

# Magnetic Resonance Angiography (MRA) Spinal Canal

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## *Diagnostic Imaging*

MRA-Spine-HH  
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# Magnetic Resonance Angiography (MRA) Spinal Canal

## MRA Spinal Canal Related National Coverage Determination (NCD)/Local Coverage Determination (LCD)

Please refer to <https://www.cms.gov/medicare-coverage-database/search.aspx> if applicable to the individual's health plan membership.

Type/ID Number	Title
NCD 220.2	Magnetic Resonance Imaging
LCD 33633	Magnetic Resonance Angiography
LCD 34424	Magnetic Resonance Angiography

### Clinical Judgment

These medical policies are designed to provide clinical guidance and do not supplant a provider's independent professional judgment. Physicians retain full and independent authority to determine appropriate care based on each patient's individual clinical circumstances. Although services may be subject to documentation requirements, medical necessity review, or coverage limitations, nothing in this policy is intended to restrict or interfere with a physician's independent medical judgment.

### MRA Contraindications

An MRA is contraindicated for **ANY** of the following:

- Safety, related to clinical status (eg, body mass index exceeds MR capability, intravascular stents within recent 6 weeks)
- Safety, related to contrast material (eg, allergy, renal impairment)
- Safety, related to implanted devices (aneurysm clip, cochlear implant, insulin pump, spinal cord stimulator)



#### **IMPORTANT**

Some implanted devices that were once absolute contraindications to a MRI, may now be accepted. Considerations include if the MRI is able to accommodate the device, or the device is deemed safe for MRI.

**References:** [3] [8] [6] [5] [1]

## Preamble: Pediatric Diagnostic Imaging

HealthHelp's clinical guidelines for the Diagnostic Imaging program, are intended to apply to both adults and pediatrics (21 years of age or younger), unless otherwise specified within the criteria.

## MRA Spinal Canal Guideline

Magnetic resonance angiography (MRA) of the spinal canal is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Arteriovenous malformation (AVM) in the spinal canal, for evaluation.  
**References:** [2]
2. Myelopathy is known and compromise of blood flow or drainage to the spinal cord is suspected.  
**References:** [10]
3. Pre-procedural evaluation or post-surgical assessments for evaluation of complications or disease recurrence
4. Spinal dural arteriovenous fistula is suspected based on prior imaging.  
**References:** [9] [4]
5. Vascular pathology (compression or thrombosis) compromising spinal cord blood flow or venous drainage is suspected, **AND** disc herniation, fracture of the cervical spine, infection or venous thrombosis are known.
6. Vertebral artery injury is suspected or known **AND** vascular compromise to the spinal canal and its contents are suspected.  
**References:** [7]

## MRA Spinal Canal Summary of Changes

MRA Spinal Canal guideline had the following version changes from 2024 to 2025:

**Table 1. 2025 MRA Spinal Canal Summary of Changes**

Date	Type of Change	Summary
05/16/2025	Annual	<ul style="list-style-type: none"> <li>• Citations updated per the evidence</li> <li>• Evidence reviewed and indications remained the same.</li> <li>• Removed combination studies as they are redundant</li> <li>• Removed "Prior MRA spinal canal imaging is non-diagnostic or indeterminate" as it is too broad</li> </ul>

## MRA Spinal Canal Procedure Codes

**Table 1. MRA Spinal Canal Associated Procedure Codes**

CODE	DESCRIPTION
72159	Magnetic resonance angiography, spinal canal and contents, with or without contrast material(s)
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

## MRA Spinal Canal Definitions

**Aneurysm** refers to weakness in an artery wall, allowing it to abnormally balloon out or widen.

**Arteriovenous fistula (AVF)** is an abnormal connection between an artery and a vein. It happens when one or more arteries are directly connected to one or more veins or venous spaces called sinuses.

**Arteriovenous malformation (AVM)** are congenital high-flow vascular malformations characterized by abnormal shunting of blood from high-flow feeding arteries to low-resistance veins via a cluster of aberrant blood vessels termed a central nidus, bypassing the normal capillary bed.

**Compression** is reducing in size, quantity or volume, as if by squeezing.

**Disc herniation**, also known as a slipped, ruptured or bulged disc, occurs when a fragment of the disc nucleus is forced through a tear or rupture in the annulus. This can put pressure on the spinal cord or nearby nerves.

**Magnetic resonance angiogram (MRA)** is a test that uses a magnetic field and pulses of radio wave energy to provide images of blood vessels inside the body, allowing for evaluation of blood flow and blood vessel wall condition. MRA is used to look for aneurysms, clots, tears in the aorta, arteriovenous malformations and stenosis caused by plaque in the carotid arteries (neck) or blood vessels leading to the lungs, kidneys or legs.

**Myelopathy** is a disease or disorder of the spinal cord or bone marrow.

**Pediatric approximate ages** are defined by the US Department of Health (USDH), the Food and Drug Administration (FDA), and the American Academy of Pediatrics (AAP) as the following:

1. Infancy, between birth and 2 years of age
2. Childhood, from 2 to 12 years of age
3. Adolescence, from 12 to 21 years of age, further defined by the AAP into:
  - a. Early (ages 11–14 years)
  - b. Middle (ages 15–17 years),

- c. Late (ages 18–21 years)
- d. Older ages may be appropriate for children with special healthcare needs.

**Thrombosis** is the formation of a blood clot (partial or complete blockage) within blood vessels, whether venous or arterial, limiting the natural flow of blood and resulting in clinical sequela.

## MRA Spinal Canal References

- [1] American College of Radiology. (2023). ACR Manual on Contrast Media. *American College of Radiology*. Retrieved: April 2025. [https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast\\_Media.pdf](https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf)
- [2] Cao, L., Feng, Y., . . . Zhang, H. (2023). High diagnostic performance of time-resolved MR angiography in spinal arteriovenous shunts. *European Journal of Radiology*, 161, 110755.
- [3] Carpenter, J.P., Litt, H. & Gowda, M. (2023). Magnetic Resonance Imaging and Arteriography. A.N. Sidawy (Ed.). *Rutherford's Vascular Surgery and Endovascular Therapy* (30). (pp. 336-394.e4). Philadelphia, PA: Elsevier.
- [4] DaRos, V., Picchi, E., . . . DiGiuliano, F. (2021). Spinal vascular lesions: anatomy, imaging techniques and treatment. *European Journal of Radiology*, 8, 100369.
- [5] Gupta, S.K., Ya'qoub, L., . . . Saeed, I.M. (2020). Safety and Clinical Impact of MRI in Patients with Non-MRI-conditional Cardiac Devices. *Radiology: Cardiothoracic Imaging*, 2(5), e200086.
- [6] Maralani, P.J., Schieda, N., . . . Weinreb, J. (2020). MRI safety and devices: An update and expert consensus. *Journal of Magnetic Resonance Imaging*, 51(3), 657-674.
- [7] Temperley, H.C., McDonnell, J.M., . . . Butler, J.S. (2022). The Incidence, Characteristics and Outcomes of Vertebral Artery Injury Associated with Cervical Spine Trauma: A Systematic Review. *Global Spine Journal*, 13(4), 1134-1152.
- [8] Witte, D. H. (2021). Advanced Imaging in Orthopaedics. F.M. Azar & J.H. Beaty (Eds.). *Campbell's Operative Orthopaedics* (14), (pp. 141-176). Philadelphia, PA: Elsevier.
- [9] Wojtowicz, K., Przepiorka, L., . . . Kunert, P. (2023). Usefulness of time-resolved MR angiography in spinal dural arteriovenous fistula (SDAVF)—a systematic review and meta-analysis. *Neurosurgical Review*, 47(1), 9.
- [10] Zalweski, N. (2021). Vascular Myelopathies. *Continuum*, 27(1), 30-61.

## Disclaimer section

### Purpose

The purpose of the HealthHelp's clinical guidelines is to assist healthcare professionals in selecting the medical service that may be appropriate and supported by evidence to safely improve

outcomes. Medical information is constantly evolving, and HealthHelp reserves the right to review and update these clinical guidelines periodically. HealthHelp reserves the right to include in these guidelines the clinical indications as appropriate for the organization's program objectives. Therefore the guidelines are not a list of all the clinical indications for a stated procedure, and associated Procedure Code Tables may not represent all codes available for that state procedure or that are managed by a specific client-organization.

## Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

## Payment

The use of these clinical guidelines does not provide authorization, certification, explanation of benefits, or guarantee of payment; nor do the guidelines substitute for, or constitute, medical advice. Federal and State law, as well as member benefit contract language (including definitions and specific contract provisions/exclusions) take precedence over clinical guidelines and must be considered first when determining eligibility for coverage. All final determinations on coverage and payment are the responsibility of the health plan. Nothing contained within this document can be interpreted to mean otherwise.

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## National and Local Coverage Determination (NCD and LCD)



### NOTICE

To ensure appropriate review occurs to the most current NCD and/or LCD, always defer to <https://www.cms.gov/medicare-coverage-database/search.aspx>.



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## Background

National Coverage Determinations (NCD) and Local Coverage Determinations (LCD) are payment policy documents outlined by the Centers for Medicare and Medicaid Services (CMS) and the government's delegated Medicare Audit Contractors (MACs) that operate regionally in jurisdictions.

CMS introduced variation between different jurisdictions/Medicare Audit Contractors (MACs) and their associated covered code lists with the transition to ICD 10. The variation resulted in jurisdictions independently defining how codes are applied for exclusions, limitations, groupings, ranges, etc. for the medical necessity indications outlined in the NCD and LCD. Due to this variation, there is an inconsistent use/application of codes and coverage determinations across the United States between the different MACs.

In addition, **WITHOUT** notice, CMS can change the codes that indicate medical necessity and the format of the coverage determinations/associated documents (eg, Articles). This is an additional challenge for organizations to keep up with ongoing, unplanned changes in covered codes and medical necessity indications.

## Medical Necessity Codes

Due to the variation in code application between jurisdictions/MACs and that updates can happen without notification, HealthHelp is not able to guarantee full accuracy of the codes listed for any Coverage Determination, and advises that prior to use, the associated Coverage Determination Articles are reviewed to ensure applicability to HealthHelp's programs and any associated NCDs and LCDs.

## For Internal Use Only:

11248 11249 11253 11282 11325 11328 11333 11349 11350 11351 11352 11354 11355 11356  
11358 11359 11360 11361 11362 11365 11366 11367 11368 11369 11370 11374 11375 11394  
11395 11396 11565