

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment; Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the Member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular Member. The Member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their Providers will need to consult the Member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a Member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid Members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this MCP and provide the directive for all Medicare members. References included were accurate at the time of policy approval and publication.

OVERVIEW

Magnetic resonance imaging (MRI) is a proven, established modality for the evaluation and assessment of the brain; it is the most sensitive technique offered due to a high sensitivity level for exploiting inherent contrast differences of tissues because of variable magnetic relaxation properties and magnetic susceptibilities. Advancements in technology continue to improve the diagnosis of brain disorders (ACR et al. 2019). MRI involves multiplanar imaging based on an interaction between radiofrequency electromagnetic fields and certain nuclei in the body (typically hydrogen nuclei) once a body has been placed in a strong magnetic field. MRI distinguishes between normal and abnormal tissues to give providers a sensitive examination to identify disease. The sensitivity is correlated with the high degree of inherent contrast due to variations in the magnetic relaxation properties of different tissues (normal and diseased), and the necessity of the MRI signal on tissue properties (ACR 2022).

A computed tomography (CT) scan is the preferred study when time is of importance or there are geo access issues to evaluate and diagnose brain conditions. It is also indicated to confirm subarachnoid bleeding, a skull fracture, acute trauma, or bone abnormalities. Additional indications include CT may also be indicated if a patient has lost consciousness, was in a car accident or fell more than three feet. CT may be appropriate when MRI is contraindicated or cannot be performed. If symptoms persist for more than 48 hours, MRI may also be performed. In most clinical circumstances, Brain MRI is the preferred modality due to its lack of ionizing radiation and greater sensitivity for detecting brain abnormalities (ABIM 2014).

Headache

Imaging is not typically indicated for patients presenting with a stable pattern to migraine headaches and have a normal neurological exam. The type of imaging required depends on the clinical setting. In the emergency setting, CT is preferred over MRI due to its availability and the ability to quickly perform the imaging. CT is often the initial imaging performed in the emergency department for life threatening causes of headache (e.g., intracranial hemorrhage, tumor). For hemorrhage, CT is a very sensitive modality; signs are evident to the general radiologist and clinician vs. imaging signs of subtle hemorrhage may be difficult to appreciate on MRI. In addition, CT is safer than MRI for patients requiring monitoring and/or life-support. Radiation exposure is less due to new CT techniques (Wooten et al. 2021).

Traumatic Brain Injury (TBI)

The recommended imaging for mild TBI in the acute setting is CT without contrast, not MRI, to identify injuries that require immediate neurosurgical intervention or for early neurologic evaluation. Abnormalities are visible on initial CT; one study demonstrated a 99.7% predictive value with respect to excluding injuries that may require neurosurgical intervention (Evans & Whitlow 2022).

Stroke

Symptoms of brain ischemia may be brief and last seconds to minutes however symptoms may continue for a longer duration. When infarction occurs, the brain is irreversibly damaged, and symptoms remain indefinitely. Such symptoms do not adequately reflect the presence or absence of infarction; the speed of symptoms does not specify the cause of the ischemia. This is important as treatment relies on identifying the cause of symptoms. Imaging also aids the provider in identifying the potential causes of an embolism or low flow in ischemic stroke; imaging also detects possible aneurysms or vessel malformations in hemorrhagic stroke. The subtype of stroke can also be determined by the

Molina Clinical Policy

Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



location and size of a brain infarct on CT or MRI (Caplan 2022).

CT or MRI can be performed as an initial brain imaging study – CT is preferred due to its widespread availability, quick turnaround time, and the ability to detect ICH. Imaging such as CT is used to exclude hemorrhage in patients with acute stroke to evaluate the degree of brain injury and to identify the vascular lesion accountable for the ischemic deficit. Advancements in CT and MRI modalities can distinguish between brain tissue that is irreversibly infarcted and brain tissue that may be saved. CT angiography (CTA) is appropriate for patients who may be candidates for endovascular therapy and can be performed alongside head CT; CTA identifies an emergent large vessel occlusion (ELVO). CT perfusion imaging (CTP) identifies patients for mechanical thrombectomy, especially patients in the late time window (6 to 24 hours after time last known to be well) (Oliveira-Filho & Lansberg 2022).

Non-contrast CT (NCCT) can differentiate ischemic from hemorrhagic stroke; it can be used to recognize signs of early acute ischemic stroke. The modality can identify the presence of a blood clot which can sometimes be viewed as a hyperdensity within a blood vessel (hyperdense vessel sign) on the NCCT. During the hyperacute phase, a NCCT of the head is performed on patients with suspected stroke to exclude hemorrhage as it is highly sensitive for this indication. NCCT is recommended as soon as the patient is medically stable; when possible, many hospitals perform a NCCT as soon as the patient arrives at the emergency department (Oliveira-Filho & Lansberg 2022).

Intracerebral Hemorrhage (ICH)

CT and MRI are the initial imaging choices when diagnosing and assessing intracerebral hemorrhage (ICH) in the emergency setting. Both are required to confirm a diagnosis of ICH and to exclude ischemic stroke and stroke mimics. Non-contrast head CT identifies the presence of acute ICH and can differentiate ICH from ischemic stroke. CT angiography that may be performed with a non-contrast head CT to identify an underlying vascular cause to the ICH. Successive imaging utilizing head CT or MRI may be required when clinical deterioration is present to evaluate for ICH expansion or rebleeding. Confirmation of an ICH diagnosis requires a CT or MRI; this also helps to exclude ischemic stroke and stroke. Follow-up imaging can document stabilized bleeding. Additional imaging may also be used as a preventive measure to decrease the risk of recurrent hemorrhage (Rordorf & McDonald 2022).

Children and Adolescents

The modality of choice to detect intracranial injuries is CT, not MRI, when indicated by physical findings. Imaging should be performed for Intracranial imaging should be performed for patients with normal blood pressure with a Glasgow Coma Scale (GCS) score <14 or who have signs of a basilar skull fracture (Lee & Farrell 2022).

COVERAGE POLICY

MRI of the Brain **may be considered medically necessary** when one of the following criteria are met:

1. **Neurological Issues.** Includes, but is not limited to, any of the following:
 - a. Weakness; **OR**
 - b. Numbness or tingling; **OR**
 - c. Sensory loss; **OR**
 - d. Lack of coordination; **OR**
 - e. Problems with speech; **OR**
 - f. Vision problems; **OR**
 - g. Cranial nerve deficits; **OR**
 - h. Changes in mental status when these complaints are suspected to arise from the brain; **OR**
 - i. Suspected Stroke or TIA.
- OR**
2. **Demyelinating Disease (Multiple Sclerosis, Neuromyelitis Optica, Clinically Isolate Syndrome)**
 - a. Suspected Demyelinating disease – for evaluation of Members with symptoms consistent with a possible diagnosis of demyelinating disease; **OR**
 - b. Known Multiple Sclerosis as indicated by **ANY** of the following:
 - Worsening or new symptoms without imaging in the past three months; **OR**
 - Follow up of or surveillance of known disease and no imaging within the last year; **OR**
 - Follow up of disease progression after a change in medications and no imaging in the last three months.

Molina Clinical Policy
Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



OR

3. Movement Disorders

- a. New onset of movement disorders; **OR**
- b. Suspected Parkinson's disease; **OR**
- c. Known Parkinson's disease but with new symptoms.

OR

4. Headache, with ANY of the following:

- a. Papilledema; **OR**
- b. Awakens you from sleep; **OR**
- c. Worst headache of your life; **OR**
- d. Sudden change in headache pattern; **OR**
- e. New onset of headache over the age of 50; **OR**
- f. Recent head injury with headache; **OR**
- g. Coital headaches; **OR**
- h. Headaches which are clearly positional or worsen with coughing, sneezing; **OR**
- i. History of cancer or HIV; **OR**
- j. Headache during pregnancy; **OR**
- k. Uncontrolled vomiting; **OR**
- l. New headache with a first-degree family history (sibling, parent or child) of aneurysm; **OR**
- m. Abnormal neurological exam findings.

OR

5. Age Less Than 6

- a. Headache present on awakening; **OR**
- b. Unresponsive to medical treatment.

OR

6. Cognitive Dysfunction

- a. Mini-Mental State Examination (MMSE) testing with a score less than 25; **OR**
- b. Montreal Cognitive Assessment (MoCA) testing with a score of less than 26; **AND**
- c. Have been screened for major depression (current recommendations do not specify modality thus CT can be utilized in certain clinical scenarios); **OR**
- d. Acute onset of mental status changes.

OR

7. Brain Tumor

- a. Follow up after completion of treatment or with new signs/symptoms; **OR**
- b. Surveillance according to accepted clinical standards; **OR**
- c. Suspected pituitary tumor with abnormal blood work or vision changes; **OR**
- d. Screening for metastatic disease with known widespread disease or for certain malignancies with a high association of metastatic brain disease.

OR

8. Seizure

- a. New onset; **OR**
- b. Chronic, with a change in character or unresponsive to therapy.

OR

9. Congenital Conditions

- a. Known or suspected neurocutaneous disease (e.g., neurofibromatosis, tuberous sclerosis); **OR**
- b. Evaluation of known or suspected congenital brain abnormalities; **OR**
- c. Macrocephaly in a child > 6 months of age (should have ultrasound as initial study if < 6 months of age); **OR**
- d. Microcephaly; **OR**

Molina Clinical Policy
Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



- e. Follow up of a ventricular shunt; **OR**
- f. Known or suspected Arnold Chiari malformation; **OR**
- g. Developmental delay. The diagnosis of Autism or Autism Spectrum Disorder (ASD) is made clinically based on a careful history, clinical examination, and observation of behavior. Routine imaging is not recommended unless this diagnosis remains in question or there is concern for underlying pathology based on other factors.

OR

10. Head Trauma

- a. Headaches; **OR**
- b. Vomiting; **OR**
- c. Mental status changes; **OR**
- d. Seizures; **OR**
- e. Abnormal neurological exam findings.

OR

11. Infection / Inflammatory Disease

- a. Suspected meningitis or encephalitis; **OR**
- b. Underlying medical condition associated with inflammatory conditions of the brain and symptoms suggestive of brain involvement.

OR

12. Pre / Post-Procedural

- a. Pre-operative evaluation; **OR**
- b. Post-operative for routine recommended follow up or for potential post-operative complications; **OR**
- c. A repeat study may be needed to help evaluate a patient's progress after treatment procedure intervention or surgery. The reason for the repeat study and that it will affect care must be clear.

OR

13. Other

- a. Follow up of known hemorrhage or hematoma; **OR**
- b. For further evaluation of an abnormality seen on a Brain CT; **OR**
- c. Vertigo felt to be of central origin; **OR**
- d. Abnormal EEG.

OR

14. Brain MRI with Internal Auditory Canal (IAC)

- a. Suspected acoustic neuroma (sensorineural hearing loss, tinnitus, or ataxia); **OR**
- b. Tinnitus and other causes have been ruled out.

OR

15. Brain / Cervical Spine MRI Combination

- a. For evaluation of known Multiple Sclerosis; **OR**
- b. Diagnosis of follow-up of Arnold Chiari malformation, syrinx, or syringomyelia.

Contraindications

MRI imaging can be contraindicated in any of the following circumstances:

- 1. There is a metallic body in the eye; **OR**
- 2. For magnetically activated implanted devices (e.g., pacemakers, defibrillators, insulin pumps, neurostimulators, and for some types of metal and aneurysm clipping).

The imaging facility should always be consulted with any compatibility questions as the types of metal used and development of MRI compatible devices is continually changing.

Molina Clinical Policy

Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



Additional Critical Information

The above medical necessity recommendations are used to determine the best diagnostic study based on a patient's specific clinical circumstances. The recommendations were developed using evidence-based studies and current accepted clinical practices. Medical necessity will be determined using a combination of these recommendations as well as the patient's individual clinical or social circumstances.

DOCUMENTATION REQUIREMENTS. Molina Healthcare reserves the right to require that additional documentation be made available as part of its coverage determination; quality improvement; and fraud; waste and abuse prevention processes. Documentation required may include, but is not limited to, patient records, test results and credentials of the provider ordering or performing a drug or service. Molina Healthcare may deny reimbursement or take additional appropriate action if the documentation provided does not support the initial determination that the drugs or services were medically necessary, not investigational, or experimental, and otherwise within the scope of benefits afforded to the member, and/or the documentation demonstrates a pattern of billing or other practice that is inappropriate or excessive.

SUMMARY OF MEDICAL EVIDENCE

For peer-reviewed studies used in the development and update of this policy, please see the *Reference* section.

National and Specialty Organizations

The **American College of Radiology (ACR)**, **American College of Radiology (ACR)**, **American Society of Neuroradiology (ASNR)**, and **Society for Pediatric Radiology (SPR)** (2019) published the *ACR-ASNR-SPR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of the Brain*. The document is a provider education tool for the suitable utilization of radiologic care for patients. Sections include Indications, Qualifications and Responsibilities of Personnel, Safety Guidelines and Possible Contraindications, Specifications of the Examination, Documentation, and Equipment Specifications; a final section covers Quality Control and Improvement, Safety, Infection Control, and Patient Education.

The ACR (2022) also published the *ACR Practice Parameter for Performing and Interpreting Magnetic Resonance Imaging (MRI)*. Guidance is provided on indications and contraindications for MRI, provider qualifications to perform MRI, specifications of the examination, proper documentation, equipment specifications, and safety guidelines. A section regarding quality control and improvement is also included with information on safety, infection control, and patient education.

The ACR published appropriateness criteria related to MRI of the head (EPNI 2021, ¹⁻⁴ 2020, 2018, 2014):

- Dementia
- Headache
- Head Trauma
- Head Trauma – Child
- Hearing Loss and/or Vertigo
- Movement Disorders and Neurodegenerative Diseases
- Seizures and Epilepsy

Available *ACR Appropriateness Criteria and Procedures* can be found at [ACR](#) – search for “MRI head”.

The **American College of Obstetricians and Gynecologists (ACOG)** (2017) published *Committee Opinion No. 723: Guidelines for Diagnostic Imaging During Pregnancy and Lactation*. The guidance provides an overview of the safety, necessity, and clinical usefulness of imaging studies for acute and chronic conditions during pregnancy. Ultrasound and MRI are the preferred choice of imaging for pregnant patients however these modalities should only be utilized when medically necessary. The risk of radiation exposure to the fetus is low as radiography, CT and nuclear medicine use lower doses of radiation. Further, patients do not need to stop breastfeeding if imaging studies are necessary.

CODING & BILLING INFORMATION

CPT (Current Procedural Terminology) Codes

CPT	Description
70551	Magnetic resonance (e.g., proton) imaging, brain (including brain stem); without contrast material

Molina Clinical Policy

Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



70552	Magnetic resonance (e.g., proton) imaging, brain (including brain stem); with contrast material(s)
70553	Magnetic resonance (e.g., proton) imaging, brain (including brain stem); without contrast material, followed by contrast material(s) and further sequences

CODING DISCLAIMER. Codes listed in this policy are for reference purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement. Listing of a service or device code in this policy does not guarantee coverage. Coverage is determined by the benefit document. Molina adheres to Current Procedural Terminology (CPT®), a registered trademark of the American Medical Association (AMA). All CPT codes and descriptions are copyrighted by the AMA; this information is included for informational purposes only. Providers and facilities are expected to utilize industry standard coding practices for all submissions. When improper billing and coding is not followed, Molina has the right to reject/deny the claim and recover claim payment(s). Due to changing industry practices, Molina reserves the right to revise this policy as needed.

APPROVAL HISTORY

12/13/2023	Policy reviewed, no changes to criteria, updated references. IRO peer review by a practicing physician board certified in Radiology November 2023.
12/14/2022	Policy reviewed, no changes to criteria; updated Overview and Reference sections; added Summary of Medical Evidence section.
12/08/2021	Policy reviewed, no changes to criteria, updated references.
12/09/2020	Policy reviewed, no changes to criteria, updated references.
12/10/2019	Policy reviewed, no changes to criteria, updated references.
11/01/2018	Policy reviewed, no changes to criteria, updated references.
09/19/2017	Policy reviewed, no changes to criteria, updated references.
07/26/2017	New policy.

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Molina Clinical Policy

Brain MRI: Policy No. 611

Last Approval: 12/13/2023

Next Review Due By: December 2024



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