

# EVOLENT CLINICAL GUIDELINE 022-2 FOR CHEST MRA

<b>Guideline or Policy Number:</b> Evolent_CG_022-2	<b><u>Applicable Codes</u></b>	
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## STATEMENT

### General Information

*It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*

*Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

### Purpose

Magnetic resonance angiography (MRA) generates images of the blood vessels (arteries and/or veins) in the chest that can be evaluated for evidence of stenosis, occlusion, or aneurysms without use of ionizing radiation. Chest MRA (non-coronary) is used to evaluate the blood vessels outside the heart in the chest (thorax).

NOTE: Authorization for MR Angiography covers both arterial and venous imaging. The term *angiography* refers to both arteriography and venography.

## INDICATIONS

### Suspected Pulmonary Embolism

- Suspected pulmonary embolism when CTA is **contraindicated** or cannot be performed:
  - High risk for PE based on shock or hypotension, OR a validated pre-test high probability score (such as Well's > 6, Modified Geneva score > 11),
    - (D-dimer is **NOT** needed for high-risk patients; can approve high-risk even with normal D dimer)
  - Intermediate and Low risk require elevated D-dimer
- Follow up of known pulmonary embolism when CTA is contraindicated or cannot be performed **AND** either symptoms (such as dyspnea, fatigue, lightheadedness and/or edema) that recur **OR** are persistent at 3 months following initial diagnosis. (Follow-up imaging in asymptomatic patients to determine if embolus has resolved or to determine cessation of anticoagulation is not indicated as imaging changes may persist)

## THORACIC AORTIC DISEASE (1,2,3,4,5)

### ***Suspected Thoracic Aortic Aneurysm***

- **Asymptomatic** suspected thoracic aortic aneurysm
  - Based on other imaging such as echocardiogram or chest x-ray
  - Screening in individuals with a personal history of bicuspid aortic valve when TTE (Transthoracic Echocardiogram) is inconclusive or insufficient:
    - Baseline study at diagnosis
    - Every 3 years thereafter
  - Screening in individuals at elevated risk due to family history as below when TTE (Transthoracic Echocardiogram) is inconclusive or insufficient:
    - First-degree relatives of individuals with a known thoracic aortic aneurysm (defined as > 50% above normal) or dissection
    - First and second-degree relatives of individuals with familial thoracic aortic aneurysm and dissection (FTAAD)/nonsyndromic heritable thoracic aortic disease (NS-TAD)
    - First degree relatives of individuals with a known bicuspid aortic valve
  - See **Genetic Syndromes and Rare Diseases** section for additional screening indications
- **Symptomatic** known or suspected thoracic aortic aneurysm
  - Symptoms may include:
    - Abrupt onset of severe sharp or stabbing pain in the chest, back or abdomen
    - Acute onset of pain with asymmetric blood pressure between limbs
    - Acute chest or back pain and at high risk for aortic aneurysm and/or aortic syndrome (risk factors include hypertension, atherosclerosis, prior cardiac or aortic surgery, underlying aneurysm, connective tissue disorder (e.g., Marfan syndrome, vascular form of Ehlers-Danlos syndrome, Loeys-Dietz syndrome), and bicuspid aortic valve)
- Suspected vascular cause of dysphagia or expiratory wheezing with other imaging that is suggestive or inconclusive.

### ***Follow-up of Known Thoracic Aortic Aneurysm***

- Baseline imaging at diagnosis then every 6-24 months
  - If there is a change in clinical status or cardiac exam, then imaging sooner than 6 months is indicated.

## ***Thoracic Aortic Syndromes***

- For **suspected** acute aortic syndrome (AAS) such as aortic dissection, intramural hematoma and penetrating atherosclerotic ulcer:
  - Other imaging (such as echocardiogram) is suggestive of AAS **OR**
  - Individual is either:
    - **high risk** and **one** sign/symptom **OR** non-high risk and **two** or more signs/symptoms of AAS:
      - **High risk** conditions:
        - ◆ Marfan's syndrome or other connective tissue disease, family history of aortic disease, known aortic valve disease, recent aortic manipulation and/or known thoracic aortic aneurysm
      - **Signs and symptoms** concerning for AAS:
        - ◆ Chest, back or abdominal pain described as abrupt onset, severe in intensity and/or ripping or tearing in quality
        - ◆ Pulse deficit or systolic blood pressure differential
        - ◆ Focal neurologic deficit with pain
        - ◆ New heart murmur with pain
        - ◆ Hypotension or shock
- For follow-up of **known** aortic syndromes, including aortic dissection, intramural hematoma and penetrating atherosclerotic ulcer: frequency for follow up is as clinically indicated.

## ***Post-operative Follow Up of Aortic Repair***

- Follow-up thoracic endovascular aortic repair (TEVAR):
  - Baseline post-EVAR at 1 month post-EVAR
  - Annually thereafter if stable
    - more frequent imaging (as clinically indicated) may be needed if there are complications or abnormal findings on surveillance imaging.
- Follow up open repair at the following intervals:
  - Baseline follow-up study at one year post-operatively
  - Every 5 years thereafter
  - If abnormal findings are seen on any surveillance imaging study, imaging is then done annually.

## **Vascular Disease (6,7,8,9)**

- Superior vena cava (SVC) syndrome
- Subclavian Steal Syndrome after positive or inconclusive ultrasound
- Thoracic Outlet Syndrome
- Suspected pulmonary hypertension when other testing (echocardiogram or right heart catheterization) is suggestive of the diagnosis

## **Congenital Malformations (10,11,12,13)**

- Suspected thoracic malformation based on other imaging (such as chest x-ray, echocardiogram, gastrointestinal study or CT)
- Congenital heart disease with pulmonary hypertension or extra-cardiac vascular anomalies
- Suspected coarctation of the aorta (clinical sign is a disparity in the pulsations and blood pressures in the legs and arms)
- Pulmonary sequestration

## **Evaluation of Tumor**

- When needed for clarification of vascular invasion from tumor

## **Pre-operative/procedural Evaluation**

- Pre-operative evaluation for a planned surgery or procedure (including prior to planned ablation for atrial fibrillation)
- Evaluation of interventional vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
- Evaluation of vascular anatomy prior to solid organ transplantation
- Evaluation prior to endovascular aneurysm repair (EVAR)
- Evaluation prior to Transcatheter Aortic Valve Replacement

## **Post-operative/procedural Evaluation (14,15)**

- Follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention, or surgery. Documentation requires a medical reason that

clearly indicates why additional imaging is needed for the type and area(s) requested.

- Evaluation of endovascular/interventional abdominal vascular procedures for luminal patency versus restenosis due to conditions such as atherosclerosis, thromboembolism, and intimal hyperplasia
- Evaluation of post-operative complications, e.g., pseudoaneurysms, related to surgical bypass grafts, vascular stents, and stent-grafts in abdomen and pelvis
- Suspected complications of IVC filters

## Genetic Syndromes and Rare Diseases

- For patients with fibromuscular dysplasia (FMD):<sup>(16,17)</sup>
  - One-time vascular study from brain to pelvis
- Vascular Ehlers-Danlos syndrome:<sup>(18,19)</sup>
  - At diagnosis and then every 18 months
  - More frequently if abnormalities are found
- Marfan Syndrome:<sup>(20)</sup>
  - At diagnosis and then every 3 years
  - More frequently (annually) if EITHER: history of dissection, dilation of aorta beyond aortic root OR aortic root ascending aorta are not adequately visualized on TTE (3.21)
- Loeys-Dietz:<sup>(22)</sup>
  - At diagnosis and then every two years
  - More frequently if abnormalities are found
- Williams Syndrome:<sup>(23)</sup>
  - When there is concern for vascular disease based on abnormal exam or imaging findings (such as diminished pulses, bruits or signs of diffuse thoracic aortic stenosis)
- Turner Syndrome
  - Screening with no known vascular abnormality at the following intervals:
    - At diagnosis
    - Every 5 years until age 18
    - Every 10 years in adults
    - Prior to pregnancy/pregnancy planning
  - Annually if any one of the following are present: coarctation of the aorta, aortic dilation, bicuspid aortic valve, hypertension

- Takayasu's Arteritis:<sup>(24)</sup>
  - For evaluation at diagnosis then as clinically indicated
- For other syndromes and rare diseases not otherwise addressed in the guideline, coverage is based on a case-by-case basis using societal guidance.

## Combination Studies

### Brain/Neck/Chest/Abdomen/Pelvis MRA

- For patients with fibromuscular dysplasia (FMD), a one-time vascular study from brain to pelvis<sup>(16,17)</sup>
- Vascular Ehlers-Danlos syndrome: At diagnosis and then every 18 months; more frequently if abnormalities are found<sup>(18,19)</sup>
- Loeys-Dietz: at diagnosis and then every two years, more frequently if abnormalities are found<sup>(22)</sup>
- For assessment in patients with spontaneous coronary artery dissection (SCAD), can be done at time of coronary angiography<sup>(25)</sup>

### Chest/Abdomen/Lower Extremity MRA

- To evaluate for an embolic source of lower extremity vascular disease ~~(may also approved as a combination chest MRA, Abdominal MRA and a single LE MRA when LE runoff disease needs to be evaluated as well)~~. Echocardiography is also **often** needed, since the heart is the most commonly reported source of lower extremity emboli, accounting for 55 to 87 percent of events.

### Chest/Abdomen/Pelvis MRA

- Evaluation prior to endovascular aneurysm repair (EVAR) when thoracic involvement is present
- Evaluation prior to Transcatheter Aortic Valve Replacement (TAVR) when CTA is contraindicated or cannot be performed<sup>(26)</sup>
- Marfan syndrome:<sup>(20)</sup>
  - At diagnosis and every 3 years
  - More frequently (annually) if EITHER: history of dissection, dilation of aorta beyond aortic root OR aortic root/ascending aorta are not adequately visualized on TTE (i.e. advanced imaging is needed to monitor the thoracic aorta)<sup>(3,21)</sup>
- Williams Syndrome<sup>(23)</sup>



- When there is concern for vascular disease (including renal artery stenosis) based on abnormal exam or imaging findings (such as diminished pulses, bruits or signs of diffuse thoracic aortic stenosis)
- Acute aortic dissection<sup>(27)</sup>
- Significant post-traumatic or post-procedural vascular complications reasonably expected to involve the chest, abdomen and pelvis

### Chest MRA and Chest MRI (or CT)

- When needed for clarification of vascular invasion from tumor

### Chest MRA and Heart MRI (or CT)

- When medical necessity criteria indications are met for each Chest MRA (see above) and Heart MRI (see Clinical Guideline Evolent CG 028) or CT (see Clinical Guideline Evolent CG 025) (such as for certain congenital malformations when evaluation of extra cardiac and cardiac structures are needed)

### Neck/Chest/Abdomen/Pelvis MRA

- Takayasu's Arteritis: For evaluation at diagnosis then as clinically indicated<sup>(24)</sup>

## Further Evaluation of Indeterminate Findings on Prior Imaging

Unless follow up is otherwise specified within the guideline: ✕

- For initial evaluation of an inconclusive finding on a prior imaging report that requires further clarification
- One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam.)

## CODING AND STANDARDS

### Coding

#### CPT Codes

71555

## Applicable Lines of Business

<input checked="" type="checkbox"/>	<u>CHIP (Children’s Health Insurance Program)</u>
<input checked="" type="checkbox"/>	<u>Commercial</u>
<input checked="" type="checkbox"/>	<u>Exchange/Marketplace</u>
<input checked="" type="checkbox"/>	<u>Medicaid</u>
<input type="checkbox"/>	<u>Medicare Advantage</u>

## BACKGROUND

### Contraindications and Preferred Studies

- Contraindications and reasons why a CT/CTA cannot be performed may include: impaired renal function, significant allergy to IV contrast, pregnancy (depending on trimester).
- Contraindications and reasons why an MRI/MRA cannot be performed may include: impaired renal function, claustrophobia, non-MRI compatible devices (such as non-compatible defibrillator or pacemaker), metallic fragments in a high-risk location, patient exceeds weight limit/dimensions of MRI machine.

## POLICY HISTORY

### Summary

Date	Summary
<u>May 2024</u>	<ul style="list-style-type: none"> <li>• <u>Updated references</u></li> <li>• <u>Added Genetics and Rare Diseases, Evaluation of Tumor, and Contraindications and Preferred Studies sections</u></li> </ul>
April 2023	<ul style="list-style-type: none"> <li>• Simplified PE indications and removed other details from background)</li> <li>• Clarified and updated follow up after repair of TAA.</li> <li>• General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline.</li> <li>• Added statement regarding further evaluation of indeterminate findings on prior imaging</li> </ul>

## LEGAL AND COMPLIANCE

### Guideline Approval

#### Committee

Reviewed / Approved by **NIA Evolent Specialty Clinical Guideline Review Committee**

#### **Disclaimer: ~~National Imaging Associates, Inc. (NIA) authorization policies~~**

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