions or tumor ablation, chemoembolization, radioembolization, chemotherapy, radiotherapy, surgery)⁶; **OR**
 - Annual screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - ◆ Cirrhosis or chronic viral hepatitis where ultrasound or CT is nondiagnostic; **OR**
 - ◆ Primary sclerosing cholangitis after age 20⁷; **OR**

- ◆ Known mutation that increases susceptibility (e.g., Von Hippel Lindai, Tuberous Sclerosis, BRCA-1/2); **OR**
- ◆ The patient has two or more first-degree or second-degree relatives with the same or related cancer on the same side of the family; **OR**
- For evaluation of known benign or indeterminate adrenal masses with **ANY** of the following⁸⁻⁹:
 - Indeterminate adrenal mass found on initial imaging, and **ANY** of the following:
 - ◆ 1-4 cm with follow-up at 6-12 months¹⁰; **OR**
 - ◆ Potential metastatic involvement and less than 4 cm; **OR**
 - Adrenal adenoma, known or suspected based on clinical **AND** laboratory findings; **OR**
- Abdominal wall abnormalities, including hernias¹¹; **OR**
- Peritoneal or mesenteric abnormalities such as carcinomatosis, internal hernias, or infarct; **OR**
- Characterization and follow-up of intra-abdominal fluid collections; **OR**
- Gastrointestinal tract evaluation, as indicated by **ANY** of the following¹²:
 - Celiac disease with recurring symptoms despite maintaining a gluten-free diet for 12 months or more¹³; **OR**
 - Crohn's disease, known or suspected¹⁴; **OR**
 - Other autoimmune enteritis with small bowel involvement; **OR**
 - Volvulus, internal hernias, incarceration; **OR**

- Hepatobiliary system (liver, bile ducts, gallbladder, and associated structures) as indicated by **ANY** of the following⁶:
 - To further characterize a lesion previously identified on ultrasound or CT scan when the CT/ultrasound result is inconclusive; **OR**
 - Infection/inflammation (e.g. cholangitis)⁶; **OR**
 - Autoimmune (e.g., autoimmune hepatitis, primary biliary cirrhosis); **OR**
 - Pre-operative or post-operative evaluation (e.g., liver resection, donor or transplant, hepatic shunt placement); **OR**
 - Non-invasive quantification of iron, fat, and fibrosis in chronic liver disease (e.g., hemochromatosis, hemosiderosis, nonalcoholic steatohepatitis [NASH] hepatitis), includes hepatic elastography; **OR**
 - Gallbladder disease, including evaluation of indeterminate polyps/nodules detected with other imaging modalities¹⁵; **OR**
- Kidney and urinary system disease as indicated by **ANY** of the following¹⁶⁻¹⁹:
 - Surveillance of renal cysts with classification of Bosniak IIF or above; **OR**
 - Solid or complex cystic renal mass; **OR**
 - Annual evaluation of asymptomatic renal angiomyolipomas smaller than 4 cm⁴⁴; **OR**
 - Symptomatic renal angiomyolipoma of any size⁴⁴; **OR**
 - Characterization of other indeterminate lesions detected with other imaging modalities; **OR**

- Diagnostic evaluation of concerning signs/symptoms (e.g., pain, concern for rupture, infection, hemorrhage) in a patient with known polycystic kidney disease²⁰; **OR**
- Infectious or inflammatory disease (e.g., complicated pyelonephritis); **OR**
- Anatomic abnormalities, congenital or acquired (e.g., horseshoe kidney, retroperitoneal fibrosis); **OR**
- Evaluation of the ureters/collecting system (e.g., stones, tumors, or stricture); **OR**
- Pancreatic abnormalities as indicated by **ANY** of the following²¹:
 - Duct anomaly²²; **OR**
 - Duct obstruction (e.g., calculi, stricture, or mass)²²; **OR**
 - Fluid collections; **OR**
 - Pancreatic pseudocysts; **OR**
 - Indeterminate lesions; **OR**
 - Pancreatitis (acute or chronic) with **ANY** of the following²³⁻²⁴:
 - ◆ Concern for complications such as necrosis or abscess; **OR**
 - ◆ Lack of response to conservative treatment and management; **OR**
 - ◆ Ultrasound or other imaging study did not show clear etiology, such as a stone; **OR**
 - Indeterminate cyst in an asymptomatic patient that requires follow-up, and **ANY** of the following is **TRUE**^{22,25}:
 - ◆ One-year follow-up imaging when interval growth is present on the previous follow-up; **OR**

- ◆ The cyst is less than 1.5 cm without interval growth, and **ANY** of the following is **TRUE**:
 - For patients less than 65 years of age, annually up to five years; **OR**
 - For patients from 65 to 79 years of age, every two years up to ten years; **OR**
 - For patients more than 80 years of age, every two years up to four years; **OR**
- ◆ Cyst is greater than 1.5 cm without interval growth, and **ANY** of the following is **TRUE** :
 - The patient is less than 80 years old, and **ANY** of the following frequency limitations is **TRUE**:
 - Up to every 6 months for 2 years from diagnosis; **OR**
 - Up to annually for up to ten years from diagnosis; **OR**
 - The patient is greater or equal to 80 years old with a frequency limitation of every 2 years for 4 years; **OR**
- Splenic abnormalities as indicated by **ANY** of the following:
 - ◆ Characterization of indeterminate lesions detected with other imaging modalities; **OR**
 - ◆ Detection and characterization of suspected diffuse abnormalities of the spleen; **OR**
- Post-traumatic organ injury; **OR**
- Fever of unknown origin greater than 101°F for at least 3 weeks where laboratory and clinical workup have been performed and have not revealed a diagnosis²⁶⁻²⁷; **OR**

- Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Post-surgical complications involving the hepatobiliary system (bile ducts, gallbladder, and associated structures)⁶; **OR**
 - Post-treatment follow-up for **ANY** of the following:
 - ◆ Complications of pancreatitis; **OR**
 - ◆ Fluid collections; **OR**
 - ◆ Pancreatic duct anomalies; **OR**
- Characterization of complex congenital anomalies (e.g., genitourinary and pelvic organs)¹⁶⁻¹⁹; **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 are 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; **OR**

→ **Magnetic resonance cholangiopancreatography (MRCP)** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has **ANY** of the following:
 - Evidence of biliary obstruction or involvement, including **ANY** of the following²⁸⁻³⁰:
 - Biliary duct dilation requiring further work-up; **OR**
 - Jaundice³¹; **OR**

- Laboratory or biochemical markers, including increased alkaline phosphatase, gamma-glutamyl transpeptidase, or conjugated (direct) bilirubinemia; **OR**
- Known or suspected abnormalities of the pancreatic and biliary ducts, including **ANY** of the following^{28-29,32-33}:
 - Acute pancreatitis³⁴; **OR**
 - Chronic pancreatitis³⁴; **OR**
 - Cystic lesions in the pancreas²²; **OR**
 - Ductal stones; **OR**
 - Evaluation of bile duct dilation or stricture; **OR**
- Unexplained right upper quadrant pain^{15,28-29}; **OR**
- ◆ Assessment of post-liver transplant biliary complications; **OR**
- ◆ When ERCP is unsuccessful or contraindicated, or therapeutic ERCP is unlikely to be needed^{11,28-29,35}; **OR**
- ◆ Delineation of ductal anatomy before liver transplantation; **OR**
- ◆ Detection and anatomic delineation of bile leaks; **OR**
- ◆ Detection, staging, and post-treatment follow-up of bile duct and gallbladder cancer; **OR**
- ◆ Evaluation of suspected congenital abnormalities of the gallbladder or bile ducts; **OR**
- ◆ Follow-up after surgery or intervention; **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 are 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

→ **Magnetic resonance imaging (MRI), abdomen or magnetic resonance cholangiopancreatography (MRCP)** are not considered appropriate 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 symptoms³⁶; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ Benign prostatic hyperplasia (BPH), initial or follow-up imaging.³⁷

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description

74181	Magnetic resonance imaging (MRI) (e.g., proton), abdomen; without contrast material(s)
74182	Magnetic resonance imaging (MRI) (e.g., proton), abdomen; with contrast material(s)
74183	Magnetic resonance imaging (MRI) (e.g., proton), abdomen, without contrast material(s), followed by contrast material(s) and further sequences
S8037	Magnetic resonance cholangiopancreatography (MRCP)

Medical Evidence

Hernando et al. (2022) reviewed quantitative diffusion MRI of the abdomen and pelvis, which involves employing multiple diffusion encodings and mapping diffusion parameters. Diffusion MRI allows the ability to gauge tissue microstructure sensitivity. In contrast to qualitative diffusion-weighted MRI, the quantitative approach enhances the standardization of tissue characterization, which is crucial for disease detection, staging, and treatment monitoring. Challenges include acquisition artifacts, limitations in signal modeling, and biological variability. Technical performance concerns include addressing physiologic motion (respiratory, peristaltic, and pulsatile), handling image distortions, and managing a low signal-to-noise ratio.³⁸

The American Urological Association (AUA) published guidelines on renal mass and localized renal cancer. Based on recommendations from the American College of Radiology (ACR), cross-sectional nervous system imaging is the preferred diagnostic method for identifying or ruling out metastases in the brain and spine. While MRI may exhibit greater sensitivity in detecting small central nervous system (CNS) neoplasms, CT can be beneficial for promptly assessing acute neurological signs or symptoms. MRI benefits patients who cannot receive IV iodinated contrast before and after administering gadolinium. Cross-sectional MRI with diffusion-weighted imaging benefits for patients who cannot tolerate conventional contrast. If there is suspicion of a mass, contrast-enhanced ultrasound can be employed to assess for enhancement.¹⁸⁻¹⁹

Staubli et al. (2022) performed a randomized control trial (RCT) comparing intraoperative cholangiography (IOC) and magnetic resonance cholangiopancreatography (MRCP) in patients suspected of having common bile duct stones (CBDS). It was a multicenter randomized controlled trial conducted across five hospitals. Patients were randomly assigned to receive either IOC followed by laparoscopic cholecystectomy (LC) with potential endoscopic retrograde cholangiopancreatography (ERCP) or MRCP followed by ERCP and LC if deemed necessary. The primary focus was on the LOS, with secondary measures encompassing cost, stone detection, and complication

rates. The findings indicated that IOC was more effective in diagnosing CBDS than MRCP. Although the median LOS was slightly shorter in the IOC group, this variance did not reach statistical significance. No significant cost difference was observed between the two approaches. However, CBDS were more frequently detected in the IOC group. Complication rates did not exhibit disparity between the two methods. The study concluded that while IOC and MRCP are viable options, IOC stands out for its notably higher diagnostic yield in detecting CBDS. (Clinicaltrials.gov Identifier: NCT02351492).³⁹

Suzuki et al. conducted an RCT to evaluate the diagnostic precision of endoscopic ultrasound (EUS) and MRCP in detecting choledocholithiasis cases initially overlooked on CT scans. Patients suspected of having CBDS were divided into two groups: one receiving EUS and the other MRCP. Initially, those diagnosed with CBDS or sludge underwent ERCP, while CBDS-negative patients underwent a second diagnostic procedure, either MRCP or EUS, different from the initial one. The main focus was on the accuracy of diagnosis, with secondary interests in diagnostic capabilities, CBDS detection rates and characteristics during the second examination, and adverse event occurrence. Overall, EUS may provide higher diagnostic ability than MRCP; however, the authors did not note significant differences in recommending one procedure over the other.⁴⁰

Timmerhuis et al. (2021) performed a systematic review of available guidelines for diagnosing a disrupted pancreatic duct in patients with acute pancreatitis. Eight studies with five distinct diagnostic modalities in 142 severe acute pancreatitis patients were included. Endoscopic ultrasound and ERCP reported a sensitivity of 100%. A sensitivity of 83% was reported with MRCP, with or without secretin. A combined cohort of secretin-enhanced MRCP and standard MRCP showed a sensitivity of 92%. Amylase measurements in drain fluid exhibited a sensitivity of 100% and specificity of 50% compared to ERCP. The authors concluded that various diagnostic modalities effectively diagnose disrupted pancreatic ducts in acute pancreatitis patients. Considering the invasiveness of alternative modalities, secretin-enhanced MRCP is recommended as the initial diagnostic approach.⁴¹

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Clinical Guideline Revision History/Information

Original Date: August 2, 2024		
Review History		
Version 2	10/30/2024	Edited repeat imaging criteria language.
Version 3	2/20/2025	Modified policy based on physician feedback to provide avenue to approval in the scenario where MRI/MRCP is the appropriate first-line imaging. Added references.



Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Bone Marrow

Clinical Policy for Medical Necessity Review

Version: 5

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Bone Marrow

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Bone Marrow

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

Magnetic resonance imaging (MRI) of the bone marrow is a noninvasive diagnostic tool that provides insight into the health of the components of bone marrow. It allows for the early detection of marrow infiltration and can be used as a prognostic tool as part of ongoing surveillance. MRI offers benefits over computed tomography (CT), including greater contrast resolution and the lack of radiation exposure.^{1,2}

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), bone marrow is considered appropriate if **ANY** of the following is **TRUE**¹⁻⁸:

- Multiple myeloma, including **ANY** of the following^{1,2}:
 - Monoclonal gammopathy of uncertain significance (MGUS) (low dose computed tomography [CT], whole body is preferred); **OR**
 - Solitary bone plasmacytoma³; **OR**
 - Systemic multiple myeloma, suspected or confirmed⁴; **OR**
 - Smoldering multiple myeloma, suspected or confirmed⁴; **OR**
- Diagnosis and assessment of treatment response of marrow involvement diseases (e.g., chronic recurrent multifocal osteomyelitis, Gaucher disease); **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

Magnetic resonance imaging (MRI), bone marrow may not be considered appropriate 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.⁹

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

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

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
77084	Magnetic resonance imaging (MRI) (e.g., proton); bone marrow blood supply

Medical Evidence

Karampinos et al. (2018) reviewed quantitative magnetic resonance imaging (MRI) and spectroscopy of bone marrow. Due to its exceptional soft-tissue contrast capability, MRI is the preferred imaging method for tracking certain bone marrow alterations. MRI of the bone marrow is routinely utilized to diagnose and visualize marrow lesions and monitor response to treatment (e.g., plasmacytoma, multiple myeloma). Innovative quantitative MRI techniques and magnetic resonance spectroscopy (MRS) can accurately measure changes in bone marrow composition, including water-fat distribution, cellularity, and perfusion across various pathologies.⁶

Shah et al. (2014) conducted a retrospective cohort study on the evaluation of incidental abnormal bone marrow signals on MRI. Among 49,678 MRI scans conducted, 110 patients over 18 met the inclusion criteria. Of note, 22% underwent additional evaluation, primarily consisting of complete blood counts, serum protein electrophoresis, or bone scans. Over a median follow-up period of 41 months, 6% of patients received diagnoses of malignancies, including multiple myeloma, non-Hodgkin's lymphoma, metastatic non-small cell lung cancer, and metastatic adenocarcinoma. Furthermore, one patient who had not undergone evaluation was diagnosed with breast cancer 24 months after the MRI. Abnormal or heterogeneous bone marrow signals on MRI should not be dismissed, as they often warrant further investigation.⁷

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Policy Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	08/15/2024	Annual review and policy restructure.
Version 3	10/3/2024	Updated Medical Evidence section and reference list.
Version 4	10/30/2024	Edited repeat imaging criteria language.
Version 5	08/28/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria Added example for marrow process-chronic recurrent multifocal osteomyelitis Removed outdated references and reordered citations to match order in which they first appear



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Brain Functional

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Dates: July 31, 2025

Last Annual Review: July 31, 2025

Revision: Not Applicable

Next Annual Review: July 31, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Brain Functional
Type: ☒ Adult (18+ yo) | ☒ Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Brain Functional

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

Functional magnetic resonance imaging (fMRI) is an advanced imaging modality used to visualize brain metabolism in real time. It uses changes in blood oxygen level-dependent (BOLD) signals to track task activation-related brain activity. In cases where there are concerns about patient task performance, non-task fMRI can be used as an adjunct to provide additional context. Metal hardware can limit certain exams. fMRI of the brain is noninvasive and is generally a simple outpatient procedure. Claustrophobia may be an issue as the procedure requires the patient to lie inside the scanner for approximately 1 hour.^{1,2}

Medical Necessity Criteria

Indications

Functional magnetic resonance imaging (fMRI) of the brain is considered appropriate if **ALL** of the following are **TRUE**:

- The study is ordered by a neurologist, neurosurgeon, or radiation oncologist; **AND**
- **ANY** of the following:
 - Evaluation of cerebral vascular reactivity when considering revascularization procedures¹; **OR**
 - Evaluation of eloquent cortex and/or language lateralization prior to surgery for **ANY** of the following:
 - Epilepsy¹; **OR**
 - Brain tumors¹; **OR**
 - Vascular malformations¹; **OR**

- Evaluation of preserved eloquent cortex as a one-time, postintervention follow-up study^{1,3}; **OR**
- Radiation treatment planning potentially involving areas of eloquent cortex^{1,3}; **OR**
- Radiation posttreatment evaluation of preserved eloquent cortex^{1,3}; **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

Functional magnetic resonance imaging (fMRI) of the brain may not be considered appropriate 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 symptoms⁵.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

HCPCS Code	Code Description

70554	Magnetic resonance imaging, brain, functional MRI; including test selection and administration of repetitive body part movement and/or visual stimulation, not requiring physician or psychologist administration
70555	Magnetic resonance imaging, brain, functional MRI; requiring physician or psychologist administration of entire neurofunctional testing

Medical Evidence

Kaptan et al. (2024) discuss current developments in functional magnetic resonance imaging (fMRI) and the impact on facilitating the creation of clinically significant biomarkers for disorders impacting sensorimotor processing in the central nervous system (CNS). Research has focused on corticospinal fMRI to evaluate sensorimotor projections at various hierarchical levels of the neuraxis. This includes the cervical spinal cord, brainstem, cerebellum, subcortical structures, and cortical regions. Unlike imaging the brain or spinal cord separately, corticospinal fMRI can identify neural activity in important CNS areas related to upper limb sensorimotor processing. The authors note that the technique requires further research as it applies to neural activity from lower limb stimulations or tasks.⁶

Luna et al. (2021) performed a meta-analysis to evaluate the comparative postoperative morbidity in patients with brain tumors undergoing surgery with preoperative fMRI guidance versus those undergoing surgery without fMRI guidance or with the use of standard (non-functional) neuronavigation. A total of 68 observational studies and existing data demonstrate a decrease in postoperative morbidity when utilizing preoperative fMRI for planning brain resections. This benefit is particularly notable when combined with other advanced imaging modalities like diffusion-tensor imaging, intraoperative MRI, or cortical stimulation.⁷

Liu et al. (2021) conducted a study to refine and assess resting-state (RS) cerebrovascular reactivity (CVR) MRI methodology and its correlation to neurosurgical intervention outcomes. Data from 170 health controls identify the optimal frequency range of temporal filtering based on spatial correlation with the reference standard CVR map obtained with CO₂ inhalation. The refined RS approach was implemented in a new cohort of 50 individuals diagnosed with Moyamoya disease. Comparative analysis of CVR values between cerebral hemispheres with and without revascularization surgery was conducted using the Mann-Whitney U test. The authors conclude that utilizing RS blood oxygen level-dependent (BOLD) fMRI, CVR mapping offered a non-task-based approach for quantifying cerebrovascular reserve. This method effectively illustrated the therapeutic impact of revascularization

surgery in Moyamoya disease patients, demonstrating comparable results to the established CO₂ inhalation MRI reference standard.⁸

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Policy Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	07/26/2024	Policy criteria reviewed and updated per medical literature.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	07/31/2025	Annual review Added new reference citation and updated numbering accordingly Reorganized indications to improve clarity and reduce redundancy Clarified the indications for repeat imaging to improve usability and organization Removed non-indications that were outside scope of policy



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Brain

Clinical Guidelines for Medical Necessity Review

Version: 3

Effective Date: October 30, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Brain

Date of last literature review: 6/14/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Brain

Recommended Clinical Approach

Imaging analysis utilizing magnetic resonance imaging (MRI) brain can be performed alone or with magnetic resonance angiography (MRA) head based on clinical suspicion of disease presence or exclusion to direct value-based care. Contrast may or may not be necessary depending upon the clinical indication at the referring physician's request and the discretion of the supervising radiologist.

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), brain** is considered appropriate if **ANY** of the following is **TRUE**¹⁻²:

- ◆ The patient has **ANY** of the following neoplastic conditions (masses or mass-like conditions):
 - Brain parenchyma³; **OR**
 - Cranium⁴; **OR**
 - Meninges; **OR**
 - Meningioma; **OR**
 - Known or suspected parasellar (e.g., pituitary) tumors; **OR**
- ◆ The patient has **ANY** of the following infections or infectious disorders⁵:
 - Suspected brain abscess or brain infection with **ANY** of the following:
 - Acute altered mental status; **OR**
 - Positive lab findings (e.g., elevated WBCs or abnormal CSF analysis); **OR**

- Follow-up assessment during or after treatment completed; **OR**
- Endocarditis with suspected septic emboli; **OR**
- Neurosarcoidosis with **ANY** of the following:
 - ◆ For initial evaluation with **ANY** of the following:
 - Suspected based on neurological sign(s), symptom(s), and lab work (e.g., angiotensin-converting enzyme (ACE), cerebrospinal fluid (CSF) analysis); **OR**
 - Known history of sarcoidosis with neurological signs or symptoms; **OR**
 - ◆ Follow-up of known neurosarcoidosis for **ANY** of the following reasons:
 - To assess treatment response; **OR**
 - Worsening signs or symptoms; **OR**
- ◆ The patient has a trauma-related condition, as indicated by **ANY** of the following⁶:
 - Assessment of unexplained post-traumatic neurological deficits; **OR**
 - Post-traumatic brain injury or persistent symptoms following initial imaging (e.g., dizziness, headache); **OR**
 - Post-concussive syndrome if persistent or disabling symptoms and MRI has not been performed; **OR**
 - Subacute or chronic traumatic brain injury with new cognitive and/or neurologic deficit; **OR**
- ◆ The patient has a vascular condition including **ANY** of the following:
 - Acute ischemic stroke or transient ischemic attack (TIA)⁷; **OR**
 - Known or suspected stroke with any acute, new, or fluctuating symptoms or deficits (e.g., sensory deficits, limb

weakness, speech difficulties, visual loss, lack of coordination, or mental status changes); **OR**

- Suspected stroke with a personal or first-degree family history (e.g., brother, sister, parent, or child) of an aneurysm or known coagulopathy or on anticoagulation; **OR**
- Symptoms of TIA that are episodic with neurologic symptoms (e.g., sensory deficits, limb weakness, speech difficulties, visual loss, lack of coordination, or mental status changes); **OR**
- Evaluation of suspected acute subarachnoid hemorrhage (SAH); **OR**
- Follow-up for known hemorrhage, hematoma, or vascular abnormalities; **OR**
- Follow-up imaging of known cerebral cavernous malformations (CCM) should be done only to guide treatment decisions or to investigate new symptoms – includes first-degree relatives of patients with one family member with a CCM should have a screening MRI as well as genetic counseling; **OR**
- Suspected central venous thrombosis; **OR**
- Screening for silent cerebral infarcts in early school-age children and adults with HbSS sickle cell disease or HbSβ0 thalassemia; **OR**
- Suspected temporal arteritis in a patient greater than 50 years old with **ANY** of the following:
 - Temporal headache; **OR**
 - Abrupt visual changes; **OR**
 - Jaw claudication; **OR**
 - Temporal artery tenderness; **OR**
 - Constitutional symptoms; **OR**
 - Elevated erythrocyte sedimentation rate (ESR); **OR**

- Evaluation of neurological signs or symptoms in a patient with sickle cell disease; **OR**
- High stroke risk in sickle cell patients (2 to 16 years of age) with a transcranial Doppler velocity greater than 200 cm/sec⁸; **OR**
- **ANY** of the following chronic vascular diseases⁹:
 - Headaches with a family history of aneurysm/AVM, including **ANY** of the following¹⁰⁻¹³:
 - ◆ One first-degree relative with a history of aneurysm/AVM if symptomatic or there is clinical concern for aneurysm; **OR**
 - ◆ Two or more relatives with a history of aneurysm/AVM (repeat imaging in 5 years); **OR**
 - Arterial or venous/dural venous sinus abnormalities such as **ANY** of the following:
 - ◆ Acquired thrombosis/occlusion; **OR**
 - ◆ Venous sinus stenosis; **OR**
 - Central nervous system (CNS) involvement in patients with known or suspected vasculitis or autoimmune disease with abnormal inflammatory markers or autoimmune antibodies; **OR**
 - Immunocompromised patients (e.g., transplant recipients, HIV with CD4 less than 200, primary immunodeficiency syndromes, hematologic malignancies) with focal neurologic symptoms, headaches, behavioral, cognitive or personality changes; **OR**
 - Evaluation of neurological signs or symptoms in vaso-occlusive disease (e.g., sickle cell disease, moyamoya, etc.); **OR**

- ◆ The patient has **ANY** of the following autoimmune or inflammatory conditions¹⁴⁻¹⁵:
 - Atypical trigeminal neuralgia, defined by **ANY** of the following symptoms¹⁶:
 - Bilateral hearing loss; **OR**
 - Dizziness/vertigo; **OR**
 - Visual changes; **OR**
 - Sensory loss or numbness; **OR**
 - Pain greater than 2 minutes; **OR**
 - Pain outside trigeminal nerve distribution and progression; **OR**
 - Refractory trigeminal neuralgia when done for surgical planning; **OR**
 - Suspected multiple sclerosis (MS), and **ANY** of the following is **TRUE**:
 - For evaluation of patients with neurologic symptoms or deficits suspicious for MS with **ANY** of the following:
 - ◆ A clinically isolated syndrome (e.g., optic neuritis, transverse myelitis, or brain stem syndrome); **OR**
 - ◆ Recurrent episodes of variable neurological signs or symptoms not attributable to another cause; **OR**
 - To demonstrate dissemination in time for diagnosis (every 6-12 months); **OR**
 - For evaluation of known multiple sclerosis (MS) and **ANY** of the following is **TRUE**:
 - ◆ To establish a new baseline and **ANY** of the following is **TRUE**:
 - No recent imaging; **OR**
 - Postpartum; **OR**

- 3–6 months after switching disease-modifying therapy; **OR**
- ◆ Before starting or switching disease-modifying therapy; **OR**
- ◆ 6-month repeat scan in patients with MRI disease activity that is not associated with new clinical symptoms on a routine follow-up scan (e.g., radiographically isolated syndrome); **OR**
- ◆ Every 1–2 years while on disease-modifying therapy to assess for subclinical disease activity, less frequently when stable for 2–3 years; **OR**
- ◆ New signs or symptoms suggested an exacerbation or unexpected clinical worsening; **OR**
- ◆ Progressive multifocal leukoencephalopathy (PML) surveillance for patients on natalizumab (Tysabri) and **ANY** of the following is **TRUE**:
 - 12 months after the start of treatment in all patients; **OR**
 - Brain MRI every 3–4 months for up to 12 months, in high-risk patients who switch from natalizumab to other therapeutics; **OR**
 - Further surveillance MRI scanning timing is based on risk, and **ANY** of the following is **TRUE**:
 - Annually, if the anti-JCV antibody is negative; **OR**
 - Every 3–4 months, if high-risk of PML occurrence and **ANY** of the

following is **TRUE**:

- ◆ Seropositive for JC virus and have been treated with natalizumab for greater than or equal to 18 months; **OR**
- ◆ High anti-JC virus antibody index values (greater than 0.9); **OR**
- ◆ Previously treated with immunosuppressive therapies; **OR**
- ◆ In the pediatric population, a similar scan frequency for disease and therapeutic monitoring should be used – the frequency should be increased (e.g., every 6 months) if the child has a highly active disease or when imaging will change management; **OR**
- ◆ Evaluation of **ANY** of the following miscellaneous pathologies:
 - Acute, new, or fluctuating neurologic symptoms or deficits, including **ANY** of the following:
 - Sensory deficits; **OR**
 - Limb weakness; **OR**
 - Abnormal reflexes (pathological, asymmetric, hyperreflexia); **OR**
 - Speech difficulties; **OR**
 - Visual loss; **OR**
 - Lack of coordination; **OR**
 - Mental status changes; **OR**
 - Brain structural abnormality identified or suspected on prior imaging; **OR**
 - Chronic disequilibrium with signs of cerebellar ataxia¹⁷; **OR**

- Pathology involving the cranial nerve¹⁸; **OR**
- Dizziness (including vertigo) with **ANY** of the following:
 - Signs or symptoms suggestive of a CNS lesion (ataxia, visual loss, double vision, weakness, or a change in sensation); **OR**
 - Progressive unilateral hearing loss; **OR**
 - Risk factors for cerebrovascular disease with concern for stroke; **OR**
 - Acute persistent vertigo with normal neurologic examination and HINTS examination is consistent with peripheral vertigo¹⁷; **OR**
 - Acute persistent vertigo with abnormal neurologic examination or HINTS examination is consistent with central vertigo¹⁷; **OR**
 - Chronic recurrent vertigo that is associated with unilateral hearing loss or tinnitus¹⁷; **OR**
 - Chronic recurrent vertigo that is associated with other brainstem neurologic deficits¹⁷; **OR**
 - Episodic vertigo with or without associated hearing loss or aural fullness¹⁹; **OR**
 - Persistent vertigo with or without neurological symptoms (central vertigo)¹⁹; **OR**
- Epilepsy, known or suspected, and **ANY** of the following is **TRUE**:
 - New onset of seizures or newly identified change in seizure activity/pattern; **OR**
 - Known seizure disorder without prior imaging; **OR**
 - Medically refractory epilepsy; **OR**
- Neurodegenerative disorders (congenital or acquired), including dementia²⁰⁻²¹; **OR**
- Movement disorders including **ANY** of the following^{20,22-24}; **OR**

- Acute onset of a movement disorder with concern for stroke or hemorrhage (brain MRI recommended over brain CT); **OR**
- For evaluation of Parkinson's disease with atypical features or other movement disorders (e.g., suspected Huntington's disease, chorea, parkinsonian syndromes, hemiballismus, atypical dystonia) to exclude an underlying structural lesion; **OR**
- Headaches as indicated by **ANY** of the following³:
 - In a pediatric patient with severe headaches who is less than 6 years old; **OR**
 - In a pediatric patient who is greater than or equal to 6 years old with severe headaches and a known underlying condition (e.g., sickle cell, cancer, immune deficiency); **OR**
 - Immediate imaging is required and the patient is considered high-risk with **ANY** of the following symptoms³:
 - ◆ Intracranial hypertension (e.g., papilledema, pulsatile tinnitus, visual symptoms worse on Valsalva); **OR**
 - ◆ Intracranial hypotension (e.g., positional, worse when upright, better when lying down); **OR**
 - ◆ **ANY** of the following "red flags":
 - Age of onset is 50 years or older; **OR**
 - Fever or neurologic deficit; **OR**
 - History of cancer or immunocompromise; **OR**
 - Increasing frequency or severity; **OR**
 - Posttraumatic onset with no prior imaging; **OR**

- ◆ Headache with new onset or pattern during pregnancy or peripartum period; **OR**
- ◆ Primary trigeminal autonomic cephalalgias (e.g., cluster headache); **OR**
 - Persistent headaches that have failed physician-directed conservative treatment; **OR**
- Hearing loss (e.g., acquired sensorineural, mixed conductive, sensorineural)¹⁹; **OR**
- Acoustic neuroma including **ANY** of the following²⁵:
 - Initial evaluation for suspected acoustic neuroma; **OR**
 - Monitoring of a known, symptomatic acoustic neuroma when surgery is not performed; **OR**
 - Post-surgical management; **OR**
- Metabolic, nutritional, and dysmyelinating disorders²⁶; **OR**
- **ANY** of the following types of tinnitus²⁷:
 - Pulsatile tinnitus, unilateral or bilateral without retro tympanic lesion on otoscopy; **OR**
 - Nonpulsatile tinnitus, unilateral without hearing loss, neurologic deficit, or trauma; **OR**
- **ANY** of the following visual conditions²⁸:
 - Nontraumatic orbital asymmetry, exophthalmos, or enophthalmos; **OR**
 - Ophthalmoplegia or diplopia; **OR**
 - Suspected orbital cellulitis, uveitis, or scleritis; **OR**
 - Suspected optic neuritis; **OR**
 - Traumatic visual defect; **OR**
 - Vision loss with intraocular mass, optic nerve, or visual field defects; **OR**
 - Vision loss, nonischemic, with visual field defects; **OR**
- ◆ The patient requires **ANY** of the following preoperative, postoperative, or pre-treatment evaluations:

- Follow-up of treatment, including iatrogenic sequelae such as radiation necrosis²⁹; **OR**
- The patient has acquired conductive hearing loss (secondary to cholesteatoma or neoplasm) with suspected intracranial or inner ear extension, for **ANY** of the following purposes¹⁹:
 - Surgical planning; **OR**
 - Monitoring when surgery is not performed; **OR**
 - Post-surgical management; **OR**
- The patient has congenital hearing loss, total deafness, or is a cochlear implant candidate for **ANY** of the following¹⁹:
 - Surgical planning; **OR**
 - Post-surgical management; **OR**
- ◆ The patient has a known or suspected congenital abnormality with any acute, new, or fluctuating neurologic, motor, or mental status changes, including **ANY** of the following:
 - Craniosynostosis and other head deformities; **OR**
 - Hydrocephalus (congenital or acquired)^{3,30-31}; **OR**
 - Idiopathic intracranial hypertension; **OR**
 - Intracranial hypotension; **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

→ **Magnetic resonance imaging (MRI), brain** is not considered appropriate 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 symptoms³⁵; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ In the pediatric population, imaging is not indicated in simple febrile seizures or in idiopathic focal or generalized epilepsy with typical features of benign epilepsy with centro-temporal spikes (BECTS), childhood absence epilepsy (CAE), juvenile absence epilepsy (JAE), and juvenile myoclonic epilepsy (JME).

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70551	Magnetic resonance imaging (MRI) (e.g., proton), brain (including brain stem); without contrast material
70552	Magnetic resonance imaging (MRI) (e.g., proton), brain (including brain stem); with contrast material(s)
70553	Magnetic resonance imaging (MRI) (e.g., proton), brain (including brain stem); without contrast material, followed by contrast material(s) and further sequences

Medical Evidence

Wangaryattawanich et al. (2023) review the imaging spectrum, clinical significance, and management of brain MRI. Rapid advancements have been made in imaging technology and improved accessibility. Consequently, radiologists discover incidental findings during brain MRI scans for unrelated reasons. These unexpected findings can range from clinically insignificant to requiring further investigation or treatment, leading to patient anxiety. Incidental findings encompass a diverse range, including asymptomatic brain infarcts, age-related white matter changes, microhemorrhages, intracranial tumors, intracranial cystic lesions, and anatomic variants.³²

Maas et al. (2022) analyze facets of managing traumatic brain injury (TBI), including imaging. An initial normal CT scan does not rule out the presence of structural traumatic abnormalities. Structural traumatic abnormalities seen on MRI (2–3 weeks post-injury) were observed in approximately 30% of patients with mild TBI who initially had a normal CT scan. Advanced MRI techniques, such as diffusion tensor imaging and volumetric analyses, can reveal further injuries that may not be discernible through visual examination of conventional clinical MR images. Emerging blood biomarkers, such as glial fibrillary acidic protein (GFAP), aid in refining decisions regarding the necessity of CT scans for patients with mild TBI or the requirement of an MRI if the initial CT scan is normal. Integrating biomarkers, quantitative CT, and MRI findings facilitates the identification of patients at-risk of persistent symptoms, enabling more tailored and frequent follow-up care.³³

Tekes et al. (2018) review the use of brain MRI in pediatric patients beyond shunted hydrocephalus. In the study period, 800 patients had undergone a previous ultrafast brain MRI scan. Patients diagnosed with ventriculomegaly, macrocephaly, or intracranial cysts were included (n=101). The findings support the use of ultrafast brain MRI to assess for these conditions. Given its radiation-free and sedation-free nature, ultrafast brain MRI may be appropriate as a primary screening neuroimaging modality for these indications.³⁴

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



Magnetic Resonance Imaging (MRI), Breast – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 1, 2022

Important Notices

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Physician author: Cindy S Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Breast

General Guidelines

- **Recommended Imaging Modality:** MRI of the breast is a powerful tool for the detection and characterization of breast disease, assessment of disease extent, evaluation of treatment response, and guidance for biopsy and localization.
- **Criteria for Subsequent Requests:** Subsequent breast MRIs are typically requested for treatment planning, treatment response, post-treatment response, and surveillance (e.g., following benign MRI-guided core biopsy).
- **Recommended Clinical Approach:** MRI findings should be correlated with clinical history, physical examination findings, mammography results, and ultrasound results. MRI may yield findings that are not evident clinically or on mammography or ultrasound; the additional abnormalities detected on MRI may result in a follow-up examination or recommendation for biopsy.
- **Exclusions:** MRI chest is covered under a separate guideline document.

Medical Necessity Criteria

Indications

- **MRI Breast** is considered appropriate if **ANY** of the following is **TRUE**¹⁻³¹:
- ◆ Annual screening of asymptomatic patients with elevated risk for breast cancer including **ANY** of the following:
 - Patients with lifetime risk of breast cancer greater than or equal to 20% (as determined by genetic mutations, family history, or personal history of mantle radiation)²⁻³

- Patients with 15–20% or moderate lifetime risk for breast cancer, as indicated by **ANY** of the following:
 - Patient with a personal history of breast cancer and dense breasts
 - Patient diagnosed with breast cancer before age 50²⁻³
- Patients with breast augmentation¹
- ◆ Transmasculine (female-to-male) patient with reduction mammoplasty or no chest surgery, 25 to 30 years of age or older with high-risk defined as **ANY** of the following:
 - Patient with genetic predisposition to breast cancer or untested patient with a first-degree relative with genetic predisposition to breast cancer
 - Patient with a history of chest irradiation between 10 to 30 years of age
 - Patient with 20% or greater lifetime risk of breast cancer
- ◆ Pre-surgical evaluation of newly diagnosed breast cancer patients
- ◆ To evaluate treatment response of neoadjuvant chemotherapy¹⁶⁻¹⁸
- ◆ Post-surgical evaluation as indicated by **ANY** of the following:
 - Pathology specimens that demonstrate close or positive surgical margins
 - History of mastectomy with tissue transfer flaps reconstruction to evaluate for recurrence
- ◆ Imaging of the axilla in **ANY** of the following:
 - Patient with newly diagnosed breast cancer, greater than 2 cm in size, with clinical node-positive
 - Patient with breast cancer, greater than 2 cm in size, at mid-treatment of neoadjuvant chemotherapy, with initial

clinical node-negative disease but now presenting with new palpable axillary lump

- Patient with breast cancer, greater than 2 cm in size, clinical node-negative, imaging of the axilla after completion of neoadjuvant chemotherapy
 - Patient with locally recurrent breast cancer
 - Next imaging study for suspicious axillary node on mammography or ultrasound
- ◆ Evaluation of clinical or imaging findings as indicated by **ANY** of the following:
- Suspected recurrent cancer when clinical, mammographic or sonographic findings are inconclusive¹⁹
 - Metastatic cancer when the primary is unknown or suspected to be of breast origin²⁰⁻²³
 - Inconclusive diagnostic mammography and ultrasound²⁴⁻²⁹
 - Biopsy cannot be performed with mammography and ultrasound guidance²⁴⁻²⁹
 - Symptomatic patients with high clinical suspicion for breast cancer after a normal mammography and ultrasound (such as bloody nipple discharge)³⁰
 - Short-interval follow-up of probably benign findings on MRI or after a benign MRI guided core biopsy
- ◆ Guidance of interventional procedures for **ANY** of the following:
- MRI guided biopsy
 - Preoperative wire localization for lesions that are seen only on MRI
- ◆ Suspected breast implant complication

Non-Indications

→ **MRI Breast** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ MRI should not replace **ANY** of the following:
 - Careful diagnostic mammogram and ultrasound evaluation of symptomatic patients
 - Annual screening mammograms of asymptomatic patients
 - Biopsy of a suspicious finding identified by mammography, ultrasound, or clinical examination
- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)³²
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³²
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
77046	Unilateral magnetic resonance imaging (MRI) of breast without contrast material
77047	Bilateral magnetic resonance imaging (MRI) of breast, without contrast material
77048	Unilateral magnetic resonance imaging (MRI) of breast without and with contrast material

77049	Bilateral magnetic resonance imaging (MRI) of breast without and with contrast material
C8903	Mri w/cont, breast, uni
C8905	Mri w/o fol w/cont, brst, un
C8906	Mri w/cont, breast, bi
C8908	Mri w/o fol w/cont, breast,

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Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Cardiac

Clinical Policy for Medical Necessity Review

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Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Cardiac

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Cardiac

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

Cardiac magnetic resonance imaging (MRI) offers exquisite anatomic detail and can also provide valuable functional information through various sequences. While not a first-line imaging modality, it proves highly useful when structural abnormalities (congenital or acquired) or functional deficiencies require further investigation of the heart and pericardial structures.

Medical Necessity Criteria

Indications

Cardiac magnetic resonance imaging (MRI) is considered appropriate if **ALL** of the following are **TRUE**:

- First-line cardiac imaging modality such as transthoracic echocardiogram (TTE) is inconclusive/nondiagnostic, and further imaging is indicated for diagnostic and therapeutic purposes; **AND**
- **ANY** of the following is **TRUE**:
 - Neoplastic conditions (including masses or mass-like conditions) such as cardiac or para-cardiac mass¹; **OR**
 - Infection or an infectious disorder, including suspected infective endocarditis, myocarditis, or complications not diagnosable by other imaging modalities²; **OR**
 - Cardiovascular conditions, known or suspected, including **ANY** of the following:

- Chest pain of suspected cardiac origin^{3,4}; **OR**
- Dyspnea (or other ischemic equivalent) of suspected cardiac origin^{5,6}; **OR**
- Suspected pulmonary hypertension⁷; **OR**
- Presyncope or syncope of suspected cardiac origin⁸; **OR**
- Intermediate to high probability of coronary artery disease^{9,10}; **OR**
- Cardiac valve dysfunction, stenosis, or regurgitation; **OR**
- For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Suspected hypertrophic cardiomyopathy¹¹; **OR**
 - Suspected infiltrative cardiomyopathy (e.g., amyloidosis, hemochromatosis)¹¹; **OR**
 - Suspected or confirmed new-onset heart failure^{4,12}; **OR**
 - Suspected restrictive pericardial disease¹³; **OR**
- Preoperative or pretreatment evaluation (e.g., myocardial viability assessment, before cardiac ablation procedures for arrhythmias, etc); **OR**
- Known or suspected congenital heart disease¹⁴; **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

Cardiac magnetic resonance imaging (MRI) is not considered appropriate 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 symptoms¹⁵.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75557	Cardiac magnetic resonance imaging (MRI) without contrast material, for evaluation of morphology and function
75559	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, for evaluation of morphology and function
75561	Cardiac magnetic resonance imaging (MRI) without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75563	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75565	Cardiac magnetic resonance imaging (MRI) for velocity flow mapping (List separately in addition to code for primary procedure)

C9762	Cardiac magnetic resonance imaging (MRI) for morphology and function, quantification of segmental dysfunction; with strain imaging
C9763	Cardiac magnetic resonance imaging (MRI) for morphology and function, quantification of segmental dysfunction; with stress imaging
S8042	Magnetic resonance imaging (MRI), low-field

Medical Evidence

Miller et al. (2023) CMR-IMPACT (Cardiac Magnetic Resonance Imaging Strategy for the Management of Patients with Acute Chest Pain and Detectable to Elevated Troponin) trial conducted from September 2013 to July 2018 at four U.S. tertiary care hospitals. The trial involved the management of patients with acute chest pain and detectable elevated troponin levels. The 312 participants were randomized into two care pathways: invasive-based (156 participants) and CMR-based (156 participants), with adjustments permitted based on the patient's condition. The primary outcome measured was a composite of death, myocardial infarction, and cardiac-related hospital readmissions or emergency visits. The study followed 312 participants (mean age 60.6 years, 59.9% women) over a median of 2.6 years. The authors conclude no significant difference between clinical and safety outcomes. Benefits include reducing the long-term utilization of invasive angiography, positive discharge outcomes, and enhanced therapeutic yield of angiography. (Clinicaltrials.gov Identifier NCT01931852).¹⁶

Alabed et al. (2020) performed a meta-analysis concerning patient mortality due to pulmonary arterial hypertension (PAH). A total of 1938 patients in 22 studies were included. Research indicates that CMR-derived metrics for right ventricular (RV) volume and function, rather than left ventricular (LV) measurements, predict clinical deterioration. This insight is pertinent for regulatory authorities seeking clinically relevant trial endpoints. Further, this meta-analysis reaffirms the prognostic significance of CMR metrics across a large patient cohort, enabling assessment of how changes in these metrics relate to clinical outcomes such as worsening health and mortality. The authors reaffirm CMR as a useful prognostic marker in PAH among a large cohort. The study confirms that RV function, RV, and left ventricular volumes predict mortality and clinical deterioration in PAH. The study underscores the rationale for using CMR as a meaningful clinical endpoint in trials testing PAH therapies.¹⁷

Kwong et al. (2019) conducted a retrospective study to evaluate the prognostic value of stress cardiac magnetic resonance imaging (CMR). The study enrolled 2349 patients with a chest pain syndrome from 13 centers across 11 states. The median follow-up was 5.4 years. Patients who did not

have ischemia or late gadolinium enhancement (LGE) by CMR saw a low incidence of adverse cardiac events and a reduced need for coronary revascularization, suggesting that stress CMR may offer effective cardiac prognostication in patients with a chest pain syndrome.¹⁸

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Policy Revision History/Information

Original Date: April 8, 2022		
Review History		
Version 2	12/01/2023	Policy criteria reviewed and updated per medical literature
Version 3	08/13/2024	Annual review and policy restructure
Version 4	10/30/2024	Edited repeated imaging criteria language.
Version 5	08/21/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria Revised Kwong summary in Medical Evidence section



Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Chest

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Chest

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Chest

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

Magnetic resonance imaging (MRI) of the chest is a noninvasive diagnostic tool that provides detailed images of the soft tissues and hard structures within the chest cavity. Example uses include the diagnosis and surveillance of cardiovascular disease, mediastinal lesions, chest wall abnormalities, and masses. MRI can be performed with or without contrast and does not require the use of radiation.

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), chest is considered appropriate if **ANY** of the following is **TRUE**:

- Magnetic resonance (MR)–preferred indications, including **ANY** of the following:
 - Brachial plexus pathology, suspected due to anatomic (e.g., cervical rib) or clinical symptoms (e.g., positive electromyography results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), including but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g., chronic inflammatory demyelinating polyneuropathy [CIDP]), or suspected or known mass; **OR**
 - Evaluation of nonbony congenital musculoskeletal abnormalities¹; **OR**
 - Inflammatory myopathies (e.g., polymyositis); **OR**
 - Suspected or known pectoralis tendon tear; **OR**
 - Fetal lung or chest wall anomaly, where MRI is needed to determine further management; **OR**
- Computed tomography (CT) is contraindicated or inconclusive, chest radiographs were inadequate for diagnosis or determination of management, and **ANY** of the following is **TRUE**:
 - Chest wall abnormalities, including **ANY** of the following:
 - Anatomic abnormalities, congenital or acquired, such as pectus excavatum or rib abnormalities; **OR**
 - Palpable chest wall mass with nondiagnostic or indeterminate radiograph or ultrasound; **OR**
 - Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
 - Suspected or known chest wall abscess and further evaluation is needed; **OR**
 - Congenital pulmonary malformations such as pulmonary sequestration, when magnetic resonance angiography (MRA) or computed tomography angiography (CTA) is contraindicated or cannot be done; **OR**
 - Persistent mediastinal lymphadenopathy for evaluation with **ALL** of the following:

- Patient has no known malignancy; **AND**
- Largest node is greater than or equal to 1.5cm in shortest axis; **AND**
- CT or positron emission tomography (PET)/CT are contraindicated; **OR**
- Neoplastic conditions, initial staging, treatment planning, response assessment, and surveillance²⁻⁴; **OR**
- Screening for thymoma in myasthenia gravis; **OR**
- Herniation into thorax of abdominal contents, including diaphragmatic hernias; **OR**
- Hoarseness, dysphonia, and vocal cord weakness/paralysis after laryngoscopy with **ANY** of the following:
 - Findings suggestive of recurrent laryngeal nerve dysfunction; **OR**
 - Identification of suspicious lesion that needs further evaluation; **OR**
 - Symptoms persisting longer than 1 month which are unexplained by laryngoscopy; **OR**
- Preoperative, postoperative, and pretreatment evaluation for procedure, surgery, radiation, or chemotherapy; **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

Magnetic resonance imaging (MRI), chest may not be considered appropriate 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 symptoms⁵.

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

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

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71550	Magnetic resonance imaging (MRI) (e.g., proton), chest; without contrast material(s)
71551	Magnetic resonance imaging (MRI) (e.g., proton), chest; with contrast material(s)
71552	Magnetic resonance imaging (MRI) (e.g., proton), chest (e.g., for evaluation of hilar and mediastinal lymphadenopathy); with contrast material(s), followed by contrast material(s) and further sequences
C9791	Magnetic resonance imaging with inhaled hyperpolarized xenon-129 contrast agent, chest, including preparation and administration of agent

Medical Evidence

Archer et al. (2023) reviewed the utilization of cross-sectional imaging techniques such as computed tomography (CT) or magnetic resonance imaging (MRI) for assessing mediastinal pathologies. Precisely localizing lesions within specific compartments and analyzing their morphology, density/intensity, enhancement patterns, and any mass effect on adjacent structures can significantly aid in narrowing down diagnostic possibilities. While CT is readily available and fast, MRI does not use radiation and can delineate soft tissue contrasts. Precise imaging allows for identifying masses across tissue planes (e.g., chest wall, diaphragm) and the involvement of neurovascular structures. MRI also provides dynamic sequences that enable the assessment of mass motion relative to neighboring structures during free-breathing or cinematic cardiac gating. Finally, MRI can distinguish between cystic and solid lesions and detect fat, which aids in differentiating thymic hyperplasia from thymic malignancy.⁶

Cavanna et al. (2022) conducted a literature review on thoracic outlet syndrome (TOS). Plain chest and cervical region radiographs often exclude anatomical anomalies and structural irregularities (e.g., cervical ribs, clavicular fracture malunion, elongated transverse processes, or thoracic cavity tumors). Conditions such as compressive effects on the brachial plexus need imaging beyond ultrasound, which may overlook regional pathologies (e.g., Pancoast tumor, cervical spondylopathy). Non-contrast MRI may help diagnose neurogenic TOS (nTOS). However, MR or CT angiography is preferred for confirming venous or arterial TOS.⁷

Bueno et al. (2018) reviewed MR imaging of primary chest wall neoplasms, representing a rare and diverse array of lesions. MR imaging allows detailed insights into tissue composition, disease extent, and the integrity of surrounding structures. Utilization of this modality has increased due to its superior contrast resolution versus CT scans, which are free of radiation. MR imaging allows clinicians to distinguish tumors, identify infectious and inflammatory conditions, and visualize internal components (e.g., fat, fluid, soft tissue, vascularity after intravenous contrast administration).⁸

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Policy Revision History/Information

Original Date: April 8, 2022		
Review History		
Version 2	08/20/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/28/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria



Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Fetal/Placental

Clinical Policy for Medical Necessity Review

Version: 2

Cohere Health UMC Approval Date: December 11, 2025

Last Annual Review: December 11, 2025

Revision: Not Applicable

Next Annual Review: December 11, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Fetal/Placental

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Fetal/Placental

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

Magnetic resonance imaging (MRI) of a fetus/placenta is a diagnostic tool used to provide a detailed view of suspected or known fetal anomalies, congenital in origin, while the fetus is still in utero.¹ Anomalies of interest include neural tube defects (such as spina bifida), cardiovascular abnormalities, pulmonary differences, and certain complications associated with high-risk multiple-gestation pregnancies, including twin-to-twin transfusion syndrome. Fetal MRI is of additional use in the advance planning of technically difficult deliveries, such as fetuses with compromised airways who may require complex, assisted delivery methods, to maintain oxygen and blood flow. Fetal MRI also provides a view of the placenta, which is critical for diagnosing and planning the treatment of placenta accreta spectrum disorders (PAS).

Medical Necessity Criteria

Indications

Fetal/placental MRI is considered appropriate if **ALL** of the following are **TRUE**¹⁻²⁷:

- Ultrasonography has been performed and is indeterminate, technically inadequate, nondiagnostic, or provides an incomplete clinical evaluation; **AND**
- **ANY** of the following is **TRUE**:
 - Evaluation of known or suspected fetal anomaly, including **ANY** of the following²:
 - Anatomical anomaly (e.g., brain, spine, facial, neck, oropharyngeal, thoracoabdominal, cardiac, vascular, pulmonary, gastrointestinal, genitourinary, musculoskeletal); **OR**
 - Diaphragmatic hernia; **OR**
 - Other tumor or mass; **OR**
 - Other anatomical obstruction; **OR**
 - Assessment of the fetal airway; **OR**
 - Evaluation of known or suspected fetal infection²; **OR**
 - Evaluation of fetus in the setting of abnormal amniotic fluid, including **ANY** of the following^{3,4}:
 - Polyhydramnios; **OR**
 - Oligohydramnios; **OR**
 - Anhydramnios; **OR**
 - Planning or evaluation of candidacy for fetal surgery or other in-utero intervention; **OR**
 - Planning or evaluation of candidacy for complex, assisted delivery (e.g., ex utero intrapartum treatment [EXIT] procedure); **OR**
 - Planning or evaluation of candidacy for postdelivery neonatal surgery; **OR**
 - Complications related to a multiple-gestation pregnancy; **OR**
 - Assessment of fetal morbidity of remaining fetus following in-utero death of a co-twin or co-multiple; **OR**
 - Maternal placental complication as indicated by **ANY** of the following^{5,6}:
 - For planning of cesarean section delivery or peripartum hysterectomy among patients with **ANY** of the following:
 - Known or suspected placenta accreta spectrum disorder (PAS) (e.g., placenta increta, placenta percreta, placenta accreta); **OR**

- High risk of PAS, including **ANY** of the following:
 - History of cesarean section; **OR**
 - Prior uterine surgery; **OR**
 - Prior or current placenta previa; **OR**
 - Prior placenta accreta spectrum disorder; **OR**
 - Known adenomyosis; **OR**
 - Pregnancy was conceived with assisted reproductive technology (in vitro fertilization [IVF], frozen embryo transfer, intracytoplasmic sperm injection [ICSI]); **OR**
 - Advanced maternal age (greater than or equal to 35 years); **OR**
 - Asherman's syndrome; **OR**
 - Prior curettage; **OR**
 - Multiparity; **OR**
 - Known or suspected posterior placenta previa; **OR**
 - Known or suspected placental abruption⁷; **OR**
 - Known or suspected gestational trophoblastic disease; **OR**
 - Known or suspected adnexal lesions; **OR**
- Evaluation, during pregnancy, of known maternal leiomyoma at high risk of degeneration or rupture, including **ANY** of the following:
 - Submucosal leiomyoma; **OR**
 - Retroplacental leiomyoma; **OR**
 - Leiomyoma which enlarges in the first trimester; **OR**
- Screening if **ANY** of the following are **TRUE**:
 - Family risk for inheritable brain abnormalities (e.g., tuberous sclerosis, corpus callosal dysgenesis, lissencephaly); **OR**
 - Volumetric assessment of fetal lung parenchyma among fetuses at risk for pulmonary hypoplasia; **OR**
- Repeat imaging with fetal/placental MRI is indicated if **ANY** of the following is **TRUE**:
 - In-utero fetal surgery or in-utero intervention has been performed and necessitates follow-up imaging; **OR**
 - Serial antepartum imaging is necessary for ongoing planning, management, or evaluation of the fetal or placental condition; **OR**
 - The initial study was limited, incomplete, or of poor quality due to **ANY** of the following:
 - Insufficient gestational age; **OR**
 - Small fetal size; **OR**

- Atypical fetal position; **OR**
- Fetal movement that degraded the image of the region of interest.

Non-Indications

Fetal/Placental MRI is not considered appropriate if **ANY** of the following is **TRUE**¹⁻²⁷:

- When complete diagnostic information can be obtained by ultrasonography; **OR**
- When used solely to evaluate preterm premature rupture of membranes (PPROM) in the absence of any other indication.

*NOTE: Gadolinium-based contrast is considered to hold unknown risk and potential harm to a fetus and is not recommended for routine administration with fetal/placental MRIs. The decision to use gadolinium in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.^{1,12}

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
74712	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; single or first gestation
74713	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; each additional gestation (List separately in addition to code for primary procedure)

Medical Evidence

Bank et al. (2023) reviewed 58 cases of patients with polyhydramnios who underwent fetal MRI. The authors compared prenatal diagnoses made by ultrasound and fetal MRI to postnatal diagnoses. Of the 58 cases reviewed, 26.6% had new diagnoses detected on fetal MRI that were not detected on ultrasound. Of these new diagnoses, 25% were neurological and another 25% were genitourinary in nature. Fetal MRI confirmed 76.2% of the ultrasound diagnoses. The authors concluded that fetal MRI should be considered when evaluating pregnancies complicated by polyhydramnios to help improve diagnosis and management.⁴

Recio Rodríguez et al. (2020) conducted a retrospective study to determine the diagnostic accuracy of fetal MRI for the prenatal diagnosis of both central nervous system (CNS) pathology and non-CNS pathology. 623 pregnant patients referred to radiology for fetal MRI due to detection of anomaly on ultrasound, high-risk pregnancy, or inconclusive fetal ultrasound were included in the study. The diagnostic accuracy of fetal MRI was 97%, compared to 90.4% for ultrasound. The concordance between fetal ultrasound and fetal MRI was 92.1%. In 45 cases (7.2%), fetal MRI alone provided accurate diagnostic information. The authors concluded that fetal MRI offers superior diagnostic accuracy, especially for CNS pathology.¹⁴

Griffiths et al. (2017) conducted a cohort study to evaluate the diagnostic accuracy of in-utero MRI (iuMRI) for the prenatal diagnosis of fetal brain abnormalities. 570 pregnant patients carrying a fetus 18 weeks of age or older with a suspected brain anomaly on ultrasound had a follow-up iuMRI within 14 days of the ultrasound. The authors then evaluated any changes in diagnosis, prognosis, or clinical management as a result of the iuMRI. Overall, diagnostic accuracy was 68% for ultrasound and 93% for iuMRI. IuMRI resulted in expanded diagnostic detail, adjusted prognosis, and changes in clinical management in 49%, 20%, and 35% of cases, respectively. The authors conclude that iuMRI provides an opportunity to obtain additional clarity regarding fetal neuropathology to guide clinical decision-making.¹⁹

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Policy Revision History/Information

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Version 2	12/11/2025	Annual review Updated content layout to align with revised template. No major changes to criteria. Enhanced reference citations to improve clarity



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Fetal/Placental

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: November 21, 2024

Important Notices

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Fetal/Placental

Recommended Clinical Approach

Magnetic Resonance Imaging (MRI) of a fetus/placenta is a diagnostic tool used to provide a detailed view of suspected or known fetal anomalies, congenital in origin, while the fetus is still in-utero.¹ Anomalies of interest include neural tube defects (such as spina bifida), cardiovascular abnormalities, pulmonary differences, and certain complications associated with high-risk multiple-gestation pregnancies, including twin-to-twin transfusion syndrome. Because MRI does not use ionizing radiation, it is one of the imaging modalities of choice for pregnant patients. There are theoretical risks to the fetus; therefore MRI is reserved for only those clinical situations where the diagnostic benefits of MRI outweigh those theoretical risks. Certain conditions require in-utero invasive treatment (including fetal surgery) which relies upon adequate intrapartum imaging. Fetal MRI is of additional use in the advance planning of technically difficult deliveries, such as fetuses with compromised airways who may require complex, assisted delivery methods, like the EXIT (ex utero intrapartum treatment) procedure, to maintain oxygen and blood flow. In general, fetal MRI is considered when the resulting information would be critical in diagnosing a condition, planning the delivery, counseling the pregnant patient, or selecting appropriate surgical or nonsurgical treatment. Fetal MRI also provides a view of the placenta, which is critical for diagnosing and planning the treatment of placenta accreta spectrum disorders (PAS).

Medical Necessity Criteria

Indications

→ **Fetal/Placental MRI** is considered appropriate if **ALL** of the following are **TRUE**¹⁻²⁷:

- ◆ Ultrasonography has been performed and is indeterminate, technically inadequate, nondiagnostic, or provides an incomplete clinical evaluation; **AND**
- ◆ **ANY** of the following is true:

- Evaluation of known or suspected fetal anomaly, including but not limited to **ANY** of the following²:
 - Anatomical anomaly (brain, spine, facial, neck, oropharyngeal, thoracoabdominal, cardiac, vascular, pulmonary, gastrointestinal, genitourinary, musculoskeletal, etc.); **OR**
 - Diaphragmatic hernia; **OR**
 - Other tumor or mass; **OR**
 - Other anatomical obstruction; **OR**
- Assessment of the fetal airway; **OR**
- Evaluation of known or suspected fetal infection²; **OR**
- Evaluation of fetus in the setting of abnormal amniotic fluid, including **ANY** of the following^{3,4}:
 - Polyhydramnios; **OR**
 - Oligohydramnios; **OR**
 - Anhydramnios; **OR**
- Planning or evaluation of candidacy for fetal surgery or other in-utero intervention; **OR**
- Planning or evaluation of candidacy for complex, assisted delivery (e.g., – EXIT procedure); **OR**
- Planning or evaluation of candidacy for post-delivery neonatal surgery; **OR**
- Complications related to a multiple-gestation pregnancy; **OR**
- Assessment of fetal morbidity of remaining fetus following in-utero death of a co-twin or co-multiple; **OR**
- Maternal placental complication as indicated by **ANY** of the following^{5,6}:
 - For cesarean section delivery planning/peripartum hysterectomy planning among patients with **ANY** of the following:
 - ◆ Known or suspected placenta accreta spectrum disorder (PAS: placenta increta, placenta percreta, placenta accreta); **OR**
 - ◆ At high risk of PAS, including **ANY** of the following:
 - History of cesarean section; **OR**
 - Prior uterine surgery; **OR**
 - Prior or current placenta previa; **OR**
 - Prior placenta accreta spectrum disorder; **OR**
 - Known adenomyosis; **OR**
 - Pregnancy was conceived with assisted reproductive technology (in vitro fertilization [IVF], frozen embryo transfer,

- Intracytoplasmic sperm injection [ICSI]);
 - OR**
 - Advanced maternal age (greater than or equal to 35 years); **OR**
 - Asherman's syndrome; **OR**
 - Prior curettage; **OR**
 - Multiparity; **OR**
 - Known or suspected posterior placenta previa; **OR**
 - Known or suspected placental abruption⁷; **OR**
 - Known or suspected gestational trophoblastic disease; **OR**
 - Known or suspected adnexal lesions; **OR**
- Evaluation, during pregnancy, of known maternal leiomyoma at high risk of degeneration or rupture, including **ANY** of the following:
 - Submucosal leiomyoma; **OR**
 - Retroplacental leiomyoma; **OR**
 - Leiomyoma which enlarges in the first trimester; **OR**
- Screening if **ANY** of the following are true:
 - Family risk for inheritable brain abnormalities, including tuberous sclerosis, corpus callosal dysgenesis, or lissencephaly; **OR**
 - Volumetric assessment of fetal lung parenchyma among fetuses at risk for pulmonary hypoplasia; **OR**
- Repeat imaging with fetal/placental MRI is indicated if **ANY** of the following is true:
 - In-utero fetal surgery or in-utero intervention has been performed and necessitates follow-up imaging; **OR**
 - Serial antepartum imaging is necessary for ongoing planning, management, or evaluation of the fetal or placental condition; **OR**
 - The initial study was limited, incomplete, or of poor quality due to **ANY** of the following:
 - ◆ Insufficient gestational age; **OR**
 - ◆ Small fetal size; **OR**
 - ◆ Atypical fetal position; **OR**
 - ◆ Fetal movement that degraded the image of the region of interest.

Non-Indications

→ **Fetal/Placental MRI** is not considered appropriate if **ANY** of the following is **TRUE**¹⁻²⁷:

- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ When complete diagnostic information can be obtained by ultrasonography; **OR**
- ◆ When used solely to evaluate preterm premature rupture of membranes (PPROM) in the absence of any other indication.

*NOTE: Gadolinium-based contrast is considered to hold unknown risk and potential harm to a fetus and is not recommended for routine administration with fetal/placental MRIs. The decision to use gadolinium in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.¹¹²

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
74712	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; single or first gestation
74713	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; each additional gestation (List separately in addition to code for primary procedure)

Medical Evidence

Magnetic resonance imaging (MRI) is used to diagnose anomalies and disorders of the gravid uterus, fetus, and placenta. Because of the detail and enhanced accuracy of MRI, indicated uses in this setting include known or suspected congenital abnormalities, as well as placental disorders and some complications which are present in multiple-gestation pregnancies. MRI during pregnancy is generally reserved for clinical scenarios in which the diagnostic benefit outweighs the theoretical risks to the fetus and pregnant patient.

With regard to the placenta, the primary indication for MRI is clinical suspicion for placenta accreta spectrum (PAS) disorder, which encompasses placenta increta, placenta percreta, and placenta accreta – a series of clinical entities in which the placenta grows abnormally into the wall of the uterus. Prenatal diagnosis of these conditions is critical due to the high morbidity and mortality associated with delivery, which can result in severe blood loss and death. MRI allows for better visualization of the placenta and subsequent planning for delivery, including peripartum hysterectomy.

Prenatal diagnosis of fetal anomalies is also critical due to the expanding roles of fetal surgery or in-utero intervention for some congenital conditions. Congenital diaphragmatic hernia, for example, can be successfully treated in-utero with fetoscopic endoluminal tracheal occlusion to facilitate growth of the fetus's pulmonary system. Where fetal surgery is not indicated, fetal MRI still provides valuable clinical information when planning a complex delivery, strategizing for neonatal management, and counseling patients. Prenatal diagnosis has been associated with improved outcomes and decreased perioperative mortality for certain congenital anomalies, including congenital heart disease.²⁵

In 2020, the American College of Radiology (ACR) and the Society for Pediatric Radiology (SPR) published practice parameters to guide the use of fetal and placental MRI.¹ These guidelines formally support the use of MRI imaging of known or suspected fetal anomalies of numerous body systems – including the central nervous system, cardiopulmonary system, and genitourinary system, as well as complications associated with multiparity, assessment for

fetal in-utero intervention, and evaluation of placental disorders. Other medical societies – including the American Heart Association, with respect to fetal cardiac disease – similarly endorse these indications.

The American College of Obstetricians & Gynecologists issued a recommendation that MRI not be used for *initial* evaluation of placenta accreta spectrum disorders, favoring the use of ultrasonography for primary evaluation – a sentiment that is shared by every other medical society cited within this guideline. A 2016 practice overview was published by investigators at Harvard Medical School, which more strongly recommended MRI for evaluation of placenta accreta spectrum disorders – even in cases where ultrasound evaluation was equivocal – in order to plan for peripartum hysterectomy and reduce both maternal and fetal risk of morbidity and mortality.⁶ Other maternal indications for fetal/placental MRI include the evaluation of specific leiomyomas (uterine fibroids) that are at high risk of degeneration and rupture, a medical emergency that would endanger both the fetus and maternal patient due to the possibility of hemorrhage or blood flow occlusion. Abnormal levels of amniotic fluid (paucity or excess) are also an indication for fetal MRI when ultrasonography is technically inadequate to image the fetus in these circumstances. A 2023 study at the Cleveland Clinic found that fetal MRI – when used in addition to standard ultrasonography – identified fetal anomalies in more than a quarter of patients, allowing for improved diagnosis and perinatal management.⁴

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Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Fetal/Placental

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Fetal/Placental

Recommended Clinical Approach

Magnetic Resonance Imaging (MRI) of a fetus/placenta is a diagnostic tool used to provide a detailed view of suspected or known fetal anomalies, congenital in origin, while the fetus is still in-utero.¹ Anomalies of interest include neural tube defects (such as spina bifida), cardiovascular abnormalities, pulmonary differences, and certain complications associated with high-risk multiple-gestation pregnancies, including twin-to-twin transfusion syndrome. Because MRI does not use ionizing radiation, it is one of the imaging modalities of choice for pregnant patients. There are theoretical risks to the fetus; therefore MRI is reserved for only those clinical situations where the diagnostic benefits of MRI outweigh those theoretical risks. Certain conditions require in-utero invasive treatment (including fetal surgery) which relies upon adequate intrapartum imaging. Fetal MRI is of additional use in the advance planning of technically difficult deliveries, such as fetuses with compromised airways who may require complex, assisted delivery methods, like the EXIT (ex utero intrapartum treatment) procedure, to maintain oxygen and blood flow. In general, fetal MRI is considered when the resulting information would be critical in diagnosing a condition, planning the delivery, counseling the pregnant patient, or selecting appropriate surgical or nonsurgical treatment. Fetal MRI also provides a view of the placenta, which is critical for diagnosing and planning the treatment of placenta accreta spectrum disorders (PAS).

Medical Necessity Criteria

Indications

→ **Fetal/Placental MRI** is considered appropriate if **ALL** of the following are **TRUE**¹⁻²⁷:

- ◆ Ultrasonography has been performed and is indeterminate, technically inadequate, nondiagnostic, or provides an incomplete clinical evaluation; **AND**
- ◆ **ANY** of the following is true:

- Evaluation of known or suspected fetal anomaly, including but not limited to **ANY** of the following²:
 - Anatomical anomaly (brain, spine, facial, neck, oropharyngeal, thoracoabdominal, cardiac, vascular, pulmonary, gastrointestinal, genitourinary, musculoskeletal, etc.); **OR**
 - Diaphragmatic hernia; **OR**
 - Other tumor or mass; **OR**
 - Other anatomical obstruction; **OR**
- Assessment of the fetal airway; **OR**
- Evaluation of known or suspected fetal infection²; **OR**
- Evaluation of fetus in the setting of abnormal amniotic fluid, including **ANY** of the following^{3,4}:
 - Polyhydramnios; **OR**
 - Oligohydramnios; **OR**
 - Anhydramnios; **OR**
- Planning or evaluation of candidacy for fetal surgery or other in-utero intervention; **OR**
- Planning or evaluation of candidacy for complex, assisted delivery (e.g., – EXIT procedure); **OR**
- Planning or evaluation of candidacy for post-delivery neonatal surgery; **OR**
- Complications related to a multiple-gestation pregnancy; **OR**
- Assessment of fetal morbidity of remaining fetus following in-utero death of a co-twin or co-multiple; **OR**
- Maternal placental complication as indicated by **ANY** of the following^{5,6}:
 - For cesarean section delivery planning/peripartum hysterectomy planning among patients with **ANY** of the following:
 - ◆ Known or suspected placenta accreta spectrum disorder (PAS: placenta increta, placenta percreta, placenta accreta); **OR**
 - ◆ At high risk of PAS, including **ANY** of the following:
 - History of cesarean section; **OR**
 - Prior uterine surgery; **OR**
 - Prior or current placenta previa; **OR**
 - Prior placenta accreta spectrum disorder; **OR**
 - Known adenomyosis; **OR**
 - Pregnancy was conceived with assisted reproductive technology (in vitro fertilization [IVF], frozen embryo transfer,

- Intracytoplasmic sperm injection [ICSI]);
 - OR**
 - Advanced maternal age (greater than or equal to 35 years); **OR**
 - Asherman's syndrome; **OR**
 - Prior curettage; **OR**
 - Multiparity; **OR**
 - Known or suspected posterior placenta previa; **OR**
 - Known or suspected placental abruption⁷; **OR**
 - Known or suspected gestational trophoblastic disease; **OR**
 - Known or suspected adnexal lesions; **OR**
- Evaluation, during pregnancy, of known maternal leiomyoma at high risk of degeneration or rupture, including **ANY** of the following:
 - Submucosal leiomyoma; **OR**
 - Retroplacental leiomyoma; **OR**
 - Leiomyoma which enlarges in the first trimester; **OR**
- Screening if **ANY** of the following are true:
 - Family risk for inheritable brain abnormalities, including tuberous sclerosis, corpus callosal dysgenesis, or lissencephaly; **OR**
 - Volumetric assessment of fetal lung parenchyma among fetuses at risk for pulmonary hypoplasia; **OR**
- Repeat imaging with fetal/placental MRI is indicated if **ANY** of the following is true:
 - In-utero fetal surgery or in-utero intervention has been performed and necessitates follow-up imaging; **OR**
 - Serial antepartum imaging is necessary for ongoing planning, management, or evaluation of the fetal or placental condition; **OR**
 - The initial study was limited, incomplete, or of poor quality due to **ANY** of the following:
 - ◆ Insufficient gestational age; **OR**
 - ◆ Small fetal size; **OR**
 - ◆ Atypical fetal position; **OR**
 - ◆ Fetal movement that degraded the image of the region of interest.

Non-Indications

→ **Fetal/Placental MRI** is not considered appropriate if **ANY** of the following is **TRUE**¹⁻²⁷:

- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ When complete diagnostic information can be obtained by ultrasonography; **OR**
- ◆ When used solely to evaluate preterm premature rupture of membranes (PPROM) in the absence of any other indication.

*NOTE: Gadolinium-based contrast is considered to hold unknown risk and potential harm to a fetus and is not recommended for routine administration with fetal/placental MRIs. The decision to use gadolinium in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.¹¹²

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
74712	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; single or first gestation
74713	Magnetic resonance (e.g., proton) imaging, fetal, including placental and maternal pelvic imaging when performed; each additional gestation (List separately in addition to code for primary procedure)

Medical Evidence

Magnetic resonance imaging (MRI) is used to diagnose anomalies and disorders of the gravid uterus, fetus, and placenta. Because of the detail and enhanced accuracy of MRI, indicated uses in this setting include known or suspected congenital abnormalities, as well as placental disorders and some complications which are present in multiple-gestation pregnancies. MRI during pregnancy is generally reserved for clinical scenarios in which the diagnostic benefit outweighs the theoretical risks to the fetus and pregnant patient.

With regard to the placenta, the primary indication for MRI is clinical suspicion for placenta accreta spectrum (PAS) disorder, which encompasses placenta increta, placenta percreta, and placenta accreta – a series of clinical entities in which the placenta grows abnormally into the wall of the uterus. Prenatal diagnosis of these conditions is critical due to the high morbidity and mortality associated with delivery, which can result in severe blood loss and death. MRI allows for better visualization of the placenta and subsequent planning for delivery, including peripartum hysterectomy.

Prenatal diagnosis of fetal anomalies is also critical due to the expanding roles of fetal surgery or in-utero intervention for some congenital conditions. Congenital diaphragmatic hernia, for example, can be successfully treated in-utero with fetoscopic endoluminal tracheal occlusion to facilitate growth of the fetus's pulmonary system. Where fetal surgery is not indicated, fetal MRI still provides valuable clinical information when planning a complex delivery, strategizing for neonatal management, and counseling patients. Prenatal diagnosis has been associated with improved outcomes and decreased perioperative mortality for certain congenital anomalies, including congenital heart disease.²⁵

In 2020, the American College of Radiology (ACR) and the Society for Pediatric Radiology (SPR) published practice parameters to guide the use of fetal and placental MRI.¹ These guidelines formally support the use of MRI imaging of known or suspected fetal anomalies of numerous body systems – including the central nervous system, cardiopulmonary system, and genitourinary system, as well as complications associated with multiparity, assessment for

fetal in-utero intervention, and evaluation of placental disorders. Other medical societies – including the American Heart Association, with respect to fetal cardiac disease – similarly endorse these indications.

The American College of Obstetricians & Gynecologists issued a recommendation that MRI not be used for *initial* evaluation of placenta accreta spectrum disorders, favoring the use of ultrasonography for primary evaluation – a sentiment that is shared by every other medical society cited within this guideline. A 2016 practice overview was published by investigators at Harvard Medical School, which more strongly recommended MRI for evaluation of placenta accreta spectrum disorders – even in cases where ultrasound evaluation was equivocal – in order to plan for peripartum hysterectomy and reduce both maternal and fetal risk of morbidity and mortality.⁶ Other maternal indications for fetal/placental MRI include the evaluation of specific leiomyomas (uterine fibroids) that are at high risk of degeneration and rupture, a medical emergency that would endanger both the fetus and maternal patient due to the possibility of hemorrhage or blood flow occlusion. Abnormal levels of amniotic fluid (paucity or excess) are also an indication for fetal MRI when ultrasonography is technically inadequate to image the fetus in these circumstances. A 2023 study at the Cleveland Clinic found that fetal MRI – when used in addition to standard ultrasonography – identified fetal anomalies in more than a quarter of patients, allowing for improved diagnosis and perinatal management.⁴

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Magnetic Resonance Imaging (MRI), Lower Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

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Physician author: Andrew Kompel, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Lower Extremity

General Guidelines

- **Imaging Modality:** MRI is generally the preferred imaging modality (after initial radiographs and conservative management) for evaluation of the soft tissues, joints, and osseous structures of the lower extremity. Of note, a CT scan is appropriate in the setting of acute trauma and fracture.¹⁻¹⁰
- **Criteria for Subsequent Requests:** Subsequent requests may be appropriate for assessment of response to therapy, in the case of new, worsening, or persistent clinical symptoms, or if there is a concern for extension of disease from elsewhere in the body (e.g., neoplasm or infection).
- **Recommended Clinical Approach:** MRI examination is segmented into joint and non-joint distribution and may be performed without or with contrast (intravenous or intra-articular). Metal hardware in the bone can limit certain exams and is generally inappropriate for imaging by 3 Tesla scanners. Alternate modalities may sometimes be more clinically appropriate based on clinician and supervising radiologist discussion.
- **Exclusions:** Refer to MRI pelvis guidelines for clinical indications for the bony pelvis, sacroiliac joints, pubic symphysis/athletic pubalgia, and lumbosacral plexus.

Medical Necessity Criteria

Indications

- **MRI of the Lower Extremity** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The patient has a fracture (including traumatic or stress) and **ANY** of the following³⁻¹²:
 - As an initial exam with CT scan on concomitant soft tissue injury if **ANY** of the following is **TRUE**:
 - Trauma
 - Acute injury
 - If no fracture is detected on a radiograph or CT, and there is persistent suspicion for fracture
 - As a follow-up assessment if **ALL** of the following are **TRUE**:

- Suspected stress fractures
 - Normal initial radiographs
 - Follow-up radiographs are normal, and focal pain persists at 10–14 days
- In known fractures where **ANY** of the following are **TRUE**:
 - Concern for superimposed infection in acute or chronic cases
 - Fracture delayed, non-union, or pathological.
- ◆ If the patient has a tendon, muscle, ligament, cartilage, meniscal injury/tear or abnormality (e.g., tendinitis/ degeneration) that is presenting as joint or muscle pain or weakness and **ANY** of the following^{3-10,12-14}:
 - Concern for a rupture or high grade tear based on **ALL** of the following:
 - Clinical history
 - Physical exam
 - Prior imaging
 - A trial of conservative treatment has been completed and **ALL** of the following are **TRUE**:
 - Minimal improvement or worsening of pain
 - No significant improvement on clinical re-evaluation (including patellofemoral pain syndrome)
 - Persistent pain for at least three months and **ALL** of the following:
 - Joint specific orthopedic evaluation and maneuvers suggesting tear/tendinitis/abnormality/injury
 - Failed conservative treatments
- ◆ If the patient has an infectious or inflammatory condition and **ANY** of the following¹⁵⁻¹⁸:
 - Acute osteomyelitis and **ANY** of the following:
 - Normal radiograph but persistent clinical concern
 - Abnormal radiograph and MRI is needed for treatment options
 - Chronic osteomyelitis and need for diagnosis and evaluation of intra-osseous (Brodie's) abscess
 - Septic arthritis and **ANY** of the following:
 - Clinical history of **ANY** of the following:
 - ◆ IV drug use

- ◆ Previous surgery on the suspected joint that is infected (e.g., ligament repair, joint replacement)
 - ◆ Diabetes
 - ◆ Adjacent infection
 - Physical exam that supports suspicion of septic arthritis
 - Elevated laboratory markers (ESR/CRP, white blood cell count)
 - Positive joint aspiration
- Infectious myositis or fasciitis (soft tissue infection) and **ANY** of the following:
 - Confirm diagnosis,
 - Evaluate the extent of disease or
 - Evaluate the presence of abscess or necrosis
- Soft tissue infection/ cellulitis and **ANY** of the following:
 - Suspicion of abscess or foreign body
 - Indeterminate or non diagnostic ultrasound
- Autoimmune conditions or inflammatory arthritis and **ANY** of the following:
 - Assist in the diagnosis
 - Monitor response to treatment
 - Monitor worsening symptoms
- ◆ If the patient has a mass, malignancy, or palpable abnormality and **ANY** of the following¹⁹⁻²⁴:
 - Persistent palpable abnormality with non-diagnostic radiograph or ultrasound
 - If clinical history shows a mass greater than 5cm and **ANY** of the following are **TRUE**:
 - Enlarging lesion
 - No history of trauma
 - Deep (not within the skin/ subcutaneous fat)
 - Recurrence after prior surgery
 - Known malignancy with localized lower extremity pain or swelling and **ANY** of the following are required:
 - Monitor response to treatment
 - Surveillance after treatment or surgery
 - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study

- ◆ If the patient has neuropathy, nerve entrapment, or nerve lesion and **ANY** of the following²⁵⁻²⁶:
 - Persistent symptoms following conservative treatment and localized EMG abnormality
 - Clinically suspected nerve entrapment and **ALL** of the following are **TRUE**:
 - Abnormal EMG
 - MRI is to assist in diagnosis and treatment options
 - Trauma/ injury with suspected nerve injury or laceration based of site of injury and associated neurological deficits
 - Known peripheral nerve sheath tumor or syndrome and **ANY** of the following:
 - New or worsening localized pain
 - Enlarging mass
 - Recurrence after prior resection
- ◆ If the patient has **ANY** of the following^{1-3,10,27-30}:
 - Osteonecrosis/ Avascular necrosis (AVN) and **ANY** of the following are **TRUE**:
 - Imaging is to confirm diagnosis based on prior imaging studies
 - There is clinical suspicion with **ANY** of the following risk factors:
 - ◆ Sickle cell
 - ◆ Corticosteroid use
 - ◆ Alcoholism
 - The patient has had prior treatment
 - Subsequent imaging of abnormal initial imaging findings as indicated by **ANY** of the following:
 - Intra-articular body
 - Osteochondral lesion
 - Osteochondritis dissecans
 - Bone or soft tissue lesion
 - If the patient has had a partial or total joint arthroplasty and there is suspicion of **ANY** of the following:
 - Aseptic loosening
 - Infection
 - Tendon tear
 - If the patient is post-operative or receiving procedural evaluation and **ANY** of the following are **TRUE**:

- Suspicion for infection
- Recurrent symptoms or no improvement
- Abnormal healing
- Patients less than 50 years of age with **ANY** of the following:
 - Suspicion of hip labral tear
 - Prior imaging (radiograph/CT) demonstrating anatomy associated with femoral acetabular impingement and failed conservative management
- Recurrent or refractory cases of plantar fasciitis and Morton's neuroma
- Potential non-osseous tarsal coalition based on radiograph

Non-Indications

→ **MRI Lower Extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)³¹
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³¹
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Inpatient or outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73718	Magnetic resonance imaging (MRI) of lower extremity without contrast material
73719	Magnetic resonance imaging (MRI) of lower extremity (other than joint) with contrast material

73720	Magnetic resonance imaging (MRI) of lower extremity (other than joint) without contrast material, followed by contrast material and further sequences
73721	Magnetic resonance imaging (MRI) of any joint of lower extremity without contrast material
73722	Magnetic resonance imaging (MRI) of any joint of lower extremity with contrast material
73723	Magnetic resonance imaging (MRI) of any joint of lower extremity without contrast material, followed by contrast material and further sequences

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Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: September 11, 2025

Last Annual Review: September 11, 2025

Revision: Not Applicable

Next Annual Review: September 11, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

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

Magnetic resonance imaging (MRI) is a noninvasive diagnostic tool that provides detailed images of the soft tissues and hard structures of the extracranial head. It allows for the evaluation of the morphology and pathology of extracranial structures, including the neck, orbit, and jaw. MRI can be performed with or without contrast and does not require the use of radiation.¹

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), neck/orbit/face is considered appropriate if **ANY** of the following is **TRUE**:

- **ANY** of the following orbital indications:
 - Trauma-related conditions, including traumatic visual defect with suspected orbital injury²; **OR**
 - Trauma that is not related to the cervical spine; **OR**
 - **ANY** of the following conditions, known or suspected:
 - Congenital conditions (e.g., capillary hemangioma, optic nerve hypoplasia); **OR**
 - Neoplastic conditions, benign or malignant, detection, and follow-up (e.g., dermoid, lymphoma, metastases)^{2,3}; **OR**
 - Orbital pseudotumor or orbital inflammatory disease; **OR**
 - Osseous lesions (e.g., fibrodysplasia, Paget's), when computed tomography (CT) is completed or contraindicated and further evaluation is needed; **OR**
 - Foreign body, suspected clinically or seen on prior imaging when CT is completed or contraindicated and further evaluation is needed; **OR**
 - Orbital infectious process, suspected or known, and **ANY** of the following:
 - Medical management has failed (e.g., orbital cellulitis not responding appropriately to antibiotics); **OR**
 - The patient is pediatric; **OR**
 - The patient is immunocompromised; **OR**
 - Optic nerve inflammation is suspected, including optic neuritis; **OR**
 - Scleritis confirmed clinically with failure of medical management or with complication suspected⁴; **OR**
 - Uveitis, confirmed clinically with complication suspected; **OR**
 - Thyroid eye disease when **ANY** of the following are **TRUE**:⁵
 - Needed to exclude other etiologies of symptoms; **OR**
 - In severe or atypical cases to identify apical crowding (narrowing of the space at the orbital apex), a risk factor for dysthyroid optic neuropathy (DON); **OR**
 - To prepare for orbital or strabismus surgery; **OR**
 - Venous conditions such as orbital varices; **OR**

- Additional evaluation is needed when etiology remains unclear following a complete eye examination that includes funduscopy, including **ANY** of the following:
 - Diplopia; **OR**
 - Enophthalmos; **OR**
 - Exophthalmos; **OR**
 - Eye pain, with history or other signs or symptoms indicating nonischemic pathology; **OR**
 - Orbital asymmetry; **OR**
 - Preseptal or postseptal orbital mass, otherwise unexplained; **OR**
 - Ophthalmoplegia; **OR**
 - Eye movement abnormality in a child (e.g., strabismus or nystagmus in a child 6 months or older); **OR**
 - Proptosis; **OR**
 - Unilateral papilledema; **OR**
 - Orbital hemorrhage, when the underlying lesion is suspected, and CT has been completed; **OR**
 - Vision loss or visual field deficit with history or other signs/symptoms indicating nonischemic intraorbital pathology; **OR**
- Preoperative, postoperative, or pretreatment evaluation for surgery, radiation, or chemotherapy; **OR**
- Temporal bone and inner ear indications, including **ANY** of the following:
 - MRI-preferred indications, including **ANY** of the following:
 - Cholesteatoma, initial, and 9- to 12-month postoperative follow-up; **OR**
 - Sensorineural hearing loss, acquired or congenital; **OR**
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Tinnitus, unexplained by history or physical examination, and is worsening or affects daily function; **OR**
 - CT is contraindicated or already performed, and further evaluation is needed, including **ANY** of the following:
 - **ANY** of the following conditions, known or suspected⁶:
 - Neoplastic conditions, detection, and follow-up (including tumors of the internal or external auditory canal, inner ear, and mastoid); **OR**

- Otitis media, recurrent with at least 3 episodes in the past 12 months, with complications suspected (e.g., hearing loss, intracranial extension, mastoiditis); **OR**
- Malignant otitis externa, unresponsive to antibiotics; **OR**
- Mastoiditis; **OR**
- Other infectious processes involving the middle or inner ear, where imaging is needed to direct appropriate management; **OR**
- Symptoms/signs, evaluated by complete auditory examination, including **ANY** of the following⁶:
 - Conductive, mixed-conductive, or congenital hearing loss; **OR**
 - Total deafness, otherwise unexplained; **OR**
 - Vertigo, unexplained by history or physical examination with **ANY** of the following:
 - Worsening symptoms; **OR**
 - Affected daily function; **OR**
 - Associated hearing loss or other neurological deficits; **OR**
 - History of prior infection such as otitis or meningitis; **OR**
 - History of prior trauma; **OR**
- Trauma-related conditions related to the ear, further evaluation after CT completed⁷⁻⁹; **OR**
- Vascular conditions, known or suspected, related to the ear or temporal bone including evaluation of pulsatile tinnitus¹⁰; **OR**
- Preoperative, postoperative, or pretreatment evaluation for surgery, radiation, or chemotherapy (including evaluation for cochlear implant); **OR**
- Face/paranasal sinus indications, including **ANY** of the following:
 - **ANY** of the following MRI-preferred indications:
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Trigeminal neuralgia with **ANY** of the following¹¹:
 - Atypical trigeminal neuralgia, defined by **ANY** of the following symptoms:
 - Bilateral hearing loss; **OR**
 - Dizziness/vertigo; **OR**
 - Visual changes; **OR**
 - Sensory loss or numbness; **OR**
 - Pain lasting longer than 2 minutes; **OR**
 - Pain outside trigeminal nerve distribution and progression; **OR**

- Refractory trigeminal neuralgia when done for surgical planning; **OR**
- Conditions (known or suspected), with CT either contraindicated or already performed, and further evaluation is needed for **ANY** of the following⁶:
 - Anatomic abnormalities (e.g., deviated septum), suspected as a cause of patient symptoms and surgical management is being considered; **OR**
 - Congenital conditions and craniofacial abnormalities¹; **OR**
 - Sinusitis if infective and **ANY** of the following^{1,12-14}:
 - A complication is suspected (e.g., abscess formation, involvement of adjacent structures such as orbits, cavernous sinus, or intracranial); **OR**
 - The patient is immunocompromised, and invasive fungal sinusitis is suspected; **OR**
 - Allergic fungal sinusitis (AFS) is suspected, with failed medical treatment or surgery is contemplated; **OR**
 - **ALL** of the following:
 - **ANY** of the following:
 - Four or more acute episodes per year and surgery/biologic therapy are contemplated; **OR**
 - Not resolving despite two courses of antibiotics; **OR**
 - Chronic rhinosinusitis, symptomatic (e.g., discharge, congestion, anosmia, pain), severity staging or restaging when management change is contemplated; **AND**
 - CT maxillofacial is nondiagnostic or contraindicated; **OR**
 - Osteomyelitis; **OR**
 - Odontogenic infections with suspected complications (e.g., abscess formation, facial swelling, nerve, sinus involvement); **OR**
 - Unexplained facial swelling (e.g., over the mandible); **OR**
 - Foreign body (suspected), clinically or seen on prior imaging; **OR**
 - Neoplastic conditions for initial staging, treatment planning, response assessment, and surveillance; **OR**
 - Lymphadenopathy with failure of conservative management (e.g., rest, antibiotics, anti-inflammatory, analgesics) that is documented for a period of greater than two weeks for reactive adenopathy; **OR**
 - Sinonasal polyposis detected on nasal endoscopy with **ALL** of the following^{12,15}:

- The patient is symptomatic; **AND**
- No relief with appropriate medical therapy such as systemic corticosteroids, antihistamines, and antibiotics; **AND**
- Surgical intervention or biologic therapy is being contemplated; **OR**
- Known sinonasal polyposis with complications suspected, such as involvement of the orbits; **OR**
- Noninfectious inflammatory involvement of the sinus is suspected based on clinical history and symptoms, such as a history of granulomatosis with polyangiitis¹; **OR**
- Salivary gland disorder (e.g., chronic unexplained xerostoma, autoimmune involvement, palpable mass, or salivary duct evaluation via MR sialography); **OR**
- Vascular malformations, such as arteriovenous malformations^{1,10}; **OR**
- For evaluation of **ANY** of the following symptoms when applicable:
 - Anosmia with **ANY** of the following¹⁶:
 - Persistent anosmia with nondiagnostic endoscopy; **OR**
 - Abnormal endoscopy with further evaluation needed; **OR**
 - Known or suspected neoplasm; **OR**
 - History of head or facial trauma; **OR**
 - Cerebrospinal fluid (CSF) leak (MR cisternography), confirmed on testing or strong clinical history such as prior trauma or CSF leak that increases after Valsalva maneuvers, further evaluation after CT is completed¹²; **OR**
 - Epistaxis with failure of conservative management (e.g., nasal packing/tampon, cautery) **OR**
 - Epistaxis with detection of mass, polyp, or other pathology on examination that requires further evaluation¹; **OR**
- Neck indications, including **ANY** of the following:
 - Initial staging, treatment assessment, and surveillance of known malignant conditions in the neck not otherwise listed (e.g., nasopharynx, oropharynx, hypopharynx, larynx, salivary glands, jaw, oral cavity); **OR**
 - Thyroid masses or goiter when ultrasound is nondiagnostic or requires further work-up; **OR**
 - Lymphadenopathy or palpable mass, and **ANY** of the following^{2,17}:
 - Ultrasound was suspicious for malignancy; **OR**
 - Has been present for at least 2 weeks; **OR**
 - Not felt to be due to infection; **OR**

- Mass does not resolve after treatment with antibiotics for suspected infection; **OR**
- Lymphadenopathy or mass is larger than 1.5 cm; **OR**
- Ulceration of skin over the mass; **OR**
- Mass or lesion detected on laryngoscopy; **OR**
- Assessment of signs and symptoms, including **ANY** of the following:
 - Odynophagia; **OR**
 - Globus sensation or dysphagia when clinical examination, including endoscopy and fluoroscopy, are negative or require further evaluation; **OR**
 - Vocal cord paralysis; **OR**
 - Neck pain that is not related to cervical spine or dissection and has not resolved with conservative treatment (e.g., rest and analgesics) that is documented for a period of greater than 4 weeks; **OR**
 - Cranial neuropathy of cranial nerves (CN) 9–11; **OR**
 - Brachial plexus pathology, suspected due to anatomic (e.g., cervical rib) or clinical symptoms (e.g., positive electromyography results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), including but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g., chronic inflammatory demyelinating polyneuropathy [CIDP], or suspected or known mass); **OR**
 - Ear pain unexplained by otolaryngological evaluation and a trial of conservative therapy (e.g., topical and systemic antibiotics, ear drops); **OR**
- Infectious conditions (e.g., tonsillitis, epiglottitis, cellulitis) and **ANY** of the following:
 - Suspected compromise of the airway; **OR**
 - Surgery is planned; **OR**
 - Lack of improvement with appropriate therapy; **OR**
 - Retropharyngeal abscess, suspected; **OR**
 - Ludwig's angina, suspected; **OR**
- Localization of parathyroid adenoma when lab tests indicate primary hyperparathyroidism and neck ultrasound and Sestamibi scan (nuclear medicine scan) are normal or nondiagnostic¹⁸; **OR**
- Presurgical evaluation, planning, or guidance, including radiation planning; **OR**

- Foreign body when initial radiographs and CT are nondiagnostic, unavailable, or contraindicated; **OR**
- Suspected extracapsular spread of a tumor into the surrounding neck structures; **OR**
- Suspected recurrent thyroid cancer or rising thyroglobulin, with negative ultrasound and physical exams to detect occult neck nodes¹⁹; **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

Magnetic resonance imaging (MRI), neck/orbit/face may not be considered appropriate 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 symptoms²⁰.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70540	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s)
70542	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; with contrast material(s)
70543	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s) and further sequences

Medical Evidence

Saltagi et al. (2021) reviewed spontaneous intracranial hypotension (SIH). The condition manifests as decreased cerebrospinal fluid (CSF) volume due to leakage through a dural defect, occurring without a discernible underlying cause. Magnetic resonance imaging (MRI) is a preferred initial, noninvasive diagnostic tool (with and without gadolinium contrast enhancement). Spinal MRI or CT myelography is useful for extradural fluid collection to identify a 'fast' leak; a dynamic CT myelogram or digital subtraction myelogram can locate the precise leak. Spine MRI may reveal secondary findings indicative of SIH, such as dural thickening, enhancement, or engorgement of the epidural venous plexus.²¹

Bond et al. (2020) present a review of the diagnostic evaluation of anosmia and hyposmia, including etiology (e.g., trauma, chronic sinusitis, neoplasms, respiratory viral infections). Smell tests primarily diagnose the conditions; however, MRI is often widely used. Functional MRI can diagnose suspected posttraumatic abnormalities.²²

Nael et al. (2015) conducted a study to identify distinctive MR perfusion patterns for parathyroid adenomas (PTAs) to allow differentiation from neighboring thyroid tissue and cervical lymph nodes, which may exhibit similar imaging characteristics. Utilizing dynamic 4D contrast-enhanced MR imaging enables the exploitation of the hypervascular features of PTAs. Multiparametric MR perfusion analysis demonstrates a diagnostic accuracy of 96% in distinguishing PTAs from adjacent thyroid tissue or lymph nodes.²³

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Policy Revision History/Information

Original Date: April 1, 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 Added new criteria for thyroid eye disease, with new reference Burch (2022) Expanded infective sinusitis and neck mass/lymphadenopathy criteria



Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Pelvis

Clinical Policy for Medical Necessity Review

Version: 3

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Pelvis

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Pelvis

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

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. The use of contrast and the type of magnetic resonance (MR) contrast (e.g., extracellular or hepatobiliary-specific) should be at the request of the ordering provider with guidance from the radiologist. The MR field of view should be limited to the area of interest and, in some cases, may not be the preferred imaging study.^{1,2}

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), pelvis is considered appropriate if **ANY** of the following is **TRUE**¹:

- For evaluation of the prostate with **ANY** of the following^{3,4}:
 - Prostatitis with **ALL** of the following⁵:
 - Transrectal ultrasound is nondiagnostic/equivocal; **AND**
 - **ANY** of the following:
 - The patient remains febrile for more than 36 hours; **OR**
 - The patient's symptoms do not improve on antibiotics; **OR**
 - For detection and surveillance of prostate cancer and **ANY** of the following:
 - Initial imaging, including **ANY** of the following:
 - Biopsy is planned and digital rectal examination (DRE) has been performed; **OR**
 - Suspicious nodule on DRE, with or without prior biopsy; **OR**
 - The patient meets intermediate or high-risk criteria, including **ANY** of the following:
 - Clinical stage T2b or higher–T2c; **OR**
 - Prostate-specific antigen (PSA) greater than 10 ng/mL; **OR**
 - Gleason score greater than or equal to 7 on prior biopsy; **OR**
 - Indeterminate, intermediate-risk lesion(s) (Prostate Imaging Reporting and Data System–3 [PIRADS–3]) characterized on prior MRI with prostate cancer, surveillance (up to annual)⁶; **OR**
 - Patients with low-risk findings on prior MRI (PIRADS–1 or PIRADS–2) who resume clinical follow-up and demonstrate concerning change in PSA or other concerning clinical change⁷; **OR**
 - Known prostate cancer, low-risk, annual active surveillance as defined by **ANY** of the following:
 - PSA less than 10 ng/dL **OR**
 - Low clinical tumor grade (cT1–cT2a); **OR**
 - Grade Group 1 (Gleason score less than or equal to 6)⁸; **OR**
 - Initial staging for unfavorable intermediate-, high- and very high-risk prostate cancer; **OR**
 - Restaging, post-treatment follow-up for **ANY** of the following indications⁸:

- Following radiation therapy and the patient is a candidate for salvage therapy with **ANY** of the following:
 - Increasing PSA; **OR**
 - Positive DRE; **OR**
- Following radical prostatectomy with **ANY** of the following:
 - Positive DRE; **OR**
 - Undetectable PSA becomes detectable and increases greater than or equal to 2 ng/mL; **OR**
 - PSA does not become undetectable; **OR**
- Prostate cancer, metastatic with concern for progression; **OR**
- For the evaluation of the uterus, ovaries, or cervix, including **ALL** of the following:
 - Ultrasound has been performed; **AND**
 - **ANY** of the following:
 - Intrauterine pregnancy with the presence of **ANY** of the following on pelvic ultrasound:
 - Fetal anomalies⁹; **OR**
 - Placental attachment disorders (e.g., placenta accreta, placenta increta)¹⁰; **OR**
 - Follow-up to initial imaging study for further evaluation to characterize a uterine abnormality or lesion if pelvic ultrasound results are inconclusive¹¹; **OR**
 - Further evaluation of dysfunctional uterine bleeding when ultrasound was indeterminate; **OR**
 - Known or suspected malignancies, including **ANY** of the following:
 - Uterine, ovarian, or cervical cancer, including borderline tumors such as Brenner tumor and moles (gestational trophoblastic tumors); **OR**
 - Endometrial cancer, biopsy-proven, staging, and follow-up; **OR**
- Pelvic abnormalities as indicated by **ALL** of the following¹¹:
 - **ANY** of the following is **TRUE**:
 - Ultrasound has been performed and is indeterminate; **OR**
 - Ultrasound has been performed, and the patient requires further evaluation or surgical planning; **AND**
 - **ANY** of the following:
 - Abscess of the pelvis^{12,13}; **OR**
 - Endometriosis with involvement beyond the ovary¹¹; **OR**
 - Pelvic organ prolapse¹⁴; **OR**

- Uterine leiomyoma (fibroid) when an intervention is planned¹⁵; **OR**
 - Urethral mass; **OR**
 - Pelvic neoplasms; **OR**
 - Evaluation of other reproductive organs, including the uterus/ovaries/testicles/fallopian tubes/cervix; **OR**
- Musculoskeletal imaging of the pelvis when plain radiograph is inconclusive, including **ANY** of the following:
 - Inflammatory arthropathies of the sacroiliac joint (e.g., psoriatic arthritis, ankylosing spondylitis)¹⁶; **OR**
 - Lumbosacral plexopathy¹⁷; **OR**
 - Potential bony infection (osteomyelitis)¹⁸; **OR**
 - Septic arthritis¹⁸; **OR**
 - Characterization, staging, or follow-up of a bony lesion for suspected or known malignancy or metastatic disease¹⁹; **OR**
 - Ulcer or wound with clinical concern for soft tissue infection or osteomyelitis¹⁸; **OR**
 - Persistent athletic pubalgia or osteitis pubis after up to 8 weeks of rest and/or physical therapy; **OR**
 - Trauma-related conditions including suspected traumatic or stress fracture)²⁰⁻²¹; **OR**
 - Avascular necrosis (AVN); **OR**
- Other evaluation of the pelvis when ultrasound is not appropriate or nondiagnostic, and **ANY** of the following is **TRUE**:
 - Extension of an indicated abdominal MRI for **ANY** of the following:
 - Complete evaluation of organs and structures, such as ureters or bowel (e.g., MR enterography, MR urography); **OR**
 - Neoplastic staging; **OR**
 - Pouchitis or proctitis²; **OR**
 - Fistula²; **OR**
 - Perianal disease (abscess or fistula)²; **OR**
 - Rectal fistula (rectovesicular or rectovaginal)²; **OR**
 - Suspected complication of postproctectomy, colectomy, or colectomy with pouch or other anastomosis²; **OR**
 - Lymphadenopathy when **ANY** of the following is **TRUE**²²:
 - When lymphoproliferative disorder is suspected based on prior imaging; **OR**
 - When enlarged lymph nodes are palpable with **ANY** of the following:

- The patient has suspicious symptoms (e.g., night sweats, fever, weight loss); **OR**
- Nodes are in an unusual location (e.g., popliteal, iliac); **OR**
- Follow-up of known pelvic lymphadenopathy at least 3 months after diagnosis with **ANY** of the following suspicious findings:
 - 1 cm or larger in short axis; **OR**
 - Round indistinct hilum; **OR**
 - 3 or more lymph nodes in a single region or cluster; **OR**
 - 2 or more lymph nodes in 2 or more regions; **OR**
- Acute appendicitis in a pediatric (age 17 or less) patient with **ANY** of the following²³:
 - Ultrasound is inconclusive; **OR**
 - Appendix is not seen; **OR**
- Acute appendicitis in a pregnant patient with **ALL** of the following¹³:
 - Symptoms of acute appendicitis (e.g., fever, leukocytosis, right lower quadrant pain); **AND**
 - Ultrasound is inconclusive, or appendix is not seen; **OR**
- Pyelonephritis in a pregnant patient (abdominal MRI may be needed)²⁴; **OR**
- Neoplastic conditions (including masses or mass-like conditions) not otherwise mentioned, including **ANY** of the following:
 - Staging of known rectal cancer; **OR**
 - Single follow-up to initial indeterminate imaging study for further evaluation to characterize a mass; **OR**
 - Concern for bladder neoplasm based on prior imaging or clinical abnormalities (e.g., persistent hematuria) or laboratory findings^{4,10}; **OR**
- Screening of a patient with an increased risk of cancer due to **ANY** of the following:
 - Tuberous sclerosis surveillance every 1–3 years when the patient has known angiomyolipoma or renal cystic disease²⁵; **OR**
 - Von Hippel Lindau disease every other year²⁶; **OR**
 - Peutz–Jeghers syndrome starting at 18 years of age²⁷; **OR**
 - Lynch syndrome at **ANY** of the following intervals²⁸:
 - MRI starting at 50 years of age; **OR**
 - Starting at 10 years earlier than youngest family member with syndromic cancer; **OR**

- Familial atypical multiple mole melanoma syndrome (FAMMM) with **ANY** of the following²⁸:
 - MRI starting at 40 years of age; **OR**
 - Starting at 10 years earlier than youngest family member with syndromic cancer; **OR**
- Follow-up to initial imaging study for further evaluation to characterize an abnormality/lesion related to an infection; **OR**
- For evaluation of **ANY** of the following miscellaneous pathologies when prior testing has failed:
 - Ulcer or wound with clinical concern for infection¹⁸; **OR**
 - Suspected soft tissue infection with **ANY** of the following¹⁸:
 - Puncture wound with possible retained foreign body with normal radiograph; **OR**
 - Radiograph with soft tissue gas (without puncture wound); **OR**
 - High suspicion of necrotizing fasciitis; **OR**
 - Posttreatment follow-up/surveillance, including restaging; **OR**
 - Pretreatment for treatment planning, including staging (e.g., interventional radiology procedures, before biopsy, radiation, surgery); **OR**
 - Following open aortic aneurysm surgical repair (OSR) in the pelvis, cross-sectional imaging surveillance should be performed once every 5 years²⁹; **OR**
- Follow-up to initial imaging study for further evaluation to characterize an abnormality/lesion related to congenital anomalies; **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

Magnetic resonance imaging (MRI), pelvis may not be considered appropriate 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.³⁰

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72195	Magnetic resonance imaging (MRI) (e.g., proton), pelvis; without contrast material(s)
72196	Magnetic resonance imaging (MRI) (e.g., proton), pelvis; with contrast material(s)
72197	Magnetic resonance imaging (MRI) (e.g., proton), pelvis; without contrast material(s) followed by contrast material(s) and further sections
74712	Magnetic resonance (eg, proton) imaging, fetal, including placental and maternal pelvic imaging when performed; single or first gestation
74713	MRI fetal, including placental and maternal pelvic imaging when performed, each additional gestation (List separately in addition to code for primary procedure).

Medical Evidence

Almansouri et al. (2024) performed a systematic review to analyze the role of magnetic resonance imaging (MRI) and computed tomography (CT) for pelvic fractures. Twelve studies were analyzed involving 1,798 patients (52% female). Two of the studies were prospective and ten were retrospective. Diagnosing and managing pelvic fractures necessitates a personalized approach considering patient characteristics, injury mechanisms, and hemodynamic status. The authors note that MRI demonstrates superior sensitivity and diagnostic accuracy in identifying acute pelvic fractures, mainly concealed sacral fractures. MRI is also effective in detecting occult pelvic fractures and soft tissue anomalies. However, despite its diagnostic benefits, MRI is unlikely to replace CT as the gold standard due to factors such as shorter emergency department time and contraindications for MRI, especially in elderly patients. CT scanning remains preferred for initial diagnosis, aiding in the determination of emergent angiographic embolization needs and facilitating surgical planning in cases of pelvic fractures.³¹

Manti et al. (2022) conducted a prospective study that included 72 patients with symptoms indicative of endometriosis who underwent evaluation to plan surgical treatment. The mean age of the patients was 35.5 years (range: 20–46 years). Pelvic endometriosis was pathologically confirmed in 56 (77.7%) of the 72 patients. Among them, 22 patients (39.3%) underwent video laparoscopy (VLS), and 16 (72.2%) of those underwent surgery. MRI demonstrated high sensitivity and specificity for detecting various types of pelvic endometriosis. MRI allows the localization of lesions with highly fibrotic components that may not be recognizable with other imaging methods or visible during video laparoscopy.³²

Hernando et al. (2022) reviewed quantitative diffusion MRI of the abdomen and pelvis, which involves employing multiple diffusion encodings and mapping diffusion parameters. Diffusion MRI allows the ability to gauge tissue microstructure sensitivity. In contrast to qualitative diffusion-weighted MRI, the quantitative approach enhances the standardization of tissue characterization, which is crucial for disease detection, staging, and treatment monitoring. Challenges include acquisition artifacts, limitations in

signal modeling, and biological variability. Technical performance concerns include addressing physiologic motion (respiratory, peristaltic, and pulsatile), handling image distortions, and managing a low signal-to-noise ratio. Currently, multi-center studies focus on validation through systematic assessments to assess reproducibility.³³

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Version 2	10/30/2024	Edited repeat imaging criteria language.
Version 3	08/21/2025	Annual review. Minor adjustments were made to the indications to better align with ACR and NCCN guidelines. Literature review - Description section updated. References were updated in alignment with the most recent guidelines from ACR and NCCN. Removed ACR guidelines for low back pain and abdomen from the references list. Removed relative contraindications (contrast allergy, metallic clips, incompatible implantable devices, metallic foreign body).



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: February 20, 2025

Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following six weeks of conservative management, or new or worsening symptoms with a history of spine surgery.¹

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

Medical Necessity Criteria

Indications

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following¹⁻³:
 - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
 - Intramedullary masses; **OR**
 - Other extradural soft-tissue neoplasms of **ANY** of the following:
 - Connective tissues; **OR**
 - Muscles; **OR**
 - Regional nerves; **OR**
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
 - Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
 - Known tumor or malignancy with worsening symptoms or pain; **OR**
 - To monitor response to treatment; **OR**
- ◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following²⁻⁵:
- **ANY** of the following¹:
 - Discitis; **OR**
 - Epidural abscess; **OR**
 - Postoperative infections; **OR**
 - Surrounding soft-tissue infection; **OR**
 - Vertebral osteomyelitis; **OR**
 - Spinal cord infection and inflammation, including abscess¹; **OR**
 - Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
 - Follow-up to abnormal initial imaging with suspected infection; **OR**
- ◆ Trauma-related conditions, including **ANY** of the following^{1,3,5-6}:
- Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
 - High suspicion for **ANY** of the following injury types:
 - Fracture; **OR**
 - Ligamentous; **OR**

- Nerve; **OR**
 - Spine; **OR**
- Post-traumatic radiculopathy or neurological deficit (myelopathy) following accident, surgery, injury, or intervention with **ANY** of the following^{3,7}:
 - Severe radiculopathy; **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Physical exam finding of major muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Severe sciatic/dermatomal sensory loss; **OR**
 - Urinary retention or overflow incontinence; **OR**
 - Weakness (bilateral or progressive) in the lower extremities; **OR**
- Persistent or worsening pain without acute findings on initial imaging among patients who are high-risk (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following¹:
 - Extrapinal vascular malformations; **OR**
 - Spinal cord infarction; **OR**
 - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**
- ◆ Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following¹:
 - Connective tissue disorders (systemic lupus erythematosus); **OR**
 - Muscular dystrophies and myopathies; **OR**
 - **ANY** of the following demyelinating diseases:
 - Transverse myelitis; **OR**
 - Acute disseminated encephalomyelitis; **OR**
 - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**

- Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
- Multiple sclerosis (MS) and its variants (cervical or thoracic); **OR**
- Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
- Neuromyelitis optica spectrum disorder; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - **ALL** of the following^{1,3}:
 - **ANY** of the following^{1,3}:
 - ◆ Pain or radiculopathy (without trauma or known malignancy); **OR**
 - ◆ Neurological deficit (myelopathy) and **ANY** of the following⁴:
 - Abnormal electromyography (EMG); **OR**
 - **ANY** of the following new or worsening symptoms:
 - Radiculopathy (including sciatica); **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss; **OR**
 - Objective muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Objective reduction or loss of fine motor skills; **OR**
 - Sexual dysfunction; **AND**
 - **ANY** of the following:
 - ◆ Severe or rapid progression of myelopathy; **OR**
 - ◆ At least 6 weeks of conservative treatment, including **ALL** of the following¹⁹⁻²²:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**

- Physical therapy, including a self-directed home exercise program; **OR**
- Degenerative conditions with **ALL** of the following¹:
 - **ANY** of the following:
 - ◆ Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
 - ◆ Symptomatic radiculopathy; **AND**
 - At least 6 weeks of conservative treatment, including **ALL** of the following¹⁹⁻²²:
 - ◆ Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - ◆ Physical therapy, including a self-directed home exercise program; **OR**
- Compression (suspected) in **ANY** of the following⁷:
 - Spinal cord; **OR**
 - Cauda equina; **OR**
 - Nerve root; **OR**
- **ANY** of the following¹:
 - Amyloid deposition in the spine; **OR**
 - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
 - Gout; **OR**
 - Spinal cord herniation⁸; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Planning for treatment fields for radiation therapy; **OR**
 - Postradiation changes (e.g., myelopathy); **OR**
 - Epidural and subdural fluid collection¹; **OR**
 - Follow-up of incidental or concerning findings seen on other imaging examinations¹; **OR**
 - Pre-procedure assessment for vertebroplasty and kyphoplasty⁹; **OR**
 - Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**

- Postoperative with new or worsening neurological symptoms²⁻³; **OR**
- ◆ **ANY** of the following congenital conditions^{1,10}:
 - Chiari malformation; **OR**
 - Scoliosis with **ANY** of the following¹¹:
 - Neurological symptoms; **OR**
 - Requiring preoperative assessment; **OR**
 - Worsening pain not previously imaged; **OR**
 - Syringohydromyelia (syrinx); **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

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate 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 symptoms¹²; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
 - ◆ The patient has metallic clips on vascular aneurysms; **OR**
 - ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
 - ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
 - ◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the

region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.⁶

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.⁹

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional research is needed to establish the utility and efficacy of MRI in various types of SCI further.⁸

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Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Provided “out” from conservative care requirement for patients with progressive or severe myelopathy • Added references



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Policy for Medical Necessity Review

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Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

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

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms.¹

Medical Necessity Criteria

Indications

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.

Magnetic resonance imaging (MRI), spine (cervical/thoracic/ lumbar) is considered appropriate if **ANY** of the following is **TRUE**∗:

- New onset pain or radiculopathy without trauma or significant mechanism of injury with **ALL** of the following:
 - Documented failure of at least 6 weeks of conservative treatment within the past 6 months, including **ALL** of the following²⁻⁵:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, chiropractic care, or a provider-directed home exercise program (HEP)^A; **OR**
- Spondylosis/spondylolisthesis of the lumbar spine with **ANY** of the following⁶⁻⁹:
 - Pediatric patient with equivocal radiographs; **OR**
 - Adult patient with **ALL** of the following:
 - Equivocal radiographs; **AND**
 - Documented failure of at least 6 weeks of conservative treatment within the past 6 months, including **ALL** of the following²⁻⁵:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, chiropractic care, or a provider-directed home exercise program (HEP)^A; **OR**
- New onset symptoms without trauma or significant mechanism of injury and **ANY** of the following^{1,10}:
 - Myelopathic symptoms^B; **OR**
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Dermatomal sensory loss not related to peripheral neuropathy; **OR**

- Objective muscle weakness not related to peripheral neuropathy; **OR**
- Saddle anesthesia; **OR**
- Sexual dysfunction; **OR**
- Suspected amyloid deposition in the spine¹; **OR**
- Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension)¹; **OR**
- Suspected gout¹; **OR**
- Suspected atlantoaxial instability in a patient with rheumatoid arthritis (RA) with abnormal or inconclusive radiographs of the cervical spine; **OR**
- Known or suspected axial spondyloarthritis (axSpA) (e.g., ankylosing spondylitis [AS], reactive arthritis, psoriatic spondyloarthritis, enteropathic spondyloarthritis, juvenile spondyloarthritis, undifferentiated spondyloarthritis) and **ALL** of the following^{9,10}:
 - Initial imaging with radiographs; **AND**
 - axSpA of unclear disease activity while on biologic medication to assess disease activity; **OR**
- Diagnosis and surveillance of soft tissue masses/neoplasms (bone, intradural-extramedullary, intramedullary, extradural etc) and **ANY** of the following^{1,10,11}:
 - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
 - Suspected metastatic tumor; **OR**
 - To monitor response to treatment for **ANY** of the following¹²:
 - Baseline imaging (i.e., postoperative); **OR**
 - Periodic imaging of primary site based upon risk of locoregional recurrence; **OR**
 - Long-term follow-up; **OR**
 - End-of-treatment imaging; **OR**
 - Signs or symptoms suggesting recurrence; **OR**
- Suspected or known infection involving the spine, with **ANY** of the following¹³:
 - **ALL** of the following:
 - Signs or symptoms (e.g., new/worsening back or neck pain with or without fever); **AND**
 - **ANY** of the following:

- Abnormal laboratory evaluation (i.e., abnormal white blood cell count, ESR, or CRP); **OR**
 - “Red flag” risk factor (diabetes mellitus, current or prior IV drug use, cancer, HIV, or dialysis); **OR**
 - Decubitus ulcer or wound overlying the spine; **OR**
- Prior imaging findings concerning for infection; **OR**
- History of surgical or interventional procedure to the spine with clinical suspicion for infection; **OR**
- Follow-up imaging of infection with worsening symptoms/laboratory values (i.e., white blood cell count, ESR/CRP) or radiographic findings; **OR**
- Trauma-related conditions, including **ANY** of the following¹⁴⁻¹⁶:
 - Follow-up to initial imaging (e.g., CT) with positive findings; **OR**
 - Follow-up to inconclusive imaging, with high suspicion for **ANY** of the following injury types:
 - Fracture; **OR**
 - Ligamentous; **OR**
 - New onset post-traumatic radiculopathy with **ANY** of the following:
 - Suspected cauda equina syndrome¹⁰; **OR**
 - Low back pain with or without radiculopathy and **ANY** of the following risk factors¹⁰:
 - Low-velocity trauma; **OR**
 - Osteoporosis; **OR**
 - Elderly age; **OR**
 - Chronic steroid use; **OR**
 - Follow-up of acute cervical spine blunt trauma without unstable injury on initial imaging; **OR**
 - Acute cervical, thoracic, or lumbar spine blunt trauma with suspected or confirmed ligamentous, spinal cord, or nerve root injury on CT imaging; **OR**
 - Any suspected thoracolumbar spine trauma in a child¹⁵; **OR**
 - New onset post-traumatic neurological deficit (myelopathy) following significant trauma¹⁷ with **ANY** of the following^{10,17}:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Objective muscle weakness; **OR**

- Saddle anesthesia; **OR**
- Objective dermatomal sensory loss; **OR**
- Urinary retention or overflow incontinence; **OR**
- Objective weakness (bilateral or progressive) in the lower extremities that is not related to peripheral neuropathy; **OR**
- Persistent or worsening post-traumatic pain without acute findings on initial imaging among patients who are high-risk (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**
- Vascular conditions, known or suspected, including **ANY** of the following¹:
 - Extrapapinal vascular malformations; **OR**
 - Spinal cord infarction; **OR**
 - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**
- Myelopathic symptoms, and **ANY** of the following¹:
 - Connective tissue disorders (e.g., systemic lupus erythematosus)^{18,19}; **OR**
 - Muscular dystrophies and myopathies; **OR**
 - **ANY** of the following demyelinating diseases:
 - Transverse myelitis; **OR**
 - Acute disseminated encephalomyelitis; **OR**
 - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**
 - Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
 - Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
 - Neuromyelitis optica spectrum disorder; **OR**
- Multiple sclerosis (MS) and its suspected variants, and **ANY** of the following²⁰:
 - Diagnosis of MS with **ANY** of the following:
 - Clinically isolated syndrome (CIS)² with **ANY** of the following:
 - Establishing a diagnosis according to the 2017 McDonald criteria, including **ANY** of the following clinical scenarios²¹:
 - Evidence of MS on recent baseline brain MRI; **OR**
 - Suspected or known MS with new or changing symptoms compatible with spinal cord disease; **OR**
 - Evaluation of CIS in patients without an established MS diagnosis; **OR**

- Recent brain MRI has not established another cause and is not sufficient to fulfill the McDonald criteria for diagnosis of MS; **OR**
 - Differential diagnosis in the case of inconclusive brain MRI findings; **OR**
 - Establishing the diagnosis of primary progressive multiple sclerosis; **OR**
- Follow-up of MS with **ANY** of the following:
 - To evaluate new or recurrent signs or symptoms of myelopathy; **OR**
 - To aid in treatment switch decision-making for inconclusive clinical presentation or findings on brain MRI; **OR**
 - To determine a new baseline prior to starting or changing therapy; **OR**
 - Serial follow-up (6-12 months post-diagnosis) for CIS that is consistent with demyelination; **OR**
 - In the absence of other criteria, regular imaging (e.g., every 2-3 years) for known progressive MS; **OR**
- Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Postradiation changes (e.g., myelopathy); **OR**
 - Epidural and subdural fluid collection¹; **OR**
 - Pre-procedure assessment for vertebroplasty and kyphoplasty,²² when imaging will impact management²³; **OR**
 - Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**
 - Postoperative with new or worsening neurological symptoms^{10,11}; **OR**
- **ANY** of the following congenital conditions^{1,24}:
 - Back and neck pain in a child under 16 years of age with red flags (e.g., fevers, chills, malaise, weight loss, decreased appetite, unrelenting pain, night pain that awakens one from sleep, focal neurological signs, loss of bowel or bladder control, neck stiffness, rash, photophobia, confusion)²⁵; **OR**
 - Toe walking in a child under 5.5 years of age²⁶⁻²⁸; **OR**
 - Known high-risk disorders affecting the atlantoaxial articulation (e.g., Down syndrome, Marfan syndrome) with abnormal or inconclusive radiographs of the cervical spine; **OR**
 - Chiari malformation with **ANY** of the following²⁹:

- There is concern for clinically relevant pathology, such as hydrocephalus or spine syrinx; **OR**
- To aid treatment planning prior to surgical decompression; **OR**
- Scoliosis with **ANY** of the following³⁰:
 - Neurological symptoms; **OR**
 - Requiring preoperative assessment; **OR**
 - Worsening pain not previously imaged; **OR**
- Syringohydromyelia (syrinx); **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

Magnetic resonance imaging (MRI), spine (cervical/thoracic/ lumbar) is not considered appropriate 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 symptoms³¹; **OR**
- Stable axial spondyloarthritis (axSpA) (i.e., ankylosing spondylitis [AS], reactive arthritis, psoriatic spondyloarthritis, enteropathic spondyloarthritis, juvenile spondyloarthritis, undifferentiated spondyloarthritis) with the intent of seeking subclinical inflammation or confirming disease inactivity.⁹

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

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

Definitions

^A **Provider-directed home exercise programs (HEP)** should include³¹:

- Patient education of prescribed exercises with written instructions,
- Documentation of patient compliance with the HEP.

^B **Myelopathic symptoms:** Reduction or loss of fine motor skills, gait abnormality, increased muscular reflexes, pathological reflexes, paresthesia of limb, loss of hand dexterity.³³

^C **Trauma:** Blunt trauma, unintentional falls, fall from greater than or equal to 3 ft (0.9 m) or at least 5 stairs, axial load injury, vehicular trauma, high speed MVC/rollover/ejection, bicycle collision, motorized recreational vehicle accident, firearms injury, or sports-related injury.^{34 35}

^D **Clinically isolated syndrome (CIS):** A single episode of inflammation that attacks the brain or spinal cord, developing suddenly or over a short period of time and lasting at least 24 hours, with or without recovery, and in the absence of fever or infection. This attack is similar to a typical multiple sclerosis relapse (attack and exacerbation), but it occurs in a patient not known to have multiple sclerosis. Symptoms may include vision loss in one eye, problems with eye movement, problems with balance or coordination, or weakness or numbness in part of the body. Less common symptoms may include vision loss in both eyes, total loss of movement in eyes, confusion, headache, neck stiffness, fatigue, or complete paralysis.²¹

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) assessed the use of magnetic resonance imaging (MRI) in spinal emergencies. As an adjunct to CT, MRI has proven to be most valuable when additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.¹⁶

Suri et al. (2021) reported on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients who underwent lumbar diagnostic imaging between 2013 and 2016. Results indicated that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.²²

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional research is needed to establish the utility and efficacy of MRI in various types of SCI further.³⁶

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Policy Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Expanded conservative care requirement to better capture appropriate patient population and provided "out" from conservative care requirement for patients with progressive or severe myelopathy. Added references.
Version 5	09/11/2025	Annual review. Further refined conservative care indications. Added new indications for spondylosis/spondylolisthesis; axial spondyloarthropathy; toe walking in a child; back/neck pain with red flag symptoms in a child; atlantoaxial instability. Expanded indications for spinal infection, multiple sclerosis, and Chiari malformation. Added non-indication for axial spondyloarthropathy when the disease is stable. Removed non-indication for lumbar spine imaging in MS patients. Added definitions. Removed relative contraindications (contrast allergy, metallic clips, incompatible implantable devices, metallic foreign body).



Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Temporomandibular Joint (TMJ)

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

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Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Temporomandibular Joint (TMJ)

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Temporomandibular Joint (TMJ)

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

Magnetic resonance imaging (MRI) of the temporomandibular joint (TMJ) is a noninvasive diagnostic tool that provides detailed images of the soft tissues and hard structures within the joint. It is highly effective in diagnosing internal derangements, such as disc displacement, inflammation, and degenerative changes. MRI can assess the position and condition of the articular disc, joint effusion, bone marrow edema, and other soft tissue abnormalities. Its superior contrast resolution makes it the gold standard for evaluating TMJ disorders, guiding treatment decisions, and monitoring the efficacy of interventions, particularly in complex cases requiring precise anatomical details.

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), temporomandibular joint (TMJ) is considered appropriate if **ANY** of the following is **TRUE**^{1,2}:

- Suspected TMJ disorder and **ALL** of the following are **TRUE**:
 - Failure of conservative management (e.g., rest, analgesics, soft diet, oral appliances) must be documented for a period of greater than 6 weeks; **AND**
 - The patient has **ANY** of the following from their clinical presentation and physical exam findings³:

- Clicking sounds in the jaw joint when opening or closing the mouth; **OR**
- Difficulty chewing; **OR**
- Ear pain in front of or below the ear without any signs of infection; **OR**
- Headaches exacerbated by jaw movement; **OR**
- Irregular jaw movement with difficulty opening or closing the mouth; **OR**
- Jaw pain or toothache when waking up after sleep; **OR**
- Pain in the ear area when speaking, chewing, or opening the mouth widely; **OR**
- Pain in the jaw joint area, tooth, neck, and shoulders; **OR**
- Sensation of teeth not aligning properly; **OR**
- Assessment of known TMJ disorder after treatment; **OR**
- Assessment of known TMJ disorder with new, worsening, or persistent symptoms; **OR**
- Imaging is needed before TMJ surgery; **OR**
- Inflammatory arthropathy and **ALL** of the following are **TRUE**²:
 - Failure of conservative management of suspected TMJ disorder (e.g., rest, analgesics, soft diet, oral appliances) must be documented for a period of greater than 6 weeks; **AND**
 - **ANY** of the following:
 - Ankylosing spondylitis; **OR**
 - Psoriatic arthritis; **OR**
 - Rheumatoid arthritis⁴; **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

Magnetic resonance imaging (MRI), temporomandibular joint (TMJ) is not considered appropriate 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 symptoms⁵.

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

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

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70336	Magnetic resonance imaging (MRI) (e.g., proton); temporomandibular joint (TMJ)

Medical Evidence

Kopp et al. (2024) conducted a prospective study to compare the image quality between 0.55 Tesla magnetic resonance imaging (MRI) and the standard 1.5 Tesla MRI for the assessment of temporomandibular disorders (TMDs). The disorders are often associated with enduring functional impairments and discomfort. The study included 17 patients (34 temporomandibular joints [TMJs]) with suspected intra-articular TMDs. Patients underwent 0.55 Tesla and 1.5 Tesla MRI scans on the same day. MRI is the standard imaging modality for assessing TMDs and provides detailed visualization of disc pathologies and structural changes within the joint. While advancements in MRI technology have focused on enhancing magnetic field strength to achieve higher spatial resolution, these high-field MRI systems necessitate extensive cooling systems, consume substantial energy, and incur significant maintenance expenses, limiting their accessibility in rural areas worldwide. Modern low-field MRI systems are a promising alternative due to their reduced energy requirements and lower maintenance costs. Additional research is needed concerning the suitability of contemporary low-field MRI for TMD evaluation.⁶

Gharavi et al. (2022) reviewed imaging techniques of the TMJ. Chronic TMJ pain affects 5–31% of individuals, with approximately 4% experiencing new onset pain annually. Disorders of the TMJ encompass a range of conditions affecting the TMJ and surrounding structures, ranking as the second most prevalent musculoskeletal ailment, following back pain. While internal derangement stands as the most prevalent TMJ pathology, other less common conditions include conditions such as inflammatory arthritis, infections, trauma, and neoplasms. MRI is the primary modality to assess intra-articular conditions due to the exceptional contrast resolution in soft tissues. Contrast-enhanced MRI and CT scans are used in the assessment of arthritis that affects the TMJ as it offers comprehensive visualization of both acute inflammatory changes and subsequent degenerative arthritis.²

Hegab et al. (2021) performed a prospective clinical study on a new classification system for TMJ internal derangement based on MRI and clinical findings to aid nonsurgical treatment. The study involved 435 patients and 747 joints and measured outcomes like maximum mouth opening, pain (via

visual analog scale), and joint sound. Results showed significant improvements in mouth opening, pain reduction, and reduced joint sounds over 12 months. The new classification system is comprehensive, and the nonsurgical treatment protocol is practical and tailored to joint pathology.⁷

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Policy Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	08/05/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language
Version 4	08/21/2025	Annual review Updated to align with revised template, including repeat imaging criteria



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Upper Extremity

Clinical Guidelines for Medical Necessity Review

Version: 4

Revision Date: February 20, 2025

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Upper Extremity

Date of last literature review: 7/31/2024

Document last updated: 2/19/2025

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Upper Extremity

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is an advanced imaging modality used when further anatomic detail is required for diagnosis or treatment. It is segmented into joint and non-joint examinations and may be performed without or with contrast (IV or intra-articular). Metal hardware can limit certain exams and is generally inappropriate for imaging by 3 Tesla scanners. Alternate modalities may sometimes be more clinically appropriate based on clinician and supervising radiologist discussion.¹⁻²

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), upper extremity** is considered appropriate if **ALL** of the following are **TRUE**:

◆ **ANY** of the following:

- Plain radiographs are contraindicated or inconclusive; **OR**
- Ultrasound and CT/CTA are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **AND**

◆ **ANY** of the following is **TRUE**:

- Trauma-related conditions as indicated by **ANY** of the following³⁻⁴:
 - Fracture (traumatic or stress), and **ANY** of the following is **TRUE**⁵:
 - ◆ Joint dislocation or instability; **OR**

- ◆ Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
 - ◆ Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
 - Soft tissue injury or tear (e.g., tendon, ligament, muscle)^{3-4,6-7}; **OR**
- Preoperative imaging for **ANY** of the following:
 - Prior to shoulder arthroplasty; **OR**
 - Prior to non-arthroplasty surgical management of glenohumeral osteoarthritis (e.g. arthroscopy, distal clavicle resection/excision) only when there is clinical concern for rotator cuff compromise; **OR**
 - Prior to surgical management of congenital condition, injury, malignancy, mass, infectious disorder, or vascular abnormality; **OR**
- Detection, screening, and surveillance of neoplasms, masses, and cysts of an upper extremity and **ANY** of the following is **TRUE**⁸:
 - Malignant or aggressive primary tumor⁹; **OR**
 - Evaluation of metastatic lesions of the upper extremity; **OR**
 - Bone tumor is suspected with **ANY** of the following¹⁰:
 - ◆ Initial radiographs are negative or do not explain symptoms; **OR**
 - ◆ Osteoid osteoma is suspected; **OR**
 - ◆ Lesion present on plain radiographs; **OR**
 - ◆ Indeterminate or aggressive appearance concerning malignancy; **OR**
 - ◆ “Incidental” osseous lesion on other imaging for unrelated indication; **OR**
 - Presence of a mass with **ANY** of the following²:

- ◆ Absence of trauma; **OR**
 - ◆ Rapid growth; **OR**
 - ◆ Recurrence after prior surgery; **OR**
 - ◆ Non-diagnostic ultrasound or other inconclusive imaging; **OR**
- Known malignancy and **ANY** of the following is required:
 - ◆ Monitor response to treatment; **OR**
 - ◆ Surveillance after treatment or surgery; **OR**
 - ◆ Non-diagnostic ultrasound or other inconclusive imaging; **OR**
- Palpable abnormality with a non-diagnostic radiograph or ultrasound; **OR**
- Infectious disorder including **ANY** of the following:
 - Osteomyelitis, suspected¹¹; **OR**
 - Suspected septic arthritis or soft tissue infection is with **ANY** of the following initial radiographs¹¹⁻¹²:
 - ◆ Normal; **OR**
 - ◆ Suggestive of joint effusion; **OR**
 - ◆ Suggestive of soft tissue swelling; **OR**
 - History of puncture wound with possible retained foreign body; **OR**
 - High clinical suspicion of necrotizing fasciitis; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Osteonecrosis or avascular necrosis, known or suspected, (e.g., suspected Kienböck's disease) with negative radiographs¹³; **OR**
 - Vascular compromise, suspected⁷; **OR**

- Vascular malformation (with or without pain) and **ANY** of the following findings of physical deformity are suspected¹⁴:
 - ◆ Diffuse or focal enlargement; **OR**
 - ◆ Discoloration; **OR**
 - ◆ Soft-tissue mass; **OR**
 - ◆ Ulceration; **OR**
- Vascular bruit or thrill; **OR**
- For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Marrow abnormalities^{8,13}; **OR**
 - Pain or weakness of an upper extremity, and **ALL** of the following are **TRUE**^{7,15}:
 - ◆ Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
 - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
 - Physical therapy, including a self-directed home exercise program; **AND**
 - ◆ Concern for rupture or tear of tendon or ligament, or other soft tissue injury based on **ALL** of the following:
 - Clinical history; **AND**
 - Physical exam; **AND**

- Prior radiographs which are nondiagnostic, indeterminate, or discordant with symptoms; **OR**
- Neurological symptoms or deficits with **ANY** of the following¹⁶:
 - ◆ Peripheral nerve sheath tumor suspected with **ANY** of the following:
 - Enlarging mass; **OR**
 - New or worsening localized pain; **OR**
 - Recurrence after prior resection; **OR**
 - ◆ Localized EMG abnormality; **OR**
 - ◆ Persistent symptoms or suspected nerve entrapment as confirmed by abnormal EMG; **OR**
 - ◆ Trauma or injury with suspected nerve injury or laceration; **OR**
- Initial diagnosis or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)¹²; **OR**
- Synovial-related disorders (e.g., synovitis, bursitis, metaplasia, and neoplasia)¹⁶; **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

→ **Magnetic resonance imaging (MRI), upper extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The diagnosis of carpal tunnel syndrome; **OR**
- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms¹⁷; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ Incompatible implanted devices (e.g., pacemakers, defibrillators, cardiac valves, spinal cord stimulators).

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description

73218	Magnetic resonance imaging (MRI) (e.g., proton), upper extremity, other than joint; without contrast material(s)
73219	Magnetic resonance imaging (MRI) (e.g., proton), upper extremity, other than joint; with contrast material(s)
73220	Magnetic resonance imaging (MRI) (e.g., proton), upper extremity, other than joint; without contrast material(s), followed by contrast material(s) and further sequences
73221	Magnetic resonance imaging (MRI) (e.g., proton), any joint of upper extremity; without contrast material(s)
73222	Magnetic resonance imaging (MRI) (e.g., proton), any joint of upper extremity; with contrast material(s)
73223	Magnetic resonance imaging (MRI) (e.g., proton), any joint of upper extremity; without contrast material(s), followed by contrast material(s) and further sequences.

Medical Evidence

DeFrance et al. (2021) performed a study using magnetic resonance imaging (MRI) for diagnosing upper extremity conditions and assessed how MRI findings influenced patient management. Findings from 187 patients who had an MRI were analyzed on the usefulness of imaging and how they influenced treatment decisions. Imaging was ordered to assess for suspected occult scaphoid fractures, ulnar wrist pain, collateral ligament injuries of the metacarpophalangeal joint, and masses. Surgeons concurred with radiologists' interpretations in 88% of cases. Overall, surgeons noted MRI findings as helpful in 92% of cases.¹⁸

Cortes et al. (2019) conducted a small prospective study on patients with suspected cuff tendinopathy. Fifty-one patients were included and underwent magnetic resonance imaging (MRI). Ninety percent (n=46) did not require surgical intervention; individuals who underwent surgery (10%) within an average of 68.3 days post-imaging. A significant proportion (over 90%) underwent premature MRI, which illustrates early MRI utilization in patients with atraumatic shoulder pain whose condition may have improved with conservative treatment first.¹⁹

Rubin (2019) analyzed MRI and ultrasound findings of patients with rheumatoid arthritis in the hands and wrists. Advanced imaging modalities allow for visualization of synovitis and active soft-tissue inflammation, which are early indicators of potential structural damage. MRI can also identify osteitis, a crucial prognostic marker for disease aggressiveness. Findings include the distinct definitions (specifically synovitis, osteitis, and erosions) that enhance clinical assessment and imaging interpretation.²⁰

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Clinical Guideline Revision History/Information

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Review History		
Version 2	8/5/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Replaced conservative care requirement with current standard language. Provided avenue for approval of preoperative imaging. Loosened requirement for injury evaluation – no longer requires suspicion of “high-grade” tear.



Magnetic Resonance Angiography (MRA), Chest – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: March 18, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Angiography (MRA), Chest - Single Service

Physician author: Giovanni Lorenz, DO

Peer reviewed by: Majid Khan, MD; Jonathan Kraas, MD

Literature review current through: March 11, 2022

Document last updated: March 11, 2022

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Chest

General Guidelines

- **Imaging Modality:** MRA Chest (with or without gadolinium contrast). Considerations of additional sequences, dynamic sequences, positioning of the patient, and use of skin markers are at the discretion of the protocoling radiologist.¹
- **Criteria for Subsequent Requests:** Clinical reason and judgment according to college and clinical practice and usage of the ACR Appropriateness Criteria.
- **Recommended Clinical Approach:** This should include pertinent history to justify the exam. The radiologist should protocol the examination prior to the patient arriving at the MR suite.¹
- **Exclusions:** MRI Chest, MRI and MRA Lower Extremity, Upper Extremity, MRA Head, MRA Neck, MRA Spinal Canal, MRA Abdomen/Pelvis, and Cardiac MRI are excluded from this document and addressed separately. MR Arthrogram is also excluded from this document.

Medical Necessity Criteria

Indications

→ **MRA Chest** is considered appropriate if **ANY** of the following is **TRUE**:

◆ Clinical suspicion of **ANY** of the following:

- Vascular stenosis or occlusion due to atherosclerosis, vasculitis, or thromboembolic phenomena
- Pulmonary arteriovenous malformation (AVM)²⁻⁵
- Pulmonary arteriovenous fistula (AVF)
- Aneurysm and vascular malformation
- Pulmonary vascular abnormality²⁻⁵
- Abnormality of the thoracic aorta⁶⁻⁷
- Injury to vessels, including dissection and posttraumatic pseudoaneurysm
- Vascular supply to, or involvement by, tumor
- Congenital heart disease⁸⁻⁹

◆ Imaging for **ANY** of the following interventions:

- Mapping vascular anatomy for preprocedural planning and postprocedural surveillance of treatment
- Transcatheter aortic valve replacement¹⁰⁻¹⁵
- Mitral valve replacement¹⁰⁻¹⁵
- Endovascular stent-graft, including endoleaks
- ◆ Known congenital heart disease⁸⁻⁹
- ◆ Known or suspected pulmonary embolism¹⁶⁻²²
- ◆ Known or suspected pulmonary hypertension²³
- ◆ Vascular related thoracic outlet syndrome²⁴⁻²⁹
- ◆ Venous anatomy (including congenital abnormalities, extrinsic compression, or causes of intrinsic stenosis or obstruction)
- ◆ Quantitative measurements of blood flow

Non-Indications

→ **MRA Chest** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)³⁰
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁰
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
71555	Magnetic resonance angiography (MRA) of chest with contrast material
C8909	Mra w/cont, chest

C8911	Mra w/o fol w/cont, chest
C8910	Mra w/o cont, chest

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Magnetic Resonance Angiography (MRA), Head – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: March 18, 2022

Important Notices

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Guideline Information:

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Care Path Name: Magnetic Resonance Angiography (MRA), Head - Single Service

Physician author: Max Wintermark, MD

Peer reviewed by: Giovanni Lorenz, DO; Jonathan Kraas, MD

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Document last updated: 3/11/2022

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Head

General Guidelines

- **Imaging Modality:** Magnetic resonance angiography (MRA) is a noninvasive imaging technology used for the evaluation and imaging of vessels in the head. MRA can be performed with or without gadolinium contrast.
- **Criteria for Subsequent Requests:** AN MRA evaluation is appropriate for follow-up after treatment or surveillance of specific conditions in the list of indications below.
- **Recommended Clinical Approach:** Imaging analysis utilizing MRA of the head can be performed alone or in conjunction with MRA of the neck or MRI of the head. Use of contrast and concurrent exams should be guided by clinical suspicion of disease presence or exclusion to direct value-based care. Staging, Presurgical planning, and screening are also recommendations of a clinical approach.
- **Exclusions:** MRI of the Head, MRA of the Neck, MRA of the upper or lower extremity, MRA of the chest/abdomen/pelvis are excluded from this document and addressed separately.

Medical Necessity Criteria

Indications

→ **MRA of the Head** is considered appropriate if **ANY** of the following is **TRUE**:

◆ For the evaluation of **ANY** of the following:

- Vascular disease¹⁻⁹
- Intracranial hemorrhage
- Pulsatile tinnitus (subjective or objective) for vascular etiology
- Known or suspected tumor/pulsatile mass
- Carotid body tumors, or other masses such as **ANY** of the following:
 - Paragangliomas
 - Arteriovenous fistula pseudoaneurysms
 - Venolymphatic malformations

- Relevant vascular anatomy for **ANY** of the following:
 - Pathology for preprocedural or postprocedural evaluation
 - To determine the effect of therapeutic interventions, as indicated by **ANY** of the following:
 - ◆ Endovascular embolization
 - ◆ Stent placement in treatment of stenosis
 - ◆ Dissection
 - ◆ Aneurysm
 - ◆ Arteriovenous malformation (AVM)
 - ◆ Tumor embolization^{3,10-11}
 - ◆ Post-treatment changes following interventional or surgical procedures or radiation therapy
- ◆ To rule out intracranial aneurysm (e.g., aneurysm of the circle of Willis) in patients who are thought to be at higher risk as indicated by **ANY** of the following^{1-24-9,12}:
 - Family history of aneurysm
 - Polycystic kidney disease
 - Hypertension
 - Smoking history
- ◆ Follow-up study for **ANY** of the following^{1-24,13-20}:
 - Arteriovenous malformation (AVM)
 - Arteriovenous fistula (AVF)
 - Intracranial aneurysm (ICA)
- ◆ Stroke/cerebrovascular accident or transient ischemic attack (TIA)
- ◆ Focal or lateralizing neurological deficit(s)
- ◆ Suspected vertebral basilar insufficiency (VBI) with **ANY** of the following symptoms:
 - Headache
 - Diplopia
 - Blindness
 - Dysarthria
 - Dysphagia
 - Dizziness
 - Vertigo
 - Vomiting
 - Ataxia and weakness in both sides of the body

- Abnormal speech
- ◆ Signs/symptoms highly suggestive of leaking/ruptured ICA or AVM (e.g., blood in the cerebral spinal fluid, stiff neck, sudden explosive headache)
- ◆ Face or skull base fracture(s)
- ◆ Vasculitis
- ◆ Glasgow coma score less than 8 with negative CT
- ◆ Massive epistaxis
- ◆ Cervical bruit or thrill with suspicion of neck carotid stenosis
- ◆ New-onset ptosis

Non-Indications

→ **MRA Head** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)²¹
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))²¹
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70544	Magnetic resonance angiography (MRA) of head without contrast material
70545	Magnetic resonance angiography (MRA) of head with contrast material
70546	Magnetic resonance angiography (MRA) of head without contrast material, followed by contrast material and further sequences

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Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Lower Extremity

Clinical Guidelines for Medical Necessity Review

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Effective Date: August 13, 2024

Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Lower Extremity

Recommended Clinical Approach

Magnetic resonance angiography (MRA) is a noninvasive alternative to catheter angiography for evaluating vascular structures in the lower extremities. Magnetic resonance venography (MRV) images veins instead of arteries. MRA and MRV are less invasive than conventional X-ray digital subtraction angiography.¹

Medical Necessity Criteria

Indications

- **Magnetic resonance angiography (MRA), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**¹:
- ◆ MRA-preferred indications including **ANY** of the following:
 - Arterial entrapment syndrome, when ultrasound is indeterminate or for pre-treatment planning; **OR**
 - Adventitial cystic disease¹; **OR**
 - ◆ Ultrasound and CT/CTA are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric) with **ANY** of the following:
 - 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 following²:
 - Expanding hematoma³; **OR**
 - Major blunt trauma and the patient is hemodynamically stable⁴; **OR**
 - Neurologic deficit of lower extremity in association with trauma⁵; **OR**
 - Known or suspected knee dislocation^{*6}; **OR**
 - Vascular trauma to a lower extremity⁷; **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**
 - Critical limb ischemia strongly suspected (e.g., sudden onset of a cold leg with pain, gangrene, rest pain)⁸; **OR**
 - Lower extremity ischemic symptoms when **ALL** of the following is **TRUE**:
 - ◆ **ANY** of the following:
 - Leg pain worsens with activity and is relieved with rest (claudication); **OR**
 - Non-healing lower extremity ulcers; **AND**
 - ◆ **ALL** of the following:
 - Limitation of performance of daily activities; **AND**
 - Expected mobility after treatment warrants revascularization; **AND**
 - Revascularization is planned⁹; **AND**
 - Abnormal ankle-brachial index (ABI) as evidenced by **ANY** of the following:
 - ABI is inconclusive or nondiagnostic; **OR**
 - ABI less than 0.9 or greater than 1.4 on at least one leg; **OR**
 - ABI less than 1.1 in patients with risk factors for atherosclerosis (e.g., personal history of diabetes or known cardiac disease)¹⁰; **AND**
 - Either low concern for aortic and iliac artery disease or aorta and iliac arteries previously imaged; **OR**
- Determination of hemorrhage source (including non-surgical, spontaneous)¹⁰; **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**⁷:
 - ◆ 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 outcome of the imaging is expected to change management and/or treatment plan; **OR**
- Pre and post-intervention 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**
 - Treatment of popliteal entrapment syndrome; **OR**
- Hemodialysis access evaluation, when duplex ultrasound inconclusive and fistulogram cannot be performed, for **ANY** of the following conditions:
 - Arteriovenous fistula (AVF) stenosis; **OR**
 - Occlusion; **OR**
 - Pseudoaneurysm; **OR**
 - Steal syndrome (cool and painful extremity); **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is

TRUE:

- There is documented clinical necessity; **AND**
- Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
- **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

→ **Magnetic resonance venography (MRV), lower extremity** is

considered appropriate if **ANY** of the following are **TRUE**:

- ◆ MRA-preferred indications including venous entrapment syndrome, when ultrasound is indeterminate or for pre-treatment planning; **OR**
- ◆ Ultrasound and CT/CTV are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric) with **ANY** of the following:
 - 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 a known venous leg ulcer, when ultrasound is indeterminate or non-diagnostic¹¹; **OR**
 - Known or suspected acute or chronic deep venous thrombosis, when results would change management and ultrasound has been completed; **OR**
 - Known severe post-thrombotic changes incompletely evaluated by ultrasound¹¹; **OR**
 - Evidence of severe venous reflux disease and **ALL** of the following¹¹:

- Duplex ultrasound evaluation indeterminate, incomplete, or non-diagnostic; **AND**
- Surgical or endovascular intervention planned; **OR**
- ◆ Pre and post-intervention 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**
 - Treatment of popliteal entrapment syndrome; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

- **Magnetic resonance angiography (MRA), lower extremity** is not considered appropriate 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; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to

gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**

- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
- ◆ Evaluation of lower extremity arterial perfusion, such as for claudication, when there may be a concern for aorta or iliac disease and aorta and iliac have not been imaged.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
73725	Magnetic resonance angiography (MRA), lower extremity, with or without contrast material(s)
C8912	Magnetic resonance angiography (MRA) with contrast, lower extremity
C8913	Magnetic resonance angiography (MRA) without contrast, lower extremity
C8914	Magnetic resonance angiography (MRA) without contrast followed by with contrast, lower extremity

Medical Evidence

Nassar et al. (2022) reviewed imaging modalities for preoperative planning. Computed tomography angiography (CTA) and magnetic resonance angiography (MRA) can generate detailed 3D images of vascular structures and surrounding anatomy, with applications in preoperative planning for breast, head, neck, and extremity reconstructions. While MRA eliminates the need for radiation exposure, it is less precise than CTA in detecting perforators smaller than 1 mm and contraindicated in specific patient groups. For assessing venous anatomy, the most effective modalities include duplex ultrasound, MRV, and the outflow phase of conventional angiography. While MR scanners and software continue to advance, the general preference is for strength 1.5-T scanners in reconstructive applications. Lower-strength scanners allow enhanced fat suppression, contributing to more precise imaging of vascular structures.¹²

Tamura and Nakahara (2014) conducted a retrospective study to assess pelvic and deep vein thrombosis (DVT) in the lower extremities with magnetic resonance venography (MRV) before surgical intervention for varicose veins. Time-of-flight MRV evaluated the 72 patients enrolled in the study before stripping varicose veins of the lower extremities. A total of 63.9% were female, with a mean age of 65.2 plus or minus 10.2 years; 55.6% of patients had bilateral varicose leg veins; 2.8% of patients had DVT; and 4.2% were diagnosed with iliac vein thrombosis. The remaining patients could undergo the stripping procedure in the saphenous veins. The study concluded that non-contrast MRV helps evaluate the lower extremity venous system.¹³

Koelemay et al. (2001) conducted a meta-analysis of 34 studies (1090 patients) that reports a high accuracy for assessing arteries in the lower extremities using MRA. Three-dimensional (3D) gadolinium-enhanced MRA demonstrated enhanced diagnostic accuracy compared to 2D MRA. The estimated thresholds for equal sensitivity and specificity were 94% and 90% for 3D gadolinium-enhanced MRA and 2D MRA, respectively. Recent investigations specifically examined the diagnostic capabilities of lower extremity 3D gadolinium-enhanced MRA compared to digital subtraction angiography.¹⁴

Ersoy et al. (2008) report on the precision of 3D MRA in assessing bypass grafts and detecting recurrent issues within the graft lumen is comparable to its accuracy in native arteries. Foot and calf MRA exhibit sensitivity and specificity exceeding 80% and 90%, respectively. In contrast to digital subtraction angiography, gadolinium-enhanced MRA generates a 3D dataset

that can create displays reminiscent of multilane digital subtraction angiography after reformatting. These displays emphasize pertinent information for prognosis and treatment planning, such as arterial wall inflammation, plaque composition, and mural and intramural thrombus formation.¹⁵

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Review History		
Version 2	8/13/2024	Annual review and policy restructure.



Magnetic Resonance Angiography (MRA), Neck – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: March 18, 2022

Important Notices

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Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Angiography (MRA), Neck - Single Service

Physician author: Darko Pucar, MD

Peer reviewed by: Majid Khan, MD; Jonathan Kraas, MD

Literature review current through: 3/11/2022

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Neck

General Guidelines

- **Imaging Modality:** Magnetic resonance angiography (MRA) of the neck without contrast material or Magnetic resonance angiography (MRA) of the neck without and with contrast material are performed either alone or in conjunction with MRA head for evaluation of arterial vasculature in the head and neck.
- **Criteria for Subsequent Requests:** If vascular pathology is limited to the head after initial MRA of head and neck, subsequent imaging is performed with MRA head only. If vascular pathology is in the neck, subsequent MRA neck imaging can be obtained to assess disease progression, treatment response, or change in signs and symptoms.
- **Recommended Clinical Approach:** MRA neck is advanced imaging best utilized per institutional neurological, neurosurgical, and radiologic protocols. Ordering providers may consult specialty guidelines before ordering.
- **Exclusions:** MRI of the head, neck, and cervical spine, MRA of the head, MRA of the upper or lower extremity, and MRA of the chest/abdomen/pelvis are excluded from this document and addressed separately. MRA Neck should not be ordered if head-only imaging is sufficient.

Medical Necessity Criteria

Indications

- **MRA Neck** is considered appropriate if **ANY** of the following is **TRUE**¹⁻³⁷:
- ◆ Non-invasive screening for carotid artery stenosis
 - ◆ Transient Ischemic Attack (TIA)
 - ◆ If the patient has had a stroke and **ALL** of the following are **TRUE**:
 - The patient is outside of the 6-hour revascularization window
 - MRI Head without contrast or MRI Head with and without contrast and MRA Head with 3-D TOF have been ordered
 - If the patient has a subarachnoid hemorrhage (SAH) and needs evaluation for **ANY** of the following:
 - Intracranial or spinal arteriovenous malformation (AVM) or Arteriovenous fistula (AVF)

- Intracranial aneurysm
- Arterial dissection
- ◆ If the patient has a brain parenchymal hemorrhage and **ALL** of the following are **TRUE**:
 - For the initial evaluation of the cause
 - Performed in conjunction with a head MRI
 - For assessment of the anatomy, patency, and involvement of neck vasculature
- ◆ If the patient has a vascular malformation and **ALL** of the following are **TRUE**:
 - Performed in conjunction with head MRI and head MR angiogram
 - To assess the status of neck vasculature
- ◆ If the patient has central nervous system vasculitis and **ALL** of the following are **TRUE**:
 - Initial imaging
 - Performed in conjunction with MRI of the head without and with contrast and MRA head with 3-D TOF
- ◆ If the patient has head trauma and an arterial injury is suspected based on clinical findings or prior imaging.
- ◆ If the patient has sinonasal pathology and **ANY** of the following are needed:
 - Treatment planning.
 - Preoperative embolization of a vascular mass such as a juvenile angiofibroma
 - Treatment of severe epistaxis
- ◆ If the patient has ataxia and there is a concern for **ANY** of the following arterial pathologies:
 - Dissection
 - Occlusion
 - Stenosis
 - Aneurysm
 - Vasculitis
 - Arteriovenous fistulas.
- ◆ The patient has vertigo and **ANY** of the following:
 - Episodic vertigo with or without associated hearing loss or aural fullness (peripheral vertigo)
 - Persistent vertigo with or without neurological symptoms (central vertigo)

- ◆ The patient has pulsatile tinnitus
- ◆ The patient has pulsatile neck masses
- ◆ Traumatic and non-traumatic orbital pathology if there are clinical or other imaging findings that indicate vascular involvement.

Non-Indications

→ **MRA Neck** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)³⁸
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁸
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Inpatient or outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70547	Magnetic resonance angiography (MRA) of neck without contrast material
70548	Magnetic resonance angiography (MRA) of neck with contrast material
70549	Magnetic resonance angiography (MRA) of neck without contrast material, followed by contrast material and further sequences

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Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Spinal Canal

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Angiography (MRA), Spinal Canal

Date of last literature review: 7/25/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Spinal Canal

Recommended Clinical Approach

Contrast-enhanced 3D time of flight techniques and contrast-enhanced CT angiography (CTA) is used to evaluate the spinal arteries, veins, and related pathology as a non-invasive alternative to the gold standard catheter angiography. The Adamkiewicz artery's (AKA) detection rate by MRA is 69% – 100%, but with modern equipment, both MRA and CTA detection rates should approach 100%. Magnetic resonance angiography (MRA) may be appropriate when CTA is contraindicated. CTA has the advantage over MRA in providing greater spatial resolution, imaging the entire spine during one contrast bolus, and providing a faster exam time and less prone to motion artifact. A limitation of MRA is a finite field of view, typically less than or equal to 50 cm. MRI has the advantage over CT in detecting areas of ischemia via diffusion-weighted imaging. Mathur et al. showed a 100% sensitivity in detecting recurrent spinal arteriovenous fistulas post-treatment.

Medical Necessity Criteria

Indications

→ **Magnetic resonance angiography (MRA), spinal canal** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Initial assessment of a previously inconclusive finding on a prior imaging report that necessitates additional clarification; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:
 - Thrombosis of spinal arteries is suspected on prior imaging or clinically and would change management; **OR**
 - For the evaluation of known or suspected vertebral artery injury when there is also a concern for vascular compromise to the spinal canal and its contents (otherwise neck MRA or CTA is sufficient to evaluate vertebral artery injury)¹⁻²; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:

- Localization of the spinal arteries before complex spinal surgery; **OR**
- Aortic aneurysm repair; **OR**
- For characterization of suspected vascular lesions, including tumors or masses of the spinal canal and its contents³; **OR**
- To guide a subsequent digital subtraction angiography meant to assess for a spinal arteriovenous malformation or fistula; **OR**
- ◆ As a follow-up study for **ANY** of the following:
 - Known arteriovenous malformation (AVM)⁴⁻⁵; **OR**
 - Known spinal arteriovenous fistula (AVF)⁶; **OR**
 - To evaluate the patient's post-treatment, post-procedure, or post-surgical progress⁶; **OR**
 - A single follow-up examination for a prior MR/CT finding initially deemed indeterminate, aimed at ensuring no suspicious interval changes have occurred; **OR**
- ◆ For evaluation of **ANY** of the following congenital or acquired conditions:
 - Myelopathy when MRI demonstrates an underlying vascular malformation as a follow-up to demonstrate abnormal vasculature (may be used to guide spinal arteriography and intervention)⁷; **OR**
 - Spinal arteriovenous malformation (AVM)^{3,8,9-11}; **OR**
 - Spinal arteriovenous fistula (AVF), including vascular flow voids on MRI Spine that are suspicious for spinal AVF; **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

→ **Magnetic resonance angiography (MRA), spinal canal** is not considered appropriate 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 symptoms¹²; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72159	Magnetic resonance angiography (MRA) of spinal canal and contents with contrast material material
C8931	Magnetic resonance angiography with contrast, spinal canal and contents
C8932	Magnetic resonance angiography without contrast, spinal canal and contents
C8933	Magnetic resonance angiography without contrast followed by with contrast, spinal canal and contents

Medical Evidence

Raman et al. (2022) performed a systematic review comparing digital subtraction angiography (DSA) with magnetic resonance angiography (MRA) for the evaluation of cerebral arteriovenous malformations (AVMs). In brain AVMs, there is aberrant communication between arteries and veins, resulting in the formation of a nidus, a complex network of intertwined blood vessels. DSA is generally the preferred method due to its superior spatial resolution and hemodynamic properties, representing the current gold standard. There is a need for further research to determine whether MR studies alone could serve as a diagnostic imaging alternative to the current gold standard, DSA, for AVM diagnosis. Numerous studies have highlighted the combined use of both imaging modalities, and some have suggested that specific MR imaging techniques closely resemble the outcomes of invasive conventional scans.¹³

Sharma et al. (2019) compare computed tomography angiography (CTA) and MRA for traumatic vertebral artery injury (TVAI). The primary diagnostic approach for patients with trauma and meeting screening criteria for potential cervical vascular injury is CTA. At the same time, MRA, DSA, and Doppler duplex ultrasound have supportive roles as complementary imaging modalities. The authors also review anatomic variations and potential mimics. Early detection is crucial, and prompt initiation of therapy can significantly reduce the risk of associated strokes.¹⁴

Mathur et al. (2017) evaluated the effectiveness of first-pass contrast-enhanced MRA in diagnosing and localizing spinal epidural AVFs with intradural venous reflux, as well as differentiating them from other types of spinal AVFs. Of the 42 patients with suspected spinal AVF, 7 patients received a diagnosis. The authors conclude that MRA can identify lesions associated with spinal dural AVFs.⁶

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Clinical Guideline Revision History/Information

Original Date: March 18, 2022		
Review History		
Version 2	8/2/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language



Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Upper Extremity

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: August 13, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Magnetic Resonance Angiography (MRA), Upper Extremity

Date of last literature review: 8/12/2024

Document last updated: 8/13/2024

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

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Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Upper Extremity

Recommended Clinical Approach

Magnetic resonance angiography (MRA) of the upper extremity is typically performed without and with gadolinium contrast. Although contrast-enhanced MRA (CE-MRA) is generally preferred, non-contrast-enhanced techniques are increasingly available. These may be a good option for patients with impaired renal function or who cannot tolerate gadolinium-based contrast agents. A broad spectrum of upper extremity vascular disorders can be assessed accurately using MRA of the upper extremity.¹

Medical Necessity Criteria

Indications

→ **Magnetic resonance angiography (MRA), upper extremity** is considered appropriate if **ALL** of the following are **TRUE**¹:

- ◆ MRA-preferred indications including **ANY** of the following:
 - Arterial entrapment syndrome, when ultrasound is indeterminate or for pre-treatment planning; **OR**
 - Adventitial cystic disease; **OR**
 - Intimal hyperplasia evaluation within vascular devices such as stents; **AND**
- ◆ Ultrasound and CT/CTA are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric) with **ANY** of the following:
 - 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; **OR** etiologies such as muscle pain that resolves with rest, coolness, pallor, or fatigue; **OR**
 - 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 following²:
 - Expanding hematoma; **OR**
 - Major blunt trauma and the patient is hemodynamically stable³; **OR**
 - Neurologic deficit of upper extremity in association with trauma⁴; **OR**
 - Vascular trauma to an upper extremity⁵; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
 - Aneurysm, seen on ultrasound or when ultrasound is nondiagnostic; **OR**
 - Intramural hematoma; **OR**
 - Dissection; **OR**
 - Non-healing upper extremity ulcers with abnormal or inconclusive ultrasound results (e.g. arterial Doppler); **OR**
 - Determination of hemorrhage source (including non-surgical, spontaneous); **OR**
 - Localization and characterization of vascular malformation (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**

- ◆ The requesting clinician specializes in rheumatology and the outcome of the imaging is expected to change management and/or treatment plan; **OR**
 - Non-inflammatory vasculopathies that are symptomatic such as Raynaud's, Buerger's disease, fibromuscular dysplasia, or scleroderma; **OR**
 - Vascular steal syndrome of the upper extremity, is suspected, and initial imaging is needed to guide therapy⁶; **OR**
- Pre- and post-intervention 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**
- Hemodialysis access evaluation, when duplex ultrasound is inconclusive and fistulogram cannot be performed, for **ANY** of the following conditions:
 - ◆ Arteriovenous fistula (AVF) stenosis; **OR**
 - ◆ Occlusion; **OR**
 - ◆ Pseudoaneurysm; **OR**
 - ◆ Steal syndrome (cool and painful extremity); **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following are **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that

- may influence the treatment approach; **OR**
- The requirement for interval reassessment, which may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

→ **Magnetic resonance venography (MRV), upper extremity** is considered appropriate if **ANY** of the following is **TRUE**¹:

- ◆ MRA-preferred indications including venous entrapment syndrome, when ultrasound is indeterminate or for pre-treatment planning; **OR**
- ◆ Ultrasound and CT/CTV are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric) with **ANY** of the following:
 - 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 non-diagnostic; **OR**
 - Known or suspected acute or chronic deep venous thrombosis, when results would change, or management and ultrasound have been completed⁶; **OR**
 - Known severe post-thrombotic changes incompletely evaluated by ultrasound; **OR**
 - Subclavian or central venous obstruction such as subclavian vein thrombosis, Paget-Schroetter syndrome, thoracic outlet syndrome, either known or suspected clinically (e.g., edema aggravated by exercise/arm position); **OR**
 - Pre and post-intervention 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 of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following are **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - ◆ A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - ◆ The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - ◆ One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - ◆ The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance angiography (MRA), upper extremity** is not considered appropriate 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; **OR**

- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
73225	Magnetic resonance angiography (MRA), upper extremity, with or without contrast material(s)
C8934	Magnetic resonance angiography (MRA), with contrast, upper extremity
C8935	Magnetic resonance angiography (MRA), without contrast, upper extremity
C8936	Magnetic resonance angiography (MRA), without contrast followed by with contrast, upper extremity

Medical Evidence

Nassar et al. (2022) reviewed imaging modalities for preoperative planning. CTA and MRA can generate detailed 3D images of vascular structures and surrounding anatomy, with applications in preoperative planning for breast, head, neck, and extremity reconstructions. While MRA eliminates the need for radiation exposure, it is less precise than CTA in detecting perforators smaller than 1 mm. For assessing venous anatomy, the most effective modalities include duplex ultrasound, MRV, and the outflow phase of conventional angiography. While MR scanners and software continue to advance, the general preference is for 1.5-T scanners in reconstructive applications. Lower-strength scanners allow enhanced fat suppression, contributing to clearer imaging of vascular structures.⁸

Ghouri et al. (2019) review the successes and failures of CTA and MRA of the upper extremities. These modalities are preferred over Doppler or digital subtraction angiography (DSA), especially in patients without contraindications to MRI. Soft tissue characterization is improved with MRA and does not expose the patient to radiation. Venous and neurological compression is also successfully evaluated with MRA. As imaging modalities, particularly CTA and MRA, continue to advance, the authors stress the importance of identifying the strengths and weaknesses of different techniques to obtain the most effective imaging test.⁶

The American College of Radiology, the North American Society for Cardiovascular Imaging (NASCI), and the Society for Pediatric Radiology (SPR) developed a 2020 updated practice parameter for the performance of body magnetic resonance angiography (MRA). They state that contrast-enhanced MRA is as effective as standard angiography in the evaluation of diseases related to the vascular system as well as the planning of treatment. MRA is less invasive than catheter-based angiography, reducing the risk of injury to the vascular system being examined. Noncontrast MRA is available to

patients in whom contrast media is contraindicated. Specific extremity MRA evaluations include arterial occlusions, congenital anomalies, and aneurysms, as well as venous malformations, causes of peripheral edema, and varicose veins. MRA is effective in planning for dialysis access placement.¹

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Clinical Guideline Revision History/Information

Original Date: March 7, 2022		
Review History		
Version 2	8/13/2024	Annual review and policy restructure.



Magnetic Resonance Angiography (MRA), Upper Extremity – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: March 7, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Angiography (MRA)/ Magnetic Resonance Venography (MRV), Upper Extremity - Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Vinay Duddalwar, MD; Jonathan Kraas, MD

Literature review current through: 03/07/2022

Document last updated: 03/07/2022

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Angiography (MRA), Upper Extremity

General Guidelines

- **Imaging Modality:** Magnetic Resonance Angiography is a proven tool for the evaluation, assessment, and follow-up of diseases of the vascular system of the upper extremity. Unlike CT Angiography (CTA), it does not use ionizing radiation and iodinated contrast. Gadolinium Contrast-Enhanced MRA (CE-MRA) is less invasive but has been shown to be equivalent to conventional angiography in evaluating diseases of many portions of the vascular system and for pretreatment planning. ¹⁻⁵
- **Criteria for Subsequent Requests:** New, worsening, or persistent clinical symptoms. Before, during, and after treatment of vascular disorders of the upper extremities.
- **Recommended Clinical Approach:** MRA of the upper extremity is typically performed without and with Gadolinium contrast. Although CE-MRA is generally preferred, non-contrast-enhanced techniques are increasingly available and may be a good option for patients with impaired renal function or who cannot tolerate gadolinium-based contrast agents. A broad spectrum of upper extremity vascular disorders can be assessed accurately using MRA of the upper extremity.
- **Exclusions:** MRI of the upper extremity, MRI and MRA of the lower extremity, MRA of the head and neck, and cardiac MRI are excluded from this document and addressed separately. MR Arthrogram is also excluded from this document.

Medical Necessity Criteria

Indications

→ **MRA Upper Extremity** is considered appropriate if **ANY** of the following is **TRUE**¹⁻¹⁷:

- ◆ If the patient has **ANY** of the following clinical presentations:
 - Presence and extent of vascular stenosis or occlusion due to **ANY** of the following:
 - Atherosclerosis
 - Vasculitis
 - Thromboembolic phenomena
 - Etiology of hemorrhage

- Mapping vascular anatomy for preprocedural planning and postprocedural surveillance of treatment
 - Presence, location, and anatomy of aneurysms and vascular malformations
 - Presence, nature, and extent of injury to vessels, including dissection
 - Vascular supply to, or involvement by, tumors
 - Presurgical assessment of vascularity that may be involved by or affected by disorders in proximity
 - Nature and extent of other congenital or acquired vascular abnormality
- ◆ If the patient has **ANY** of the following physical examination findings or diagnoses¹⁻¹⁷:
- Atherosclerotic occlusive disease and **ANY** of the following:
 - Intermittent claudication
 - Acute and chronic critical limb ischemia
 - Patients with **ANY** of the following previous interventions (postoperative):
 - ◆ Stent grafts
 - ◆ Bypass grafts
 - Congenital anomalies, including vascular malformations
 - Atheroembolism
 - Vasculitis
 - Arterial fibrodysplasia
 - Post Interventional intimal hyperplasia
 - Arterial entrapment syndromes
 - Adventitial cystic disease
 - Vascular malformations or fistulae
 - Aneurysmal disease
 - Assessment of complications of arterial bypass grafts
 - Assessment of surgically created dialysis fistulas and grafts with unenhanced MRA
 - Preoperative mapping of vascular anatomy for plastic surgery graft procedures

→ **MRV Upper Extremity** is considered appropriate if **ANY** of the following is **TRUE**¹⁻¹⁷:

- ◆ If the patient has **ANY** of the following clinical presentations:

- Presence and extent of vascular stenosis or occlusion due to **ANY** of the following:
 - Atherosclerosis
 - Vasculitis
 - Thromboembolic phenomena
 - Etiology of hemorrhage
 - Mapping vascular anatomy for preprocedural planning and postprocedural surveillance of treatment
 - Presence, location, and anatomy of aneurysms and vascular malformations
 - Presence, nature, and extent of injury to vessels, including dissection
 - Vascular supply to, or involvement by, tumors
 - Presence and extent of venous disease, including **ANY** of the following:
 - Occlusion
 - Thrombosis
 - Tumor invasion
 - Venous anatomy, including **ANY** of the following:
 - Congenital abnormalities
 - Extrinsic compression
 - Causes of intrinsic stenosis or obstruction
 - Presurgical assessment of vascularity that may be involved by or affected by disorders in proximity
 - Nature and extent of other congenital or acquired vascular abnormality
- ◆ If the patient has **ANY** of the following physical examination findings or diagnoses¹⁻¹⁷:
- Vasculitis
 - Vascular malformations or fistulae
 - Aneurysmal disease
 - Assessment of complications of arterial bypass grafts
 - Preoperative mapping of vascular anatomy for plastic surgery graft procedures
 - Venous evaluations if **ANY** of the following are **TRUE**:
 - Thrombus (central or peripheral)
 - Confirmed or suspected venous condition including **ANY** of the following:

- Effort thrombosis of the upper extremity
- Venous compression
- Venous malformation
- Venous mapping for varicose veins
- For assessment of **ANY** of the following:
- Vascular involvement with musculoskeletal tumors
- Patent vessels for venous access and mapping for surgical creation of native dialysis fistulas and grafts with unenhanced MRA
- Vein suitability as bypass conduits
- Causes of peripheral edema
 - Thrombus
 - Venous compression
 - Assessment of strictures from indwelling catheters

Non-Indications

→ **MRA Upper Extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)¹⁸
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))¹⁸
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Inpatient or Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
73225	Magnetic resonance angiography (MRA) of upper extremity with contrast material
C8934	Mra, w/dye, upper extremity

C8935	Mra, w/o dye, upper extr
C8936	Mra, w/o&w/dye, upper extr

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Magnetic Resonance Imaging (MRI), Bone Marrow, Whole Body - Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 1, 2022

Important Notices

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Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Imaging (MRI), Bone Marrow, Whole Body - Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Andrew Kompel, MD; Jonathan Kraas, MD

Literature review current through: 3/30/2022

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI) – Bone Marrow (Whole Body)

General Guidelines

- **Imaging Modality:** Whole-body MRI is a radiation-free imaging exam for detecting bone and soft tissue pathology with application in disease screening, surveillance and staging.¹ Whole-body MRI is effective in overcoming the limitations of bone scan, PET/CT, and CT for diagnosis, staging, and assessing therapeutic response for multiple neoplastic diseases, particularly for the evaluation of bone marrow malignancy.²
- **Criteria for Subsequent Requests:** Cancer screening, detection, staging, surveillance, and assessment of treatment responses
- **Recommended Clinical Approach:** Whole-body MRI is recommended in patients with known or suspected malignancies (routinely in multiple myeloma or those with cancer predisposition syndromes) after PET/CT, bone scan or CT failed to provide adequate clinical information.
- **Exclusions:** MRI Spine and other focused areas are covered in separate, anatomically segmented guidelines.

Medical Necessity Criteria

Indications

- **MRI Whole Body (Bone Marrow)** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Staging, surveillance and monitoring therapeutic responses in patients with **ANY** of the following:
 - Multiple myeloma³⁻⁴
 - Solitary bone plasmacytoma⁵
 - Prostate cancer⁶⁻⁹
 - ◆ For staging and surveillance of advanced melanoma that is stage IIC or worse¹⁰⁻¹³
 - ◆ For the evaluation of patients with **ANY** of the following:
 - Cancer patients with **ANY** of the following¹⁴:
 - Equivocal bone scan
 - Equivocal CT findings in cancer patients
 - Breast cancer patients with **ALL** of the following¹⁵:
 - Low suspicion for recurrence

- Developing arthralgia (joint pain) due to aromatase inhibitor treatment
- Invasive lobular breast cancer patients with metastatic disease in **ANY** of the following areas¹⁶:
 - Gastrointestinal organs
 - Peritoneum
 - Retroperitoneum
- ◆ Detection and staging of breast cancer during pregnancy¹⁵
- ◆ Evaluation and surveillance of lymphoma subtypes, which are not adequately imaged on FDG-PET/CT scans¹⁷⁻²¹
- ◆ Cancer screening of patients with **ANY** of the following predisposition syndromes, whether known or suspected:
 - ◆ Li-Fraumeni Syndrome²¹
 - ◆ Neurofibromatosis²²⁻²⁴

Non-Indications

- **MRI Whole Body (Bone Marrow)** may not be considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)²⁵
 - ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))²⁵
 - ◆ Neurosurgical clips
 - ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
 - ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
 - ◆ Claustrophobia

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition

77084	Magnetic resonance imaging (MRI) of bone marrow blood supply

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Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Cardiac

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Cardiac

Recommended Clinical Approach

Cardiac magnetic resonance imaging (MRI) offers exquisite anatomic detail and can also provide valuable functional information through various sequences. While not a first-line imaging modality, it proves highly useful when structural abnormalities (congenital or acquired) or functional deficiencies require further investigation of the heart and pericardial structures.

Medical Necessity Criteria

Indications

→ **Cardiac magnetic resonance imaging (MRI)** is considered appropriate if **ALL** of the following are **TRUE**:

- ◆ First-line cardiac imaging modality such as transthoracic echo is inconclusive/non-diagnostic, and further imaging is indicated for diagnostic and therapeutic purposes; **AND**
- ◆ **ANY** of the following is **TRUE**:
 - Neoplastic conditions (including masses or mass-like conditions) such as cardiac or para-cardiac mass¹; **OR**
 - Infection or an infectious disorder, including suspected infective endocarditis, myocarditis, or complications not diagnosable by other imaging modalities²; **OR**
 - Cardiovascular conditions, known or suspected, including **ANY** of the following:
 - Chest pain of suspected cardiac origin³⁻⁴; **OR**
 - Dyspnea (or other ischemic equivalent) of suspected cardiac origin⁵⁻⁶; **OR**
 - Suspected pulmonary hypertension⁷; **OR**
 - Presyncope or syncope of suspected cardiac origin⁸; **OR**
 - Intermediate to high probability of coronary artery disease⁹⁻¹⁰; **OR**
 - Cardiac valve dysfunction, stenosis, or regurgitation; **OR**

- For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Suspected hypertrophic cardiomyopathy¹¹; **OR**
 - Suspected infiltrative cardiomyopathy (e.g., amyloidosis, hemochromatosis)¹¹; **OR**
 - Suspected or confirmed new-onset heart failure^{4,12}; **OR**
- Preoperative or pre-treatment evaluation (e.g., myocardial viability assessment, before cardiac ablation procedures for arrhythmias, etc); **OR**
- Known or suspected congenital heart disease¹³; **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

→ **Cardiac magnetic resonance imaging (MRI)** is not considered appropriate 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 symptoms¹⁴; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
75557	Cardiac magnetic resonance imaging (MRI) without contrast material, for evaluation of morphology and function
75559	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, for evaluation of morphology and function
75561	Cardiac magnetic resonance imaging (MRI) without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75563	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75565	Cardiac magnetic resonance imaging (MRI) for velocity flow mapping (List separately in addition to code for primary procedure)
C9762	Cardiac magnetic resonance imaging (MRI) for morphology and function, quantification of segmental dysfunction; with strain imaging
C9763	Cardiac magnetic resonance imaging (MRI) for morphology and function, quantification of segmental dysfunction; with stress imaging
S8042	Magnetic resonance imaging (MRI), low-field

Medical Evidence

Miller et al. (2023) CMR-IMPACT (Cardiac Magnetic Resonance Imaging Strategy for the Management of Patients with Acute Chest Pain and Detectable to Elevated Troponin) trial conducted from September 2013 to July 2018 at four U.S. tertiary care hospitals. The trial involved the management of patients with acute chest pain and detectable elevated troponin levels. The 312 participants were randomized into two care pathways: invasive-based (156 participants) and CMR-based (156 participants), with adjustments permitted based on the patient's condition. The primary outcome measured was a composite of death, myocardial infarction, and cardiac-related hospital readmissions or emergency visits. The study followed 312 participants (mean age 60.6 years, 59.9% women) over a median of 2.6 years. The authors conclude no significant difference between clinical and safety outcomes. Benefits include reducing the long-term utilization of invasive angiography, positive discharge outcomes, and enhanced therapeutic yield of angiography. (Clinicaltrials.gov Identifier NCT01931852).¹⁵

Alabed et al. (2020) performed a meta-analysis concerning patient mortality due to pulmonary arterial hypertension (PAH). A total of 1938 patients in 22 studies were included. Research indicates that CMR-derived metrics for right ventricular (RV) volume and function, rather than left ventricular (LV) measurements, predict clinical deterioration. This insight is pertinent for regulatory authorities seeking clinically relevant trial endpoints. Further, this meta-analysis reaffirms the prognostic significance of CMR metrics across a large patient cohort, enabling assessment of how changes in these metrics relate to clinical outcomes such as worsening health and mortality. The authors reaffirm CMR as a useful prognostic marker in PAH among a large cohort. The study confirms that RV function, RV, and left ventricular volumes predict mortality and clinical deterioration in PAH. The study underscores the rationale for using CMR as a meaningful clinical endpoint in trials testing PAH therapies.¹⁶

Kwong et al. (2019) conducted a retrospective study to evaluate the diagnostic and prognostic value. The study enrolled 2349 patients with chest pain syndrome at 13 centers in 11 states. The median follow-up was 5.4 years. A stress CMR showing no ischemia or LGE were linked to a very low incidence of adverse cardiac events in patients with stable intermediate-risk chest pain syndromes. Subsequent cardiac testing also reduced. (Clinicaltrials.gov Identifier NCT03192891).¹⁷

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Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Chest

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Chest

Recommended Clinical Approach

Imaging analysis utilizing magnetic resonance imaging (MRI) of the chest can be performed based on clinical suspicion of disease presence or exclusion to direct value-based care. Contrast may or may not be necessary depending upon the clinical indication at the referring physician's request and the discretion of the supervising radiologist. Staging, presurgical planning, and screening are recommendations for a clinical approach.¹

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), chest** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ MR-preferred indications, including **ANY** of the following:
 - Brachial Plexus pathology, suspected due to anatomic (e.g. cervical rib) or clinical symptoms (e.g. positive EMG results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), Includes but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g. Chronic inflammatory demyelinating polyneuropathy (CIDP)), or suspected or known mass; **OR**
 - Evaluation of non-bony musculoskeletal abnormalities, congenital or acquired, such as muscle tear, tendon or cartilage injury¹; **OR**
 - Inflammatory myopathies (e.g. polymyositis); **OR**
 - Fetal lung or chest wall anomaly is needed to determine further management; **OR**
- ◆ CT is contraindicated or inconclusive, chest radiographs were inadequate for diagnosis or determination of management, and **ANY** of the following is **TRUE**:
 - Chest wall abnormalities including **ANY** of the following:
 - Anatomic abnormalities, congenital or acquired, such

- as pectus excavatum or rib abnormalities; **OR**
 - Palpable chest wall mass with non-diagnostic or indeterminate radiograph or ultrasound; **OR**
 - Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
 - Suspected or known chest wall abscess and further evaluation is needed; **OR**
- Congenital pulmonary malformations such as pulmonary sequestration, when MRA/CTA is contraindicated or cannot be done; **OR**
- Persistent lymphadenopathy for initial evaluation; **OR**
- Neoplastic conditions, Initial staging, treatment planning, response assessment, and surveillance^{3,4-5}; **OR**
- Screening for thymoma in myasthenia gravis; **OR**
- Herniation into thorax of abdominal contents including diaphragmatic hernias, and hiatal hernias; **OR**
- Hoarseness, dysphonia, and vocal cord weakness/paralysis after laryngoscopy completed with **ANY** of the following:
 - Findings suggest recurrent laryngeal nerve dysfunction; **OR**
 - Suspicious lesion identified and needs further evaluation; **OR**
 - Symptoms persisting longer than 1 month which are unexplained by laryngoscopy; **OR**
- Preoperative, postoperative, and pre-treatment evaluation for procedure, surgery, radiation, or chemotherapy; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**

- The requirement for interval reassessment, which may alter the treatment plan; **OR**
- One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
- The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance imaging (MRI), chest** may not be considered appropriate 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; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
71550	Magnetic resonance imaging (MRI) (e.g., proton), chest; without contrast material(s)
71551	Magnetic resonance imaging (MRI) (e.g., proton), chest; with contrast material(s)
71552	Magnetic resonance imaging (MRI) (e.g., proton), chest

	(e.g., for evaluation of hilar and mediastinal lymphadenopathy); with contrast material(s), followed by contrast material(s) and further sequences
C9791	Magnetic resonance imaging with inhaled hyperpolarized xenon-129 contrast agent, chest, including preparation and administration of agent

Medical Evidence

Archer et al. (2023) reviewed the utilization of cross-sectional imaging techniques such as computed tomography (CT) or magnetic resonance imaging (MRI) is essential for assessing mediastinal pathologies. Precisely localizing lesions within specific compartments and analyzing their morphology, density/intensity, enhancement patterns, and any mass effect on adjacent structures can significantly aid in narrowing down diagnostic possibilities. While CT is readily available and fast, MRI does not use radiation and can delineate soft tissue contrasts. Precise imaging allows for identifying masses across tissue planes (e.g., chest wall, diaphragm) and the involvement of neurovascular structures. MRI also provides dynamic sequences that enable the assessment of mass motion relative to neighboring structures during free-breathing or cinematic cardiac gating. Finally, MRI can distinguish between cystic and solid lesions and detect fat, which aids in differentiating thymic hyperplasia from thymic malignancy.¹²

Cavanna et al. (2022) conducted a literature review on thoracic outlet syndrome (TOS). Plain chest and cervical region radiographs often exclude anatomical anomalies and structural irregularities (e.g., cervical ribs, clavicular fracture malunion, elongated transverse processes, or thoracic cavity tumors). Conditions such as compressive effects on the brachial plexus need imaging beyond ultrasound, which may overlook regional pathologies (e.g., Pancoast tumor, cervical spondylopathy). Non-contrast MRI may help diagnose neurogenic TOS (nTOS). However, MR or CT angiography is preferred for confirming venous or arterial TOS.¹³

Bueno et al. (2018) reviewed MR imaging of primary chest wall neoplasms, representing a rare and diverse array of lesions. MR imaging allows detailed insights into tissue composition, disease extent, and the integrity of surrounding structures. Utilization of this modality has increased due to its superior contrast resolution versus CT scans, which are free of radiation. MR imaging allows clinicians to distinguish tumors, identify infectious and inflammatory conditions, and visualize internal components (e.g., fat, fluid, soft tissue, vascularity post-intravenous contrast administration).¹⁴

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Magnetic Resonance Imaging (MRI), Chest – Single Service

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Chest

General Guidelines

- **Imaging Modality:** MRI Chest (with or without gadolinium contrast). Considerations of an additional protocol, dynamic sequences, positioning of the patient, and use of skin markers are at the discretion of the protocoling Radiologist.
- **Criteria for Subsequent Requests:** Subsequent requests may be appropriate for assessment of response to therapy in the case of new, worsening, or persistent clinical symptoms or concern for extension of disease from elsewhere in the body (e.g., neoplasm).
- **Recommended Clinical Approach:** Imaging analysis utilizing MRI of the chest can be performed based on clinical suspicion of disease presence or exclusion to direct value-based care. Contrast may or may not be necessary depending upon the clinical indication at the referring physician's request and the discretion of the supervising radiologist. Staging, presurgical planning, and screening are also recommendations for a clinical approach.
- **Exclusions:** Cardiac MR and MRA Chest are covered under separate document guidelines.

Medical Necessity Criteria

Indications

- **MRI Chest** is considered appropriate if **ANY** of the following is **TRUE**¹⁻³⁴:
- ◆ Lung, airway, and respiratory illness evaluation and **ALL** of the following:
 - Patient is immunocompetent or immunocompromised
 - Radiograph or CT evaluation used for initial evaluation¹
 - ◆ Chronic dyspnea¹
 - ◆ Imaging of mediastinal mass²⁻¹⁶
 - ◆ Noninvasive staging of cancer¹⁷⁻²¹
 - ◆ Occupational lung Disease²²⁻²⁶
 - ◆ Disease of the pleura, chest wall and intercostal spaces²⁷⁻²⁹
 - ◆ Disease of the diaphragm³⁰⁻³¹
 - ◆ To display lymph nodes and blood vessels (including vascular and lymphatic malformations of the chest)

- ◆ Mass involving the brachial plexus or neurologic symptoms/EMG findings indicating brachial plexopathy
- ◆ Clinical concern for thoracic outlet syndrome
- ◆ Muscle strain/tear (e.g., pectoralis major)

Non-Indications

→ **MRI Chest** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)³⁵
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))³⁵
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
71550	Magnetic resonance imaging (MRI) of chest without contrast material
71551	Magnetic resonance imaging (MRI) of chest with contrast material
71552	Magnetic resonance imaging (MRI) of chest with contrast material, including noncontrast images and image postprocessing, for evaluation of hilar and mediastinal lymphadenopathy

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Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Date of last literature review: 8/8/2024

Document last updated: 10/30/2024

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

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Medical Necessity Criteria

Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various healthy and diseased tissues, owing to differences in their magnetic relaxation properties.¹ Because of the complex anatomy of the neck, orbit, and face, and the many available imaging choices, clear communication of the patient's symptoms and physical exam findings by the referring clinician to the interpreting radiologists is most critical in choosing the best imaging exam to address the patient's problem.

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), neck/orbit/face** is considered appropriate if **ANY** of the following is **TRUE**:

◆ **ANY** of the following orbital indications:

- Trauma-related conditions, including traumatic visual defect with suspected orbital injury²; **OR**
- Trauma that is not related to the cervical spine; **OR**
- **ANY** of the following conditions, known or suspected:
 - Congenital conditions (e.g. capillary hemangioma, optic nerve hypoplasia); **OR**
 - Neoplastic conditions, benign or malignant, detection, and follow-up (e.g., dermoid, lymphoma, metastases)²⁻³; **OR**
 - Orbital pseudotumor or orbital inflammatory disease; **OR**
 - Osseous lesions (e.g., fibrodysplasia, Paget's), when CT is completed or contraindicated and further evaluation is needed; **OR**

- Foreign body, suspected clinically or seen on prior imaging when CT is completed or contraindicated and further evaluation is needed; **OR**
- Orbital infectious process, suspected or known, and **ANY** of the following is **TRUE**:
 - ◆ Medical management has failed (e.g., orbital cellulitis not responding appropriately to antibiotics); **OR**
 - ◆ The patient is pediatric; **OR**
 - ◆ The patient is immunocompromised; **OR**
- Optic nerve inflammation is suspected, including optic neuritis; **OR**
- Scleritis confirmed clinically with failure of medical management or with complication suspected⁴; **OR**
- Uveitis, confirmed clinically with complication suspected; **OR**
- Thyroid orbitopathy⁵; **OR**
- Venous conditions such as orbital varices; **OR**
- Additional evaluation is needed when etiology remains unclear following a complete eye examination that includes funduscopy, including **ANY** of the following:
 - Diplopia; **OR**
 - Enophthalmos; **OR**
 - Exophthalmos; **OR**
 - Eye pain, with history or other signs or symptoms indicating non-ischemic pathology; **OR**
 - Orbital asymmetry; **OR**
 - Preseptal or post-septal orbital mass, otherwise unexplained; **OR**
 - Ophthalmoplegia; **OR**
 - Eye movement abnormality in a child (e.g., strabismus or nystagmus in a child 6 months or older); **OR**
 - Proptosis; **OR**
 - Unilateral papilledema; **OR**
 - Orbital hemorrhage, when the underlying lesion is suspected, and CT has been completed; **OR**

- Vision loss or visual field deficit with history or other signs/symptoms indicating non-ischemic intra-orbital pathology; **OR**
- Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy; **OR**
- ◆ Temporal bone and inner ear indications including **ANY** of the following:
 - MRI-preferred indications, including **ANY** of the following:
 - Cholesteatoma, initial, and 9 to 12-month postoperative follow-up; **OR**
 - Sensorineural hearing loss, acquired or congenital; **OR**
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Tinnitus, unexplained by history or physical examination, and is worsening or affects daily function; **OR**
 - CT is contraindicated or already performed, and further evaluation is needed, including **ANY** of the following:
 - **ANY** of the following conditions, known or suspected⁶:
 - ◆ Neoplastic conditions, detection, and follow-up (including tumors of the internal or external auditory canal, inner ear, and mastoid); **OR**
 - ◆ Otitis media, recurrent with at least 3 episodes in the past 12 months, with complications suspected (e.g., hearing loss, intracranial extension, mastoiditis); **OR**
 - ◆ Malignant otitis externa, unresponsive to antibiotics; **OR**
 - ◆ Mastoiditis; **OR**
 - ◆ Other infectious processes involving the middle or inner ear, where imaging is needed to direct appropriate management; **OR**
 - Symptoms/signs, evaluated by complete auditory examination including **ANY** of the following⁶:
 - ◆ Conductive, mixed-conductive, or congenital hearing loss; **OR**
 - ◆ Total deafness, otherwise unexplained; **OR**

- ◆ Vertigo, unexplained by history or physical examination with **ANY** of the following:
 - Worsening symptoms; **OR**
 - Affects daily function; **OR**
 - Associated hearing loss or other neurological deficits; **OR**
 - History of prior infection such as otitis or meningitis; **OR**
 - History of prior trauma; **OR**
 - Trauma-related conditions related to the ear, further evaluation after CT completed⁷⁻⁹; **OR**
 - Vascular conditions, known or suspected, related to the ear or temporal bone including evaluation of pulsatile tinnitus¹⁰; **OR**
 - Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy (including evaluation for cochlear implant); **OR**
- ◆ Face/paranasal sinus indications, including **ANY** of the following:
 - **ANY** of the following MR-preferred indications:
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Trigeminal neuralgia with **ANY** of the following¹¹:
 - ◆ Atypical trigeminal neuralgia, defined by **ANY** of the following symptoms:
 - Bilateral hearing loss; **OR**
 - Dizziness/vertigo; **OR**
 - Visual changes; **OR**
 - Sensory loss or numbness; **OR**
 - Pain greater than 2 minutes; **OR**
 - Pain outside trigeminal nerve distribution and progression; **OR**
 - ◆ Refractory trigeminal neuralgia when done for surgical planning; **OR**
 - Conditions (known or suspected), with CT either contraindicated or already performed, and further evaluation is needed for **ANY** of the following⁶:
 - Anatomic abnormalities (e.g. deviated septum), suspected as a cause of patient symptoms and

- surgical management is being considered; **OR**
- Congenital conditions and craniofacial abnormalities¹; **OR**
 - Sinusitis when, if infective, and **ANY** of the following is **TRUE**^{1,12-14}:
 - ◆ Four or more acute episodes per year and surgery/biologic therapy are contemplated; **OR**
 - ◆ Not resolving despite 2 courses of antibiotics; **OR**
 - ◆ A complication is suspected (e.g., abscess formation, involvement of adjacent structures such as orbits, cavernous sinus, or intracranial); **OR**
 - ◆ The patient is immunocompromised, and invasive fungal sinusitis is suspected; **OR**
 - ◆ Allergic fungal sinusitis (AFS) suspected, with failed medical treatment or surgery is contemplated; **OR**
 - ◆ Chronic rhinosinusitis, symptomatic (discharge, congestion, anosmia, pain), severity staging or restaging when management change is contemplated; **OR**
 - Osteomyelitis; **OR**
 - Odontogenic infections with suspected complications (e.g., abscess formation, facial swelling, nerve, sinus involvement); **OR**
 - Unexplained facial swelling (e.g., over the mandible); **OR**
 - Foreign body (suspected), clinically or seen on prior imaging; **OR**
 - Neoplastic conditions for initial staging, treatment planning, response assessment, and surveillance; **OR**
 - Lymphadenopathy with failure of conservative management (e.g., rest, antibiotics, anti-inflammatory, analgesics) that is documented for a period of greater than two weeks for reactive adenopathy; **OR**
 - Sinonasal polyposis detected on nasal endoscopy with **ALL** of the following^{12,15}:

- ◆ The patient is symptomatic; **AND**
- ◆ No relief with appropriate medical therapy such as systemic corticosteroids, antihistamines, and antibiotics; **AND**
- ◆ Surgical intervention or biologic therapy is being contemplated; **OR**
- Known sinonasal polyposis with complications suspected, such as involvement of the orbits; **OR**
- Non-infectious inflammatory involvement of the sinus is suspected based on clinical history and symptoms, such as a history of granulomatosis with polyangiitis¹; **OR**
- Salivary gland disorder (e.g. chronic unexplained xerostoma, autoimmune involvement, palpable mass, or salivary duct evaluation via MR sialography); **OR**
- Vascular malformations such as arteriovenous malformations^{1,10}; **OR**
- For evaluation of **ANY** of the following symptoms when applicable:
 - Anosmia with **ANY** of the following¹⁶:
 - ◆ Persistent anosmia with nondiagnostic endoscopy; **OR**
 - ◆ Abnormal endoscopy with further evaluation needed; **OR**
 - ◆ Known or suspected neoplasm; **OR**
 - ◆ History of head or facial trauma; **OR**
 - Cerebrospinal fluid (CSF) leak (MR cisternography), confirmed on testing or strong clinical history such as prior trauma or CSF leak that increases after Valsalva maneuvers, further evaluation after CT is completed¹²; **OR**
 - Epistaxis with failure of conservative management (e.g., nasal packing/tampon, cautery, etc) **OR**
 - Epistaxis with detection of mass, polyp, or other pathology on examination that requires further evaluation¹; **OR**
- ◆ Neck indications, including **ANY** of the following:
 - Initial staging, treatment assessment, and surveillance of known malignant conditions in the neck not otherwise listed

(e.g., nasopharynx, oropharynx, hypopharynx, larynx, salivary glands, jaw, oral cavity); **OR**

- Thyroid masses or goiter when ultrasound is non-diagnostic or requires further work-up; **OR**
- Lymphadenopathy or palpable mass, when **ANY** of the following is **TRUE**¹⁷:
 - Unlikely to be due to infection (non-mobile, firm, greater than 1.5cm, or history of cancer); **OR**
 - Ultrasound was suspicious for malignancy; **OR**
 - Not resolving despite at least 2 weeks of conservative management (watchful waiting, antibiotics, etc.); **OR**
 - Overlying skin changes present, such as ulceration **OR**
 - Lymphadenopathy in a patient older than 50 years; **OR**
 - Mass or lesion detected on laryngoscopy; **OR**
- Assessment of signs and symptoms, including **ANY** of the following:
 - Odynophagia; **OR**
 - Globus sensation or dysphagia when clinical examination, including endoscopy and fluoroscopy, are negative or require further evaluation; **OR**
 - Vocal cord paralysis; **OR**
 - Neck pain that is not related to cervical spine or dissection and has not resolved with conservative treatment (e.g., rest and analgesics) that is documented for a period of greater than 4 weeks; **OR**
 - Cranial neuropathy of cranial nerves (CN) 9–11; **OR**
 - Brachial plexus pathology, suspected due to anatomic (e.g. cervical rib) or clinical symptoms (e.g., positive EMG results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), Includes but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g, chronic inflammatory demyelinating polyneuropathy [CIDP], or suspected or known mass); **OR**
 - Ear pain unexplained by ENT evaluation and a trial of conservative therapy (e.g., topical and systemic antibiotics, ear drops); **OR**

- Infectious conditions (e.g., tonsillitis, epiglottitis, cellulitis, etc.) when **ANY** of the following is **TRUE**:
 - Suspected compromise of the airway; **OR**
 - Surgery is planned; **OR**
 - Not improving with appropriate therapy; **OR**
 - Retropharyngeal abscess suspected; **OR**
 - Ludwig's angina, suspected; **OR**
- Localization of parathyroid adenoma when lab tests indicate primary hyperparathyroidism and neck ultrasound and Sestamibi scan (nuclear medicine scan) are normal or nondiagnostic¹⁸; **OR**
- Presurgical evaluation, planning, or guidance, including radiation planning; **OR**
- Foreign body when initial radiographs and CT are non-diagnostic, unavailable, or contraindicated; **OR**
- Suspected extracapsular spread of a tumor into the surrounding neck structures; **OR**
- Suspected recurrent thyroid cancer or rising thyroglobulin, with negative ultrasound and physical exams to detect occult neck nodes⁵; **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

- **Magnetic resonance imaging (MRI), neck/orbit/face** may not be considered appropriate 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 symptoms¹⁹; **OR**
 - ◆ If contrast is used, history of anaphylactic allergic reaction to

gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**

- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70540	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s)
70542	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; with contrast material(s)
70543	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s) and further sequences

Medical Evidence

Saltagi et al. (2021) reviewed spontaneous intracranial hypotension (SIH). The condition manifests as decreased cerebrospinal fluid (CSF) volume due to leakage through a dural defect, occurring without a discernible underlying cause. Magnetic resonance imaging (MRI) is a preferred initial, non-invasive diagnostic tool (with and without gadolinium contrast enhancement). Spinal MRI or CT myelography is useful for extradural fluid collection to identify a 'fast' leak; a dynamic CT myelogram or digital subtraction myelogram can locate the precise leak. Spine MRI may reveal secondary findings indicative of SIH, such as dural thickening, enhancement, or engorgement of the epidural venous plexus.²⁰

Bond et al. (2020) present a review of the diagnostic evaluation of anosmia and hyposmia, including etiology (e.g., trauma, chronic sinusitis, neoplasms, respiratory viral infections). Smell tests primarily diagnose the conditions; however, MRI is often widely used. Functional MRI can diagnose suspected post-traumatic abnormalities.²¹

Nael et al. (2015) conducted a study to identify distinctive MR perfusion patterns (PTAs) to allow differentiation from neighboring thyroid tissue and cervical lymph nodes, which may exhibit similar imaging characteristics. Utilizing dynamic 4D contrast-enhanced MR imaging enables the exploitation of the hypervascular features of PTAs. Multiparametric MR perfusion analysis demonstrates a diagnostic accuracy of 96% in distinguishing PTAs from adjacent thyroid tissue or lymph nodes.²²

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Clinical Guideline Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: August 29, 2024

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Date of last literature review: 8/8/2024

Document last updated: 8/29/2024

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

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Medical Necessity Criteria

Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various healthy and diseased tissues, owing to differences in their magnetic relaxation properties.¹ Because of the complex anatomy of the neck, orbit, and face, and the many available imaging choices, clear communication of the patient's symptoms and physical exam findings by the referring clinician to the interpreting radiologists is most critical in choosing the best imaging exam to address the patient's problem.

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), neck/orbit/face** is considered appropriate if **ANY** of the following is **TRUE**:

◆ **ANY** of the following orbital indications:

- Trauma-related conditions, including traumatic visual defect with suspected orbital injury²; **OR**
- Trauma that is not related to the cervical spine; **OR**
- **ANY** of the following conditions, known or suspected:
 - Congenital conditions (e.g. capillary hemangioma, optic nerve hypoplasia); **OR**
 - Neoplastic conditions, benign or malignant, detection, and follow-up (e.g., dermoid, lymphoma, metastases)²⁻³; **OR**
 - Orbital pseudotumor or orbital inflammatory disease; **OR**
 - Osseous lesions (e.g., fibrodysplasia, Paget's), when CT is completed or contraindicated and further evaluation is needed; **OR**

- Foreign body, suspected clinically or seen on prior imaging when CT is completed or contraindicated and further evaluation is needed; **OR**
- Orbital infectious process, suspected or known, and **ANY** of the following is **TRUE**:
 - ◆ Medical management has failed (e.g., orbital cellulitis not responding appropriately to antibiotics); **OR**
 - ◆ The patient is pediatric; **OR**
 - ◆ The patient is immunocompromised; **OR**
- Optic nerve inflammation is suspected, including optic neuritis; **OR**
- Scleritis confirmed clinically with failure of medical management or with complication suspected⁴; **OR**
- Uveitis, confirmed clinically with complication suspected; **OR**
- Thyroid orbitopathy⁵; **OR**
- Venous conditions such as orbital varices; **OR**
- Additional evaluation is needed when etiology remains unclear following a complete eye examination that includes funduscopy, including **ANY** of the following:
 - Diplopia; **OR**
 - Enophthalmos; **OR**
 - Exophthalmos; **OR**
 - Eye pain, with history or other signs or symptoms indicating non-ischemic pathology; **OR**
 - Orbital asymmetry; **OR**
 - Preseptal or post-septal orbital mass, otherwise unexplained; **OR**
 - Ophthalmoplegia; **OR**
 - Eye movement abnormality in a child (e.g., strabismus or nystagmus in a child 6 months or older); **OR**
 - Proptosis; **OR**
 - Unilateral papilledema; **OR**
 - Orbital hemorrhage, when the underlying lesion is suspected, and CT has been completed; **OR**

- Vision loss or visual field deficit with history or other signs/symptoms indicating non-ischemic intra-orbital pathology; **OR**
- Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy; **OR**
- ◆ Temporal bone and inner ear indications including **ANY** of the following:
 - MRI-preferred indications, including **ANY** of the following:
 - Cholesteatoma, initial, and 9 to 12-month postoperative follow-up; **OR**
 - Sensorineural hearing loss, acquired or congenital; **OR**
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Tinnitus, unexplained by history or physical examination, and is worsening or affects daily function; **OR**
 - CT is contraindicated or already performed, and further evaluation is needed, including **ANY** of the following:
 - **ANY** of the following conditions, known or suspected⁶:
 - ◆ Neoplastic conditions, detection, and follow-up (including tumors of the internal or external auditory canal, inner ear, and mastoid); **OR**
 - ◆ Otitis media, recurrent with at least 3 episodes in the past 12 months, with complications suspected (e.g., hearing loss, intracranial extension, mastoiditis); **OR**
 - ◆ Malignant otitis externa, unresponsive to antibiotics; **OR**
 - ◆ Mastoiditis; **OR**
 - ◆ Other infectious processes involving the middle or inner ear, where imaging is needed to direct appropriate management; **OR**
 - Symptoms/signs, evaluated by complete auditory examination including **ANY** of the following⁶:
 - ◆ Conductive, mixed-conductive, or congenital hearing loss; **OR**
 - ◆ Total deafness, otherwise unexplained; **OR**

- ◆ Vertigo, unexplained by history or physical examination with **ANY** of the following:
 - Worsening symptoms; **OR**
 - Affects daily function; **OR**
 - Associated hearing loss or other neurological deficits; **OR**
 - History of prior infection such as otitis or meningitis; **OR**
 - History of prior trauma; **OR**
 - Trauma-related conditions related to the ear, further evaluation after CT completed⁷⁻⁹; **OR**
 - Vascular conditions, known or suspected, related to the ear or temporal bone including evaluation of pulsatile tinnitus¹⁰; **OR**
 - Preoperative, postoperative, or pre-treatment evaluation for surgery, radiation, or chemotherapy (including evaluation for cochlear implant); **OR**
- ◆ Face/paranasal sinus indications, including **ANY** of the following:
 - **ANY** of the following MR-preferred indications:
 - Bell's palsy or other facial nerve abnormalities requiring evaluation of the extracranial portion of the nerve; **OR**
 - Trigeminal neuralgia with **ANY** of the following¹¹:
 - ◆ Atypical trigeminal neuralgia, defined by **ANY** of the following symptoms:
 - Bilateral hearing loss; **OR**
 - Dizziness/vertigo; **OR**
 - Visual changes; **OR**
 - Sensory loss or numbness; **OR**
 - Pain greater than 2 minutes; **OR**
 - Pain outside trigeminal nerve distribution and progression; **OR**
 - ◆ Refractory trigeminal neuralgia when done for surgical planning; **OR**
 - Conditions (known or suspected), with CT either contraindicated or already performed, and further evaluation is needed for **ANY** of the following⁶:
 - Anatomic abnormalities (e.g. deviated septum), suspected as a cause of patient symptoms and

- surgical management is being considered; **OR**
- Congenital conditions and craniofacial abnormalities¹; **OR**
 - Sinusitis when, if infective, and **ANY** of the following is **TRUE**^{1,12-14}:
 - ◆ Four or more acute episodes per year and surgery/biologic therapy are contemplated; **OR**
 - ◆ Not resolving despite 2 courses of antibiotics; **OR**
 - ◆ A complication is suspected (e.g., abscess formation, involvement of adjacent structures such as orbits, cavernous sinus, or intracranial); **OR**
 - ◆ The patient is immunocompromised, and invasive fungal sinusitis is suspected; **OR**
 - ◆ Allergic fungal sinusitis (AFS) suspected, with failed medical treatment or surgery is contemplated; **OR**
 - ◆ Chronic rhinosinusitis, symptomatic (discharge, congestion, anosmia, pain), severity staging or restaging when management change is contemplated; **OR**
 - Osteomyelitis; **OR**
 - Odontogenic infections with suspected complications (e.g., abscess formation, facial swelling, nerve, sinus involvement); **OR**
 - Unexplained facial swelling (e.g., over the mandible); **OR**
 - Foreign body (suspected), clinically or seen on prior imaging; **OR**
 - Neoplastic conditions for initial staging, treatment planning, response assessment, and surveillance; **OR**
 - Lymphadenopathy with failure of conservative management (e.g., rest, antibiotics, anti-inflammatory, analgesics) that is documented for a period of greater than two weeks for reactive adenopathy; **OR**
 - Sinonasal polyposis detected on nasal endoscopy with **ALL** of the following^{12,15}:

- ◆ The patient is symptomatic; **AND**
- ◆ No relief with appropriate medical therapy such as systemic corticosteroids, antihistamines, and antibiotics; **AND**
- ◆ Surgical intervention or biologic therapy is being contemplated; **OR**
- Known sinonasal polyposis with complications suspected, such as involvement of the orbits; **OR**
- Non-infectious inflammatory involvement of the sinus is suspected based on clinical history and symptoms, such as a history of granulomatosis with polyangiitis¹; **OR**
- Salivary gland disorder (e.g. chronic unexplained xerostoma, autoimmune involvement, palpable mass, or salivary duct evaluation via MR sialography); **OR**
- Vascular malformations such as arteriovenous malformations^{1,10}; **OR**
- For evaluation of **ANY** of the following symptoms when applicable:
 - Anosmia with **ANY** of the following¹⁶:
 - ◆ Persistent anosmia with nondiagnostic endoscopy; **OR**
 - ◆ Abnormal endoscopy with further evaluation needed; **OR**
 - ◆ Known or suspected neoplasm; **OR**
 - ◆ History of head or facial trauma; **OR**
 - Cerebrospinal fluid (CSF) leak (MR cisternography), confirmed on testing or strong clinical history such as prior trauma or CSF leak that increases after Valsalva maneuvers, further evaluation after CT is completed¹²; **OR**
 - Epistaxis with failure of conservative management (e.g., nasal packing/tampon, cautery, etc) **OR**
 - Epistaxis with detection of mass, polyp, or other pathology on examination that requires further evaluation¹; **OR**
- ◆ Neck indications, including **ANY** of the following:
 - Initial staging, treatment assessment, and surveillance of known malignant conditions in the neck not otherwise listed

(e.g., nasopharynx, oropharynx, hypopharynx, larynx, salivary glands, jaw, oral cavity); **OR**

- Thyroid masses or goiter when ultrasound is non-diagnostic or requires further work-up; **OR**
- Lymphadenopathy or palpable mass, when **ANY** of the following is **TRUE**¹⁷:
 - Unlikely to be due to infection (non-mobile, firm, greater than 1.5cm, or history of cancer); **OR**
 - Ultrasound was suspicious for malignancy; **OR**
 - Not resolving despite at least 2 weeks of conservative management (watchful waiting, antibiotics, etc.); **OR**
 - Overlying skin changes present, such as ulceration **OR**
 - Lymphadenopathy in a patient older than 50 years; **OR**
 - Mass or lesion detected on laryngoscopy; **OR**
- Assessment of signs and symptoms, including **ANY** of the following:
 - Odynophagia; **OR**
 - Globus sensation or dysphagia when clinical examination, including endoscopy and fluoroscopy, are negative or require further evaluation; **OR**
 - Vocal cord paralysis; **OR**
 - Neck pain that is not related to cervical spine or dissection and has not resolved with conservative treatment (e.g., rest and analgesics) that is documented for a period of greater than 4 weeks; **OR**
 - Cranial neuropathy of cranial nerves (CN) 9–11; **OR**
 - Brachial plexus pathology, suspected due to anatomic (e.g. cervical rib) or clinical symptoms (e.g., positive EMG results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), Includes but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g, chronic inflammatory demyelinating polyneuropathy [CIDP], or suspected or known mass); **OR**
 - Ear pain unexplained by ENT evaluation and a trial of conservative therapy (e.g., topical and systemic antibiotics, ear drops); **OR**

- Infectious conditions (e.g., tonsillitis, epiglottitis, cellulitis, etc.) when **ANY** of the following is **TRUE**:
 - Suspected compromise of the airway; **OR**
 - Surgery is planned; **OR**
 - Not improving with appropriate therapy; **OR**
 - Retropharyngeal abscess suspected; **OR**
 - Ludwig's angina, suspected; **OR**
- Localization of parathyroid adenoma when lab tests indicate primary hyperparathyroidism and neck ultrasound and Sestamibi scan (nuclear medicine scan) are normal or nondiagnostic¹⁸; **OR**
- Presurgical evaluation, planning, or guidance, including radiation planning; **OR**
- Foreign body when initial radiographs and CT are non-diagnostic, unavailable, or contraindicated; **OR**
- Suspected extracapsular spread of a tumor into the surrounding neck structures; **OR**
- Suspected recurrent thyroid cancer or rising thyroglobulin, with negative ultrasound and physical exams to detect occult neck nodes⁵; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following are **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance imaging (MRI), neck/orbit/face** may not be considered appropriate 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; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
70540	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s)
70542	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; with contrast material(s)
70543	Magnetic resonance imaging (MRI) (e.g., proton); orbit, face and/or neck; without contrast material(s) and further sequences

Medical Evidence

Saltagi et al. (2021) reviewed spontaneous intracranial hypotension (SIH). The condition manifests as decreased cerebrospinal fluid (CSF) volume due to leakage through a dural defect, occurring without a discernible underlying cause. Magnetic resonance imaging (MRI) is a preferred initial, non-invasive diagnostic tool (with and without gadolinium contrast enhancement). Spinal MRI or CT myelography is useful for extradural fluid collection to identify a 'fast' leak; a dynamic CT myelogram or digital subtraction myelogram can locate the precise leak. Spine MRI may reveal secondary findings indicative of SIH, such as dural thickening, enhancement, or engorgement of the epidural venous plexus.¹⁹

Bond et al. (2020) present a review of the diagnostic evaluation of anosmia and hyposmia, including etiology (e.g., trauma, chronic sinusitis, neoplasms, respiratory viral infections). Smell tests primarily diagnose the conditions; however, MRI is often widely used. Functional MRI can diagnose suspected post-traumatic abnormalities.²⁰

Nael et al. (2015) conducted a study to identify distinctive MR perfusion patterns (PTAs) to allow differentiation from neighboring thyroid tissue and cervical lymph nodes, which may exhibit similar imaging characteristics. Utilizing dynamic 4D contrast-enhanced MR imaging enables the exploitation of the hypervascular features of PTAs. Multiparametric MR perfusion analysis demonstrates a diagnostic accuracy of 96% in distinguishing PTAs from adjacent thyroid tissue or lymph nodes.²¹

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Version 2	8/29/2024	Annual review and policy restructure.



Magnetic Resonance Imaging (MRI), Neck/Orbit/Face – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 1, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not Applicable

Care Path Name: Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

Physician author: Cindy Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Neck/Orbit/Face

General Guidelines

- **Imaging Modality:** Magnetic Resonance Imaging (MRI) of the neck, orbit, and face.
- **Recommended Imaging Modality:** MRI of the neck, orbit, and face are a proven and useful tool for the diagnosis, evaluation, and follow-up of diseases of the neck, orbit, and face. Benefits of MRI over CT include the absence of radiation, the ability to image patients with iodinated contrast allergy, and improved soft tissue characterization.¹
- **Criteria for Subsequent Requests:** MRI is useful for treatment planning, treatment response assessment, end-of-treatment assessment, re-staging, and surveillance.
- **Recommended Clinical Approach:** Because of the complex anatomy of the neck, orbit, and face, and the many available imaging choices, clear communication of the patient's symptoms and physical exam findings by the referring clinician to the interpreting radiologists is most critical in choosing the best imaging exam to address the patient's problem.
- **Exclusions:** MRI of the brain, MRI temporomandibular joints (TMJ), MRA head, and MRA neck are excluded and addressed in separate guideline documents. This document also excludes information for the pediatric population.

Medical Necessity Criteria

Indications

- **MRI Neck/Orbit/Face** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ The MRI is for imaging of the face and **ANY** of the following is **TRUE**:

- The MRI is focused on the paranasal sinuses and nasal cavity and **ANY** of the following is **TRUE**²⁻⁸:
 - Inflammatory sinus disease
 - Neoplastic sinus disease²⁻⁴
 - Orbital, skull base, and intracranial extension⁵
 - Acute rhinosinusitis (greater than 4 weeks) with suspected orbital or intracranial complications⁸
 - Sinonasal obstruction⁸
 - Suspected mass⁸
 - Suspected fungal infection, invasive fungal sinusitis, or osteomyelitis⁸
- The MRI is focused on a face mass and **ANY** of the following is **TRUE**⁹:
 - Clinical concern for abscess or tumor
 - Prior history of tumor with suspected recurrence
 - Other imaging modalities are inconclusive
- The MRI is to assess facial trauma and **ANY** of the following is **TRUE**:
 - Suspected orbital trauma with inconclusive other imaging
 - Suspected cerebrospinal fluid leak (rhinorrhea or otorrhea)
 - Other imaging modalities are inconclusive
- The MRI is focused on the temporal bone and **ANY** of the following is **TRUE**:
 - For evaluating the non-bony components of the temporal bone region
 - For evaluation of sensorineural hearing loss and cranial nerve dysfunction¹⁰⁻¹¹
 - For evaluation of mixed conductive and sensorineural hearing loss

- For a cochlear implant candidate
- To determine if temporal bone pathology involves the intracranial structures
- ◆ The MRI is for imaging of the orbits and **ANY** of the following is **TRUE**¹³⁻¹⁵:
 - The patient has **ANY** of the following clinical presentations¹³:
 - Exophthalmos (proptosis), enophthalmos, orbital asymmetry
 - Unilateral papilledema
 - Ophthalmoplegia, diplopia
 - Optic neuritis
 - Visual field defect, visual loss
 - Ocular tumor
 - Orbital trauma with physical findings of **ANY** of the following:
 - Direct eye injury
 - Suspected trauma with indeterminate radiograph or ultrasound¹³
 - Clinical suspicion of infection or osteomyelitis¹³
- ◆ The MRI is for imaging of the neck and **ANY** of the following is **TRUE**:
 - There is a known tumor of skull base, orbits, sinuses, tongue, larynx, nasopharynx, pharynx or salivary glands and the MRI has been ordered for **ANY** of the following reasons¹²:
 - Initial staging
 - Treatment planning
 - Treatment response assessment
 - Restaging after during treatment
 - Suspected recurrence or metastases (new mass or change in lymph nodes)
 - Anosmia

- Trigeminal neuralgia
- Cranial nerve palsy (weakness or sensory abnormalities of the head and neck)
- Wegener's granulomatosis
- The patient is receiving an MRI of the suprahyoid neck (includes the skull base, nasopharynx, oral cavity and oropharynx¹⁶⁻¹⁷) and has **ANY** of the following clinical presentations:
 - Salivary gland stones or abscess
 - Vocal cord lesions or vocal cord paralysis
 - Brachial plexus dysfunction with suspected neck mass
 - Non-thyroid neck mass remains non-diagnostic after radiograph or ultrasound
- The patient is receiving an MRI of the infrahyoid neck and has **ANY** of the following¹⁸⁻¹⁹:
 - The MRI is for a suspected or confirmed neoplasm of the infrahyoid neck and **ANY** of the following are needed:
 - ◆ Initial staging
 - ◆ Treatment planning
 - ◆ Treatment response
 - ◆ Restaging
 - ◆ Recurrence
- If the patient is receiving an MRI of the thyroid and parathyroid and has **ANY** of the following:
 - Palpable neck lymphadenopathy to aid in planning of surgical neck dissection²¹
 - Suspected extracapsular spread of tumor into the surrounding neck structures²²

- Initial evaluation of a mass in the thyroid area of uncertain etiology²²
- Suspected recurrent thyroid cancer or rising thyroglobulin, with negative ultrasound and physical exams to detect occult neck nodes²³
- Evaluation of patient with primary hyperparathyroidism after inconclusive neck ultrasound and nuclear medicine scan²⁴⁻²⁵

Non-Indications

→ **MRI Neck/Orbit/Face** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Personal/family history of allergic reaction to gadolinium contrast media (e.g., anaphylaxis)²⁶
- ◆ Chronic kidney disease or acute kidney injury (glomerular filtration rate less than 30 mL/min/1.73m² (or 0.5 mL/sec/1.73m²))²⁶
- ◆ Neurosurgical clips
- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves.
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern
- ◆ Claustrophobia

Site of Service Criteria

Outpatient or Inpatient

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70540	Magnetic resonance imaging (MRI) of face and neck

	without contrast material
70542	Magnetic resonance imaging (MRI) of face and neck with contrast material
70543	Magnetic resonance imaging (MRI) of face and neck without contrast material, followed by contrast material and further sequences

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Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: August 29, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Date of last literature review: 8/9/2024

Document last updated: 8/29/2024

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following six weeks of conservative management, or new or worsening symptoms with a history of spine surgery.¹

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

Medical Necessity Criteria

Indications

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following¹⁻³:
 - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
- Intramedullary masses; **OR**
- Other extradural soft-tissue neoplasms of **ANY** of the following:
 - Connective tissues; **OR**
 - Muscles; **OR**
 - Regional nerves; **OR**
- Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
- Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
 - Known tumor or malignancy with worsening symptoms or pain; **OR**
 - To monitor response to treatment; **OR**
- ◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following²⁻⁵:
 - **ANY** of the following¹:
 - Discitis; **OR**
 - Epidural abscess; **OR**
 - Postoperative infections; **OR**
 - Surrounding soft-tissue infection; **OR**
 - Vertebral osteomyelitis; **OR**
 - Spinal cord infection and inflammation, including abscess¹; **OR**
 - Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
 - Follow-up to abnormal initial imaging with suspected infection; **OR**
 - Trauma-related conditions, and **ANY** of the following^{1,3,5-6}:
 - Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
 - High suspicion for **ANY** of the following injury types:
 - ◆ Fracture; **OR**
 - ◆ Ligamentous; **OR**
 - ◆ Nerve; **OR**

◆ Spine; **OR**

- Neurological deficit (myelopathy) or radiculopathy, following traumatic event including accident, surgery, or intervention or with **ANY** of the following^{3,7}:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Physical exam finding of major muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Severe sciatic/dermatomal sensory loss; **OR**
 - Urinary retention or overflow incontinence; **OR**
 - Weakness (bilateral or progressive) in the lower extremities; **OR**
- Persistent or worsening pain without acute findings on initial imaging (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**

◆ Vascular conditions, known or suspected, including **ANY** of the following¹:

- Extraspinal vascular malformations; **OR**
- Spinal cord infarction; **OR**
- Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**

◆ Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following¹:

- Connective tissue disorders (systemic lupus erythematosus); **OR**
- Muscular dystrophies and myopathies; **OR**
- **ANY** of the following demyelinating diseases:
 - Acute disseminated encephalomyelitis; **OR**
 - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**
 - Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
 - Multiple sclerosis (MS) and its variants (cervical or thoracic); **OR**

- Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
- Neuromyelitis optica spectrum disorder; **OR**
- ◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
 - Pain or radiculopathy without trauma or known malignancy with **ANY** of the following^{1,3}:
 - Discordant pain or radiculopathy to radiograph findings; **OR**
 - Neurological deficit (myelopathy) or severe radiculopathy not previously imaged with **ANY** of the following:
 - ◆ Abnormal EMG; **OR**
 - ◆ New or worsening symptoms; **OR**
 - ◆ Not previously imaged; **OR**
 - Degenerative conditions including **ANY** of the following¹:
 - Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
 - Symptomatic radiculopathy; **OR**
 - Compression (suspected) in **ANY** of the following⁷:
 - Spinal cord; **OR**
 - Cauda equina; **OR**
 - Myelopathy (acute or progressive); **OR**
 - Nerve root; **OR**
 - **ANY** of the following¹:
 - Amyloid deposition in the spine; **OR**
 - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
 - Gout; **OR**
 - Spinal cord herniation⁸; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Planning for treatment fields for radiation therapy; **OR**
 - Postradiation changes (e.g., myelopathy); **OR**
 - Epidural and subdural fluid collection¹; **OR**
 - Follow-up of incidental or concerning findings seen on other imaging examinations¹; **OR**

- Pre-procedure assessment for vertebroplasty and kyphoplasty⁹; **OR**
- Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**
- Postoperative with new or worsening neurological symptoms²⁻³; **OR**
- ◆ **ANY** of the following congenital conditions^{1,10}:
 - Chiari malformation; **OR**
 - Scoliosis with **ANY** of the following¹¹:
 - Neurological symptoms; **OR**
 - Requiring preoperative assessment; **OR**
 - Worsening pain not previously imaged; **OR**
 - Syringohydromyelia (syrinx); **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following are **TRUE**:
 - There is documented clinical necessity; **AND**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate 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; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to

gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**

- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed

	by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.⁶

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.⁹

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional research is needed to establish the utility and efficacy of MRI in various types of SCI further.⁸

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Clinical Guideline Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

Version: 2
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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following six weeks of conservative management, or new or worsening symptoms with a history of spine surgery.¹

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

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Indications

- **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is considered appropriate if **ANY** of the following is **TRUE**:
- ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following¹⁻³:
 - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
- Intramedullary masses; **OR**
- Other extradural soft-tissue neoplasms of **ANY** of the following:
 - Connective tissues; **OR**
 - Muscles; **OR**
 - Regional nerves; **OR**
- Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
 - Abnormal laboratory values; **OR**
 - Inconclusive or abnormal prior imaging; **OR**
- Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
 - Known tumor or malignancy with worsening symptoms or pain; **OR**
 - To monitor response to treatment; **OR**
- ◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following²⁻⁵:
 - **ANY** of the following¹:
 - Discitis; **OR**
 - Epidural abscess; **OR**
 - Postoperative infections; **OR**
 - Surrounding soft-tissue infection; **OR**
 - Vertebral osteomyelitis; **OR**
 - Spinal cord infection and inflammation, including abscess¹; **OR**
 - Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
 - Follow-up to abnormal initial imaging with suspected infection; **OR**
 - Trauma-related conditions, and **ANY** of the following^{1,3,5-6}:
 - Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
 - High suspicion for **ANY** of the following injury types:
 - ◆ Fracture; **OR**
 - ◆ Ligamentous; **OR**
 - ◆ Nerve; **OR**

◆ Spine; **OR**

- Neurological deficit (myelopathy) or radiculopathy, following traumatic event including accident, surgery, or intervention or with **ANY** of the following^{3,7}:
 - Bladder dysfunction; **OR**
 - Bowel dysfunction; **OR**
 - Fecal incontinence; **OR**
 - Loss of anal sphincter tone; **OR**
 - Physical exam finding of major muscle weakness; **OR**
 - Saddle anesthesia; **OR**
 - Severe sciatic/dermatomal sensory loss; **OR**
 - Urinary retention or overflow incontinence; **OR**
 - Weakness (bilateral or progressive) in the lower extremities; **OR**
- Persistent or worsening pain without acute findings on initial imaging (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**

◆ Vascular conditions, known or suspected, including **ANY** of the following¹:

- Extraspinal vascular malformations; **OR**
- Spinal cord infarction; **OR**
- Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**

◆ Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following¹:

- Connective tissue disorders (systemic lupus erythematosus); **OR**
- Muscular dystrophies and myopathies; **OR**
- **ANY** of the following demyelinating diseases:
 - Acute disseminated encephalomyelitis; **OR**
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 - Neurological deficit (myelopathy) or severe radiculopathy not previously imaged with **ANY** of the following:
 - ◆ Abnormal EMG; **OR**
 - ◆ New or worsening symptoms; **OR**
 - ◆ Not previously imaged; **OR**
 - Degenerative conditions including **ANY** of the following¹:
 - Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
 - Symptomatic radiculopathy; **OR**
 - Compression (suspected) in **ANY** of the following⁷:
 - Spinal cord; **OR**
 - Cauda equina; **OR**
 - Myelopathy (acute or progressive); **OR**
 - Nerve root; **OR**
 - **ANY** of the following¹:
 - Amyloid deposition in the spine; **OR**
 - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
 - Gout; **OR**
 - Spinal cord herniation⁸; **OR**
- ◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:
 - Planning for treatment fields for radiation therapy; **OR**
 - Postradiation changes (e.g., myelopathy); **OR**
 - Epidural and subdural fluid collection¹; **OR**
 - Follow-up of incidental or concerning findings seen on other imaging examinations¹; **OR**

- Pre-procedure assessment for vertebroplasty and kyphoplasty⁹; **OR**
- Postoperative fluid collections and soft-tissue changes (extradural and intradural)¹; **OR**
- Postoperative with new or worsening neurological symptoms²⁻³; **OR**
- ◆ **ANY** of the following congenital conditions^{1,10}:
 - Chiari malformation; **OR**
 - Scoliosis with **ANY** of the following¹¹:
 - Neurological symptoms; **OR**
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 - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate 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; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to

gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**

- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

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

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

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed

	by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.⁶

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.⁹

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional research is needed to establish the utility and efficacy of MRI in various types of SCI further.⁸

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Clinical Guideline Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.



Magnetic Resonance Imaging (MRI), Temporomandibular Joint (TMJ) – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 1, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Magnetic Resonance Imaging (MRI), TMJ – Single Service

Physician author: Cindy Lee, MD

Peer reviewed by: Darko Pucar, MD; Jonathan Kraas, MD

Literature review current through: 3/30/2022

Document last updated: 3/30/2022

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

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Single Service & Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Temporomandibular Joint (TMJ)

General Guidelines

- **Imaging Modality:** MRI is the most useful and widely used imaging modality for the evaluation of temporomandibular joint (TMJ).¹⁻² Compared with CT and arthrography, MRI provides superior soft-tissue contrast and visualization of articular structures of the TMJ. Direct visualization of the articular disc by MRI without the use of a contrast medium is a distinct advantage over arthrography.
- **Criteria for Subsequent Requests:** Before, during, and after treatment. New, persistent, or worsening clinical symptoms
- **Recommended Clinical Approach:** IV contrast is not indicated in most clinical scenarios. In inflammatory conditions of the TMJ, contrast is helpful in the assessment of synovial inflammation.³
- **Exclusions:** This document is specifically focused on the MRI of the temporomandibular joint in the adult patient population. It does not include MRI of the brain, neck, orbit, or face, which are described separately.

Medical Necessity Criteria

Indications

- **MRI TMJ** is considered appropriate if **ANY** of the following are **TRUE**:
- ◆ Assessment of known TMJ disorder prior to, during or after treatment
 - ◆ Assessment of known TMJ disorder with new, worsening or persistent symptoms
 - ◆ Suspected TMJ disorder
 - ◆ Patient has **ANY** positive findings from the clinical presentation and typical physical exam findings lists⁴⁻⁹:
 - Irregular jaw movement with difficulty opening or closing the mouth
 - Pain in the ear area when speaking, chewing or opening the mouth widely
 - Headaches exacerbated by jaw movement

- Clicking sounds in the jaw joint when opening or closing the mouth
- Ear pain in front of or below the ear without any signs of infection
- Pain in the jaw joint area, tooth, neck and shoulders
- Jaw pain or toothache when waking up after sleep
- Sensation of teeth not aligning properly
- Difficulty chewing

Non-Indications

→ **MRI TMJ** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Contraindications to gadolinium contrast media, especially the potential risk of nephrogenic systemic fibrosis (NSF)¹⁰
- ◆ Neurosurgical clips
- ◆ Claustrophobia

→ **MRI TMJ** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Conditional, legacy, or unsafe implants, pacemakers, or replacement cardiac valves
- ◆ Metallic foreign body in orbits/other critical area or within the field of view and obscuring area of concern

Site of Service Criteria

Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
70336	Magnetic resonance imaging (MRI) of temporomandibular joint (TMJ)

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Positron Emission Tomography (PET), Brain – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
Effective Date: April 8, 2022

Important Notices

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Guideline Information:

Specialty Area: Radiology

Care Path Group: Not applicable

Care Path Name: Positron Emission Tomography (PET), Brain – Single Service

Physician author: Darko Pucar, MD

Peer reviewed by: Cindy Lee, MD; Jonathan Kraas, MD

Literature review current through: 4/4/2022

Document last updated: 4/4/2022

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

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Single Service & Medical Necessity Criteria

Service: Positron Emission Tomography (PET), Brain

General Guidelines

- **Imaging Modality:** FDG PET/CT of the brain is the most appropriate choice for most brain PET indications.¹⁻⁶ It detects brain glucose metabolism changes caused by disease-related alterations in neuronal activity. Amyloid PET/CT of the brain may be performed in a specific subset of patients. Brain FDG PET scans without CT are rarely performed.⁷⁻¹⁰
- **Criteria for Subsequent Requests:** Brain FDG PET/CT may be appropriate in the settings of epilepsy or tumors if interval treatment has been administered.^{1-2,4} Subsequent scans may be indicated if initial scans were equivocal.
- **Recommended Clinical Approach:** Brain PET is considered advanced imaging, and it is best utilized per institutional neurologic and psychiatric protocols. Radiologic guidelines from the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the European Association of Nuclear Medicine (EANM), and the American College of Radiology (ACR) may be consulted. Two distinct types of PET of the brain are considered for different indications.
- **Exclusions:** Brain perfusion SPECT, cardiac PET, and whole-body PET are not covered as part of this guideline.

Medical Necessity Criteria

Indications

→ **PET Brain** is considered appropriate if **ANY** of the following are **TRUE**:

◆ **FDG PET Brain** and the patient has **ANY** of the following exam findings⁴:

- Cognitive impairment or suspected diagnosis of dementia and **ANY** of the following require evaluation:

- Diagnosis of Alzheimer dementia in the setting of equivocal neurological symptoms and clinical findings
- Differentiation of Alzheimer dementia and frontotemporal dementia
- Differentiation of Alzheimer dementia and Dementia of Lewy body (FDG PET/CT scan typically performed in conjunction with dopamine transporter (DaT) scan)
- Medically refractory epilepsy for which invasive treatment is considered
- Primary or secondary (metastatic) brain tumor and **ANY** of the following:
 - Previously treated primary or secondary (metastatic) brain tumor with clinical and conventional imaging findings indeterminate for viable residual or recurrent tumor
 - Need to distinguish between low- and high-grade gliomas or assess for transformation to high-grade glioma if the the clinical and conventional imaging findings are equivocal
 - Findings indeterminate between toxoplasmosis and lymphoma typically in HIV-positive patient

→ **Amyloid PET** is considered appropriate if **ANY** of the following are

TRUE^{Z-10}:

- ◆ Diagnosis of minimal cognitive impairment (MCI) or dementia
- ◆ Cause of cognitive impairment is uncertain after comprehensive evaluation by dementia specialist, including **ALL** of the following:
 - General medical and neurological examination
 - Mental status testing
 - Laboratory testing
 - Structural neuroimaging

- ◆ Alzheimer disease is a diagnostic consideration
- ◆ Knowledge of amyloid PET status is expected to alter diagnosis and management
- ◆ Previous FDG PET/CT performed

Non-Indications

- **Brain PET** is not considered appropriate for **ANY** of the following:
 - ◆ Initial examination for brain disorders.
- **Amyloid PET** is not considered appropriate for **ANY** of the following⁷:
 - ◆ Patient is 65 years old or older and meets standard definitions and tests for Alzheimer
 - ◆ Patient is asymptomatic or has a cognitive complaint but no clinical confirmation of impairment (family/genetic history)
 - ◆ Assessing the severity of dementia

Site of Service Criteria

Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
78608	Positron emission tomography (PET) of brain for metabolic evaluation
78609	Positron emission tomography (PET) of brain for perfusion evaluation

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Cohere Medical Policy – Positron Emission Tomography (PET), Cardiac

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: August 5, 2024

Important Notices

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Guideline Name: Positron Emission Tomography (PET), Cardiac

Date of last literature review: 7/29/2024

Document last updated: 8/5/2024

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

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), Cardiac

Recommended Clinical Approach

Cardiac PET is considered advanced imaging, and it is best utilized per institutional internal medicine and cardiology protocols. Radiologic and cardiology guidelines from the American Society of Nuclear Cardiology (ASNC), American College of Radiology (ACR), American College of Cardiology (ACC), Society of Nuclear Medicine and Molecular Imaging (SNMMI), and European Association of Nuclear Medicine (EANM) may be consulted prior to ordering.

Cardiac PET is specifically optimized for the evaluation of myocardial perfusion and viability. It may also be utilized to evaluate infection and inflammation. Myocardial perfusion in the setting of suspected or known coronary artery disease (CAD) can be evaluated with cyclotron-produced (^{13}N -ammonia) or generator-produced (^{82}Rb) PET agents.¹⁻¹⁶

Medical Necessity Criteria

Indications

→ **Positron emission tomography (PET), cardiac** is considered appropriate if **ANY** of the following is **TRUE**:

◆ **Cardiac PET or PET/CT** for **ANY** of the following²:

- The patient is asymptomatic with known CAD or a high pretest probability (PTP) of CAD (See the [Pre-Test Probability of CAD](#) published by the CAD Consortium) with **ANY** of the following:
 - Equivocal prior coronary CT angiography (CCTA, with 40–90% stenosis); **OR**
 - Equivocal exercise stress test; **OR**
 - History of coronary artery bypass grafting and no stress test performed in the last 5 years prior; **OR**
 - History of percutaneous coronary intervention and no stress test performed in the last 2 years prior; **OR**
 - Coronary artery calcium score equal to or above 400; **OR**

- New left ventricular dysfunction (ejection fraction [EF] less than or equal to 45%); **OR**
- The patient is symptomatic with suspected or known coronary artery disease (CAD) and imaging is recommended for **ANY** of the following reasons:
 - Detection of obstructive CAD with myocardial ischemia in patients with chest pain (acute but stabilized or chronic); **OR**
 - Intermediate or high pretest probability; **OR**
 - For clarification of equivocal or discordant prior tests and **ANY** of the following is **TRUE**:
 - ◆ Presence of anomalous coronary arteries with suspected ischemia; **OR**
 - ◆ Presence of borderline obstructive lesions on coronary angiography (50–70% non-left main stenosis or CCTA (40–90% stenosis); **OR**
 - New heart failure diagnosis without previous assessment for CAD with **ANY** of the following:
 - ◆ Heart failure with preserved ejection fraction (intermediate or high-risk of CAD); **OR**
 - ◆ Ejection fraction less than 45% (any clinical risk of CAD)³; **OR**
 - Pre-operative risk assessment before high-risk surgical procedures (e.g., vascular surgery, kidney/liver/lung transplantation); **OR**
 - Post-operative assessment of reimplanted coronary arteries (e.g., surgically corrected transposition of the great arteries); **OR**
- Evaluation or surveillance for **ANY** of the following:
 - For assessment of myocardial blood flow in suspected microvascular disease; **OR**
 - Myocardial viability for detection of hibernating or stunned myocardium; **OR**
- ◆ **FDG PET/CT** and **ANY** of the following is **TRUE**¹²:
 - Evaluation for **ANY** of the following:
 - An abnormality considered indeterminate by another imaging modality to determine whether glucose metabolism in that abnormality favors a benign or malignant process; **OR**

- Cardiomyopathy (inflammatory or restrictive) and ischemic cardiomyopathy has been excluded¹³; **OR**
- Ventricular arrhythmia (frequent PVCs, non-sustained ventricular tachycardia, sustained ventricular tachycardia, or cardiac arrest)^{14,15}; **OR**
- Infective endocarditis (known or suspected)¹⁶⁻¹⁷; **OR**
- Myocardial viability assessment and **ALL** of the following is **TRUE**:
 - ◆ Determination of the appropriateness of invasive revascularization management; **AND**
 - ◆ Ischemic heart failure; **OR**
- Nontraumatic chest wall pain with a normal chest radiography and **ANY** of the following¹⁸:
 - ◆ History of prior chest intervention; **OR**
 - ◆ Known or suspected malignancy; **OR**
 - ◆ Suspected infectious or inflammatory condition; **OR**
- Cardiac sarcoidosis⁴⁻⁵; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - No existing follow-up guideline for that indication; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure; **OR**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison.

Non-Indications

→ **Positron Emission Tomography (PET), cardiac** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment; **OR**
- ◆ The imaging request is for **myocardial perfusion PET** and **ANY** of the following is **TRUE**:
 - Acute nonspecific chest pain with a low probability of CAD⁷; **OR**
 - Asymptomatic patients with less than an intermediate risk for CAD who may benefit from CT coronary calcium or coronary CT angiography; **OR**
 - Chest trauma^{5,19}; **OR**
 - Nonischemic myocardial disease (excluding sarcoidosis)⁴⁻⁵; **OR**
- ◆ The imaging request is for **FDG PET/CT**, and **ANY** of the following is **TRUE**:
 - Acute chest pain with suspected aortic dissection; **OR**
 - Chest trauma¹⁹; **OR**
 - Congenital or acquired heart disease²⁰; **OR**
 - Nonischemic myocardial disease (excluding sarcoidosis)⁴⁻⁵

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

**NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

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.²²⁻²³

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.²¹⁻²²

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.²¹⁻²²

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.²¹⁻²²

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
78429	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study; with concurrently acquired computed tomography transmission scan
78430	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or

	pharmacologic), with concurrently acquired computed tomography
78431	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic), with concurrently acquired computed tomography (CT) transmission scan
78432	Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (eg, myocardial viability)
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78459	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study
78491	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic)
78492	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic)
78811	Positron emission tomography (PET) imaging; limited area (e.g., of chest, head/neck)

Medical Evidence

Patel et al. (2020) assess the use of positron emission tomography (PET) myocardial perfusion imaging (MPI) as a way to non-invasively measure myocardial blood flow reserve (MBFR). One aim was to determine if patients with MBFR with a survival benefit after revascularization, which helps guide post-test management. A total of 12594 patients who underwent Rb82 rest/stress PET MPI were included. The MBFR observed on PET MPI correlates with overall mortality risk and can pinpoint individuals who would potentially derive survival advantages from early revascularization as opposed to medical management alone. The authors conclude that utilization of the metric can inform decision-making regarding revascularization strategies, however, further validation through prospective studies is warranted.²³

Gulati et al. (2021) recommended for intermediate-high risk patients with stable chest pain and no known CAD for whom rest/stress nuclear MPI is selected, PET is reasonable in preference to SPECT, if available to improve diagnostic accuracy and decrease the rate of nondiagnostic test results.²⁴

Swart et al. (2018) performed a multicenter study to enhance the accuracy of ¹⁸F-Fluorodeoxyglucose (FDG) positron-emission tomography/computed tomography (PET/CT) in patients suspected of having prosthetic heart valve endocarditis (PVE). The study identified and eliminated potential confounding factors using visual and standardized quantitative evaluations. A total of 160 patients with a prosthetic heart valve were included (median age 62; 68% male; 82 mechanical valves; 62 biological; 9 transcatheter aortic valve replacements; 7 other). All patients underwent FDG PET/CT for suspicion of PVE. Early integration of FDG PET/CT into the diagnostic protocol is shown to mitigate the potential impact of low inflammatory activity (for example, that induced by prolonged antibiotic treatment).¹⁷

Chen et al. (2017) conducted the CORE320 Multicenter Study (NCT00934037) to compare the prognostic significance of combined CT angiography and CT myocardial stress perfusion imaging vs a combination of invasive coronary angiography (ICA) and stress single photon emission CT myocardial perfusion imaging. The study also addressed the time to major adverse cardiovascular events (MACE). Results indicate that the combined use of CT angiography and CT myocardial perfusion demonstrates comparable predictive ability for 2-year MACE-free survival. This encompasses the necessity for myocardial revascularization procedures compared to the

standard approach involving ICA and single photon emission CT perfusion imaging.⁸

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Clinical Guideline Revision History/Information

Original Date: August 5, 2024		
Review History		



Cohere Medical Policy – Positron Emission Tomography (PET), Cardiac

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: August 5, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Positron Emission Tomography (PET), Cardiac

Date of last literature review: 7/29/2024

Document last updated: 8/5/2024

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

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), Cardiac

Recommended Clinical Approach

Cardiac PET is considered advanced imaging, and it is best utilized per institutional internal medicine and cardiology protocols. Radiologic and cardiology guidelines from the American Society of Nuclear Cardiology (ASNC), American College of Radiology (ACR), American College of Cardiology (ACC), Society of Nuclear Medicine and Molecular Imaging (SNMMI), and European Association of Nuclear Medicine (EANM) may be consulted prior to ordering.

Cardiac PET is specifically optimized for the evaluation of myocardial perfusion and viability. It may also be utilized to evaluate infection and inflammation. Myocardial perfusion in the setting of suspected or known coronary artery disease (CAD) can be evaluated with cyclotron-produced (^{13}N -ammonia) or generator-produced (^{82}Rb) PET agents.¹⁻¹⁶

Medical Necessity Criteria

Indications

→ **Positron emission tomography (PET), cardiac** is considered appropriate if **ANY** of the following is **TRUE**:

◆ **Cardiac PET or PET/CT** for **ANY** of the following²:

- The patient is asymptomatic with known CAD or a high pretest probability (PTP) of CAD (See the [Pre-Test Probability of CAD](#) published by the CAD Consortium) with **ANY** of the following:
 - Equivocal prior coronary CT angiography (CCTA, with 40–90% stenosis); **OR**
 - Equivocal exercise stress test; **OR**
 - History of coronary artery bypass grafting and no stress test performed in the last 5 years prior; **OR**
 - History of percutaneous coronary intervention and no stress test performed in the last 2 years prior; **OR**
 - Coronary artery calcium score equal to or above 400; **OR**

- New left ventricular dysfunction (ejection fraction [EF] less than or equal to 45%); **OR**
- The patient is symptomatic with suspected or known coronary artery disease (CAD) and imaging is recommended for **ANY** of the following reasons:
 - Detection of obstructive CAD with myocardial ischemia in patients with chest pain (acute but stabilized or chronic); **OR**
 - Intermediate or high pretest probability; **OR**
 - For clarification of equivocal or discordant prior tests and **ANY** of the following is **TRUE**:
 - ◆ Presence of anomalous coronary arteries with suspected ischemia; **OR**
 - ◆ Presence of borderline obstructive lesions on coronary angiography (50–70% non-left main stenosis or CCTA (40–90% stenosis); **OR**
 - New heart failure diagnosis without previous assessment for CAD with **ANY** of the following:
 - ◆ Heart failure with preserved ejection fraction (intermediate or high-risk of CAD); **OR**
 - ◆ Ejection fraction less than 45% (any clinical risk of CAD)³; **OR**
 - Pre-operative risk assessment before high-risk surgical procedures (e.g., vascular surgery, kidney/liver/lung transplantation); **OR**
 - Post-operative assessment of reimplanted coronary arteries (e.g., surgically corrected transposition of the great arteries); **OR**
- Evaluation or surveillance for **ANY** of the following:
 - For assessment of myocardial blood flow in suspected microvascular disease; **OR**
 - Myocardial viability for detection of hibernating or stunned myocardium; **OR**
- ◆ **FDG PET/CT** and **ANY** of the following is **TRUE**¹²:
 - Evaluation for **ANY** of the following:
 - An abnormality considered indeterminate by another imaging modality to determine whether glucose metabolism in that abnormality favors a benign or malignant process; **OR**

- Cardiomyopathy (inflammatory or restrictive) and ischemic cardiomyopathy has been excluded¹³; **OR**
- Ventricular arrhythmia (frequent PVCs, non-sustained ventricular tachycardia, sustained ventricular tachycardia, or cardiac arrest)^{14,15}; **OR**
- Infective endocarditis (known or suspected)¹⁶⁻¹⁷; **OR**
- Myocardial viability assessment and **ALL** of the following is **TRUE**:
 - ◆ Determination of the appropriateness of invasive revascularization management; **AND**
 - ◆ Ischemic heart failure; **OR**
- Nontraumatic chest wall pain with a normal chest radiography and **ANY** of the following¹⁸:
 - ◆ History of prior chest intervention; **OR**
 - ◆ Known or suspected malignancy; **OR**
 - ◆ Suspected infectious or inflammatory condition; **OR**
- Cardiac sarcoidosis⁴⁻⁵; **OR**
- ◆ Repeat imaging of a specific area or structure using the same imaging modality is considered appropriate when **ALL** of the following is **TRUE**:
 - There is documented clinical necessity; **AND**
 - No existing follow-up guideline for that indication; **AND**
 - **ANY** of the following is **TRUE**:
 - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - The need for re-imaging either before or after performing an invasive procedure; **OR**
 - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison.

Non-Indications

→ **Positron Emission Tomography (PET), cardiac** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment; **OR**
- ◆ The imaging request is for **myocardial perfusion PET** and **ANY** of the following is **TRUE**:
 - Acute nonspecific chest pain with a low probability of CAD⁷; **OR**
 - Asymptomatic patients with less than an intermediate risk for CAD who may benefit from CT coronary calcium or coronary CT angiography; **OR**
 - Chest trauma^{5,19}; **OR**
 - Nonischemic myocardial disease (excluding sarcoidosis)⁴⁻⁵; **OR**
- ◆ The imaging request is for **FDG PET/CT**, and **ANY** of the following is **TRUE**:
 - Acute chest pain with suspected aortic dissection; **OR**
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*NOTE: PET in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

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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.²¹⁻²²

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Clinical Guideline Revision History/Information

Original Date: August 5, 2024		
Review History		



Cohere Medical Policy – Positron Emission Tomography (PET), Brain

Clinical Policy for Medical Necessity Review

Version: 4

Cohere Health UMC Approval Date: August 28, 2025

Last Annual Review: August 28, 2025

Revision: Not Applicable

Next Annual Review: August 28, 2026

Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy- Positron Emission Tomography (PET), Brain

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

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), Brain

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

¹⁸FDG (fluorodeoxyglucose) PET/CT imaging allows for the assessment of metabolic activity and cerebral function. Specifically, ¹⁸F-FDG brain imaging proves valuable across a spectrum of clinical scenarios, such as dementia, seizure disorders, and the detection of new or recurring brain tumors.¹ FDG-PET imaging reveals regional variations in glucose metabolism, serving as a marker for neurodegeneration. These patterns not only signify the existence of neurological decline but also offer insight into the specific cerebral regions and pathways affected by the condition.²

Medical Necessity Criteria

Indications

Positron emission tomography (PET), brain is considered appropriate if **ANY** of the following is **TRUE**:

- **Fluorodeoxyglucose (FDG) PET brain**, is considered appropriate if the patient has **ANY** of the following exam findings³:
 - Cognitive impairment or suspected diagnosis of dementia with **ANY** of the following that require evaluation^{1,2,4}:
 - Progressive dementia and the age of onset was atypically early⁵; **OR**
 - Differentiation of Alzheimer's dementia and frontotemporal dementia, and the patient has had **ALL** of the following:
 - Evaluation by a physician experienced in neurodegenerative disease; **AND**
 - Abnormal cognitive status testing according to objective screening tool including **ANY** of the following^{3,4,6}:
 - Montreal cognitive assessment (MoCA) less than 26; **OR**
 - Mini-mental state examination (MMSE) score less than 23⁶; **OR**
 - Saint Louis University mental status (SLUMS) score less than 19⁷; **OR**,
 - Informant questionnaire on cognitive decline in the elderly (IQCODE) score greater than or equal to 3.4⁸; **OR**
 - Mini-cog score less than 3; **OR**
 - Formal neuropsychological testing; **AND**
 - Nondiagnostic structural imaging of the brain (computed tomography [CT] or magnetic resonance imaging [MRI]); **AND**
 - Relevant lab values are normal or nondiagnostic (B12, thyroid stimulating hormone [TSH]); **OR**
 - Seizure disorder (epilepsy), known, with **ANY** of the following^{1,9}:
 - Change in seizure presentation; **OR**
 - New neurologic deficit; **OR**
 - Refractive to medical therapy with no return to previous neurologic baseline; **OR**
 - History of medically-refractory epilepsy for which invasive treatment is considered; **OR**
 - The patient is a surgical candidate (including surgical planning); **OR**
 - Tumor, suspected or known, and **ALL** of the following are **TRUE**^{10,11}:
 - MRI is contraindicated or inconclusive; **AND**

- Evaluation of **ANY** of the following:
 - Differentiation of radiation necrosis versus previously-treated tumor recurrence¹; **OR**
 - Guiding biopsy and radiation therapy planning¹; **OR**
 - Evaluation of a primary brain tumor; **OR**
- **Single amyloid PET** is considered appropriate for differentiation of Alzheimer's dementia and frontotemporal dementia when the patient has had **ALL** of the following¹²:
 - Evaluation by a physician experienced in neurodegenerative disease; **AND**
 - Abnormal cognitive status testing according to objective screening tool including **ANY** of the following^{3,4,6}:
 - Montreal cognitive assessment (MoCA) less than 26; **OR**
 - Mini-mental state examination (MMSE) score less than 23⁶; **OR**
 - Saint Louis University mental status (SLUMS) score less than 19⁷; **OR**,
 - Informant questionnaire on cognitive decline in the elderly (IQCODE) score greater than or equal to 3.4⁸; **OR**
 - Mini-cog score less than 3; **OR**
 - Formal neuropsychological testing; **AND**
 - Nondiagnostic structural imaging of the brain (computed tomography [CT] or magnetic resonance imaging [MRI]); **AND**
 - Relevant lab values are normal or nondiagnostic (B12, thyroid stimulating hormone [TSH]); **OR**
- **Dotatate PET** for meningioma when prior MRI or CT is indeterminate¹³⁻¹⁶; **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.

* NOTE: MRI is the preferred imaging modality for follow-up imaging following an initial amyloid PET scan.

Non-Indications

Positron emission tomography (PET), brain is not considered appropriate for **ANY** of the following:

- The patient has undergone advanced imaging of the same body part within 3 months, without being on treatment or developing new or worsening symptoms¹⁷.

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

**NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

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.^{18,19}

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.^{18,19}

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.^{18,19}

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.^{18,19}

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

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
78608	Brain imaging, positron emission tomography (PET); metabolic evaluation
78609	Brain imaging, positron emission tomography (PET); perfusion evaluation
78811	Positron emission tomography (PET) imaging; limited area (eg, chest, head/neck)
78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (eg, chest, head/neck)

Medical Evidence

Spano et al. (2023) analyzed the efficacy of PET imaging in cases of cognitive decline, specifically its significance in diagnosing Alzheimer's disease (AD). While FDG PET remains the predominant PET tracer in clinical use, several PET radiotracers enable the observation of underlying pathophysiological processes in AD, including A β deposition, tau deposition, synaptic density loss, neuroinflammation, cholinergic cell death, and reduced monoamine neurotransmission. Three FDA-approved 18F-labeled radiopharmaceuticals exist, including florbetaben (NeuraCeq), florbetapir (Amyvid), and flutemetamol (Vizamyl). These assess A β deposition, predominantly utilized in clinical trials with limited reimbursement for diagnostic purposes. The advancement of PET radiotracers in routine practice allows clinicians to diagnose and intervene in neurodegenerative diseases effectively.²⁰

Quigg et al. (2022) report on using positron emission tomography with fluorine-18 fluorodeoxyglucose (¹⁸F-FDG-PET) to map brain glucose metabolism patterns. This imaging modality aids in assessing normal brain function and identifying metabolic abnormalities in various brain disorders. Traditional PET methods cannot distinguish normal from pathological tissue, particularly in conditions such as brain neoplasms or focal epilepsy. The aim is to enhance the functional mapping of metabolic activity within the target organ. Recent technological advancements may broaden dynamic PET across various clinical settings.²¹

Rabinovici et al. (2019) conducted a single-group, multi-center longitudinal study called Imaging Dementia-Evidence for Amyloid Scanning (IDEAS) (ClinicalTrials.gov Identifier: NCT02420756). The study assessed whether amyloid PET scans influence the subsequent management decisions for patients diagnosed with mild cognitive impairment (MCI) or dementia of uncertain origin. Participants (n=11409) at 343 imaging centers underwent amyloid PET. Within 90 days of evaluation, participants diagnosed with MCI or dementia of uncertain origin who underwent amyloid PET scans exhibited alterations in clinical management. Further research is needed to ascertain whether amyloid PET correlates with enhanced clinical outcomes.²²

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Policy Revision History/Information

Original Date: April 8, 2022		
Review History		
Version 2	08/15/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	08/28/2025	Annual review Updated content layout to align with revised template, including repeat imaging criteria Dementia criteria added; for amyloid imaging, criteria added for dementia screening and scores (MMSe, MoCA, SLUMS) and for lab testing requirements



Cohere Medical Policy – Positron Emission Tomography (PET), Cardiac

Clinical Policy for Medical Necessity Review

Version: 3

Cohere Health UMC Approval Date: August 21, 2025

Last Annual Review: August 21, 2025

Revision: Not Applicable

Next Annual Review: August 21, 2026

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Policy Name: Positron Emission Tomography (PET), Cardiac

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

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), Cardiac

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.
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- 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:
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- 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

Cardiac PET is considered advanced imaging, and it is best utilized per institutional internal medicine and cardiology protocols. Radiologic and cardiology guidelines from the American Society of Nuclear Cardiology (ASNC), American College of Radiology (ACR), American College of Cardiology (ACC), Society of Nuclear Medicine and Molecular Imaging (SNMMI), and European Association of Nuclear Medicine (EANM) may be consulted prior to ordering.

Cardiac PET is specifically optimized for the evaluation of myocardial perfusion and viability. It may also be utilized to evaluate infection and inflammation. Myocardial perfusion in the setting of suspected or known coronary artery disease (CAD) can be evaluated with cyclotron-produced (^{13}N -ammonia) or generator-produced (^{82}Rb) PET agents.¹⁻¹⁶

Medical Necessity Criteria

Indications

Positron emission tomography (PET) cardiac perfusion stress testing with or without computed tomography (CT) (CPT codes 78430, 78431, 78491, 78492) is considered appropriate if **ANY** of the following is **TRUE**:

- Evaluation of post-transplant cardiac allograft vasculopathy (CAV); **OR**
- **ALL** of the following²:
 - **ANY** of the following:
 - The patient has morbid obesity (i.e., greater than or equal to 35m²/kg); **OR**
 - The patient has macromastia (i.e., large breasts or very dense breasts); **OR**
 - Equivocal results of MPI SPECT imaging; **AND**
 - Criteria for myocardial perfusion imaging single-photon emission computed tomography (MPI-SPECT) are met, including **ANY** of the following:
 - The patient has angina (or an anginal equivalent^A) with **ANY** of the following¹⁷:
 - No known coronary artery disease (CAD) with an intermediate or high pre-test probability (PTP) (as indicated by the [CAD Consortium Calculator](#) or coronary calcium score greater than or equal to 100 Agatston); **OR**
 - No known CAD with **ANY** of the following:
 - ECG abnormalities that interfere with the ECG diagnosis of ischemia and **ANY** of the following¹⁸:
 - An inability to achieve the target heart rate with a standard exercise treadmill test (greater than or equal to 85% of age-predicted maximal heart rate); **OR**
 - Ventricular pre-excitation (Wolff-Parkinson-White pattern); **OR**
 - Ventricular-paced rhythm; **OR**
 - Left bundle branch block (LBBB); **OR**
 - LBBB or pacemaker; **OR**
 - Greater than 1 mm ST depression at rest; **OR**
 - Left ventricular hypertrophy with ST-T abnormalities; **OR**
 - The patient takes digoxin; **OR**
 - Prior stress testing with **ANY** of the following:

- Plain exercise treadmill test that was equivocal (heart rate that did not reach 85% of age-predicted maximum heart rate, significant chest pain or anginal equivalent during the study, less than or equal to 3 METS); **OR**
 - Previous stress echocardiography had poor echocardiographic windows; **OR**
- No known CAD with prior testing and **ALL** of the following¹⁶:
 - Symptoms of angina (or an anginal equivalent^A); **AND**
 - **ANY** of the following:
 - Inconclusive routine stress ECG; **OR**
 - Abnormal routine stress ECG; **OR**
 - Coronary computed tomographic angiography (CCTA) with moderate stenosis 50 to 69%; **OR**
 - Inconclusive CCTA; **OR**
 - Invasive coronary angiography with intermediate severity (maximal coronary diameter stenosis is 40% to 69%) or invasive physiological testing not done; **OR**
- Newly diagnosed heart failure with preserved ejection fraction (HFpEF), heart failure with reduced ejection fraction (HFrEF), or asymptomatic low EF less than 45%, and **ALL** of the following are **TRUE**¹⁹:
 - No previous evaluation for CAD; **AND**
 - No planned cardiac catheterization; **OR**
- Screening for transplant vasculopathy without a prior MPI in the previous year; **OR**
- Evaluation of (NEW) ventricular arrhythmias without prior cardiac evaluation for ischemia as indicated by **ANY** of the following:
 - Frequent premature ventricular contractions (PVCs) greater than 30 per hour; **OR**
 - Non-sustained ventricular tachycardia (greater than or equal to 3 consecutive beats at greater than 100 beats per minute)²⁰; **OR**
 - Exercise-induced ventricular tachycardia; **OR**
 - Sustained ventricular tachycardia; **OR**
 - Ventricular fibrillation; **OR**
- Before initiation of antiarrhythmic therapy (such as flecainide), and the patient has intermediate or high PTP of CAD (as indicated by the [CAD Consortium Calculator](#)); **OR**

- Syncope without an ischemic equivalent^A and the initial evaluation suggests a CV abnormality (e.g., abnormal EKG or echo); **OR**
- Known coronary heart disease (CHD) with a history of prior myocardial infarction (MI) or coronary revascularization and **ANY** of the following¹⁶:
 - Surveillance testing and **ANY** of the following is **TRUE**:
 - Percutaneous coronary intervention (PCI) performed at least 2 years ago and no testing within the last 2 years; **OR**
 - Coronary artery bypass graft (CABG) performed at least 5 years ago and no testing within the last 5 years; **OR**
 - The patient has prior myocardial infarction or documented incomplete revascularization and is at high-risk for silent ischemia or has a history of silent ischemia as indicated by **ANY** of the following:
 - Diabetes mellitus with known accelerated progression of CAD; **OR**
 - Chronic kidney disease (CKD Stage 3 or above – eGFR 15–59 mL/min/1.73 m² with or without albuminuria that is not treated with dialysis or kidney transplantation); **OR**
 - Symptoms of ischemia with a change in clinical or functional status on guideline-directed medical therapy (GDMT) (or documented intolerance to GDMT); **OR**
- Preoperative testing before intermediate or high-risk surgery (Table 1) and **ANY** of the following²¹:
 - Planned solid organ transplant (renal, pancreas, combined renal pancreas, liver, lung, or intestinal); **OR**
 - No known or suspected CHD^C and **ALL** of the following²¹:
 - No recent (3–8 months) testing; **AND**
 - New or worsening possible cardiac symptoms; **AND**
 - Functional status less than 4 METS and **ANY** of the following:
 - High-risk vascular surgery (Table 1); **OR**
 - High-risk nonvascular surgery (Table 1); **OR**
 - Intermediate risk vascular surgery (Table 1); **OR**
 - Intermediate risk non-vascular surgery (Table 1) with at least an intermediate (16% or greater) pre-test probability of obstructive CAD by the CAD Consortium Calculator; **OR**
 - Known or suspected CHD^D and **ANY** of the following²¹:

- No recent (3–8 months) stress testing and **ANY** of the following:
 - High-risk vascular surgery (Table 1) **OR**
 - High-risk nonvascular surgery (Table 1) **OR**
 - Intermediate risk vascular surgery and **ANY** of the following:
 - Greater than 4 METS and **ALL** of the following:
 - Without new or worsening possible cardiac symptoms; **AND**
 - Revised Cardiac Risk Index of 3 or greater (intermediate or high-risk); **OR**
 - Less than 4 METS with or without new or worsening possible cardiac symptoms; **OR**
 - Greater than 4 METS with new or worsening possible cardiac symptoms **OR**
 - Intermediate nonvascular surgery (Table 1) and **ANY** of the following:
 - Less than 4 METS with or without possible cardiac symptoms; **OR**
 - Greater than 4 METS with new or worsening possible cardiac symptoms; **OR**
 - Low-risk vascular or nonvascular surgery (Table 1) planned and **ANY** of the following:
 - New or worsening possible cardiovascular symptoms; **OR**
 - Revised Cardiac Risk Index of 3 or greater (intermediate or high-risk).

F-Fluorodeoxyglucose (FDG) PET/CT with or without resting perfusion imaging (CPT codes 78429, 78432, 78433, 78459) is considered appropriate if **ANY** of the following is **TRUE**¹³:

- Infective endocarditis with a prosthetic valve^{22,23}; **OR**
- Suspected cardiac device infection (e.g., infection of pacemaker, defibrillators, LVAD, metallic implants); **OR**
- **ALL** of the following:
 - Suspected coronary involvement of systemic vasculitis (eg: Takayasu’s arteritis, Kawasaki disease); **AND**
 - Advanced imaging (CTA or MRA) is inconclusive or nondiagnostic; **OR**
- Coronary vascular graft infection with **ANY** of the following:

- CCTA is inconclusive; **OR**
- Clinical suspicion remains high after negative CCTA; **OR**
- Indeterminate intracardiac mass with **ANY** of the following:
 - Nondiagnostic transthoracic or transesophageal echocardiogram (TTE or TEE); **OR**
 - Cardiac MRI is non-diagnostic²¹; **OR**
- Suspected cardiac sarcoidosis with **ANY** of the following^{4,5,24}:
 - **ALL** of the following:
 - High pretest probability remains when cardiac MRI is negative, non-diagnostic, or equivocal; **AND**
 - **ANY** of the following:
 - Systemic sarcoidosis; **OR**
 - The patient is less than 60 years of age with unexplained, new-onset conduction system disease; **OR**
 - Unexplained ventricular arrhythmias; **OR**
 - **ALL** of the following:
 - Cardiac MRI is contraindicated; **AND**
 - **ANY** of the following:
 - Unexplained cardiomyopathy or regional wall motion abnormalities; **OR**
 - Systemic sarcoidosis **OR**
 - The patient is less than 60 years of age with unexplained, new-onset conduction system disease; **OR**
 - Unexplained ventricular arrhythmias; **OR**
- Known cardiac sarcoidosis to monitor disease activity and monitor treatment response: **OR**
- Myocardial viability assessment and **ALL** of the following is **TRUE**:
 - Determination of the appropriateness of invasive revascularization management; **AND**
 - EF less than or equal to 45%; **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

Positron Emission Tomography (PET), cardiac is not considered appropriate if **ANY** of the following is **TRUE**:

- The patient has undergone advanced imaging of the same body part and for the same indication within 3 months without undergoing treatment or developing new or worsening symptoms⁶; **OR**
- The imaging request is for **myocardial perfusion PET** with **ANY** of the following:
 - Chest trauma^{5,26}; **OR**
- The imaging request is for **FDG PET/CT** with **ANY** of the following:
 - Acute chest pain with suspected aortic dissection; **OR**
 - Chest trauma²⁶; **OR**
 - Congenital or acquired heart disease²⁷; **OR**
 - Nonischemic myocardial disease (excluding sarcoidosis).^{4,5}

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

**NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

Definitions

^A Anginal equivalent: Any constellation of clinical findings that the physician believes is consistent with CAD manifestations. Examples of such findings include, but are not limited to: pain, pressure, tightness, or discomfort in the chest, shoulders, arms, neck, back, upper abdomen, or jaw, new ECG abnormalities, or other symptoms/findings suggestive of CAD. Clinical presentations in the absence of chest pain (e.g., dyspnea with exertion, fatigue, or reduced/worsening effort tolerance) consistent with a high risk of CAD may be considered an ischemic equivalent.²⁸

^B Likely or typical anginal symptoms: Chest/epigastric/shoulder/arm/jaw pain, chest pressure/discomfort, when occurring with exertion or emotional stress and relieved by rest, nitroglycerin, or both.

^C No known or suspected heart disease by history, exam, or electrocardiogram²¹: Heart disease is not suspected based on the history of no prior cardiac event, lack of cardiac risk factors, or prior cardiac testing indicating no ischemic heart disease, VHD, or HF. The exam does not suggest underlying heart disease by lack of murmurs, other than functional, and no signs of cardiac decompensation (e.g., rales, edema not explained by other causes, or S3 gallop). ECG does not show prior myocardial infarction, left ventricular hypertrophy, LBBB, or atrial fibrillation. B-type natriuretic peptide (BNP) or proBNP, if measured, is normal.

^D Known or suspected heart disease by history, exam, or electrocardiogram²¹: PCI, coronary artery bypass graft (CABG), prior infarct, cardiac risk factors (HTN, HLD, DM, tobacco use, FHx premature CAD), disease conditions associated with atherosclerosis (PAD, carotid disease, abdominal aneurysm, stroke due to atherosclerosis), prior cardiac testing showing CAD, heart failure, moderate or severe valvular disease, rales, old infarct on EKG, LVH with repolarization changes, LBBB, or atrial fibrillation. There may be prior evidence of biomarker elevation (troponin, proBNP) in the absence of other explanatory findings. B-type natriuretic peptide (BNP) or proBNP, if measured, is more than 3 times the upper limit of normal.

Tables

Table 1. Definitions of Low, Intermediate, and High-Risk Surgery²¹

Specialty	Surgical Risk Level		
	Low	Intermediate	High
Vascular	1. Carotid stenting (monitored anesthesia care) 2. Renal artery stenosis angioplasty or stent 3. Vein stripping	1. Infra-inguinal peripheral angioplasty/stent 2. Carotid stenting (carotid approach, general anesthesia) 3. Open carotid endarterectomy 4. Above or below-knee amputation	1. Abdominal aortic aneurysm repair 2. Aorto-femoral bypass graft 3. Thoracic aortic aneurysm repair 4. Infra-inguinal open peripheral revascularization
General	1. Laparoscopic appendectomy 2. Hemorrhoidectomy	1. Open appendectomy 2. Ostomy procedures 3. Inguinal/umbilical hernia repair 4. Laparoscopic lysis of adhesions/obstruction 5. Laparoscopic cholecystectomy 6. Laparoscopic colon resection, segmental, for tumor	1. Laparoscopic bariatric surgery 2. Open cholecystectomy 3. Hepatic radiofrequency ablation tumor ablation 4. Splenectomy 5. Open colonic segmental resection tumor 6. Laparoscopic colonic abdominal perineal resection 7. Open lysis of adhesions/bowel obstruction 8. Esophageal Heller myotomy 9. Nissen fundoplication 10. Cancer resection (gastric pull-through) 11. Open bariatric surgery

			12. Pancreatic/Whipple resection 13. Gastric resection (tumor/ulcer) 14. Hepatic segmental resection 15. Colonic open abdominal perineal resection
Endocrine	1. Thyroidectomy 2. Parathyroidectomy	1. Adrenalectomy 2. Pheochromocytoma resection	-
Ortho.	1. Shoulder arthroscopy 2. Knee arthroscopy 3. Ankle arthroscopy 4. Closed joint reduction	1. Shoulder arthroplasty 2. Hip fracture pinning	1. Hip/ankle/knee arthroplasty
Thoracic	-	1. Pleural procedures (decortication, pleurodesis) 2. VATS lung biopsy 3. VATS wedge/lobe resection 4. Thymectomy	1. Open wedge/lobe resection 2. Tracheal surgery 3. Lung reduction 4. Pneumonectomy
Neuro-functional	1. Deep brain stimulator placement 2. Seizure mapping procedures	-	-
Neuro-intracranial	-	1. Hydrocephalus shunt/repair 2. Subdural drainage 3. Transsphenoidal resection	1. Intracranial tumor resection 2. Open intracranial aneurysm resection 3. Acoustic neuroma/cranial nerve tumor resection
Neuro/Ortho. Spine	-	1. Laminectomy	1. Spinal fusion 2. Extreme lateral interbody fusion

			procedures (abdominal)
Genito-urinary	1. Transurethral prostate resection 2. Transurethral bladder tumor resection 3. Ureteral stents 4. Nephrostomy 5. Extracorporeal shock wave lithotripsy	1. Bladder repair	1. Radical retropubic prostatectomy 2. Nephrectomy 3. Cystectomy
Gyn.	1. Vaginal hysterectomy 2. Diagnostic gynecologic procedures (laparoscopy)	1. Total abdominal hysterectomy 2. Bilateral salpingo-oophorectomy	-
Breast	1. Diagnostic breast surgery (lumpectomy, node dissection) 2. Simple mastectomy	1. Complex breast surgery	-
Plastic Surgery	1. Hand 2. Cosmetic procedures	1. Reconstructive flaps 2. Post-bariatric repair abdominoplasty	-
Ear, Nose, Throat	1. Diagnostic laryngoscopy 2. Diagnostic esophagoscopy	1. Nasal septal procedures 2. Functional endoscopic sinus surgery	1. Head/neck cancer dissection (with/without laryngectomy)
Oral & Maxillofacial Surgery	1. Jaw reduction	1. Temporomandibular procedures/osteotomy	-
Podiatry	1. Arthroplasty 2. Toe amputation 3. Bunion procedure	-	-
Eye	1. Cataract repair 2. Retinal surgery 3. Eye muscle surgery		
Organ Transplant	-	-	1. Renal Transplant 2. Pancreas Transplant

			3. Kidney-Pancreas Combined Transplant 4. Liver 5. Lung 6. Intestinal

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. [29,30](#)

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. [29,30](#)

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. [29,30](#)

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. [29,30](#)

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
78429	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study; with concurrently acquired computed tomography transmission scan
78430	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic), with concurrently acquired computed tomography
78431	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic), with concurrently acquired computed tomography (CT) transmission scan
78432	Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (eg, myocardial viability)
78433	Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer

	(eg, myocardial viability); with concurrently acquired computed tomography (CT) transmission scan
78459	Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study
78491	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic)
78492	Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic)
78811	Positron emission tomography (PET) imaging; limited area (e.g., of chest, head/neck)

Medical Evidence

Patel et al. (2020) assess the use of positron emission tomography (PET) myocardial perfusion imaging (MPI) as a way to non-invasively measure myocardial blood flow reserve (MBFR). One aim was to determine if patients with MBFR experienced a survival benefit after revascularization, which helps guide post-test management. A total of 12,594 patients who underwent Rb82 rest/stress PET MPI were included. The MBFR observed on PET MPI correlated with overall mortality risk and can pinpoint individuals who would potentially derive survival advantages from early revascularization as opposed to medical management alone. The authors concluded that utilization of the metric may inform decision-making regarding revascularization strategies; however, further validation through prospective studies was warranted.³¹

Gulati et al. (2021) published a series of cardiac imaging recommendations for intermediate-high risk patients with stable chest pain and no known CAD. PET was felt to be reasonable in preference to SPECT, if available, to improve diagnostic accuracy and decrease the rate of nondiagnostic test results.¹⁷

Swart et al. (2018) performed a multicenter study to enhance the accuracy of F-Fluorodeoxyglucose (FDG) cardiac PET/CT in patients suspected of having prosthetic heart valve endocarditis (PVE). The study identified and eliminated potential confounding factors using visual and standardized quantitative evaluations. A total of 160 patients with a prosthetic heart valve were included (median age 62; 68% male; 82 mechanical valves; 62 biological; 9 transcatheter aortic valve replacements; 7 other). All patients underwent FDG PET/CT for suspicion of PVE. Early integration of FDG PET/CT into the diagnostic protocol was shown to mitigate the potential impact of low inflammatory activity (for example, that induced by prolonged antibiotic treatment).²³

Chen et al. (2017) conducted the CORE320 Multicenter Study (NCT00934037) to compare the prognostic significance of combined CT angiography and CT myocardial stress perfusion imaging versus a combination of invasive coronary angiography (ICA) and stress single photon emission CT myocardial perfusion imaging. The study also addressed the time to major adverse cardiovascular events (MACE). Results indicate that the combined use of CT

angiography and CT myocardial perfusion demonstrated comparable predictive ability for 2-year MACE-free survival. This suggested the necessity for myocardial revascularization procedures compared to the standard approach involving ICA and single photon emission CT perfusion imaging.⁹

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Review History		
Version 2	10/30/2024	Edited repeat imaging criteria language.
Version 3	08/21/2025	Annual Review Embedded criteria for MPI-SPECT; added documented need for further imaging or contraindication to MPI-SPECT into this policy to encourage lower-risk imaging via MPI-SPECT. These criteria essentially supplant the previous version of the policy. FDG PET/CT: Removed nonspecific indications and replaced with more specific indications for malignancy and benign processes (infection, vasculitis, intracardiac mass). Cardiac sarcoidosis indication augmented to provide more specific criteria and better capture the appropriate patient population, including delineation between known and suspected cardiac sarcoidosis Defined ischemic heart failure with respect to myocardial viability assessment by providing a specific ejection fraction value Removed relative non-indications for myocardial perfusion PET (other than chest trauma, which remains).

		Edited repeat imaging criteria language.



Cohere Medical Policy – Positron Emission Tomography (PET)/PET-Computed Tomography (CT)

Clinical Guidelines for Medical Necessity Review

Version: 3

Effective Date: October 30, 2024

Important Notices

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), PET/Computed Tomography (CT)

Recommended Clinical Approach

Positron emission tomography (PET) is a non-invasive diagnostic imaging procedure used to evaluate the metabolic activity in tissues. This technology is particularly useful for assessing oncologic, cardiovascular diseases and neurological disorders. Before undergoing a PET scan, patients typically undergo a series of preliminary assessments, including history and physical examination, and often other imaging studies like MRI or CT scans, which guide the need for further metabolic imaging⁵⁷⁻⁵⁸.

Oncologic positron emission tomography (PET) is considered advanced imaging and best utilized per institutional oncologic protocols and oncologic (e.g., National Comprehensive Cancer Network [NCCN]) and radiological society guidelines including the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the European Association of Nuclear Medicine (EANM), and the American College of Radiology (ACR). The decision to perform oncologic PET is often made at institutional tumor board meetings after multidisciplinary oncology teams review the case. Teams may include oncologic surgeons, radiation oncologists, medical oncologists, pathologists, and radiologists.¹⁻³

Medical Necessity Criteria

Indications

→ **Positron emission tomography (PET) with or without concurrently acquired computed tomography (CT)(PET/CT) using**

fluorodeoxyglucose (FDG) is considered appropriate if **ANY** of the following is **TRUE**¹⁻³:

◆ Diagnosis, staging, treatment monitoring, re-staging, or surveillance of **ANY** of the following primary cancer/tumor types:

- Adrenal⁴; **OR**
- Anal⁵; **OR**
- Bladder⁶; **OR**
- Bone⁷; **OR**
- Brain/central nervous system⁸; **OR**
- Breast^{1,9-12}; **OR**
- Cervical¹³⁻¹⁴; **OR**
- Colorectal¹⁵⁻¹⁷; **OR**
- Endometrial¹⁸⁻¹⁹; **OR**
- Esophageal²⁰⁻²¹; **OR**
- Gastric²²; **OR**
- Gestational trophoblastic neoplasia²³; **OR**
- Head and neck²⁴⁻²⁶; **OR**
- Lung cancer, non-small cell²⁷⁻²⁹; **OR**
- Lung cancer, small cell²⁸⁻²⁹; **OR**
- Lymphoma³⁰⁻³¹; **OR**
- Melanoma, cutaneous³²; **OR**
- Multiple myeloma³³; **OR**
- Ovarian³⁴⁻³⁶; **OR**
- Pancreatic³⁷⁻³⁸; **OR**
- Pleural mesothelioma³⁹; **OR**
- Prostate (response to therapy and restaging)⁴⁰⁻⁴⁴; **OR**
- Squamous cell carcinoma of the skin⁴⁵; **OR**
- Soft tissue sarcoma⁴⁶⁻⁴⁷; **OR**
- Testes (indicated for seminoma cancers only)⁴⁸⁻⁴⁹; **OR**
- Thyroid⁵⁰⁻⁵¹; **OR**
- Vulvar⁵²; **OR**

◆ **F-18 fluciclovine, choline C-11, or prostate-specific membrane antigen (PSMA [using F-18 piflufolastat, F-18 flutufolastat, or Ga-68 PSMA-11]) PET** and the patient has prostate cancer/tumor and **ANY** of the following positive findings⁴⁰⁻⁴⁴:

- The patient has been treated with radical prostatectomy and **ANY** of the following is **TRUE**:
 - Serum prostate-specific antigen (PSA) elevation greater than 0.1 ng/ml; **OR**
 - Persistence of PSA (failure to fall to undetectable levels); **OR**
 - Previously undetectable PSA that has been increasing on two or more occasions; **OR**
- The patient has been treated with radiation therapy and **ANY** of the following:
 - An increase of PSA by 2 ng/mL or greater above the lowest post-treatment PSA; **OR**
 - PSA increasing after radiation therapy and the patient is a candidate for salvage local therapy (even if the lowest PSA value is under 2 ng/mL); **OR**
- Initial treatment planning for suspected metastatic disease; **OR**
- Staging for individuals with a diagnosis of unfavorable intermediate-risk, high-risk, or very high-risk prostate cancer; **OR**
- GA-68 PSMA-11 PET/CT before initial treatment with lutetium Lu 177 vipivotide tetraxetan for metastatic castration-resistant prostate cancer; **OR**
- ◆ **Dotatate PET** and the patient has a well-differentiated neuroendocrine tumor and **ANY** of the following^{4,53};
 - Diagnosis; **OR**
 - Staging; **OR**
 - Restaging; **OR**
 - Treatment planning for 177-lutetium Lu Dotatate; **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.

◆ **Positron emission tomography (PET) scan for non-oncologic conditions** is considered appropriate if **ALL** of the following are **TRUE**⁵⁹⁻⁶⁰:

- MRI and CT are contraindicated or inconclusive; **AND**
- **ANY** of the following is **TRUE**:
 - For suspected musculoskeletal osteomyelitis, when MRI cannot be performed and CT is nondiagnostic; **OR**
 - Fever of unknown origin (FUO) after clinical (including labs and blood cultures) and other advanced imaging workup (CT or MR) are negative; **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

→ **Positron emission tomography (PET), with or without concurrently acquired computed tomography (CT)(PET/CT)** is not considered appropriate 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 symptoms⁶¹; **OR**
- ◆ **ANY** of the following:
 - Used as an initial screening test in asymptomatic individuals; **OR**
 - Whole-body PET or PET/CT for cancer screening purposes only; **OR**
 - Initial diagnosis or staging of axillary lymph nodes in breast cancer¹⁹⁻¹²; **OR**
 - Initial diagnosis of cervical cancer related to anti-tumor treatment strategy¹¹³⁻¹⁴; **OR**
 - Initial staging of regional lymph nodes in melanoma¹³²; **OR**
 - Non-seminoma tumors of the testes⁴⁸⁻⁴⁹; **OR**
 - FDG-PET for the staging of prostate cancer.⁴⁰⁻⁴⁴

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

**NOTE: PET/CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.⁵⁴

***NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

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. [55-56](#)

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. [55-56](#)

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. [55-56](#)

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. [55-56](#)

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

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
78811	Positron emission tomography (PET) imaging of chest
78812	Positron emission tomography (PET) imaging of skull base to midhigh
78813	Positron emission tomography (PET) imaging of whole body
78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT)
78815	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging of skull base to midhigh
78816	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) of whole body
79101	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; whole body
A9515	Choline c-11, diagnostic, per study dose up to 20 millicuries
A9552	Fluorodeoxyglucose f-18 fdg, diagnostic, per study dose, up to 45 millicuries
A9587	Gallium ga-68, dotatate, diagnostic, 0.1 millicurie
A9588	Fluciclovine f-18, diagnostic, 1 millicurie
A9593	Gallium ga-68 psma-11, diagnostic, (ucsf), 1 millicurie

A9594	Gallium ga-68 psma-11, diagnostic, (ucla), 1 millicurie
A9595	Piflufolastat f-18, diagnostic, 1 millicurie
A9596	Gallium ga-68 gozetotide, diagnostic, (illuccix), 1 millicurie
A9597	Positron emission tomography radiopharmaceutical, diagnostic, for tumor identification, not otherwise classified
A9607	Lutetium Lu 177 vipivotide tetraxetan, therapeutic, 1 millicurie
A9608	Flotufolastat f18, diagnostic, 1 millicurie
A9609	Fludeoxyglucose f18 up to 15 millicuries
A9800	Gallium Ga-68 gozetotide, diagnostic, (Locametz), 1 millicurie
G0219	PET imaging whole body; melanoma for non-covered indications
G0235	PET imaging, any site, not otherwise specified
G0252	PET imaging, full and partial-ring scanners only, for initial diagnosis of breast cancer and/or surgical planning for breast cancer (e.g., initial staging of axillary lymph nodes)

Medical Evidence

Jadvar et al. (2017) published Appropriate Use Criteria for the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the European Association of Nuclear Medicine (EANM), the American Society of Clinical Oncology (ASCO), the American College of Nuclear Medicine (ACNM) the Society for Pediatric Radiology (SPR), and the Canadian Association of Nuclear Medicine (CANM). The group focused on meta-analyses and large individual studies comparing PET or PET/CT with other imaging modalities. It stated that the physician must prioritize which modality to begin with. PET/CT is said to have a strong role in restaging cancers and determining future patient management. Clinical studies cited to support the accuracy of PET/CT in detecting recurrent disease and assessing treatment response.³

The American College of Radiology (ACR) published the ACR-ACNM-SNMMI-SPR practice parameter for performing FDG-PET/CT in oncology in 2021. The indications presented in the document include use in the staging of malignancy, monitoring response to therapy, or restaging when the patient has relapsed. Additionally, this imaging modality may help localize the site of the primary tumor in the setting of metastatic disease, clarify indeterminate results, or localize occult disease when testing such as tumor markers indicates neoplastic disease. Finally, FDG-PET/CT may be used to plan treatment goals and to guide biopsy and radiation treatment planning.²

Published by the American College of Radiology in 2023, the ACR-ACNM-SNMMI practice parameter for performing Gallium-68 and Copper-64 Dotatate PET/CT imaging for neuroendocrine tumors (NETs). This imaging modality is appropriate for diagnosing, staging, restaging, and assessing treatment response in neuroendocrine tumors. Radiotracers such as those discussed in this practice parameter, which target cell membrane expression of somatostatin receptors (SSTRs), are useful in evaluating well-differentiated NETs compared to anatomical imaging. Fused imaging with computed tomography (PET/CT) in hybrid PET scanners has shown a high level of accuracy in evaluating patients with known or suspected malignancy.⁵³

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



Cohere Medical Policy – Positron Emission Tomography (PET)/PET-Computed Tomography (CT)

Clinical Guidelines for Medical Necessity Review

Version: 4

Effective Date: November 21, 2024

Important Notices

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET), PET/Computed Tomography (CT)

Recommended Clinical Approach

Positron emission tomography (PET) is a non-invasive diagnostic imaging procedure used to evaluate the metabolic activity in tissues. This technology is particularly useful for assessing oncologic, cardiovascular diseases and neurological disorders. Before undergoing a PET scan, patients typically undergo a series of preliminary assessments, including history and physical examination, and often other imaging studies like MRI or CT scans, which guide the need for further metabolic imaging⁵⁷⁻⁵⁸.

Oncologic positron emission tomography (PET) is considered advanced imaging and best utilized per institutional oncologic protocols and oncologic (e.g., National Comprehensive Cancer Network [NCCN]) and radiological society guidelines including the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the European Association of Nuclear Medicine (EANM), and the American College of Radiology (ACR). The decision to perform oncologic PET is often made at institutional tumor board meetings after multidisciplinary oncology teams review the case. Teams may include oncologic surgeons, radiation oncologists, medical oncologists, pathologists, and radiologists.¹⁻³

Medical Necessity Criteria

Indications

→ **Positron emission tomography (PET) with or without concurrently acquired computed tomography (CT)(PET/CT) using**

fluorodeoxyglucose (FDG) is considered appropriate if **ANY** of the following is **TRUE**¹⁻³:

◆ Diagnosis, staging, treatment monitoring, re-staging, or surveillance of **ANY** of the following biopsy-proven or strongly suspected primary cancer/tumor types:

- Adrenal⁴; **OR**
- Anal⁵; **OR**
- Bladder⁶; **OR**
- Bone⁷; **OR**
- Brain/central nervous system⁸; **OR**
- Breast (see Non-Indications below)^{1,9-12}; **OR**
- Cervical (see Non-Indications below)¹³⁻¹⁴; **OR**
- Colorectal¹⁵⁻¹⁷; **OR**
- Endometrial¹⁸⁻¹⁹; **OR**
- Esophageal²⁰⁻²¹; **OR**
- Gastric²²; **OR**
- Gestational trophoblastic neoplasia²³; **OR**
- Head and neck²⁴⁻²⁶; **OR**
- Lung cancer, non-small cell²⁷⁻²⁹; **OR**
- Lung cancer, small cell²⁸⁻²⁹; **OR**
- Lymphoma³⁰⁻³¹; **OR**
- Melanoma, cutaneous (see Non-Indications below)³²; **OR**
- Multiple myeloma³³; **OR**
- Ovarian³⁴⁻³⁶; **OR**
- Pancreatic³⁷⁻³⁸; **OR**
- Pleural mesothelioma³⁹; **OR**
- Prostate (response to therapy and restaging-see Non-Indications below)⁴⁰⁻⁴⁴; **OR**
- Squamous cell carcinoma of the skin⁴⁵; **OR**
- Soft tissue sarcoma⁴⁶⁻⁴⁷; **OR**
- Testes (indicated for seminoma cancers only)⁴⁸⁻⁴⁹; **OR**

- Thyroid⁵⁰⁻⁵¹; **OR**
- Vulvar⁵²; **OR**
- ◆ Characterization of solitary pulmonary nodules (SPNs) greater than 8 millimeters in diameter⁶²; **OR**
- ◆ **F-18 fluciclovine, choline C-11, or prostate-specific membrane antigen (PSMA [using F-18 piflufolastat, F-18 flutufolastat, or Ga-68 PSMA-11]) PET** and the patient has prostate cancer/tumor and **ANY** of the following positive findings⁴⁰⁻⁴⁴:
 - The patient has been treated with radical prostatectomy and **ANY** of the following is **TRUE**:
 - Serum prostate-specific antigen (PSA) elevation greater than 0.1 ng/ml; **OR**
 - Persistence of PSA (failure to fall to undetectable levels); **OR**
 - Previously undetectable PSA that has been increasing on two or more occasions; **OR**
 - The patient has been treated with radiation therapy and **ANY** of the following:
 - An increase of PSA by 2 ng/mL or greater above the lowest post-treatment PSA; **OR**
 - PSA increasing after radiation therapy and the patient is a candidate for salvage local therapy (even if the lowest PSA value is under 2 ng/mL); **OR**
 - Initial treatment planning for suspected metastatic disease; **OR**
 - Staging for individuals with a diagnosis of unfavorable intermediate-risk, high-risk, or very high-risk prostate cancer; **OR**
 - GA-68 PSMA-11 PET/CT before initial treatment with lutetium Lu 177 vipivotide tetraxetan for metastatic castration-resistant prostate cancer; **OR**

- ◆ **Dotatate PET** and the patient has a well-differentiated neuroendocrine tumor and **ANY** of the following^{4,53};
 - Diagnosis; **OR**
 - Staging; **OR**
 - Restaging; **OR**
 - Treatment planning for 177-lutetium Lu Dotatate; **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.
- ◆ **Positron emission tomography (PET) scan for non-oncologic conditions** is considered appropriate if **ALL** of the following are **TRUE**⁵⁹⁻⁶⁰:
 - MRI and CT are contraindicated or inconclusive; **AND**
 - **ANY** of the following is **TRUE**:
 - For suspected musculoskeletal osteomyelitis, when MRI cannot be performed and CT is nondiagnostic; **OR**
 - Fever of unknown origin (FUO) after clinical (including labs and blood cultures) and other advanced imaging workup (CT or MR) are negative; **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

→ **Positron emission tomography (PET), with or without concurrently acquired computed tomography (CT)(PET/CT)** is not considered appropriate 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 symptoms⁶¹; **OR**
- ◆ **ANY** of the following:
 - Used as an initial screening test in asymptomatic individuals; **OR**
 - Whole-body PET or PET/CT for cancer screening purposes only; **OR**
 - Initial diagnosis or staging of axillary lymph nodes in breast cancer¹⁹⁻¹²; **OR**
 - Initial diagnosis of cervical cancer related to anti-tumor treatment strategy¹¹³⁻¹⁴; **OR**
 - Initial staging of regional lymph nodes in melanoma¹³²; **OR**
 - Non-seminoma tumors of the testes⁴⁸⁻⁴⁹; **OR**
 - FDG-PET for the staging of prostate cancer.⁴⁰⁻⁴⁴

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

**NOTE: PET/CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.⁵⁴

***NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

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.⁵⁵⁻⁵⁶

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.⁵⁵⁻⁵⁶

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.⁵⁵⁻⁵⁶

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.^{[55-56](#)}

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

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
78811	Positron emission tomography (PET) imaging of chest
78812	Positron emission tomography (PET) imaging of skull base to midhigh
78813	Positron emission tomography (PET) imaging of whole body
78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT)
78815	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging of skull base to midhigh
78816	Positron emission tomography (PET) with concurrently

	acquired computed tomography (CT) of whole body
79101	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; whole body
A9515	Choline c-11, diagnostic, per study dose up to 20 millicuries
A9552	Fluorodeoxyglucose f-18 fdg, diagnostic, per study dose, up to 45 millicuries
A9587	Gallium ga-68, dotatate, diagnostic, 0.1 millicurie
A9588	Fluciclovine f-18, diagnostic, 1 millicurie
A9593	Gallium ga-68 psma-11, diagnostic, (ucsf), 1 millicurie
A9594	Gallium ga-68 psma-11, diagnostic, (ucla), 1 millicurie
A9595	Piflufolastat f-18, diagnostic, 1 millicurie
A9596	Gallium ga-68 gozetotide, diagnostic, (illuccix), 1 millicurie
A9597	Positron emission tomography radiopharmaceutical, diagnostic, for tumor identification, not otherwise classified
A9607	Lutetium Lu 177 vipivotide tetraxetan, therapeutic, 1 millicurie
A9608	Flotufolastat f18, diagnostic, 1 millicurie

A9609	Fludeoxyglucose f18 up to 15 millicuries
A9800	Gallium Ga-68 gozetotide, diagnostic, (Locametz), 1 millicurie
G0219	PET imaging whole body; melanoma for non-covered indications
G0235	PET imaging, any site, not otherwise specified
G0252	PET imaging, full and partial-ring scanners only, for initial diagnosis of breast cancer and/or surgical planning for breast cancer (e.g., initial staging of axillary lymph nodes)

Medical Evidence

Jadvar et al. (2017) published Appropriate Use Criteria for the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the European Association of Nuclear Medicine (EANM), the American Society of Clinical Oncology (ASCO), the American College of Nuclear Medicine (ACNM) the Society for Pediatric Radiology (SPR), and the Canadian Association of Nuclear Medicine (CANM). The group focused on meta-analyses and large individual studies comparing PET or PET/CT with other imaging modalities. It stated that the physician must prioritize which modality to begin with. PET/CT is said to have a strong role in restaging cancers and determining future patient management. Clinical studies cited to support the accuracy of PET/CT in detecting recurrent disease and assessing treatment response.³

The American College of Radiology (ACR) published the ACR-ACNM-SNMMI-SPR practice parameter for performing FDG-PET/CT in oncology in 2021. The indications presented in the document include use in the staging of malignancy, monitoring response to therapy, or restaging when the patient has relapsed. Additionally, this imaging modality may help localize the site of the primary tumor in the setting of metastatic disease, clarify indeterminate results, or localize occult disease when testing such as tumor markers indicates neoplastic disease. Finally, FDG-PET/CT may be used to plan treatment goals and to guide biopsy and radiation treatment planning.²

Published by the American College of Radiology in 2023, the ACR-ACNM-SNMMI practice parameter for performing Gallium-68 and Copper-64 Dotatate PET/CT imaging for neuroendocrine tumors (NETs). This imaging modality is appropriate for diagnosing, staging, restaging, and assessing treatment response in neuroendocrine tumors. Radiotracers such as those discussed in this practice parameter, which target cell membrane expression of somatostatin receptors (SSTRs), are useful in evaluating

well-differentiated NETs compared to anatomical imaging. Fused imaging with computed tomography (PET/CT) in hybrid PET scanners has shown a high level of accuracy in evaluating patients with known or suspected malignancy.⁵³

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Cohere Medical Policy - Quantitative Computed Tomography (QCT), Bone Density

Clinical Policy for Medical Necessity Review

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Policy Number: CHP-313-1

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Important Notices

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Policy Information:

Specialty Area: Diagnostic Imaging

Policy Name: Cohere Medical Policy - Quantitative Computed Tomography (QCT), Bone Density

Policy Number: CHP-313-1

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

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Medical Necessity Criteria

Service: Quantitative Computed Tomography (QCT), Bone Density

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 due to a lack of medical necessity resulting from 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 multiple diagnostic or therapeutic procedures are requested simultaneously or within the past 3 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.
- Duplicate exams or 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 and/or treated with a single study or procedure.
- Cohere Health evaluates imaging exams based on medical necessity, regardless of whether contrast is used. 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

Quantitative computed tomography (QCT), bone density is a three-dimensional imaging technique that measures bone mineral density (BMD) using CT scans and Hounsfield Unit (HU) measurements to provide a volumetric assessment of bone density.¹⁻⁴ This technique offers high sensitivity to bone changes, the ability to conduct separate assessments of bone compartments (i.e., cortical versus trabecular), and the potential to evaluate bone structure and strength.⁵

Medical Necessity Criteria

Indications

Quantitative computed tomography (QCT), bone density is considered appropriate if **ALL** of the following are **TRUE**:

- **ANY** of the following regarding initial imaging^{3,4}:
 - Dual-energy x-ray absorptiometry (DXA) cannot be performed for **ANY** of the following reasons:
 - Body mass index (BMI) greater than 35 kg/m²^{6,7}; **OR**
 - Severe degenerative changes of the spine; **OR**
 - Severe scoliosis; **OR**
 - Extremes in body height with documentation of clinical justification that imaging with DXA is unsatisfactory; **OR**
 - DXA has been performed during the current episode of care and is indeterminate or equivocal and requires further evaluation for treatment⁶; **OR**
 - The study is a follow-up QCT, where QCT was the original study; **AND**
- **ANY** of the following intervals⁸:
 - No more than one QCT is given per consecutive 24 months; **OR**
 - Follow-up or repeat QCT at intervals less than 24 months, with documentation of **ANY** of the following:
 - Treatment monitoring for disease progression of conditions that degrade bone mineral density (BMD); **OR**
 - Results are expected to change clinical management; **AND**
- **ANY** of the following:
 - **ANY** of the following demographics:
 - Female greater than or equal to 65 years of age⁹; **OR**
 - Male greater than or equal to 70 years of age¹⁰; **OR**
 - Postmenopausal females less than 65 years of age^{9,10} or males less than 70 years of age¹¹ at risk for an osteoporotic fracture due to any of the following:
 - BMI less than 20 kg/m²¹²; **OR**
 - Premature menopause before the age of 40¹³; **OR**
 - Current nicotine or tobacco product use¹⁴; **OR**
 - Excessive alcohol use of greater than 3 drinks per day¹⁵; **OR**
 - Parental history of hip fracture^{9,16}; **OR**
 - History of fracture with minimal or no trauma, excluding pathologic fractures¹⁷; **OR**

- Loss of height of greater than 1.5 inches¹⁷; **OR**
- **ANY** of the following medical conditions associated with abnormal BMD³:
 - Acromegaly¹⁸; **OR**
 - Assessment of the effectiveness of osteoporosis drug therapy³; **OR**
 - Bone dysplasia, with known excessive fracture risk or high BMD³; **OR**
 - Celiac disease³; **OR**
 - Cirrhosis of the liver³; **OR**
 - Chronic kidney disease (CKD)³; **OR**
 - Cushing syndrome³; **OR**
 - Cystic fibrosis¹⁹; **OR**
 - Eating disorder(s)³; **OR**
 - Excessive use of alcohol of greater than 3 drinks per day^{3,15}; **OR**
 - Gastrointestinal malabsorption³; **OR**
 - Imaging study suggests demineralization or fragility fracture(s)³; **OR**
 - Inflammatory bowel disease²⁰; **OR**
 - Hyperparathyroidism³; **OR**
 - Hyperthyroidism³; **OR**
 - Hypogonadism²¹; **OR**
 - Long-term treatment with medications known to adversely affect BMD, including **ANY** of the following³:
 - Anticonvulsant drugs; **OR**
 - Androgen deprivation therapy; **OR**
 - Aromatase inhibitor therapy; **OR**
 - Chronic heparin; **OR**
 - Chemotherapy (including methotrexate); **OR**
 - Glucocorticoid therapy; **OR**
 - Metabolic and bariatric surgery³; **OR**
 - Multiple myeloma³; **OR**
 - Organ transplantation³; **OR**
 - Osteomalacia³; **OR**
 - Postpubertal hypogonadal male with surgically or chemotherapeutically induced castration³; **OR**
 - Prolonged immobilization³; **OR**
 - Relative energy deficiency in sport (RED-S)³; **OR**
 - Rheumatoid arthritis or other inflammatory arthritides³; **OR**
 - Secondary osteoporosis¹¹; **OR**
- Pediatric patient, with **ALL** of the following:

- Results of the test are likely to directly influence treatment or management³; **AND**
- **ANY** of the following medical conditions associated with abnormal BMD:
 - Bone dysplasia, with known excessive fracture risk or high BMD^{3,22}; **OR**
 - Celiac disease³; **OR**
 - Cerebral palsy³; **OR**
 - Cushing syndrome³; **OR**
 - Cystic fibrosis^{3,23}; **OR**
 - Eating disorder(s)³; **OR**
 - Ehlers-Danlos syndrome³; **OR**
 - Epidermolysis bullosa³; **OR**
 - Galactosemia³; **OR**
 - Glucocorticoid therapy for greater than or equal to 3 months³; **OR**
 - Growth hormone deficiency³; **OR**
 - Hyperparathyroidism³; **OR**
 - Hyperthyroidism³; **OR**
 - Hypogonadism^{24,25}; **OR**
 - Inflammatory bowel disease^{3,26}; **OR**
 - Juvenile idiopathic arthritis³; **OR**
 - Juvenile idiopathic osteoporosis³; **OR**
 - Marfan syndrome^{3,27}; **OR**
 - Myopathic disease³; **OR**
 - Osteogenesis imperfecta³; **OR**
 - Radiation or chemotherapy for malignancies³; **OR**
 - Sickle cell disease³; **OR**
 - Thalassemia³; **OR**
 - Turner syndrome³; **OR**
 - Type 1 diabetes.³

Repeat imaging is considered appropriate when **ALL** of the following are **TRUE**:

- Repeat request following recent imaging within the past 3 months of the same anatomic region with the same or similar modality; **AND**
- No established guidelines for repeat imaging; **AND**
- **ANY** of the following:
 - Need for a one-time clarifying follow-up of a prior indeterminate

finding; **OR**

- New or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
- No change in symptoms and a well-established clinical need for ongoing monitoring that will influence management.

Non-Indications

Quantitative computed tomography (QCT), bone density is not considered appropriate if **ANY** of the following is **TRUE**:

- The request is for an opportunistic QCT screening^A in conjunction with another CT study.^{28,29}

Definitions and Notes

^A**Opportunistic QCT screening**: a method of extracting bone mineral density information (often through an artificial intelligence analysis) from existing CT images obtained for another clinical reason, not originally intended to assess bone health.^{28,30}

Disclaimer on Radiation Exposure in Pediatric Populations

Cohere Health is committed to ensuring that every patient has access to appropriate and safe imaging studies in accordance with established guidelines. While radiographic studies, such as computed tomography (CT), can provide critical clinical information, exposure to ionizing radiation has the potential to increase lifetime cancer risk. Risk is higher in pediatric patients due to their greater radiosensitivity and longer expected lifespan.

Radiation-induced risks can be reduced by ensuring that imaging is medically necessary and by optimizing procedures to use the lowest dose necessary to achieve diagnostic quality images, consistent with ALARA (As Low As Reasonably Achievable) principles. Alternative modalities that do not involve ionizing radiation should be considered when clinically feasible, such as ultrasound or magnetic resonance imaging (MRI). Providers should adjust equipment and dose to pediatric body sizes and track cumulative radiation exposure for patients requiring multiple imaging studies.

These measures align with guidance from the US Food and Drug Administration (FDA) initiative to reduce unnecessary radiation exposure,^{[31,32](#)} the National Cancer Institute pediatric CT risk guidelines,^{[33](#)} and the Image Gently Alliance and Image Wisely Alliance recommendations for pediatric radiation safety.^{[34,35](#)}

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
77078	Computed tomography, bone mineral density study, 1 or more sites, axial skeleton (e.g., hips, pelvis, spine)

Medical Evidence

Boehm et al. (2025) performed a retrospective study comparing dual-energy X-ray absorptiometry (DXA) with quantitative computed tomography (QCT) for the detection of osteoporosis in adults aged 50 years and older, focusing on the ability of the tests to identify patients with osteoporotic fractures. Among 304 patients who underwent both DXA and lumbar spine QCT, QCT demonstrated substantially higher sensitivity for detecting osteoporosis in individuals with prevalent vertebral or nonvertebral pathologic fractures. DXA classified over 70% of fracture patients as having normal bone mineral density (BMD) or osteopenia, whereas QCT identified 87% of fracture patients as osteoporotic. These findings were supported by control groups undergoing DXA-only or QCT-only assessment, in which each modality performed better when used as the sole diagnostic test. Overall, the study concluded that volumetric QCT, particularly trabecular bone assessment, is more sensitive than DXA for diagnosing established osteoporosis and identifying patients with osteoporotic fractures.²

The US Preventive Services Task Force (USPSTF) concluded in 2025 (with moderate certainty) that screening provides a moderate net benefit in women aged 65 years or older and in postmenopausal women younger than 65 years who are at increased fracture risk based on clinical risk assessment. Selective screening may be useful in younger postmenopausal women with one or more risk factors for osteoporosis, such as low body weight, parental history of hip fracture, cigarette smoking, or excess alcohol use. The preferred screening modality was central DXA of the hip and/or lumbar spine, though the USPSTF did not mention QCT. The USPSTF emphasized that osteoporosis screening should be integrated with appropriate evaluation, counseling, and evidence-based management to achieve the intended reduction in fracture-related morbidity and mortality.⁹

Deshpande et al. (2023) conducted a systematic review to assess the effectiveness of QCT, opportunistic CT, and magnetic resonance imaging (MRI) to measure BMD. Although DXA is considered the “gold standard,” the authors noted that QCT is a viable alternative for spinal BMD because it can measure trabecular and cortical bone separately. A total of 16 studies on the use of QCT to measure spine BMD were analyzed. The results indicated that

QCT found significant associations between decreased Hounsfield units and osteopenia/osteoporosis. When compared with DXA, QCT may better diagnose osteoporosis in patients with vertebral fractures. A limitation of QCT is the inability to standardize across institutions due to variations in hardware and calibration techniques. The authors concluded that QCT can not only provide additional information on a patient's bone health, especially for spinal fusion procedures, but also may provide time and cost savings.⁶

QCT has been shown to be beneficial in pediatric patients who cannot undergo DXA due to difficulty lying still, severe spinal curvature, or medical conditions associated with altered bone mineral density (BMD).³ Abnormal bone mineral density is associated with many chronic diseases or autoimmune conditions in pediatric populations, such as skeletal dysplasia,²² cystic fibrosis,²³ hypogonadism,^{24,25} inflammatory bowel disease,¹⁶ and Marfan syndrome.²⁷

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Cohere Medical Policy– Positron Emission Tomography (PET) Scan, Non-Oncologic Conditions

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: August 5, 2024

Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy – Positron Emission Tomography (PET) Scan, Non-Oncologic Conditions

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

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Medical Necessity Criteria

Service: Positron Emission Tomography (PET) Scan for Non-Oncologic Conditions

Recommended Clinical Approach

Positron emission tomography (PET) is a non-invasive diagnostic imaging procedure used to evaluate the metabolic activity in tissues. This technology is particularly useful for assessing cardiovascular diseases and neurological disorders. Before undergoing a PET scan, patients typically undergo a series of preliminary assessments, including history and physical examination, and often other imaging studies like MRI or CT scans, which guide the need for further metabolic imaging¹⁻².

Medical Necessity Criteria

Indications

→ **Positron emission tomography (PET) scan for non-oncologic conditions** is considered appropriate if **ALL** of the following are **TRUE**³:

◆ **ANY** of the following is **TRUE**:

- MRI and CT are contraindicated or inconclusive (e.g., body habitus for ultrasound, anaphylactic reaction due to IV contrast reaction, pregnancy, pediatric); **OR**
- This request is for follow-up PET imaging; **AND**

◆ **ANY** of the following is **TRUE**:

- Assessment of sarcoidosis when PET results are expected to alter management (as documented in the patient's medical record) or to assess treatment response including **ANY** of the following:
 - Suspected pulmonary sarcoidosis; **OR**
 - Evaluation of lymphatic sarcoidosis to determine the extent of lymph node involvement; **OR**
 - Detection of active inflammation in ocular sarcoidosis; **OR**
- Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing

follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:

- There is documented clinical necessity; **AND**
- Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
- **ANY** of the following is **TRUE**:
 - ◆ A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
 - ◆ The requirement for interval reassessment, which may alter the treatment plan; **OR**
 - ◆ One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
 - ◆ The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

→ **Positron emission tomography (PET) scan for non-oncologic conditions** is not considered appropriate if **ANY** of the following is **TRUE**⁴⁻⁵:

- ◆ The patient has undergone advanced imaging of the same body part and for the same indication within 3 months, without being on treatment.

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

**NOTE: PET scans should be scheduled at least 4–6 weeks after radiation therapy or surgery to avoid false positives due to inflammation from recent treatments.

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.⁶⁻⁷

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.⁶⁻⁷

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.⁶⁻⁷

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.⁶⁻⁷

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
78811	Positron emission tomography (PET) imaging; limited area (e.g., chest, head/neck)
78812	Positron emission tomography (PET) imaging; skull base to mid-thigh
78813	Positron emission tomography (PET) imaging; whole body

78814	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (e.g., chest, head/neck)
78815	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; skull base to mid-thigh
78816	Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; whole body
G0235	PET imaging, any site, not otherwise specified

Medical Evidence

Culver et al. (2023) conducted a study on treating pulmonary sarcoidosis, highlighting the significance of positron emission tomography (PET) scans in detecting active granulomatous inflammation, which is crucial for accurate staging and treatment planning. Their findings underscore the diagnostic value of PET in identifying pulmonary and lymphatic involvement, which often goes undetected by conventional imaging modalities. Specifically, the study demonstrated that PET scans can reveal the presence and extent of granulomas, aiding in the differentiation of active sarcoidosis from other pulmonary conditions and guiding therapeutic interventions.²

Israel-Biet and Valeyre (2013) emphasized the role of PET imaging in diagnosing pulmonary sarcoidosis. This study noted that PET scans provide detailed images that enhance the differential diagnosis by identifying areas of active inflammation, which are critical for assessing the disease's extent and severity. PET imaging's high sensitivity in detecting metabolic activity makes it a valuable tool in monitoring disease progression and response to treatment, offering a more precise evaluation than conventional imaging techniques.³

Sève et al. (2020) explored the application of PET imaging in ocular sarcoidosis, revealing its efficacy in visualizing inflammation in ocular tissues. The study highlighted PET's ability to detect inflammatory foci that may not be visible on other imaging modalities, thereby providing critical information for diagnosing and managing ocular sarcoidosis. This capability is particularly beneficial in patients presenting with ocular symptoms, as it allows for early detection and treatment of inflammation, preventing further complications and vision loss.⁴

Nunes et al. (2024) examined PET imaging in fibrotic pulmonary sarcoidosis. The study showed that PET scans could identify fibrotic changes and active lung inflammation, offering a comprehensive assessment of the disease's impact on lung function. This information was crucial for tailoring treatment plans to individual patient needs and tracking the efficacy of therapeutic interventions over time.⁵

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