![evolent logo]

Evolent Clinical Guideline ~~043~~2056 for Thoracic Spine Computed Tomography (CT)

Guideline ~~or Policy~~ Number: Evolent_CG_~~043~~2056	**Applicable Codes**	
"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. ***© 1997 - ~~2025~~2026 Evolent. All rights Reserved.***		
Original Date: September 1997	**Last Revised Date:** June ~~2024~~2025	**Implementation Date:** January ~~2025~~2026

TABLE OF CONTENTS

STATEMENT 3
General Information 3
Purpose 3
Special Note 3
INDICATIONS FOR THORACIC SPINE CT 3
Evaluation of Neurologic Deficits 3
Evaluation of Back Pain 4
Evaluation of Suspected Myelopathy 6
Evaluation of Trauma or Acute Injury 6
Evaluation of Compression Fractures 6
CT Myelogram 7
Evaluation of Tumor, Cancer, or Metastasis 7
Evaluation of Known or Suspected Infection 8
Evaluation of Known or Suspected Inflammatory Disease 8
Evaluation of Spine Abnormalities Related to Immune System Suppression 9
Other Indications 9
PREOPERATIVE OR POSTOPERATIVE ASSESSMENT 9
FURTHER EVALUATION OF INDETERMINATE FINDINGS 10
OTHER COMBINATION STUDIES 10
WITH THORACIC SPINE CT 11
Thoracic Spine MRI and Thoracic Spine CT 11
Cervical Spine/Thoracic Spine CT 11
Brain/Cervical Spine/Thoracic Spine/Lumbar Spine CT 12
Cervical Spine/Thoracic Spine/Lumbar Spine CTs 12
Combination Studies for Malignancy for Initial Staging or Restaging 13
CODING AND STANDARDS 14
Codes 14
Applicable Lines of Business 14
BACKGROUND 14

*Conservative Treatment 14
**Home Exercise Program 14
Gait and Spine Imaging 15
Table 1 ..... *15*
Contraindications and Preferred Studies 16
SUMMARY OF EVIDENCE 16
ANALYSIS OF EVIDENCE 18
POLICY HISTORY 18
LEGAL AND COMPLIANCE 19
Guideline Approval 19
Committee 19
Disclaimer 20
REFERENCES 21

STATEMENT

General Information

- *It is an expectation that all patients receive care/services from a licensed clinician. ~~All~~ All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. ~~If~~ 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

Computed tomography is used for the evaluation, assessment of severity, and follow-up of diseases of the spine. ~~Its use in the thoracic spine is limited, however, due to the lack of epidural fat in this part of the body. CT myelography improves the contrast severity of CT, but it is also invasive.~~ CT may be used for conditions, e.g., degenerative changes, infection, and immune suppression, when magnetic resonance imaging (MRI) is contraindicated. It may also be used in the evaluation of tumors, cancer, or metastasis in the thoracic spine, and it may be used for preoperative and post-surgical evaluations. ~~CT obtains images from different angles and uses computer processing to show a cross-section of body tissues and organs.~~ CT is fast and is often performed in acute settings~~. It~~ and provides good visualization of cortical bone.

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 ~~**OR**~~
- 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 CT

Evaluation of Neurologic Deficits [1] ~~,2)~~

When Thoracic Spine MRI is Contraindicated or cannot be performedInappropriate

- With any of the following new neurological deficits documented on physical exam that localizes to the thoracic spine
  - Extremity muscular weakness (and not likely caused by plexopathy or peripheral neuropathy)[(3)])
  - Pathologic reflexes (e.g., Babinski, Lhermitte's sign[(4)];,[(2)] Chaddock Sign[(5)];,[(3)] Hoffman's and other upper motor neuron signs); **OR** abnormal deep tendon reflexes (and not likely caused by plexopathy, or peripheral neuropathy)
  - Absent/decreased sensory changessensation along a particular thoracic dermatome (nerve distribution): pin prick, touch, vibration, proprioception, or temperature weakness (and not likely caused by plexopathy, or peripheral neuropathy)
  - Upper or lower extremity increase muscle tone/spasticity and likely localized to the thoracic spinal cord
  - 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 [(6)][(1)]

With any of the following when Thoracic Spine MRI is Contraindicated

- 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. (EMG is not recommended to determine the cause of axial lumbar, thoracic, or cervical spine pain)[(7)][(4,5)]
- Isolated back pain in pediatric population[(8,9)] (when at least ONE of the following red flags are present [(6,7)] (Note: conservative care not required if red flags present). Red flags that prompt imaging include any **ONE** of the following:are present)
  - Age 5 or youngeryounger

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

Pre-Operative/Post-Operative/Procedural Evaluation

As part of initial pre-operative/post-operative/procedural evaluation (The best examinations are CT to assess for hardware complication, extent of fusion and pseudarthrosis and MRI for cord, nerve root compression, disc pathology, or post-op infection)[6]

Note: If ordered by neurosurgeon or orthopedic surgeon for purposes of surgical planning, a contraindication to MRI is not required.

- For preoperative evaluation/planning
- CT discogram
- Evaluation of post operative pseudoarthrosis after initial x-rays (CT should not be done before 6 months after surgery)
- CSF leak highly suspected and supported by patient history and/or physical exam findings (leak (known or suspected spontaneous (idiopathic) intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula -preferred exam CT myelogram))[10]
- Prior to spinal cord stimulator to exclude canal stenosis if no prior imaging of the thoracic spine has been done recently and MRI is contraindicated
- A follow-up study may be needed to help evaluate a patient's progress after treatment, procedure, intervention, or surgery in the last 6 months. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested (routine surveillance post-op not indicated without symptoms)
- Surgical infection as evidenced by signs/symptoms, laboratory, or prior imaging findings
- New or changing neurological deficits or symptoms post-operatively[11](see **neurological deficit** section above).
- When combo requests are submitted (i.e., MRI and CT of the spine), the office notes should clearly document the need for both studies to be done simultaneously (e.g., the need for both soft tissue and bony anatomy is required)[12]

- Combination requests where both thoracic spine CT and MRI thoracic spine are both approvable (not an all-inclusive list):
  - OPLL (Ossification of posterior longitudinal ligament)
    - Most common in cervical spine (rare but more severe in thoracic spine)[13]
- Pathologic or complex fractures
- Malignant process of spine with both bony and soft tissue involvement
- Clearly documented indication for bony and soft tissue abnormality where assessment will change management for the patient

Evaluation of Suspected Myelopathy [14,15](8,9)

When Thoracic Spine MRI is Contraindicated

Does **NOT** require conservative care

- 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 Trauma or Acute Injury [16](10)

- 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)[17,18,19]) (11–13)
- When the patient is clinically unevaluable or there are preliminary imaging findings (x-ray or CTMRI) needing further evaluation

MRI and CT provide complementary information. When indicated it is appropriate to perform both examinations

Evaluation of Known Fracture or Known/New Compression Fractures [16,20](14)

(With Worsening Back Pain)

- To assess union of a fracture when physical examination, plain radiographs, or prior imaging suggest delayed or non-healing

- To determine the position of fracture fragments
- With history of malignancy
- (if MRI is contraindicated or cannot be performed)Fracture on initial imaging in a young patient (<50) with no history of trauma and concern for pathologic fracture
- Fracture with imaging characteristics concerning underlying malignancy
- With an associated new focal **neurologic deficit** as above
- Prior to a planned surgery/intervention or if the results of the CT will change management

CT Myelogram [10,21](15)

When MRI cannot be Performed/Contraindicated/Surgeon Preference

- When signs and symptoms inconsistent or not explained by the MRI findings
- Demonstration of the site of a CSF leak (highly suspected and supported by patient history exam findings (e.g., known or suspected spontaneous (idiopathic) intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula) [15]
- Surgical planning, especially regarding to the nerve roots or evaluation of dural sac

Evaluation of Tumor, Cancer, or Metastasis

With any of the Following:

MRI is usually the preferred study (CT may be needed to further characterize solitary indeterminate lesions seen on MRI)[22,23]

- **Primary tumor** [16]
    - Initial staging primary spinal tumor [24]
    - 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[16]
- **Metastatic tumor** [17]
    - 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**[16] as above

- ○ Known malignancy with new signs or symptoms (e.g., new or increasing nontraumatic pain, radiculopathy or back~~neck~~ 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 ~~(25,26)~~(18)

~~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. When MRI cannot be performed, is contraindicated, or CT is preferred to characterize the finding.~~
- ~~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). (When MRI cannot be performed, is contraindicated, or CT is preferred to characterize the finding).~~

Evaluation of Known or Suspected Infection ~~/Abscess/Inflammatory disease~~ ~~(27)~~(19)

When Thoracic Spine MRI is ~~contraindicated~~ Contraindicated or cannot be performed

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
  - ○ W~~w~~ith worsening symptoms/laboratory values (i.e., white blood cell count, ESR/CRP) or radiographic findings

Evaluation of Known or Suspected Inflammatory Disease

- ~~**E.g., Osteomyelitis**~~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 ~~(27)~~(19)

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

When Thoracic Spine MRI is Contraindicated

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

~~E.g., HIV, chemotherapy, leukemia, or lymphoma~~Other Indications ~~for Thoracic Spine CT~~

When MRI is Contraindicated or Cannot be Performed

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 ~~(28,29,30)~~(20,21)
- Known Arnold-Chiari syndrome (For **initial imaging** (one-time initial ~~modality~~ 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 ~~(31)~~(22)
  - Known Chiari II (Arnold-Chiari syndrome), III, or IV malformation
- Syrinx or syringomyelia (known or suspected)~~(32)~~) (23)
  - With neurologic findings and/or predisposing conditions (e.g., Chiari malformation, prior trauma, neoplasm, arachnoiditis, severe spondylosis)
  - 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 ~~(myelopathy~~ (upper motor neuron signs/hyperreflexia) localized to the thoracic spine

PREOPERATIVE OR POSTOPERATIVE ASSESSMENT (1)

When not otherwise specified in the guideline:

Preoperative Evaluation:

- CT discogram
- Prior to spinal cord stimulator to exclude canal stenosis if no prior imaging of the thoracic spine has been done recently and MRI is contraindicated or cannot be performed

- Imaging of the area requested is needed to develop a surgical plan (no contraindication to MRI required if ordered by a neurosurgeon or orthopedic surgeon)

Postoperative Evaluation:

- Evaluation of post operative pseud~~o~~arthrosis, hardware complication and/or extent of fusion after initial x-rays (a contraindication to MRI is not needed)
  - **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 and MRI is contraindicated or cannot be performed
- New or changing neurological deficits or symptoms post-operatively [11] (see **neurological deficit** section above) and MRI is contraindicated or cannot be performed
- 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. When MRI cannot be performed, is contraindicated, or CT is preferred to characterize the finding.
- 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). (When MRI cannot be performed, is contraindicated, or CT is preferred to characterize the finding).
- ~~Suspected neuroinflammatory Conditions/Diseases (e.g., sarcoidosis, Behcet's)- After detailed neurological exam and appropriate initial work up completed~~
- ~~Follow-up known neuroinflammatory Conditions/Diseases (e.g., sarcoidosis, Behcet's) with new or worsening signs/symptoms or to evaluate treatment response~~

Other Combination Studies

~~BRAIN CT/CERVICAL SPINE CT/~~ WITH THORACIC SPINE CT~~/LUMBAR SPINE CT (ANY COMBINATION)~~

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.~~**Note:** Combination studies can be approved criteria is met for one of the above indications and is being performed in a child under 8 years of age who will need anesthesia for the procedure~~

Thoracic Spine MRI and ~~/~~Thoracic Spine CT

- OPLL (Ossification of posterior longitudinal ligament) [24]
- 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
- ~~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 [33,34,35,36,37]~~
  - ~~Oncological Applications (e.g., primary nervous system, metastatic)Drop metastasis from brain or spine (CT spine imaging in this scenario is usually CT myelogram) see background~~
  - ~~Suspected leptomeningeal carcinomatosis (see background) [36]~~
  - ~~Tumor evaluation and monitoring in neurocutaneous syndromes~~
- ~~CSF leak highly suspected and supported by patient history and/or physical exam findings (known or suspected spontaneous (idiopathic) intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula - CT spine imaging in this scenario is usually CT myelogram)~~

Cervical Spine ~~and~~ /Thoracic Spine CT

When MRI is Contraindicated~~l~~ or CANNOT be performed or surgeon preference

- 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~~)~~~~[32]~~) [23]
  - To further characterize a suspicious abnormality seen on prior imaging
  - Known syrinx with new/worsening symptoms

Brain/Cervical Spine ~~and/or~~ /Thoracic Spine ~~and/or~~ /Lumbar Spine ~~CTs (Any Combination)~~CT

~~Note:~~ ~~These body regions might be evaluated separately~~**When MRI is contraindicated or CANNOT be performed or surgeon preference**

- 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 [20,25–27]
- Oncological Applications (e.g., primary nervous system, metastatic) [16]
  - Drop metastasis from brain or spine (CT spine imaging in this scenario is usually CT myelogram) see background
  - Suspected leptomeningeal carcinomatosis (see background) [28]
  - Known t~~T~~umor evaluation and monitoring in neurocutaneous syndromes
- ~~in combination as documented in the clinical notes~~CSF leak highly suspected and supported by patient history and/or physical ~~examination~~exam findings (e.g., ~~localization to a particular segment of the~~known or suspected spontaneous intracranial hypotension (SIH), post lumbar puncture headache, post spinal ~~cord), patient history, and other available information, including prior imaging.~~surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula ~~(CT myelogram)~~) [15]

~~**Exception**: Indications for combination studies[38,39]: Are approved indications as noted below and being performed in children who will need anesthesia for the procedure~~

- ~~Any combination of these studies for:~~

Cervical Spine/Thoracic Spine/Lumbar Spine CTs

When MRI is contraindicated or CANNOT be performed or surgeon preference

- Survey/complete initial assessment of infant/child with congenital scoliosis or juvenile idiopathic scoliosis under the age of 10 ~~[40,41,42]~~[29,30] (e.g., congenital scoliosis, idiopathic scoliosis, scoliosis with vertebral anomalies)
- In the presence of neurological deficit, progressive spinal deformity, or for preoperative planning ~~[43]~~[31,32]
- 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 ~~[44]~~~~:~~[32,33]:
  - 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~~; OR~~
  - When office notes clearly document how imaging will change management
- Arnold-Chiari malformations ~~[30,45]~~[20,34]
  - 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 ~~[28,31]~~[22,35]
  - Arnold-Chiari II-IV - For initial evaluation and follow-up as appropriate
    - Usually associated with open and closed spinal dysraphism, particularly meningomyelocele ~~[28]~~[35]
- Tethered cord, or spinal dysraphism (known or suspected) based on preliminary imaging, neurological exam, and/or high-risk cutaneous stigmata~~,~~ ~~[28,29,30]~~ , [20,21,35] when anesthesia required for imaging ~~[46]~~[36] (e.g., meningomyelocele, lipomeningomyelocele, diastematomyelia, fatty/thickened filum terminale, and other spinal cord malformations)
- Oncological Applications (e.g., primary nervous system, metastatic) [16]
  - Drop metastasis from brain or spine (imaging also includes brain; CT spine imaging in this scenario is usually CT myelogram)
  - Suspected leptomeningeal carcinomatosis (LC~~)~~ ~~[47]~~) [37]
  - Any combination of these for spinal survey in patient with metastases
  - Known t~~T~~umor evaluation and monitoring in neurocutaneous syndromes
- CSF leak highly suspected and supported by patient history and/or physical exam findings (~~leak (~~e.g., known or suspected spontaneous ~~(idiopathic)~~ intracranial hypotension (SIH), post lumbar puncture headache, post spinal surgery headache, orthostatic headache, rhinorrhea or otorrhea, or cerebrospinal-venous fistula~~ - preferred exam (CT myelogram))~~ ~~[10]~~ ~~)~~) [15]
- CT myelogram when meets above guidelines and MRI is contraindicated or for surgical planning
- Post-procedure (discogram) CT

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.

evolent

CODING AND STANDARDS

~~Coding~~

~~CPT~~ Codes

72128, 72129, 72130, +0722T

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 ~~:~~ ~~[6]~~[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).

Gait and Spine Imaging

Table 1 ~~(48)~~(38–41)

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 ~~see Brain MRI Guideline~~
Apraxic	Magnetic, shuffling, difficulty initiating	Brain imaging ~~see Brain MRI Guideline~~
Parkinsonian	Stooped, small steps, rigid, turning en bloc, decreased arm swing	Brain Imaging ~~see Brain MRI Guideline~~
Choreiform	Irregular, jerky, involuntary movements	Medication review, consider brain imaging as per movement disorder Brain MR guidelines
Sensory ataxic	Cautious, stomping, worsening without visual input (ie + Romberg)	EMG, blood work, consider spinal (cervical or thoracic cord imaging) imaging based on EMG
~~Neurogenic~~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

Gait	Characteristic	Work up/Imaging
Vestibular	Insecure, veer to one side, worse when eyes closed, vertigo	Consider Brain/IAC MRI see Brain MRI Guideline

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 (10)

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 (14)

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 [1,10,14]**:**

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

~~*Summary*~~

Date	Summary
June 2025	• Guideline name changed from Thoracic Spine CT to Thoracic Spine Computed Tomography (CT) • Guideline number changed from Evolent CG 043 to Evolent CG

Date	Summary
	2056 ● 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 ● Updated the Genetics and Rare Diseases section ● Added o Fracture on initial imaging in a young patient (<50) with no history of trauma and concern for pathologic fracture o Fracture with imaging characteristics concerning for underlying malignancy
June 2024	● Aligned Combination Studies across guidelines ● Added Contraindications and Preferred Studies section ● Reduced Background Section ● Updated references
~~May 2023~~	~~● Updated references~~ ~~● Updated background section~~ ~~● Clarified pathological reflexes~~ ~~● Added pseudoarthrosis to surgery section~~ ~~● Added "Further evaluation of indeterminate or questionable findings on prior imaging":~~ ~~● Clarified cerebellar ataxia in gait table~~ ~~● Removed radicular pain and malaise from Isolated Back Pain in the Pediatric population: Red flags.~~ ~~● Removed Additional Resources~~ ~~● General Information moved to beginning of guideline with added statement on clinical indications not addressed in this guideline~~ ~~● Added statement regarding further evaluation of indeterminate findings on prior imaging~~

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

Disclaimer

Evolent Clinical Guidelines do not constitute medical advice. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Evolent uses Clinical Guidelines in accordance with its contractual obligations to provide utilization management. Coverage for services varies for individual members according to the terms of their health care coverage or government program. Individual members' health care coverage may not utilize some Evolent Clinical Guidelines. Evolent clinical guidelines contain guidance that requires prior authorization and service limitations. A list of procedure codes, services or drugs may not be all inclusive and does not imply that a service or drug is a covered or non-covered service or drug. Evolent reserves the right to review and update this Clinical Guideline in its sole discretion. Notice of any changes shall be provided as required by applicable provider agreements and laws or regulations. Members should contact their Plan customer service representative for specific coverage information.

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.

REFERENCES

1. American College of Radiology. *ACR Appropriateness Criteria® Thoracic Back Pain.*; 2024.
2. Teoli D, Cabrero FR, Smith T, Ghassemzadeh S. Lhermitte Sign. *StatPearls*. Published online July 21, 2023. https://www.ncbi.nlm.nih.gov/books/NBK493237/
3. Acharya AB, Fowler JB. Chaddock Reflex. *StatPearls*. Published online June 26, 2023. https://www.ncbi.nlm.nih.gov/books/NBK519555/
4. Lefkowitz TR. Electrodiagnosis of Radiculopathies (Cervical, Thoracic, and Lumbar). *PM&R Knowledge NOW*. Published online June 22, 2023. https://now.aapmr.org/electrodiagnosis-of-radiculopathies-cervical-thoracic-and-lumbar/
5. Marquardt RJ, Levin KH. Electrodiagnostic Assessment of Radiculopathies. *Neurol Clin*. 2021;39(4):983-995. doi:10.1016/j.ncl.2021.06.011
6. American College of Radiology. *ACR Appropriateness Criteria® Back Pain-Child.*; 2024.
7. Frosch M, Mauritz MD, Bielack S, et al. Etiology, Risk Factors, and Diagnosis of Back Pain in Children and Adolescents: Evidence- and Consensus-Based Interdisciplinary Recommendations. *Children*. 2022;9(2):192. doi:10.3390/children9020192
8. Donnally III CJ, Hanna A, Odom CK. Cervical Myelopathy. *StatPearls*. Published online January 15, 2023. https://www.ncbi.nlm.nih.gov/books/NBK482312/
9. Agarwal V, Shah LM, Parsons MS, et al. ACR Appropriateness Criteria® Myelopathy: 2021 Update. *Journal of the American College of Radiology*. 2021;18(5):S73-S82. doi:10.1016/j.jacr.2021.01.020
10. American College of Radiology. *ACR Appropriateness Criteria® Acute Spinal Trauma.*; 2024.
11. Czuczman GJ, Mandell JC, Wessell DE, et al. ACR Appropriateness Criteria® Inflammatory Back Pain: Known or Suspected Axial Spondyloarthritis: 2021 Update. *Journal of the American College of Radiology*. 2021;18(11):S340-S360. doi:10.1016/j.jacr.2021.08.003
12. Ren C, Zhu Q, Yuan H. Imaging features of spinal fractures in ankylosing spondylitis and the diagnostic value of different imaging methods. *Quant Imaging Med Surg*. 2021;11(6):2499-2508. doi:10.21037/qims-20-962
13. Eshed I. Imaging Characteristics of Diffuse Idiopathic Skeletal Hyperostosis: More Than Just Spinal Bony Bridges. *Diagnostics*. 2023;13(3):563. doi:10.3390/diagnostics13030563
14. Khan MA, Jennings JW, Baker JC, et al. ACR Appropriateness Criteria® Management of Vertebral Compression Fractures: 2022 Update. *Journal of the American College of Radiology*. 2023;20(5):S102-S124. doi:10.1016/j.jacr.2023.02.015
15. Patel DM, Weinberg BD, Hoch MJ. CT Myelography: Clinical Indications and Imaging Findings. *RadioGraphics*. 2020;40(2):470-484. doi:10.1148/rg.2020190135
16. Referenced with permission from the National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Central Nervous System

Cancers Version 5.2024. © National Comprehensive Cancer Network, Inc. 2025. All rights reserved. To view the most recent and complete version of the guideline, go online to NCCN.org.

17. Roberts CC, Daffner RH, Weissman BN, et al. ACR Appropriateness Criteria® on Metastatic Bone Disease. *Journal of the American College of Radiology*. 2010;7(6):400-409. doi:10.1016/j.jacr.2010.02.015
18. Ziu E, Viswanathan VK, Mesfin FB. Spinal Metastasis. *StatPearls*. Published online August 14, 2023. https://www.ncbi.nlm.nih.gov/books/NBK441950/
19. Ortiz AO, Levitt A, Shah LM, et al. ACR Appropriateness Criteria® Suspected Spine Infection. *Journal of the American College of Radiology*. 2021;18(11):S488-S501. doi:10.1016/j.jacr.2021.09.001
20. Hidalgo JA, Tork CA, Varacallo MA. Arnold-Chiari Malformation. *StatPearls*. Published online September 4, 2023. https://www.ncbi.nlm.nih.gov/books/NBK431076/
21. Trapp B, de Andrade Lourenção Freddi T, de Oliveira Morais Hans M, et al. A Practical Approach to Diagnosis of Spinal Dysraphism. *RadioGraphics*. 2021;41(2):559-575. doi:10.1148/rg.2021200103
22. Kular S, Cascella M. Chiari Malformation Type 1. *StatPearls*. Published online February 9, 2024. https://www.ncbi.nlm.nih.gov/books/NBK554609/
23. Shenoy VS, Munakomi S, Sampath R. Syringomyelia. *StatPearls*. Published online March 14, 2024. https://www.ncbi.nlm.nih.gov/books/NBK537110/
24. Choi BW, Song KJ, Chang H. Ossification of the Posterior Longitudinal Ligament: A Review of Literature. *Asian Spine J*. 2011;5(4):267-276. doi:10.4184/asj.2011.5.4.267
25. Hatgaonkar AM, Mahajan SM, Hatgoankar KA, Bandre GR. MRI Imaging Insights in Chiari Malformation Type 1 and Variations With Hydrosyringomyelia. *Cureus*. 2024;16(3):e55676. doi:10.7759/cureus.55676
26. Mohammad SA, Osman NM, Ahmed KA. The value of CSF flow studies in the management of CSF disorders in children: a pictorial review. *Insights Imaging*. 2019;10(1):3. doi:10.1186/s13244-019-0686-x
27. Radic JAE, Cochrane DD. Choosing Wisely Canada: Pediatric Neurosurgery Recommendations. *Paediatr Child Health*. 2018;23(6):383-387. doi:10.1093/pch/pxy012
28. Wang N, Bertalan MS, Brastianos PK. Leptomeningeal metastasis from systemic cancer: Review and update on management. *Cancer*. 2018;124(1):21-35. doi:10.1002/cncr.30911
29. Jones JY, Saigal G, Palasis S, et al. ACR Appropriateness Criteria® Scoliosis-Child. *Journal of the American College of Radiology*. 2019;16(5):S244-S251. doi:10.1016/j.jacr.2019.02.018
30. Strahle J, Smith BW, Martinez M, et al. The association between Chiari malformation Type I, spinal syrinx, and scoliosis. *J Neurosurg Pediatr*. 2015;15(6):607-611. doi:10.3171/2014.11.PEDS14135

31. Trenga AP, Singla A, Feger MA, Abel MF. Patterns of congenital bony spinal deformity and associated neural anomalies on X-ray and magnetic resonance imaging. *J Child Orthop*. 2016;10(4):343-352. doi:10.1007/s11832-016-0752-6
32. Ruiz Santiago F, Láinez Ramos-Bossini AJ, Wáng YXJ, Martínez Barbero JP, Espinosa JG, Martínez Martínez A. The value of magnetic resonance imaging and computed tomography in the study of spinal disorders. *Quant Imaging Med Surg*. 2022;12(7):3947-3986. doi:10.21037/qims-2022-04
33. Ozturk C, Karadereler S, Ornek I, Enercan M, Ganiyusufoglu K, Hamzaoglu A. The role of routine magnetic resonance imaging in the preoperative evaluation of adolescent idiopathic scoliosis. *Int Orthop*. 2010;34(4):543-546. doi:10.1007/s00264-009-0817-y
34. Toader C, Ples H, Covache-Busuioc RA, et al. Decoding Chiari Malformation and Syringomyelia: From Epidemiology and Genetics to Advanced Diagnosis and Management Strategies. *Brain Sci*. 2023;13(12):1658. doi:10.3390/brainsci13121658
35. Iftikhar W, De Jesus O. Spinal Dysraphism and Myelomeningocele. *StatPearls*. Published online August 23, 2023. https://pubmed.ncbi.nlm.nih.gov/32491654/
36. Kadom N, Reddy K, Cooper M, Knight-Scott J, Jones R, Palasis S. Diagnostic Excellence in Pediatric Spine Imaging: Using Contextualized Imaging Protocols. *Diagnostics*. 2023;13(18):2973. doi:10.3390/diagnostics13182973
37. Sener U, Kumthekar P, Boire A. Advances in the diagnosis, evaluation, and management of leptomeningeal disease. *Neurooncol Adv*. 2021;3(Supplement_5):v86-v95. doi:10.1093/noajnl/vdab108
38. Pirker W, Katzenschlager R. Gait disorders in adults and the elderly. *Wien Klin Wochenschr*. 2017;129(3-4):81-95. doi:10.1007/s00508-016-1096-4
39. Marshall FJ. Approach to the elderly patient with gait disturbance. *Neurol Clin Pract*. 2012;2(2):103-111. doi:10.1212/CPJ.0b013e31825a7823
40. Stanford Medicine. Gait Abnormalities. The Stanford Medicine 25. https://stanfordmedicine25.stanford.edu/the25/gait.html
41. Tetreault L, Kalsi-Ryan S, Benjamin Davies, et al. Degenerative Cervical Myelopathy: A Practical Approach to Diagnosis. *Global Spine J*. 2022;12(8):1881-1893. doi:10.1177/21925682211072847