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# 2024 Magnetic Resonance Imaging (MRI) Thoracic Spine

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## *Diagnostic Imaging*

MRI-TSpine-HH

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**Last Review Date: 11/18/2024**

Previous Review Date: 10/28/2024

Guideline Initiated: 06/30/2019



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## Magnetic Resonance Imaging (MRI) Thoracic Spine

**NCD 220.2**

See also, **NCD 220.2**: Magnetic Resonance Imaging at <https://www.cms.gov/medicare-coverage-database/search.aspx> if applicable to individual's healthplan membership.

### MRI General Contraindications

MRI may be contraindicated for **ANY** of the following:

- Safety, related to clinical status (body mass index exceeds MRI capability, intravascular stents within recent 6 weeks)
- Safety, related to implanted devices (aneurysm clips, cochlear implant, insulin pump, spinal cord stimulator)<sup>1</sup>

**References:** [24] [12] [19]

### 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.

### MRI Thoracic Spine Guideline

Magnetic resonance imaging (MRI) of the thoracic spine is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Thoracic radiculopathy is demonstrated on electromyography (EMG) or nerve conduction study. (**\*NOTE:** An EMG is **NOT** recommended to determine the cause of axial lumbar, cervical or thoracic spine pain.)
2. Pain in the back and **ANY** of the following:
  - a. Back pain, in a pediatric individual and **EITHER** of the following:
    - i. Chronic **AND** inflammation, infection or malignancy is suspected.

<sup>1</sup>Some implanted devices that were once absolute contraindications to a MRI may now be accepted, including if the specific MRI is able to accommodate the device or the device itself is deemed safe for MRI.

- ii. Isolated back pain, X-ray is completed and **ANY** of the following: (**NOTE:** *Conservative management is **NOT** required if any of these "red flags" exist.*)
  - A. Age is 5 years or younger.
  - B. Fever
  - C. Limp or refusal to walk
  - D. Malaise
  - E. Pain at night that disrupts sleep.
  - F. Pain is constant.
  - G. Pain lasts more than 4 weeks.
  - H. Postural changes (kyphosis or scoliosis)
  - I. Radicular pain
  - J. Stiffness or gelling in the early morning.
  - K. Weight loss (more than 5% in 2 months or 10% in 6 months)
- b. Conservative management, active (eg, chiropractic treatments, physical therapy), and **EITHER** of the following:
  - i. Attempted within the last 6 months, for at least 6 weeks **AND** symptoms persist or worsen.
  - ii. Symptoms progress or worsen during current course of conservative management

**References:** [7] [3] [10]

- 3. Arnold-Chiari malformation is known.

**References:** [34] [31] [28]

- 4. Cancer, tumor, recurrence or metastasis evaluation for **ANY** of the following:
  - a. Prior imaging for metastasis or tumor is abnormal, non-diagnostic or indeterminate.
  - b. Spinal tumor is known **AND** signs are new or progressing (eg, non-traumatic pain is new or increasing).
  - c. Surveillance following the **National Comprehensive Cancer Network (NCCN) Guideline's** surveillance recommendations (see **Surveillance** section).

**References:** [9] [23]

5. Cerebrospinal fluid (CSF) leak is suspected (eg, cerebrospinal-venous fistula, CSF rhinorrhea, orthostatic headache, otorrhea, post lumbar puncture headache, post spinal surgery headache, spontaneous idiopathic intracranial hypotension [SIH]).

**References:** [15]

6. Compression fracture(s) evaluation and **ANY** of the following:
- Compression fractures are known and treated **AND** back pain is new.
  - New, demonstrated on X-ray, and **EITHER** of the following:
    - NO** known malignancy **AND** back pain is worsening
    - Cancer is known, with or **WITHOUT** worsening back pain, for differentiation of benign osteoporotic fractures from metastatic disease.  
(\***NOTE:** a follow-up MRI, 6 to 8 weeks after initial MRI, when imaging is non-diagnostic or indeterminate, is appropriate.)

**References:** [23]

7. Infection (eg, abscess, discitis, osteomyelitis) is suspected or known and **ANY** of the following:
- Active treatment, to assess response
  - Immune system suppression-related (eg, cancer, diabetes, dialysis, human immunodeficiency virus [HIV], intravenous drug use) spinal infection is suspected and symptomatic (eg, abnormal white blood cell count, erythrocyte sedimentation rate [ESR], back pain).
  - Prior imaging is abnormal, non-diagnostic or indeterminate.
  - Signs/symptoms are present (eg, chills, complete blood count [CBC], c-reactive protein [CRP], ESR, fever, pain)

**References:** [27]

8. Inflammatory disease (non-infectious) is suspected or known, **AFTER** rheumatology evaluation (eg, CRP, ESR) is completed and **ANY** of the following:
- Neuroinflammatory conditions (eg, Behcet's syndrome, sarcoidosis) are suspected with abnormal neurologic physical exam (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) **AND** rheumatology evaluation (eg, CRP, ESR) is completed.
  - Rheumatoid arthritis with abnormal neurologic physical exam (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) **OR** X-ray demonstrates subluxation. (\***NOTE:** Initial imaging should be a lateral X-ray in flexion and neutral. MRI is indicated with negative X-rays when neurological deficit is present or symptoms suggest cervical instability.)

- c. Spondyloarthropathies are suspected or known, X-ray(s) are non-diagnostic or indeterminate **AND** rheumatology evaluation (eg, CRP, ESR) is completed.

**References:** [8]

9. Multiple Sclerosis (MS) is suspected or known with **ANY** of the following: (**\*NOTE:** *Any combination of brain/cervical/thoracic/lumbar MRI may be appropriate, see below for the combination study indications.*)
  - a. Brain MRI is suspicious for MS, baseline.
  - b. Pediatric demyelinating disease (acute disseminated encephalomyelitis [ADEM] or MS) is suspected or known.
  - c. Signs/symptoms (eg, fatigue, numbness, tingling) are new **OR** to assess response to treatment.

**References:** [18] [37]

10. Myelopathy (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) is suspected and **ANY** of the following: (**\*NOTE:** *Conservative care is **NOT** required prior to ordering imaging.*)
  - a. Abnormal neurologic physical exam (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) are demonstrated on physical exam (eg, digital rectal exam, examination of balance and reflexes)
  - b. Symptoms or neurologic physical exam (eg, balance, difficulty with ambulation, diffuse numbness in the hands, grasping and holding objects, hand clumsiness, pins and needles sensation) are progressing.

**References:** [2] [16] [3]

11. Neurological deficits (eg, abnormal reflexes, loss of sensation, numbness/tingling) are new and demonstrated on physical exam (eg, Adson's test, serratus wall test)
12. Peri-procedural care to guide spinal procedure for pre-procedure, invasive procedure planning or post-procedural follow-up
13. Prior MRI thoracic imaging is non-diagnostic or indeterminate. (**\*NOTE:** *One follow-up is appropriate to evaluate for changes, since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as highly suspicious or there is a change since last exam.*)
14. Syringomyelia is suspected or known, and **ANY** of the following:
  - a. Predisposing conditions are known (eg, Arnold-Chiari malformation, neoplasm, prior trauma, severe spondylosis).

- b. Prior imaging demonstrates an abnormality consistent with syrinx or syringomyelia (eg, deformity, nodules, septations).
15. Tethered cord or spinal dysraphism is suspected or known from preliminary imaging, neurological exam **OR** high risk cutaneous stigmata.

**References:** [5]

16. Toe walking, in a pediatric individual, with signs/symptoms of upper motor neuron abnormalities (eg, hyperreflexia, orthopedic deformity with concern for spinal cord pathology, spasticity)
17. Trauma or acute injury evaluation, X-ray or CT is abnormal, non-diagnostic or indeterminate, neurologic deficits are new or progressing and **ANY** of the following:
- a. Nerve root injury is suspected.
  - b. Spinal abnormalities (eg, ankylosing spondylitis, diffuse idiopathic skeletal hyperostosis) are known. (\***NOTE:** *Both a MRI and CT are appropriate.*)
  - c. Unexaminable condition (eg, distracting injury, Glasgow coma scale is less than 15).

**References:** [20] [7] [22] [20]

## Combination CT and MRI for Metastases Evaluation Guideline

Combination CT/MRI studies (5 or less concurrent studies, with a CT or MRI appropriate for cancer location: abdomen, brain, cervical spine, chest, lumbar spine, neck, pelvis and/or thoracic spine) for **ANY** of the following situations:

1. Cancer recurrence or metastasis is suspected.
2. Staging evaluation, for baseline pre-therapy
3. Surveillance following the National Comprehensive Cancer Network (NCCN) Guidelines recommended schedule (See **Surveillance** section)

## Combination CT Thoracic Spine and MRI Thoracic Spine Guideline

Computerized tomography (CT) of the thoracic spine **combined** with magnetic resonance imaging (MRI) of the thoracic spine is considered medically appropriate when the documentation demonstrates the need for both studies to be in combination for treatment decisions with **ANY** of the following conditions (not an all-inclusive list):

1. Bony and soft tissue abnormality is known **AND** imaging may change the treatment plan.

2. Fractures are pathologic or complex.
3. Malignancy of the spine with bony or soft-tissue abnormality
4. Ossification of posterior longitudinal ligament (OPLL)

## Combination MRI Cervical Spine/MRI Thoracic Spine Guideline

Magnetic resonance imaging (MRI) cervical spine **combined** with MRI thoracic spine is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Multiple Sclerosis (MS) is suspected when brain MRI is non-diagnostic or indeterminate **AND/OR** McDonald criteria to diagnose MS is **NOT** met.  
**References:** [37] [18]
2. Syring or syringomyelia is known, for initial evaluation with **ANY** of the following:
  - a. Neurologic symptoms (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) are new or progressing.
  - b. Predisposing conditions are known (eg, Arnold-Chiari malformation, neoplasm, prior trauma, spondylosis).
  - c. Prior imaging demonstrates an abnormality.
  - d. Syring is known and symptoms are new or worsening.
3. Transverse myelitis is suspected when symptomatic (eg, autonomic dysfunction, bilateral weakness, sensory disturbance).

## Combination MRI Brain/MRI Cervical Spine/MRI Thoracic Spine Guideline

A magnetic resonance imaging (MRI) brain **combined** with MRI cervical spine **AND/OR** MRI thoracic spine (any combination) is considered medically appropriate when the documentation demonstrates evaluation is needed for **ANY** of the following:

1. MS is known, prior to initiation or change of disease modification treatment **OR** to establish new baseline.  
**References:** [37] [18]
2. MS **AND** spine disease are known, for follow-up:
  - A. 6 to 12 months after starting or changing a treatment
  - B. Every 1 to 2 years while on disease modifying therapy, less frequently when stable for 2 to 3 years
3. Neuromyelitis optica spectrum disorders (eg, recurrent or bilateral optic neuritis, recurrent transverse myelitis)



**References:** [13]

## Combination MRI Brain/MRI Cervical Spine/MRI Lumbar Spine/MRI Thoracic Spine (any combination) Guideline

A magnetic resonance imaging (MRI) of the brain **combined** with MRI cervical spine, MRI lumbar spine **AND/OR** MRI thoracic spine, in **ANY** combination, is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Arnold Chiari malformation is suspected, for initial evaluation.

2. Arnold Chiari is known.

**References:** [34] [31] [28]

3. Cerebrospinal fluid (CSF) leak is suspected (eg, cerebrospinal-venous fistula, orthostatic headache, otorrhea, post lumbar puncture headache, post spinal surgery headache, rhinorrhea, spontaneous idiopathic intracranial hypotension [SIH]).

**References:** [15]

4. Drop metastasis from the brain or spine

5. Leptomeningial carcinomatosis is suspected.

**References:** [30]

6. Neurocutaneous syndrome tumor evaluation and monitoring

**References:** [35]

## Combination MRI Brain and MRI Spine Studies Guideline

Magnetic resonance imaging (MRI) brain **combined** with MRI cervical spine, lumbar spine **AND** thoracic spine is considered medically appropriate when the documentation demonstrates known Multiple Sclerosis (MS), for follow-up and **ANY** of the following:

1. 6 to 12 months after starting or changing treatment
2. Every 1 to 2 years while on disease modifying treatment to assess for subclinical disease activity; less frequently if stable.
3. Prior to initiation of disease modifying treatment, for baseline

**References:** [37] [18]

## Combination CT or MRI Cervical, Thoracic, Lumbar Spine, ANY Combination Guideline

Combination imaging with computed tomography (CT) or magnetic resonance imaging (MRI) of **ANY** combination of the cervical, thoracic, and/or lumbar spine is considered medically appropriate when the documentation demonstrates **ALL** of the following:

1. CT only is ordered and MRI is **contraindicated or unavailable OR** MRI is ordered.
2. Condition includes **ANY** of the following:
  - a. Age is less than 8 years old **AND** will require anesthesia for procedure, for any of the indications below.
  - b. Arnold Chiari syndrome is known.
  - c. Cancer is known and **ANY** of the following:
    - i. Drop metastasis from brain or spine
    - ii. Leptomeningeal carcinomatosis is suspected.
    - iii. Neurocutaneous syndrome tumor, for evaluation and monitoring.
    - iv. Spinal survey with metastases
  - d. Cerebrospinal fluid (CSF) leak is suspected, based on history or physical exam (eg, cerebrospinal-venous fistula, orthostatic headache, otorrhea, post lumbar puncture headache, post spinal surgery headache, rhinorrhea, spontaneous idiopathic intracranial hypotension [SIH]).
  - e. Neurologic deficits (eg, abnormal gait or reflexes, bowel/bladder dysfunction, extremity weakness) are known.
  - f. Peri-procedural planning for spinal procedure including **ANY** of the following:
    - i. CT myelogram, (when myelogram indications are met), for procedural planning and MRI is **contraindicated or unavailable**.
    - ii. Post-procedure CT discogram
    - iii. Pre-procedural planning
  - g. Scoliosis with **ANY** of the following:
    - i. Age of onset is early (before age 10 years).
    - ii. Atypical curve (eg, Kyphosis more than 30 degrees, left thoracic curve, short segment)
    - iii. Congenital scoliosis or juvenile idiopathic scoliosis and age is less than 10, for initial assessment.

- iv. Neurological deficit is new or unexplained.
- v. Pre-operative planning
- vi. Spinal deformity is progressive.
- vii. Treatment planning depends on imaging
- h. Spinal deformity is progressing and symptomatic.
- i. Tethered cord or spinal dysraphism is suspected or known, based on prior imaging, neurological exam findings and/or high risk cutaneous stigmata, **AND** anesthesia is required for imaging.
- j. Vertebral anomalies, in a pediatric individual, are known (eg, agenesis, bars, butterfly, congenital wedging, hemivertebrae, hypoplasia, segmentation defect) from prior imaging **AND** back pain is present.

**References:** [31] [34] [28] [30] [35] [15] [1] [36] [26] [21] [5]



**LCD 35391**

See also, **LCD 35391**: Multiple Imaging in Oncology at <https://www.cms.gov/medicare-coverage-database/search.aspx> if applicable to individual's healthplan membership.

## Spine Surveillance

Surveillance imaging (after cancer treatment) of the spine is considered medically appropriate when the documentation demonstrates **ANY** of the following:

## Bone Cancer Surveillance

### NCCN Bone Cancer Version 1.2025

Bone cancer surveillance includes **ANY** of the following:

1. Chondrosarcoma surveillance for **ANY** of the following:
  - a. Atypical cartilaginous tumor surveillance with **ALL** of the following:
    - i. Chest imaging every 6 to 12 months for 2 years, then annually as clinically indicated
    - ii. Primary site X-rays and/or cross-sectional imaging magnetic resonance imaging (MRI) (with and without contrast) or computed tomography (CT) (with contrast) every 6 to 12 months for 2 years, then annually as clinically indicated

- b. Low-grade, extracompartmental appendicular tumor, grade I axial tumors or high-grade (grade II or III, clear cell or extracompartmental) tumors surveillance with **ALL** of the following:
  - i. Chest imaging every 3 to 6 months, may include CT at least every 6 months for 5 years, then annually for at least 10 years, as clinically indicated
  - ii. Primary site X-rays and/or cross-sectional imaging MRI (with and without contrast) or CT (with contrast) as clinically indicated.
- 2. Chordoma surveillance with **ALL** of the following:
  - a. Chest imaging every 6 months, with CT included, annually for 5 years, then annually thereafter as clinically indicated
  - b. Imaging of primary site, timing and modality (eg, MRI ± CT [both with contrast], X-ray) as clinically indicated up to 10 years
- 3. Ewing Sarcoma after primary treatment completed and stable/improved disease, surveillance with **ALL** of the following:
  - a. Chest imaging with X-ray or CT: every 3 months
  - b. Primary site imaging with MRI ± CT (both with contrast) and X-ray, increase intervals after 24 months and after 5 years, annually as clinically indicated (indefinitely) (**\*NOTE:** Consider PET/CT [head-to-toe] and/or bone scan.)
- 4. Giant cell tumor of the bone surveillance with **ALL** of the following:
  - a. Chest imaging every 6 to 12 months for 4 years, then annually thereafter as clinically indicated
  - b. Surgical site imaging as clinically indicated (eg, CT and/or MRI, both with contrast, X-ray)
- 5. Osteosarcoma surveillance with primary site and chest imaging (using same imaging that was done for initial work-up) for **ANY** of the following: (**\*NOTE:** Consider PET/CT [head-to-toe] and/or bone scan.)
  - a. Image every 3 months for years 1 and 2
  - b. Image every 4 months for year 3
  - c. Image every 6 months for years 4 and 5
  - d. Image annually for year 6 and thereafter, as clinically indicated

## Central Nervous System (CNS) Cancer Surveillance

### NCCN Central Nervous System Cancer Version 3.2024

Central nervous system (CNS) cancer surveillance includes **ANY** of the following:

1. Brain metastasis, limited **OR** extensive, image with brain magnetic resonance imaging (MRI) every 2 to 3 months for 1-2 years, then every 4 to 6 months indefinitely
2. Glioma and **ANY** of the following:
  - a. Low-grade glioma, image with brain MRI every 3 to 6 months for years 3 through 5, then at least annually as clinically indicated
  - b. High grade glioma, image with brain MRI 2 to 8 weeks after radiation therapy, then every 2 to 4 months for 3 years, then every 3 to 6 months indefinitely
3. Medulloblastoma, image with brain MRI every 3 months for 2 years, then every 6 to 12 months for years 5 through 10, then every 1 to 2 years as clinically indicated. (**\*NOTE:** *For patients with previous spine disease, concurrent spine imaging as clinically indicated.*)
4. Meningiomas, WHO Grade 1 or 2 **OR** unresectable, image with brain MRI at months 3, 6 and 12, then every 6 to 12 months for 5 years, then every 1 to 3 years as clinically indicated. WHO grade 3 meningiomas: Brain MRI, every 2–4 months for 3 years, then every 3–6 months.
5. Primary CNS lymphoma, image with brain MRI every 3 months for 2 years, then every 6 months until year 5, then annually indefinitely (**\*NOTE:** *for individuals with previous spine disease, concurrent spine imaging and cerebrospinal fluid (CSF) sampling as clinically indicated*)
6. Primary spinal cord tumors and **ANY** of the following:
  - a. Low-grade tumors, image with spine MRI every 3 to 6 months until year 5, then at least annually indefinitely
  - b. High-grade tumors, image with spine MRI every 2 to 6 weeks after treatment, then every 2 to 4 months until year 2-3, then every 3 to 6 months until year 5, then every 6 to 12 months indefinitely
7. Spine metastasis, image with spine MRI or computed tomography (CT) 1 to 3 months after treatment, then every 3 to 4 months for 1 year, then clinically as indicated

## Neuroendocrine and Adrenal Tumors Surveillance

### NCCN Neuroendocrine and Adrenal Tumors Version 2.2024

Neuroendocrine and adrenal cancer surveillance includes **ANY** of the following:<sup>2</sup>

1. Adrenal gland tumors surveillance imaging includes **ANY** of the following:

- a. Localized disease: chest computed tomography (CT) ( $\pm$  contrast) and abdominal CT or magnetic resonance imaging (MRI) (+ contrast) every 12 weeks to 12 months up to 5 years, then clinically as indicated
  - b. Locoregional unresectable or metastatic disease; chest CT ( $\pm$  contrast) and abdominal/pelvic CT or MRI (+ contrast) or FDG positron emission tomography (PET)/CT every 12 weeks to 12 months up to 5 years, then clinically as indicated
2. Carcinoid syndrome surveillance imaging includes **BOTH** of the following:
  - a. Abdominal/pelvic multiphasic CT or MRI every 12 weeks to 12 months and chest CT ( $\pm$  contrast) as clinically indicated
  - b. Echocardiogram every 1 to 3 years or as clinically indicated **without** known carcinoid heart disease (CHD) and at least annually for patients with established CHD.
3. Gastrointestinal (GI) tract (jejunum/ileum/colon, duodenum, rectum), lung and/or thymus neuroendocrine tumor (NET) surveillance includes imaging post-resection with **ANY** of the following:
  - a. Jejunum/ileum/colon, duodenum, rectum and thymus, surveillance imaging with abdominal  $\pm$  pelvic multiphasic CT or MRI according to **ONE** of the following levels of frequency:<sup>3</sup>
    - i. Within 12 weeks to 12 months post-operatively
    - ii. After 12 months, image every 12 to 24 months for 10 years
    - iii. After 10 years as clinically indicated
  - b. Lung/thymus tumors surveillance chest CT ( $\pm$  contrast) for primary tumors, (as clinically indicated for primary GI tumors) according to **ONE** of the following levels of frequency:
    - i. Within 12 weeks to 12 months post-operatively
    - ii. After 12 months, image every 12 to 24 months for 10 years
    - iii. After 10 years as clinically indicated
4. Grade 3, well-differentiated neuroendocrine surveillance includes chest CT ( $\pm$  contrast) as clinically indicated for **ANY** of the following:
  - a. Locally advanced/metastatic disease with favorable biology (low Ki-67 [eg, less than 55%], positive somastatin receptor [SSTR] based PET imaging) includes

<sup>2</sup>No surveillance is indicated for appendiceal tumors 2 cm or smaller without aggressive features.

<sup>3</sup>High-grade tumors may be appropriate for more frequent monitoring.

abdominal/pelvic MRI (+ contrast) or abdominal/pelvic multiphasic CT for surveillance with **ANY** of the following:

- i. Resectable disease surveillance every 12 weeks to 24 weeks for 2 years, then every 6 to 12 months for up to 10 years and chest CT as clinically indicated
- ii. Unresectable disease surveillance every 12 weeks to 24 weeks (depending on tumor biology) **AND** chest CT ( $\pm$  contrast); as clinically indicated.
- b. Locally advanced/metastatic disease with unfavorable biology (high Ki-67 [eg 55% or higher], rapid growth rate, FDG avid tumors, negative SSTR-based PET imaging), includes surveillance imaging, every 8 weeks to 12 weeks (depending on tumor biology) with **ALL** of the following:
  - i. Abdominal/pelvic MRI (+ contrast) or abdominal/pelvic multiphasic CT and FDG PET/CT as clinically indicated
  - ii. Chest CT ( $\pm$  contrast) as clinically indicated
  - iii. FDG-PET/CT as clinically indicated
- c. Locoregional disease (resectable) abdominal/pelvic MRI (+ contrast) or abdominal/pelvic multiphasic CT with frequency of **ONE** of the following:
  - i. Every 12 weeks to 24 weeks for 2 years (depending on tumor biology, Ki-67) and chest CT as clinically indicated
  - ii. Every 6 months to 12 months for up to 10 years (depending on tumor biology, Ki-67) and chest CT as clinically indicated
- d. Multiple endocrine neoplasia, type 1 (MEN1) screening surveillance for **ANY** of the following tumor types: (**\*NOTE:** *For prolonged surveillance, imaging studies without radiation are preferred.*)
  - i. Lung/thymic NETs: chest CT or MRI (+ contrast) every 1 to 3 years
  - ii. PanNET: abdominal/pelvic CT or MRI (+ contrast) every 1 to 3 years and consider serial endoscopic ultrasound (EUS)
  - iii. Parathyroid: if calcium rises, re-image with neck ultrasound and/or parathyroid sestamibi with single-photon emission computed tomography (SPECT) scan (SPECT-CT preferred) or 4D-CT
  - iv. Pituitary: pituitary or sella MRI (+ contrast) of the pituitary every 3 to 5 years
- e. Poorly differentiated large or small cell carcinoma and/or mixed neuroendocrine/non-neuroendocrine neoplasm or unknown primary, imaging surveillance includes **ALL** of the following:



- i. Locoregional unresectable or metastatic disease surveillance imaging includes **EITHER** chest CT ( $\pm$  contrast) with abdominal/pelvic MRI (+ contrast) **OR** chest/abdominal/pelvic multiphasic CT; every 6 weeks to 16 weeks
  - ii. Resectable surveillance imaging includes **EITHER** chest CT ( $\pm$  contrast) with abdominal/pelvic MRI (+ contrast) **OR** chest/abdominal/pelvic multiphasic CT; every 12 weeks for the 1<sup>st</sup> year, and every 6 months thereafter
- f. Post-operative from potentially curative surgery surveillance for at least 10 years (longer if high-risk)
5. Pancreatic neuroendocrine tumor surveillance imaging, post-resection, includes chest CT ( $\pm$  contrast) as clinically indicated and abdominal multiphasic CT or MRI with imaging frequency of **ONE** of the following:<sup>3</sup>
  - a. Within 3 to 12 months post-operatively
  - b. After 12 months, image every 6 to 12 months for 10 years
  - c. After 10 years as clinically indicated
6. Pheochromocytoma/Paranganglioma surveillance imaging and **ANY** of the following:
  - a. Locally unresectable disease or distant metastases includes **ANY** of the following:
    - i. Chest/abdominal/pelvic CT with contrast
    - ii. Chest CT ( $\pm$  contrast) and abdominal/pelvic MRI without contrast (if risk for hypertensive episode)
    - iii. FDG-PET/CT for bone dominant disease
    - iv. Meta-iodobenzylguanidine (MIBG) with single-photon emission computerized tomography/CT (SPECT) (if previous MIBG-positive or concern for disease progression) prior to considering radionuclide therapy
    - v. SSTR-PET/CT or SSTR-PET/MRI (if previous SSTR-positive or concern for disease progression) prior to considering radionuclide therapy
  - b. Resectable disease, post-resection includes chest CT ( $\pm$  contrast) and abdominal/pelvic CT or MRI (+contrast), if clinically indicated with imaging frequency of **ONE** of the following:
    - i. 12 weeks to 12 months after resection
    - ii. Every 6 to 12 months for the 1<sup>st</sup> 3 years
    - iii. Annually from year 4 up to 10.



- iv. Annually up to 10 years, then as clinically indicated



**TIP**

NCCN recommends following the surveillance protocols from designated guidelines for the following hereditary endocrine neoplasia syndromes :

- Thyroid cancer guideline, use for: Multiple endocrine neoplasia, type 2 (MEN2) with genetic evaluation of inherited syndromes
- Kidney cancer, use for:
  - Hereditary paraganglioma/pheochromocytoma syndrome
  - Tuberous sclerosis complex (TSC1 and TSC2)
  - von Hippel Lindau syndrome (VHL)
- Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic, use for:
  - Neurofibromatosis type 1 (NF1)
  - Li-Fraumeni syndrome (TP53)
  - Lynch syndrome (MLH1, EPCAM/MSH2, MSH6, PMS2)
- Genetic/Familial High-Risk Assessment: Colorectal, use for:
  - Lynch syndrome (MLH1, EPCAM/MSH2, MSH6, PMS2)
  - Familial adenomatous polyposis (APC)

## Occult Primary Cancer Surveillance

### NCCN Occult Primary Cancer Version 2.2025

Occult primary cancer surveillance imaging for long-term surveillance includes diagnostic tests based on symptomatology.

## MRI Thoracic Spine Procedure Codes

**Table 1. MRI Thoracic Spine Associated Procedure Codes**

CODE	DESCRIPTION
72146	Magnetic resonance (eg, proton) imaging, spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance (eg, proton) imaging, spinal canal and contents, thoracic; with contrast material(s)

CODE	DESCRIPTION
72157	Magnetic resonance (eg, proton) imaging, spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
0649T	Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained with diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure); single organ

## MRI Thoracic Spine Summary of Changes

MRI Thoracic Spine guideline had the following version changes from 2023 to 2024:

- Added the following to keep in line with current evidence:
  - Indications under "Primary tumor"
  - "Neurological deficits" indication
  - "Pediatric" indications
- Citations updated per the evidence.
- Mid-cycle update: added Pediatric Preamble and pediatric indications
- Mid-cycle code-driven update:
  - Added the following to keep in line with current research:
    - "Neurological deficits" indication
    - "Signs/symptoms" under "Multiple sclerosis"
  - Changed the indications under "Compression fracture" to keep in line with current evidence
  - "Immune system indication" moved under "Infection"
  - Removed the following, as current evidence does not support the indication:
    - "Cancer is known" indication under "Cancer" indication
    - "Conservative management" indication under "Trauma"
    - "Neurological symptoms" from under "Syrinx" and "Trauma" as it was redundant
    - "Prior imaging" indication under "Trauma"

## MRI Thoracic Spine Definitions

**Abscess** is a swollen area within body tissue, containing an accumulation of pus.

**Ankylosing spondylosis (spondylitis)** is a chronic inflammatory disease that affects the spine, sacroiliac joints and often other joints (such as the shoulder), and is marked by pain and stiffness.

**Behcet's disease** a rare disease of unknown cause that is marked by chronic inflammation of blood vessels with symptoms including ulcerative sores especially of the mouth and genitals, inflammation of the eye, and joint swelling and pain.

**Bone scan** is a nuclear imaging procedure that examines the bones in the skeleton. It can help diagnose and track bone diseases, and can also be used to monitor the progress of certain treatments.

**Cerebrospinal fluid (CSF)** is a colorless liquid that is comparable to serum, is secreted from the blood into the lateral ventricles of the brain, and serves chiefly to maintain uniform pressure within the brain and spinal cord.

**Cerebrospinal fluid (CSF) leak** is a leak of cerebrospinal fluid that results from a hole or tear in the dura (the outermost layer of the meninges).

**Cerebrospinal fluid (CSF) rhinorrhea** is a condition where the fluid that surrounds the brain leaks into the nose and sinuses.

**Chiari malformation (Arnold-Chiari syndrome)** is a congenital abnormality in which the lower surface of the cerebellum and the lower brain stem protrude into the spinal canal through the foramen magnum.

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

**Compression fracture** is a break in the vertebrae and can cause the vertebrae to collapse, making them shorter.

**Computed tomography (CT)** refers to a computerized X-ray imaging procedure in which a three-dimensional image of a body structure is revealed through a series of cross-sectional images or "slices."

**Conservative management** is an approach to treating pain utilizing non-surgical treatments that are both passive **AND** active, for a designated time (usually 4 to 6 weeks). Passive conservative management includes acupuncture, braces, ice/heat, injections, medications (NSAIDs, Tylenol). Active conservative management includes physical therapy (PT) program, supervised by a licensed physical therapist and/or osteopathic manipulative medicine (OMT) or chiropractic care.

**C-reactive protein (CRP)** is a pentameric protein synthesized by the liver, whose level rises in response to inflammation.

**Diffuse idiopathic skeletal hyperostosis (DISH)** is a condition that causes ligaments to become calcified and hard. It usually affects the ligament around the spine, but it can also affect other areas of the body where ligaments join to bone.

**Discitis** is an infection of the discs between the vertebra of the spine.

**Drop metastases** are intradural extramedullary spinal metastases that arise from intracranial lesions.

**Electromyogram (EMG)** is a test that converts the electrical activity associated with functioning skeletal muscle into a visual record or into sound used to diagnose neuromuscular disorders and in biofeedback training.

**Erythrocyte sedimentation rate (ESR)** is a commonly performed hematology test that may indicate and monitor an increase in inflammatory activity within the body caused by one or more conditions such as autoimmune disease, infections or tumors.

**Fistula** is an abnormal connection that leads from an abscess, hollow organ or part to the body surface, or from one hollow organ or part to another, and may be surgically created to permit passage of fluids or secretions.

**Glasgow Coma Scale (GCS)** is a scale used to assess the severity of a brain injury. It consists of values from 3 to 15, obtained by summing the ratings that depend on whether and how the patient responds to certain standard stimuli.

**Human Immunodeficiency Virus (HIV)** damages the immune system and interferes with the body's ability to fight infection and disease.

**Immunosuppression** refers to stopping the bodily response to an antigen that occurs when lymphocytes identify the antigenic molecule as foreign, then induce the formation of antibodies and lymphocytes capable of reacting, rendering it harmless.

**Indeterminate** findings are inconclusive or insufficient for treatment planning.

**Kyphosis** is the exaggerated outward curvature of the thoracic region of the spine resulting in a rounded upper back.

**Leptomeningeal carcinomatosis** is cancer involving the pia mater and arachnoid mater. It occurs when cancer cells spread to the leptomeninges, which are the thin tissue layers that cover the brain and spinal cord.

**Magnetic resonance imaging (MRI)** is a non-invasive diagnostic technique that produces computerized images of internal body tissues and is based on nuclear magnetic resonance of atoms within the body induced by the application of radio waves.

**McDonald criteria** is a tool that incorporates clinical criteria with features of the magnetic resonance imaging (MRI), spinal fluid, and evoked potentials to confirm a definite diagnosis of Multiple Sclerosis.

**Metastases** is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.

**Multiple sclerosis (MS)** is a demyelinating disease marked by patches of hardened tissue in the brain or the spinal cord and associated especially with partial or complete paralysis and jerking muscle tremor.

**Myelogram** is a radiographic visualization of the spinal cord after injection of a contrast medium into the spinal subarachnoid space.

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

**Nerve conduction study (NCS)** is a test that measures how fast an electrical impulse moves through the nerve and can identify nerve damage.

**Neurocutaneous disorders** are disorders that affect the brain, spinal cord, organs, skin, and bones. The diseases are lifelong conditions that can cause tumors to grow in these areas.

**Neuromyelitis optica spectrum disorder (NMOSD)** is an inflammatory disorder of the central nervous system characterized by severe, immune-mediated demyelination and axonal damage predominantly targeting optic nerves and the spinal cord.

**Neuropathy** is damage, disease or dysfunction of one or more nerves, especially of the peripheral nervous system, that is typically marked by burning or shooting pain, numbness, tingling, muscle weakness or atrophy. It is often degenerative and is usually caused by injury, infection, disease, drugs, toxins or vitamin deficiency.

**Non-diagnostic** is a result that does not lead to a confirmed diagnosis.

**Optic neuritis** is inflammation of the optic nerve.

**Orthostatic headache** is a headache while upright, that is relieved by lying down.

**Ossification of the Posterior Longitudinal Ligament (OPLL)** is a condition where the ligament, that runs along the back of the bone (vertebral body) and disc, hardens into bone.

**Osteomyelitis** is an infectious, inflammatory disease of bone. It is often painful, bacterial in origin and may result in the death of bone tissue.

**Otorrhea** is drainage of liquid from the ear.

**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:

- Infancy, between birth and 2 years of age
- Childhood, from 2 to 12 years of age
- Adolescence, from 12 to 21 years of age, further defined by the AAP into:
  1. Early (ages 11–14 years)
  2. Middle (ages 15–17 years),
  3. Late (ages 18–21 years)
  4. Older ages may be appropriate for children with special healthcare needs.

**Radiculopathy** is an irritation of or injury to a spinal nerve root (as from being compressed) that typically causes pain, numbness, or muscle weakness in the part of the body which is supplied with nerves from that root.

**Recurrence** is a new occurrence of something that happened or appeared before.

**Rheumatoid arthritis (RA)** is an autoimmune disease (usually chronic) that is characterized by pain, stiffness, inflammation, swelling and sometimes destruction of the joints.

**Rhinorrhea** is excessive mucous drainage from the nose.

**Sarcoidosis** is a chronic disease of unknown cause, that is characterized by the formation of nodules, especially in the lymph nodes, lungs, bones and skin.

**Scoliosis** is a sideways curvature of the spine that most often is diagnosed in adolescents.

**Short segment** is a curve in the spinal column that is less than 6 segments.

**Spinal dysraphism** is a congenital abnormality that results in an abnormal structure in the spine, including the bony structure, the spinal cord, and the nerve roots.

**Spondylarthropathy** is an inflammatory arthritis affecting the spine.

**Spondylolysis** is a stress fracture of the bones of the lower spine due to overuse.

**Spontaneous intracranial hypotension (SIH)** is a condition in which the fluid pressure inside the skull is lower than normal.

**Staging** in cancer is the process of determining how much cancer is within the body (tumor size) and if it has metastasized (spread).

**Stenosis** is a narrowing or constriction of the diameter of a bodily passage or orifice.

**Stigmata** is a mental or physical mark that indicates a disease or defect. It can also refer to a specific diagnostic sign of a disease.

**Surveillance** is ongoing systematic collection and analysis of data and the provision of information which leads to action being taken to prevent and control a disease.

**Syringomyelia** is a chronic progressive disease of the spinal cord associated with sensory disturbances, muscle atrophy and spasticity.

**Syrinx** is a cerebrospinal fluid-filled cyst which collects inside of the spinal cord or brain stem. A syrinx in the spinal cord is called syringomyelia, and a syrinx in the brain stem is called syringobulbia.

**Tethered spinal cord syndrome (TSCS)** is a disorder of the nervous system caused by tissue that attaches itself to the spinal cord and limits the movement of the spinal cord.

**Transverse myelitis** is a neurological disorder that causes inflammation on both sides of a section of the spinal cord. It can damage the myelin, the insulating material that covers nerve cell fibers. This prevents the spinal cord nerves from sending messages throughout the body.

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## 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>.

## 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.



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