04-70540-18

Original Effective Date: 11/15/13

Reviewed: 09/25/25

Revised: 10/15/25

Subject: Magnetic Resonance Angiography (MRA) Brain (Head)

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

Position Statement	Billing/Coding	Reimbursement	Program Exceptions	Definitions	Related Guidelines
Other	References	Updates			

DESCRIPTION:

Magnetic resonance angiography (MRA) is a noninvasive imaging technology used for the evaluation and imaging of intracranial vascular disease. Magnetic resonance angiography (MRA) or magnetic resonance venography (MRV) may be used as a first line investigation of intracranial vascular disease. It is an alternative to invasive intracatheter angiography. A contrast agent (gadolinium) may be used with MRA/MRV to enable visualization of a body system or body structure and may be used in individuals who have a history of contrast allergy and who are at high risk of kidney failure.

Summary and Analysis of Evidence: Magnetic resonance angiography (MRA) is a general term that refers to various MRA techniques used for the diagnostic evaluation, quantitative or qualitative severity assessment, and surveillance of vascular diseases of the brain, head, and neck. MRA has valuable attributes for the imaging assessment of a wide spectrum of vascular diseases. Indications for cervicocerebral MRA include, but are not limited to, the detection and evaluation of the following: steno-occlusive disease, cerebral ischemia, traumatic injury to cervicocerebral vessels, intracranial or extracranial aneurysms, acquired arteriovenous malformations, vasculitis, preoperative and/or radiation treatment planning, preprocedural and/or postprocedural evaluation, vascular anomalies in the head and neck, pulsatile dural venous sinus thrombosis and intracranial venous steno-occlusive disease (ACR–ASNR–SNIS–SPR, 2020).

POSITION STATEMENT:

Documentation Requirements

Documentation containing the medical necessity of the magnetic resonance angiography (MRA)/magnetic resonance venography (MRV) of the brain (head) and imaging results (e.g., images,

clinical reports) should be maintained in the member's medical record. Documentation may be requested as part of the review process. Magnetic resonance angiography (MRA)/magnetic resonance venography (MRV) of the brain (head) **meets the definition of medical necessity** for the following indications:

Evaluation of known intracranial vascular disease

- Known intracranial aneurysm or arteriovenous malformation (AVM)
- Known vertebral basilar insufficiency (VBI)
- Vascular abnormality visualized on previous brain imaging
- Known vasculitis, reversible cerebral vasoconstriction syndrome or Moyomoya disease.

Evaluation for suspected intracranial vascular disease

- **Aneurysm screening**
  - Screening for suspected intracranial aneurysm in member with family history (parent, sibling, or child) of intracranial aneurysm
  - Polycystic kidney disease (after age 30)
  - Loeys-Dietz syndrome
  - Fibromuscular dysplasia
  - Spontaneous coronary arteries dissection (SCAD)
  - Known aortic coarctation.
- **Vascular abnormalities**
  - Suspected vascular malformation in member with previous or indeterminate imaging study
  - Thunderclap headache with continued concern for underlying vascular abnormality after initial negative work-up
  - Headache associated with exercise or sexual activity
  - Isolated third nerve palsy with pupil involvement to evaluate for aneurysm
  - Pulsatile tinnitus to identify a vascular etiology.
- **Cerebrovascular disease**
  - Ischemic
    - Recent ischemic stroke or transient ischemic attack
    - Known or suspected vertebrobasilar insufficiency (VBI) in members with symptoms such as dizziness, vertigo, headaches, diplopia, blindness, vomiting, ataxia, weakness in both sides of the body, or abnormal speech
  - Hemorrhagic
  - Venous-MRV*

        - Suspected central venous thrombosis
        - Distinguishing benign intracranial hypertension (pseudotumor cerebri) from dural sinus thrombosis
    - Sickle cells disease
        - Neurological signs or symptoms in sickle cell members
        - High stroke risk in sickle cell members (2 - 16 years of age) with a transcranial doppler velocity > 200.

- **Vasculitis with initial laboratory workup**
    - Suspected secondary CNS vasculitis based on neurological sign or symptoms in the setting of an underlying systemic disease with abnormal inflammatory markers or autoimmune antibodies
    - Suspected primary CNS vasculitis based on neurological signs and symptoms with completed infectious/inflammatory lab work-up
    - Giant cell arteritis with suspected intracranial involvement.
- **Other intracranial vascular disease**
    - Suspected Moyomoya disease
    - Suspected reversible cerebral vasoconstriction syndrome.

Pre-operative/procedural evaluation for treatment, procedure, intervention or brain/skull surgery

- Pre-operative evaluation for a planned surgery or procedure
- Refractory trigeminal neuralgia when done for surgical planning.

Post-operative/procedural evaluation

- A follow-up study may be needed to help evaluate a member's progress after treatment, procedure, intervention or surgery. Documentation required.

***Magnetic resonance venography (MRV) and central venous thrombosis**

MRV is indicated for the evaluation of a central venous thrombosis/dural sinus thrombosis.

BILLING/CODING INFORMATION:

CPT Coding:

70544	Magnetic resonance angiography, head; without contrast material(s)
70545	Magnetic resonance angiography, head; with contrast material(s)
70546	Magnetic resonance angiography, head; without contrast material(s), followed by contrast material(s) and further sequences

REIMBURSEMENT INFORMATION:

Refer to section entitled **POSITION STATEMENT**.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

LOINC Codes:

The following information may be required documentation to support medical necessity: physician history and physical, physician progress notes, plan of treatment and reason for magnetic resonance angiography (MRA) of the brain (head).

Documentation Table	LOINC Codes	LOINC Time Frame Modifier Code	LOINC Time Frame Modifier Codes Narrative
Physician history and physical	28626-0	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Attending physician progress note	18741-9	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Plan of treatment	18776-5	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology reason for study	18785-6	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology comparison study-date and time	18779-9	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology comparison study observation	18834-2	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology-study observation	18782-3	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology-impression	19005-8	18805-2	Include all data of the selected type that represents observations made six months or

			fewer before starting date of service for the claim
Radiology study-recommendation (narrative)	18783-1	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim

PROGRAM EXCEPTIONS:

Federal Employee Plan (FEP): Follow FEP guidelines.

Medicare Advantage products

The following Local Coverage Determination (LCD) was reviewed: Magnetic Resonance Angiography (MRA), (L34372) located at fcso.com.

The following National Coverage Determination (NCD) was reviewed: Magnetic Resonance Imaging (MRI), (220.2) located at cms.gov.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Magnetic Resonance Angiography (MRA) Abdomen and Pelvis, 04-70540-21

Magnetic Resonance Angiography (MRA) Chest, 04-70540-20

Magnetic Resonance Angiography (MRA) Extremity (Upper and Lower, 04-70540-22

Magnetic Resonance Angiography (MRA) Neck, 04-70540-19

Magnetic Resonance Angiography (MRA) Spinal Canal, 04-70540-23

OTHER:

None applicable.

REFERENCES:

1. American College of Radiology ACR Appropriateness Criteria®: Ataxia, 2018.
2. American College of Radiology ACR Appropriateness Criteria®: Cerebrovascular Disease, 2016.
3. American College of Radiology ACR Appropriateness Criteria®: Focal Neurological Deficit, 2012.
4. American College of Radiology ACR Appropriateness Criteria®: Headache, 2019.
5. American College of Radiology ACR Appropriateness Criteria®: Head Trauma, 2015.

6. American College of Radiology ACR Appropriateness Criteria® Pre-Irradiation Evaluation and Management of Brain Metastases, 2014.
7. ACR-NASCI-SPR Practice Parameter for the Performance of Cervicocerebral Magnetic Resonance Angiography (MRA), 2020.
8. Brott TG, Halperin JL, Abbara S et al. 2011 ASA/ACCF/AHA/AANN/AANS/ACR/ASNR/CNS/SAIP/SCAI/SIR/SNIS/SVM/SVS guideline on the management of patients with extracranial carotid and vertebral artery disease: executive summary. A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, and the American Stroke Association, American Association of Neuroscience Nurses, American Association of Neurological Surgeons, American College of Radiology, American Society of Neuroradiology, Congress of Neurological Surgeons, Society of Atherosclerosis Imaging and Prevention, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of NeuroInterventional Surgery, Society for Vascular Medicine, and Society for Vascular Surgery. Circulation 2011 Jul 26;124(4):489-532.
9. Colen TW, Wang LC, Ghodke BV, et al. Effectiveness of MDCT angiography for the detection of intracranial aneurysms in patients with nontraumatic subarachnoid hemorrhage. American Journal of Roentgenology 2007; 89:898-903.
10. Dong-Kee K, Yong Sam S, Jae Hong L et al 2012. Pulsatile Tinnitus as the Sole Manifestation of an Internal Carotid Artery Aneurysm Successfully Treated by Coil Embolization. Clinical and Experimental Otorhinolaryngology 2012; 5(3): 170-172.
11. Wermer MJH, Rinkel GJE, van Gijn J. et al. Repeated screening for intracranial aneurysms in familial subarachnoid hemorrhage, Stroke, 2003; 34:2788-2791.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 09/25/25.

GUIDELINE UPDATE INFORMATION:

11/15/13	New Medical Coverage Guideline.
11/15/14	Added magnetic resonance venography (MRV).
04/15/15	Annual review. Revised description. Revised indication for pre-operative evaluation (brain/skull). Updated references.
08/15/18	Revision; revised position statement. Updated references.
03/15/20	Review/revision. Expanded criteria for known intracranial vascular disease, suspected intracranial vascular disease, combination studies. Added indication pre-operative/procedural evaluation for treatment, procedure, intervention or brain/skull surgery and magnetic resonance venography and central venous thrombosis. Added indication and criteria for: brain MRI/brain MRA combination studies, brain MRI/brain MRA/neck MRA combination studies. Updated references.
05/15/22	Review: Position statements and references updated.
07/01/22	Revision to Program Exceptions section.
09/30/23	Review: position statements and references updated.

10/15/24	Review; update position statement. Updated references.
10/15/25	Review; no change to position statement.