Evolent Clinical Guideline 2057 for Thoracic Spine Magnetic Resonance Imaging (MRI)

Guideline Number: Evolent_CG_2057	**Applicable Codes**	
"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. 		
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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.*
- *The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations.*

Purpose

Magnetic resonance imaging (MRI) produces high quality multiplanar images of organs and structures within the body without using ionizing radiation. It is the preferred modality for evaluating the internal structure of the spinal cord, providing assessment of conditions such as degenerative disc pathology, osteomyelitis, and discitis.

Special Note

If there is a combination request* for an overlapping body part, either requested at the same time or sequentially (within the past 3 months), one of the following must be demonstrated:

- The results of the prior study should be inconclusive or show a need for additional or follow-up imaging evaluation
- The office notes should clearly document an indication why overlapping imaging is needed and how it will change management for the patient (the entire spinal cord and/or autonomic postganglionic chain must be assessed).

(*Unless approvable in the **combination section** as noted in the guidelines)

INDICATIONS FOR THORACIC SPINE MRI

Evaluation of Neurologic Deficits (1)

- With any of the following new neurological deficits documented on physical exam that localizes to the thoracic spine
    - Extremity muscular weakness (not likely caused by plexopathy or peripheral neuropathy)

- Pathologic reflexes (e.g., Babinski, Lhermitte's sign [2], Chaddock Sign [3], Hoffman's and other upper motor neuron signs); **OR** abnormal deep tendon reflexes (not likely caused by plexopathy, or peripheral neuropathy)
- Absent/decreased sensation along a particular thoracic dermatome (nerve distribution): pin prick, touch, vibration, proprioception, or temperature (and not likely caused by plexopathy, or peripheral neuropathy)
- Upper or lower extremity increase muscle tone/spasticity
- New onset bowel or bladder dysfunction (e.g., retention or incontinence)—not related to an inherent bowel or bladder process
- Gait abnormalities (see **Table 1** below for more details)

- Suspected thoracic cord compression with any neurological deficits as listed above

Evaluation of Back Pain [1]

With any of the following:

- With new or worsening objective **neurologic deficits** on exam, as above
- Failure of **conservative treatment*** for a minimum of six (6) weeks within the last six (6) months:

NOTE - Failure of conservative treatment is defined as one of the following:

- Lack of meaningful improvement after a full course of treatment; **OR**
- Progression or worsening of symptoms during treatment; **OR**
- Documentation of a medical reason the member is unable to participate in treatment

Closure of medical or therapy offices, patient inconvenience, or noncompliance without explanation does not constitute "inability to complete" treatment.

- With progression or worsening of symptoms during the course of **conservative treatment***
- With an abnormal electromyography (EMG) or nerve conduction study (if performed) indicating a thoracic radiculopathy [4,5]
- Isolated back pain in pediatric population when at least ONE of the following red flags are present [6,7] (Note: conservative care not required if red flags are present).
  - Age 5 or younger
  - Constant pain
  - Pain lasting > 4 weeks
  - Abnormal neurologic examination
  - Early morning stiffness and/or gelling
  - Night pain that prevents or disrupts sleep
  - Radicular pain

- Fever, weight loss, or malaise
- Postural changes (e.g., kyphosis or scoliosis)
- Limp (or refusal to walk in a younger child)

Evaluation of Suspected Myelopathy [8,9]

- Progressive symptoms including unsteadiness, broad-based gait, increased muscle tone, pins and needles sensation, weakness and wasting of the lower limbs, diminished sensation to light touch, temperature, proprioception, and vibration; limb hyperreflexia and pathologic reflexes; bowel and bladder dysfunction in more severe cases
- Any of the **neurological deficits** as noted above

NOTE: Does **NOT** require conservative care

Evaluation of Known or Suspected Multiple Sclerosis [9,10]

- Suspected or known multiple sclerosis (MS) with new or changing symptoms suggesting underlying thoracic spinal cord disease (i.e., transverse myelitis, progressive myelopathy)
- Suspected or known pediatric demyelinating diseases (MS/ADEM)
- For evaluation of neuromyelitis optica spectrum disorders (recurrent or bilateral optic neuritis; recurrent transverse myelitis) [11]
- For known MS, prior to the initiation or change of disease modification treatments and assess disease burden (to establish a new baseline) [10,12]
- Follow-up scans, including brain and spine imaging, if patients have known thoracic spine disease:
  - 3-6 months after starting/changing treatment
  - Every 6-12 months until stable on disease modifying treatment
  - Once stable on disease modifying treatment, every 1-2 years to assess for subclinical disease activity, less frequently when stable for 2-3 years

Evaluation of Trauma or Acute Injury [13]

- Presents with any of the following **neurological deficits** as above
- With progression or worsening of symptoms during the course of **conservative treatment***
- History of underlying spinal abnormalities (i.e., ankylosing spondylitis, diffuse idiopathic skeletal hyperostosis) (Both MRI and CT are approvable) [14,15]
- When the patient is clinically unevaluable or there are preliminary imaging findings (x-ray or CT) needing further evaluation

Evaluation of Compression Fractures [16]

- With history of malignancy
  - To aid in differentiation of benign osteoporotic fractures from metastatic disease
    - A follow-up MRI in 6-8 weeks after initial MRI when initial imaging cannot decipher (indeterminate) benign osteoporotic fracture from metastatic disease
- Fracture on initial imaging in a young patient (<50) with no history of trauma and concern for pathologic fracture
- Fracture with imaging characteristics concerning for underlying malignancy
- With an associated new focal **neurologic deficit** as above
- Prior to a planned surgery/intervention or if the results of the MRI will change management

Evaluation of Tumor, Cancer, or Metastasis

With any of the following:

- **Primary tumor** [17]
  - Initial staging primary spinal tumor
  - Follow-up of known primary cancer of patient undergoing active treatment within the past year or as per surveillance imaging guidance for that cancer
  - Known spinal tumor with new signs or symptoms (e.g., new or increasing nontraumatic pain, physical, laboratory, and/or imaging findings)
  - With an associated new focal **neurologic deficit** as above
- **Metastatic tumor** [18]
  - With evidence of metastasis on bone scan needing further clarification **OR** inconclusive findings on a prior imaging exam
  - With an associated new focal **neurologic deficit** as above
  - Known malignancy with new signs or symptoms (e.g., new or increasing nontraumatic pain, radiculopathy or back pain that occurs at night and wakes the patient from sleep with known active cancer, physical, laboratory, and/or imaging findings) in a tumor that tends to metastasize to the spine [19]

Evaluation of Known or Suspected Infection [20]

E.g., Osteomyelitis or abscess

- As evidenced by signs and/or symptoms, laboratory (i.e., abnormal white blood cell count, ESR and/or CRP) or prior imaging findings
- Follow-up imaging of infection
  - With worsening symptoms/laboratory values (i.e., white blood cell count, ESR/CRP)

or radiographic findings

Evaluation of Known or Suspected Inflammatory Disease [20]

- Spondyloarthropathies, known or suspected
  - Ankylosing Spondylitis/Spondyloarthropathies with non-diagnostic or indeterminate x-ray and appropriate rheumatology workup
- Known and suspected neuroinflammatory conditions (such as sarcoidosis, Bechet's)
  - Initial evaluation of suspected neuroinflammatory conditions after initial workup and detailed neurological examination
  - Follow-up of known neuroinflammatory conditions when there are either:
    - New or worsening signs or symptoms OR
    - To evaluate treatment response

Evaluation of Spine Abnormalities Related to Immune System Suppression [20]

E.g., HIV, chemotherapy, leukemia, or lymphoma

- As evidenced by signs/symptoms, laboratory, or prior imaging findings

Other Indications

Note: See **combination requests**, below, for initial advanced imaging assessment and pre-operatively

- Tethered cord or spinal dysraphism (known or suspected), based on preliminary imaging, neurological exam, and/or high-risk cutaneous stigmata [21–23]
- Known Arnold-Chiari syndrome (For **initial imaging** (one-time initial assessment) see **combination** below)
  - Known Chiari I malformation without syrinx or hydrocephalus, follow-up imaging after initial diagnosis with new or changing signs/symptoms or exam findings consistent with spinal cord pathology [24]
  - Known Chiari II (Arnold-Chiari syndrome), III, or IV malformation
- Syrinx or syringomyelia (known or suspected)
  - With neurologic findings and/or predisposing conditions (e.g., Chiari malformation, prior trauma, neoplasm, arachnoiditis, severe spondylosis) [25]
  - To further characterize a suspicious abnormality seen on prior imaging
  - Known syrinx with new/worsening symptoms
- Toe walking in a child with signs/symptoms of myelopathy (upper motor neuron signs/hyperreflexia) localized to the thoracic spine [26]
- CSF leak highly suspected and supported by patient history and/or physical exam

findings (e.g., known or suspected spontaneous intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula) [27]

PREOPERATIVE OR POSTOPERATIVE ASSESSMENT

When not otherwise specified in the guideline:

Preoperative Evaluation:

- Prior to spinal cord stimulator to exclude canal stenosis if no prior MRI imaging of the thoracic spine has been done recently [28]
- Imaging of the area requested is needed to develop a surgical plan

Postoperative Evaluation:

- Evaluation of post operative pseudarthrosis, hardware complication and/or extent of fusion after initial x-rays

NOTE: for this indication, advanced imaging should not occur until > 6 months after surgery

- Surgical infection as evidenced by signs/symptoms, laboratory, or prior imaging findings
- New or changing neurological deficits or symptoms post-operatively [29] (see **neurological deficit** section above).
- Known or suspected complications
- A clinical reason is provided how imaging may change management

NOTE: This section applies only within the first few months following surgery unless otherwise specified

FURTHER EVALUATION OF INDETERMINATE FINDINGS

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 MRI/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).

IMAGING IN KNOWN GENETIC CONDITIONS

- LZTR1-related Schwannomatosis [30]:

- Every 2 years starting at age 12

- Neurofibromatosis 1 (NF1) [31,32]:
  - Signs and symptoms concerning for spinal tumor
- NF2-Related Schwannomatosis [33]:
  - Signs and symptoms concerning for spinal tumor
- SMARCA4 and SMARCB1 (Includes SMARCB1-associated Schwannomatosis and Rhabdoid Tumor Predisposition Syndrome) [30,34]:
  - At diagnosis
  - Monthly from age 0-6 months
  - Every 2 months from age 7-18 months
  - Every 3 months from age 19 months – 5 years
  - Annually after age 5
- Von Hippel-Lindau (VHL) [35]:
  - Annually (including at diagnosis) starting at age 11
- 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 for Known Genetic Conditions

NOTE: When medical necessity is met for an individual study **AND** conscious sedation is required (such as for young pediatric patients or patients with significant developmental delay), the entire combination is indicated.

Cervical Spine/Thoracic Spine/Lumbar Spine MRI

- LZTR1-related Schwannomatosis [30]:
  - Every 2 years starting at age 12
- Marfan Syndrome [36]:
  - For low back pain, proximal leg pain, genital/rectal pain OR
  - Weakness and numbness above knee
- NF2-Related Schwannomatosis [33]:
  - Signs and symptoms concerning for spinal tumor

Brain/Cervical Spine/Thoracic Spine/Lumbar Spine MRI

- Neurofibromatosis 1 (NF1) [31,32]:
  - Signs and symptoms concerning for brain or spinal tumor

Brain/Cervical Spine/Thoracic Spine/Lumbar Spine/Abdomen MRI

- Von Hippel-Lindau (VHL) [35]:
  - Annually (including at diagnosis) starting at age 11

Brain/Cervical Spine/Thoracic Spine/Lumbar Spine/Whole Body MRI

- SMARCA4 and SMARCB1 (Includes SMARCB1-associated Schwannomatosis and Rhabdoid Tumor Predisposition Syndrome) [30,34]:
  - At diagnosis
  - Monthly from age 0-6 months
  - Every 2 months from age 7-18 months
  - Every 3 months from age 19 months – 5 years
  - Annually after age 5

OTHER COMBINATION STUDIES WITH THORACIC SPINE MRI

Note: When medical necessity is met for an individual study **AND** conscious sedation is required (such as for young pediatric patients or patients with significant developmental delay), the entire combination is indicated.

Thoracic Spine MRI and Thoracic Spine CT

- OPLL (Ossification of posterior longitudinal ligament) [37]
- Pathologic or complex fractures
- Malignant process of spine with both bony and soft tissue involvement
- Unstable craniocervical junction
- Clearly documented indication for bony and soft tissue abnormality where assessment will change management for the patient

Brain/Cervical Spine/Thoracic Spine MRI

- Combination studies for MS: These body regions might be evaluated separately or in combination as guided by physical examination findings (e.g., localization to a particular segment of the spinal cord), patient history (e.g., symptom(s), time course, and where in the CNS the likely localization(s) is/are), and other available information, including prior imaging.
  - For evaluation of neuromyelitis optica spectrum disorders (recurrent or bilateral optic neuritis; recurrent transverse myelitis) [11]
  - For known MS, prior to the initiation or change of disease modification treatments

and assess disease burden (to establish a new baseline) [10,12]

- Follow-up scans, including brain and spine imaging, if patients have known spine disease:
  - 3-6 months after starting/changing treatment
  - Every 6-12 months until stable on disease modifying treatment
  - Once stable on disease modifying treatment, every 1-2 to assess for subclinical disease activity, less frequently when stable for 2-3 years

Brain/Cervical Spine/Thoracic Spine/Lumbar Spine MRI

- For initial evaluation of a suspected Arnold Chiari malformation
- Follow-up imaging of a known type II or type III Arnold Chiari malformation. For Arnold Chiari type I, follow-up imaging only if new or changing signs/symptoms [21,38–40]
- Oncological Applications (e.g., primary nervous system, metastatic) [17]
  - Drop metastasis from brain or spine
  - Suspected leptomeningeal carcinomatosis [41]
  - Known tumor evaluation and monitoring in neurocutaneous syndromes
- CSF leak highly suspected and supported by patient history and/or physical exam findings (e.g., known or suspected spontaneous intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula) [27]
- Tumor evaluation and monitoring in cancer predisposition syndromes

Cervical Spine/Thoracic Spine MRI

- Initial evaluation of known or suspected syrinx or syringomyelia
  - With neurologic findings and/or predisposing conditions (e.g., Chiari malformation, prior trauma, neoplasm, arachnoiditis, severe spondylosis [25]
  - To further characterize a suspicious abnormality seen on prior imaging
  - Known syrinx with new/worsening symptoms
  - For evaluation of highly suspected multiple sclerosis (MS) when Brain MRI has indeterminate findings and/or does not fulfill the McDonald criteria for the diagnosis of MS
  - With suspected transverse myelitis - with appropriate clinical symptoms (e.g., bilateral weakness, sensory disturbance, and autonomic dysfunction which typically evolve over hours or days)

Cervical Spine/Thoracic Spine/Lumbar Spine MRI

- Survey/complete initial assessment of infant/child with congenital scoliosis or juvenile idiopathic scoliosis under the age of 10 [42,43] (e.g., congenital scoliosis, idiopathic

scoliosis, scoliosis with vertebral anomalies)

- In the presence of neurological deficit, progressive spinal deformity, or for preoperative planning [44,45]
- Back pain with known vertebral anomalies (hemivertebrae, hypoplasia, agenesis, butterfly, segmentation defect, bars, or congenital wedging) in a child on preliminary imaging
- Scoliosis with any of the following [45,46]:
    - Progressive spinal deformity
    - Neurologic deficit (new or unexplained)
    - Early onset
    - Atypical curve (e.g., short segment, >30° kyphosis, left thoracic curve, associated organ anomalies)
    - Pre-operative planning
    - When office notes clearly document how imaging will change management
- Arnold-Chiari malformations [21,47]
    - Arnold-Chiari I
        - For evaluation of spinal abnormalities associated with initial diagnosis of Arnold-Chiari Malformation. (C/T/L spine due to association with tethered cord and syringomyelia), and initial imaging has not been completed [43]
    - Arnold-Chiari II-IV - For initial evaluation and follow-up as appropriate
        - Usually associated with open and closed spinal dysraphism, particularly meningomyelocele [23]
- Tethered cord, or spinal dysraphism (known or suspected) based on preliminary imaging, neurological exam, and/or high-risk cutaneous stigmata, [21–23] when anesthesia required for imaging [48] (e.g., meningomyelocele, lipomeningomyelocele, diastematomyelia, fatty/thickened filum terminale, and other spinal cord malformations)
- Oncological Applications (e.g., primary nervous system, metastatic) [17]
    - Drop metastasis from brain or spine (imaging also includes brain)
    - Suspected leptomeningeal carcinomatosis (LC) [49]
    - Known tumor evaluation and monitoring in neurocutaneous syndromes
- CSF leak highly suspected and supported by patient history and/or physical exam findings (e.g., known or suspected spontaneous intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula) [27]

Combination Studies for Malignancy for Initial Staging or Restaging

Unless otherwise specified in this guideline, indication for combination studies for malignancy for initial staging or restaging:

- Concurrent studies to include CT or MRI of any of the following areas as appropriate depending on the cancer: Abdomen, Brain, Chest, Neck, Pelvis, Cervical Spine, Thoracic Spine or Lumbar Spine.

CODING AND STANDARDS

Codes

72146, 72147, 72157, +0698T

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☒	Medicare Advantage

BACKGROUND

*Conservative Treatment

Non-operative conservative treatment should include a multimodality approach consisting of at least one (1) active and one (1) inactive component targeting the affected region.

Active Modalities

- Physical therapy
- Physician-supervised home exercise program**
- Chiropractic care

Inactive Modalities

- Medications (e.g., NSAIDs, steroids, analgesics)
- Injections (e.g., epidural injection, selective nerve root block)

- Medical Devices (e.g., TENS unit, bracing)

**Home Exercise Program

The following two elements are required to meet conservative therapy guidelines for HEP [1]:

- Documentation of an exercise prescription/plan provided by a physician, physical therapist, or chiropractor; **AND**
- Follow-up documentation regarding completion of HEP after the required 6-week timeframe or inability to complete HEP due to a documented medical reason (e.g., increased pain or inability to physically perform exercises).

Myelopathy

Symptom severity varies, and a high index of suspicion is essential for making the proper diagnosis in early cases. Symptoms of pain and radiculopathy may not be present. The natural history of myelopathy is characterized by neurological deterioration. The most frequently encountered symptom is gait abnormality (86%), followed by increased muscular reflexes (79.1%), pathological reflexes (65.1%), paresthesia of upper limb (69.8%), and pain (67.4%) [8]

Gait and Spine Imaging

Table 1 [50–53]

Gait	Characteristic	Work up/Imaging
Hemiparetic	Spastic unilateral, circumduction	Brain and/or, Cervical spine imaging based on associated symptoms
Diplegic	Spastic bilateral, circumduction	Brain, Cervical and Thoracic Spine imaging
Myelopathic	Wide based, stiff, unsteady	Cervical and/or Thoracic spine MRI based on associated symptoms
Cerebellar Ataxic	Broad based, clumsy, staggering, lack of coordination, usually also with limb ataxia	Brain imaging
Apraxic	Magnetic, shuffling, difficulty initiating	Brain imaging
Parkinsonian	Stooped, small steps, rigid, turning en bloc, decreased arm swing	Brain Imaging
Choreiform	Irregular, jerky, involuntary movements	Medication review, consider brain imaging as per movement disorder Brain MR guidelines

Gait	Characteristic	Work up/Imaging
Sensory ataxic	Cautious, stomping, worsening without visual input (i.e. + Romberg)	EMG, blood work, consider spinal (cervical or thoracic cord imaging) imaging based on EMG
Neuropathic	Steppage, dragging of toes	EMG initial testing; BUT if there is a foot drop, lumbar spine MRI is appropriate without EMG Pelvis MR if there is evidence of plexopathy
Vestibular	Insecure, veer to one side, worse when eyes closed, vertigo	Consider Brain/IAC MRI

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 wight limit/dimensions of MRI machine

SUMMARY OF EVIDENCE

ACR Appropriateness Criteria® Thoracic Back Pain [(1)]

Study Design: The document is a guideline developed by the ACR Expert Panel on Neurological Imaging. It reviews the appropriateness of various imaging procedures for different clinical scenarios involving thoracic back pain (TBP). The guidelines are based on a thorough literature review and expert consensus.

Target Population: The target population includes adults with thoracic back pain, categorized into several variants:

1. Acute thoracic back pain without myelopathy or radiculopathy and no red flags.
2. Subacute or chronic thoracic back pain without myelopathy or radiculopathy and no red flags.
3. Thoracic back pain with myelopathy or radiculopathy.
4. Thoracic back pain with one or more of the following: low-velocity trauma, osteoporosis, elderly individuals, or chronic steroid use.
5. Thoracic back pain with suspicion of cancer, infection, or immunosuppression.

6. Thoracic back pain with radiographic evidence of bone destruction, fracture, or spinal deformity.
7. Thoracic back pain post-thoracic spine surgery.

Key Factors

- **Imaging Procedures**: The document evaluates the appropriateness of various imaging modalities such as radiography, MRI, CT, bone scans, and FDG-PET/CT for each clinical scenario.
- **Radiation Levels**: It provides relative radiation levels for each imaging procedure to help assess the risk-benefit ratio.
- **Clinical Scenarios**: Each variant is discussed in detail, providing recommendations for initial imaging and follow-up based on the presence of specific clinical features and risk factors.
- **Expert Consensus**: The guidelines are developed through collaboration with various experts and organizations, ensuring a comprehensive and balanced approach.

ACR Appropriateness Criteria® Acute Spinal Trauma [13]

Study Design: The document is a revised guideline by the American College of Radiology (ACR) for the appropriateness of imaging procedures in acute spinal trauma. It includes a summary of literature reviews, expert panel recommendations, and evidence-based criteria for various clinical scenarios.

Target Population: The guidelines focus on patients aged 16 years and older who have experienced acute blunt trauma to the cervical, thoracic, or lumbar spine. Specific criteria are provided for different age groups and clinical conditions, including low-risk patients, those with suspected arterial injury, and obtunded patients.

Key Factors:

Imaging Procedures: The document outlines the appropriateness of various imaging modalities such as CT, MRI, MRA, and radiography for different clinical scenarios. It emphasizes the use of CT without IV contrast as the initial imaging modality for most cases.

Clinical Criteria: The guidelines incorporate the NEXUS and Canadian C-Spine Rule (CCR) criteria for determining the need for cervical spine imaging. These criteria are based on factors such as age, mechanism of injury, and clinical symptoms.

Radiation Levels: The document includes relative radiation level designations for each imaging procedure, highlighting the importance of minimizing radiation exposure.

Expert Panel: The guidelines were developed by an expert panel on neurological imaging, including specialists from various institutions and organizations.

ACR Appropriateness Criteria® Management of Vertebral Compression Fractures: 2022 Update [16]

Study Design: The study design involves the development and revision of the ACR

Appropriateness Criteria, which are evidence-based guidelines for specific clinical conditions. These guidelines are reviewed annually by a multidisciplinary expert panel. The guideline development includes an extensive analysis of current medical literature from peer-reviewed journals and the application of well-established methodologies such as the RAND/UCLA Appropriateness Method and the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) to rate the appropriateness of imaging and treatment procedures for specific clinical scenarios.

Target Population: The target population for this study includes individuals with vertebral compression fractures, which can be caused by various etiologies such as trauma, osteoporosis, or neoplastic infiltration. Osteoporosis-related fractures are the most common cause of VCFs and have a high prevalence among postmenopausal women and similarly aged men. The study also addresses VCFs caused by trauma and malignancies, including primary bone tumors and metastatic cancers.

Key factors:

- The prevalence and causes of VCFs, highlighting the high incidence among postmenopausal women and the increasing incidence in men.
- The importance of diagnostic imaging in characterizing VCFs and guiding treatment decisions.
- The use of various imaging modalities such as MRI, CT, FDG-PET/CT, and bone scans to evaluate VCFs.
- The management of both osteoporotic and pathologic VCFs, including medical management, percutaneous vertebral augmentation, and surgical consultation.
- The role of minimally invasive percutaneous image-guided techniques for treating spine tumors and the potential benefits of vertebral augmentation procedures.

ANALYSIS OF EVIDENCE

Shared Findings [1,13,16]**:**

Imaging Techniques: All three articles emphasize the importance of imaging techniques in diagnosing and managing spinal conditions. They discuss various imaging modalities such as MRI, CT, and bone scans. MRI is frequently highlighted as the preferred imaging modality due to its ability to provide detailed soft tissue resolution and assess spinal canal patency.

Role of MRI: MRI is recommended for evaluating spinal conditions, particularly for identifying marrow replacing lesions, osseous destruction, canal compromise, and cord signal abnormalities. MRI with and without IV contrast is suggested for cases with suspected neoplasm, infection, or inflammation.

CT Imaging: CT is recognized for its high-resolution depiction of osseous structures and is useful for preoperative planning and assessing hardware integrity. CT myelography is mentioned as a complementary imaging technique, particularly for presurgical or preradiation treatment planning

POLICY HISTORY

Date	Summary

June 2025	• Guideline name changed from Thoracic Spine MRI to Thoracic Spine Magnetic Resonance Imaging (MRI)
	• Guideline number changed from Evolent CG 042 to Evolent CG 2057
	• Added new bullet-point to the General Statement section
	• Checked the Medicare Advantage box in the Applicable Lines of Business table
	• Added a Summary of Evidence and Analysis of Evidence
	• Updated references and background
	• MS
	  ○ Moved combo section down
	  ○ Changed follow up of known MS after changing or starting treatment to 3-6 months from 6-12 months
	• Evaluation Compression Fractures
	  ○ Added
	  ■ Fracture on initial imaging in a young patient (<50) with no history of trauma and concern for pathologic fracture
	  ■ Fracture with imaging characteristics concerning for underlying malignancy
	• Updated the Genetics and Rare Diseases section

June 2024	• Aligned combination studies across guidelines • Added contraindications and preferred studies section • Added Genetics and Rare Diseases section • Reduced background section • Updated references

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

Disclaimer

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Evolent Clinical Guidelines are comprehensive and inclusive of various procedural applications for each service type. Our guidelines may be used to supplement Medicare criteria when such criteria is not fully established. When Medicare criteria is determined to not be fully established, we only reference the relevant portion of the corresponding Evolent Clinical Guideline that is applicable to the specific service or item requested in order to determine medical necessity.

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