Cohere Medical Policy (Tennessee Medicaid) - Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging
Guideline Name: Cohere Medical Policy (Tennessee Medicaid) **-** Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

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Medical Necessity Criteria

Service: Computed Tomography (CT), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Computed tomography (CT) utilizes ionizing radiation to create images based on the varying absorption of X-rays by different tissues. This technology provides detailed cross-sectional views and enables the generation of multidimensional 2-D and 3-D reconstructions. CT scanning is highly valuable in clinical practice, particularly for evaluating spinal structures.[1] CT scan (non-contrast) is appropriate in the setting of acute trauma or suspected fracture. CT myelogram (CT with contrast) is a two-part procedure - iodinated contrast is first injected into the spinal canal under fluoroscopic guidance before a CT scan covering the region of concern is performed.

Primary evaluation with CT is typically non-contrasted in the setting of trauma or suspected fracture. While infection and tumor can be evaluated with a contrasted exam, MR is the preferred modality when possible. CT myelogram is an alternative in patients for whom spinal canal evaluation is desired, and MR is not practical (e.g., non-compatible hardware or pacemaker device, unable to cooperate with MR imaging demands).[2-4]

Medical Necessity Criteria

Indications

- ➔ **Computed tomography (CT), spine (cervical, thoracic, and lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:
  - ◆ Neoplastic conditions (including masses or mass-like conditions), including **ALL** of the following[5-6]:
    - Primary or metastatic lesion to the spinal cord, canal, bone, or vertebral bodies and **ANY** of the following is needed:
      - Initial diagnosis; **OR**
      - Monitor response to treatment; **OR**
      - Monitor worsening symptoms or pain; **AND**
    - Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:

        - Abnormal laboratory values; **OR**
        - Inconclusive or abnormal prior imaging; **OR**
- **ALL** of the following to evaluate for infection or an infectious disorder (e.g., discitis, osteomyelitis, epidural abscess):
    - Abnormal or indeterminate initial imaging; **AND**
    - **ANY** of the following[7-8]:
        - Abnormal lab values; **OR**
        - Decubitus ulcer; **OR**
        - New cauda equina syndrome[2]; **OR**
        - New neurologic deficit; **OR**
        - New or worsening back or neck pain; **OR**
        - Recent intervention (e.g., hardware, pain injection, stimulator implantation); **OR**
        - Wound overlying spine; **OR**
        - **ANY** of the following "red flags":
            - Cancer; **OR**
            - Diabetes mellitus; **OR**
            - Dialysis; **OR**
            - HIV; **OR**
            - Immunosuppression; **OR**
            - IV drug use; **OR**
            - Prior spinal infections (e.g., abscess, discitis arachnoiditis, osteomyelitis); **OR**
- Trauma-related conditions, including **ANY** of the following[9]:
    - Following a traumatic event (e.g., accident, surgery, or intervention), and the patient has **ANY** of the following:
        - Neurological deficit (myelopathy); **OR**
        - Radiculopathy; **OR**
    - Follow-up to initial radiographs with positive or indeterminate findings and advanced imaging is needed; **OR**
    - High suspicion for fracture; **OR**
    - Persistent or worsening pain without acute findings on initial imaging and **ANY** of the following apply to the patient:
        - Chronic steroid use; **OR**
        - Elderly; **OR**
        - Osteoporotic; **OR**

- Follow-up to initial radiographs for a known or suspected vertebral compression fracture (asymptomatic or symptomatic)[10]; **OR**

◆ Vascular conditions, known or suspected, including **ANY** of the following:
- Spinal cord infarct; **OR**
- Vascular malformation; **OR**

◆ Autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis, spondyloarthropathy, demyelinating diseases, muscular dystrophies) including **ANY** of the following[3-4,11-13]:
- To assist in the diagnostic work-up; **OR**
- Initial diagnosis or follow-up to evaluate for progression of disease or response to treatment; **OR**
- Pain or radiculopathy; **OR**
- Suspicion of **ANY** of the following:
  - Fracture; **OR**
  - Vertebral body subluxation; **OR**

◆ For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
- Pain or radiculopathy without trauma, and **ALL** of the following[1-4]:
  - Severe radiculopathy or any neurological deficit (myelopathy) and **ANY** of the following[4]:
    ◆ Abnormal electromyography (EMG); **OR**
    ◆ **ANY** of the following new or worsening symptoms:
      - Radiculopathy (including sciatica); **OR**
      - Bladder dysfunction; **OR**
      - Bowel dysfunction; **OR**
      - Dermatomal sensory loss; **OR**
      - Objective muscle weakness; **OR**
      - Saddle anesthesia; **OR**
      - Objective reduction or loss of fine motor skills; **OR**
      - Sexual dysfunction; **AND**
  - **ANY** of the following:
    ◆ Severe or rapid progression of myelopathy; **OR**

        - At least 8 weeks of conservative treatment, including **ANY** of the following[27-30]:
            - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
            - Physical therapy, including a self-directed home exercise program; **AND**
    - Suspicion of compression of **ANY** of the following:
        - Cauda equina[4]; **OR**
        - Nerve root; **OR**
        - Spinal cord; **AND**
    - **ANY** of the following[2,3]:
        - The patient is a candidate for surgery or intervention and has persistent or progressive symptoms during or following 8 weeks of optimal medical management; **OR**
        - Cauda equina syndrome, suspected; **OR**
        - History of prior lumbar surgery with new or progressing clinical findings; **OR**
        - Ossification of the posterior longitudinal ligament (OPLL); **OR**
        - Osteoporosis; **OR**
        - Chronic steroid use; **OR**
        - Suspicion of **ANY** of the following:
            - Cancer; **OR**
            - Immunosuppression; **OR**
            - Infection; **OR**
        - Cervicogenic headache with new or increasing non-traumatic cervical or neck pain and no neurologic deficit; **OR**
        - Chronic cervical or neck pain with no neurologic findings and radiographs show degenerative changes; **OR**
        - Chronic cervical or neck pain without or with radiculopathy and radiographs show

ossification in the posterior longitudinal ligament (OPLL); **OR**
        - Known malignancy with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
        - New or increasing pain or radiculopathy with no "red flags"; **OR**
        - Prior cervical spine surgery with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
        - Suspicion for infection with new or increasing non-traumatic cervical or neck pain or radiculopathy; **OR**
    - Plexopathy (traumatic) including **ANY** of the following[14]:
        - Brachial; **OR**
        - Lumbosacral; **OR**
- The patient is post-operative from a spinal surgery with recurrent or worsening symptoms[1,15]; **OR**
- **ANY** of the following indications for congenital or acquired abnormalities of the spine or vertebral bodies (not including specific pediatric indications)[16]:
    - Chiari malformation; **OR**
    - Neurological symptoms not previously imaged; **OR**
    - Pain that does not improve and imaging previously not performed; **OR**
    - Preoperative assessment needed; **OR**
    - Scoliosis; **OR**
    - Syrinx; **OR**
    - Syringohydromyelia; **OR**
- Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
    - New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
    - One-time clarifying follow-up of a prior indeterminate finding; **OR**

- In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

➔ **Computed tomography (CT), spine (cervical, thoracic, or lumbar)** is not considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[17]; **OR**
- ◆ If **ANY** of the following is **TRUE** if contrast is used[18]:
  - History of anaphylactic allergic reaction to iodinated contrast media; **OR**
  - Renal insufficiency and no detailed guidelines have been provided; **OR**
- ◆ Chronic neck pain in the absence of other criteria[3]; **OR**
- ◆ Plexopathy (non-traumatic, with or without malignancy), including **ANY** of the following[14]:
  - Brachial plexopathy; **OR**
  - Lumbosacral plexopathy; **OR**
- ◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.
**NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.
***NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Disclaimer on Radiation Exposure in Pediatric Population

Due to the heightened sensitivity of pediatric patients to ionizing radiation, minimizing exposure is paramount. At Cohere, we are dedicated to ensuring that every patient, including the pediatric population, has access to appropriate imaging following accepted guidelines. Radiation risk is dependent mainly on the patient's age at exposure, the organs exposed, and the patient's sex, though there are other variables. The following technical

guidelines are provided to ensure safe and effective imaging practices:

Radiation Dose Optimization: Adhere to the lowest effective dose principle for pediatric imaging. Ensure that imaging protocols are specifically tailored for pediatric patients to limit radiation exposure.[19-20]

Alternative Modalities: Prioritize non-ionizing imaging options such as ultrasound or MRI when clinically feasible, as they are less likely to expose the patient to ionizing radiation. For instance, MRI or ultrasound should be considered if they are more likely to provide an accurate diagnosis than CT, fluoroscopy, or radiography.[19-20]

Cumulative Dose Monitoring: Implement systems to track cumulative radiation exposure in pediatric patients, particularly for those requiring multiple imaging studies. Regularly reassess the necessity of repeat imaging based on clinical evaluation.[19-20]

CT Imaging Considerations: When CT is deemed the best method for achieving a correct diagnosis, use the lowest possible radiation dose that still yields reliable diagnostic images.[19-20]

Cohere Imaging Gently Guideline

The purpose of this guideline is to act as a potential override when clinically indicated to adhere to Imaging Gently and Imaging Wisely guidelines and As Low As Reasonably Possible (ALARA) principles.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72125	Computed tomography (CT), cervical spine; without contrast material
72126	Computed tomography (CT), cervical spine; with contrast material
72127	Computed tomography (CT), cervical spine; without contrast material, followed by contrast material(s) and further sections

72128	Computed tomography (CT), thoracic spine; without contrast material
72129	Computed tomography (CT), thoracic spine; with contrast material
72130	Computed tomography (CT), thoracic spine; without contrast material, followed by contrast material(s) and further sections
72131	Computed tomography (CT), lumbar spine; without contrast material
72132	Computed tomography (CT), lumbar spine; with contrast material
72133	Computed tomography (CT), lumbar spine; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Ahmad et al. (2023) conducted a systematic review on the use of computed tomography (CT) and magnetic resonance imaging (MRI) with respect to the correlations between bone mineral density (BMD) derived from scans and Dual-Energy X-ray Absorptiometry (DEXA). A comprehensive analysis of 25 studies was included (15 utilizing CT and 10 utilizing MRI) with a total of 2745 patients. Articles published from 2011 to 2021 were included investigating the associations between CT or MRI measurements such as CT-derived Hounsfield units (CT-HU) values or MRI parameters, and DEXA-derived BMD, specifically focusing on lumbar spine or hip regions. CT-HU exhibits stronger correlations with DEXA measurements than MRI parameters however, both CT and MRI demonstrate moderate correlations with DEXA. Additional research is needed within spine surgery cohorts, including inferior correlations in populations with degenerative spine conditions.[21]

Bäcker et al. (2021) performed a systematic literature review and meta-analysis to assess the sensitivity, specificity, and accuracy of dual-energy computed tomography (DE-CT) in detecting bone marrow edema and disc edema in spinal injuries. Early diagnosis of vertebral injuries is crucial to prevent treatment delays. Imaging modalities such as MRI or DE-CT are necessary to identify bone marrow or disc edemas. The analysis encompassed 13 studies involving 515 patients, 3335 vertebrae, and 926 acute fractures confirmed by MRI, which was used for comparison in 12 publications. DE-CT demonstrated an overall sensitivity of 86.2%, specificity of 91.2%, and accuracy of 89.3%. In addition, five studies reported the accuracy of conventional CT, yielding an overall sensitivity of 81.3%, specificity of 80.7%, and accuracy of 80.9%. Overall, DE-CT shows promise as a diagnostic tool for detecting bone marrow and disc edemas, potentially offering an alternative to MRI, the current gold standard.[22]

Ghodasara et al. (2019) review the use of postoperative CT following spine surgery. Scans are useful to identify implant locations and integrity, evaluate the efficacy of decompression and intervertebral arthrodesis procedures, and identify associated complications. While metallic implant artifacts may limit postoperative spinal CT scans, advancements in parameter optimization and metal artifact reduction techniques (e.g., iterative reconstruction and monoenergetic extrapolation methods) offer significant improvements in image quality. Furthermore, they are valuable in detecting and characterizing any postoperative irregularities. Complications following spinal surgery and intervertebral arthroplasty range from issues with implant position and integrity to adjacent segment degeneration, collections, fistulas, pseudo meningoceles, cerebrospinal fluid leaks, and surgical site infections.[23]

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Clinical Guideline Revision History/Information

Original Date: November 21, 2024		
Review History		
Version 2	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Allowed for "out" from conservative care requirement for patients with CES, OPLL • Added references