

CIGNA MEDICAL COVERAGE POLICIES- RADIOLOGY

Spine Imaging Guidelines

Effective Date: November 05, 2026



EviCore
By EVERNORTH

Instructions for use

The following coverage policy applies to health benefit plans administered by Cigna. Coverage policies are intended to provide guidance in interpreting certain standard Cigna benefit plans and are used by medical directors and other health care professionals in making medical necessity and other coverage determinations. Please note the terms of a customer's particular benefit plan document may differ significantly from the standard benefit plans upon which these coverage policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a coverage policy.

In the event of a conflict, a customer's benefit plan document always supersedes the information in the coverage policy. In the absence of federal or state coverage mandates, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of:

1. The terms of the applicable benefit plan document in effect on the date of service
2. Any applicable laws and regulations
3. Any relevant collateral source materials including coverage policies
4. The specific facts of the particular situation

Coverage policies relate exclusively to the administration of health benefit plans. Coverage policies are not recommendations for treatment and should never be used as treatment guidelines.

This evidence-based medical coverage policy has been developed by EviCore, Inc. Some information in this coverage policy may not apply to all benefit plans administered by Cigna.

These guidelines include procedures EviCore does not review for Cigna. Please refer to the [Cigna CPT code list](#) for the current list of high-tech imaging procedures that EviCore reviews for Cigna.

CPT® (Current Procedural Terminology) is a registered trademark of the American Medical Association (AMA). CPT® five-digit codes, nomenclature and other data are copyright 2026 American Medical Association. All Rights Reserved. No fee schedules, basic units, relative values or related listings are included in the CPT book. AMA does not directly or indirectly practice medicine or dispense medical services. AMA assumes no liability for the data contained herein or not contained herein.

© Copyright 2026 EviCore healthcare

Table of Contents

Guideline	Page
General Guidelines (SP-1)	3
Imaging Techniques (SP-2)	22
Neck (Cervical Spine) Pain Without/With Neurological Features (Including Stenosis) and Trauma (SP-3)	39
Upper Back (Thoracic Spine) Pain Without/With Neurological Features (Including Stenosis) and Trauma (SP-4)	45
Low Back (Lumbar Spine) Pain/Coccydynia without Neurological Features (SP-5)	51
Lower Extremity Pain with Neurological Features (Radiculopathy, Radiculitis, or Plexopathy and Neuropathy) With or Without Low Back (Lumbar Spine) Pain (SP-6)	57
Myelopathy (SP-7)	64
Lumbar Spine Spondylolysis/Spondylolisthesis (SP-8)	69
Lumbar Spinal Stenosis (SP-9)	75
Sacro-Iliac (SI) Joint Pain, Inflammatory Spondylitis/Sacroiliitis and Fibromyalgia (SP-10)	79
Spinal Compression Fractures (SP-11)	85
Spinal Pain related to Cancer (SP-12)	89
Spinal Canal/Cord Disorders (e.g., Syringomyelia) (SP-13)	91
Spinal Deformities (e.g., Scoliosis/Kyphosis) (SP-14)	96
Post-Operative Spinal Disorders (SP-15)	101
Other Imaging Studies and Procedures Related to the Spine Imaging Guidelines (SP-16)	108
This section intentionally left blank (SP-17)	115

General Guidelines (SP-1)

Guideline	Page
Procedure Codes Associated with Spine Imaging.....	4
General Guidelines (SP-1.0).....	7
General Considerations (SP-1.1).....	10
Red Flag Indications (SP-1.2).....	12
Definitions (SP-1.3).....	18
Evidence Discussion (SP-1).....	19
References (SP-1).....	20

Procedure Codes Associated with Spine Imaging

SP.GG.ProcedureCodes.C
v3.0.2026

MRI/MRA	CPT®
MRI Cervical without contrast	72141
MRI Cervical with contrast	72142
MRI Cervical without and with contrast	72156
MRI Thoracic without contrast	72146
MRI Thoracic with contrast	72147
MRI Thoracic without and with contrast	72157
MRI Lumbar without contrast	72148
MRI Lumbar with contrast	72149
MRI Lumbar without and with contrast	72158
MRA Spinal Canal	72159
MRI Pelvis without contrast	72195
MRI Pelvis with contrast	72196
MRI Pelvis without and with contrast	72197
MR Spectroscopy	76390
Magnetic resonance spectroscopy, determination and localization of discogenic pain (cervical, thoracic, or lumbar); acquisition of single voxel data, per disc, on biomarkers (ie, lactic acid, carbohydrate, alanine, laal, propionic acid, proteoglycan, and collagen) in at least 3 discs	0609T

MRI/MRA	CPT®
Magnetic resonance spectroscopy, determination and localization of discogenic pain (cervical, thoracic, or lumbar); transmission of biomarker data for software analysis	0610T
Magnetic resonance spectroscopy, determination and localization of discogenic pain (cervical, thoracic, or lumbar); postprocessing for algorithmic analysis of biomarker data for determination of relative chemical differences between discs	0611T
Magnetic resonance spectroscopy, determination and localization of discogenic pain (cervical, thoracic, or lumbar); interpretation and report	0612T

CT	CPT®
CT Cervical without contrast	72125
CT Cervical with contrast (Post-Myelography CT)	72126
CT Cervical without and with contrast	72127
CT Thoracic without contrast	72128
CT Thoracic with contrast (Post-Myelography CT)	72129
CT Thoracic without and with contrast	72130
CT Lumbar without contrast (Post-Discography CT)	72131
CT Lumbar with contrast (Post-Myelography CT)	72132
CT Lumbar without and with contrast	72133
CT Pelvis without contrast	72192
CT Pelvis with contrast	72193
CT Pelvis without and with contrast	72194

Ultrasound	CPT®
Spinal canal ultrasound	76800

General Guidelines (SP-1.0)

SP.GG.0001.0.A

v3.0.2026

- Before advanced diagnostic imaging can be considered, there must be an in-person clinical evaluation as well as a clinical re-evaluation after a trial of failed conservative therapy. The clinical re-evaluation may consist of an in-person evaluation or other meaningful contact with the provider's office such as email, web, telephone communications, or clinical documentation from a provider.
- An in-person clinical evaluation performed after the current episode of symptoms started or changed is required and must include relevant:
 - history
 - physical examination
 - neurological examination documenting **AT LEAST ONE** of the following:
 - motor strength testing
 - sensory examination (e.g., documentation of the specific dermatomal distribution of altered sensation)
 - deep tendon reflex examination
 - nerve root tension signs, when applicable (e.g., straight leg raise test, slump test, femoral nerve tension test)
- For those spinal conditions/disorders for which the Spine Imaging Guidelines require a plain x-ray of the spine prior to consideration of an advanced imaging study, the plain x-ray must be performed after the current episode of symptoms started or changed and results need to be available to the requesting provider of the advanced imaging study (see: **Anatomic Guidelines [SP-2.1]**).
- Clinical re-evaluation is required prior to consideration of advanced diagnostic imaging to document failure of clinical improvement following a six-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed. Clinical re-evaluation can include documentation of an in-person encounter with a provider or documentation of other meaningful contact with a provider's office by the individual (e.g., telephone call, electronic mail, telemedicine, or messaging).
 - Provider-directed treatment may include education, activity modification, NSAIDs (non-steroidal anti-inflammatory drugs), narcotic and non-narcotic analgesic medications, oral or injectable corticosteroids, a provider-directed home exercise/stretching program, cross-training, avoidance of aggravating activities, physical/occupational therapy, spinal manipulation, interventional pain procedures and other pain management techniques.
- Any bowel/bladder abnormalities or emergent or urgent indications should be documented at the time of the initial clinical evaluation and clinical re-evaluation.

- Altered sensation to pressure, pain, and temperature should be documented by the specific anatomic distribution (e.g., dermatomal, stocking/glove or mixed distribution).
- Motor deficits (weakness) should be defined by the specific myotomal distribution (e.g., weakness of toe flexion/extension, knee flexion/extension, ankle dorsi/plantar flexion, wrist dorsi/palmar flexion) and gradation of muscle testing should be documented as follows:

Grading of Manual Muscle Testing	
0	No muscle activation
1	Trace muscle activation, such as a twitch, without achieving full range of motion
2	Muscle activation with gravity eliminated, achieving full range of motion
3	Muscle activation against gravity, full range of motion
4	Muscle activation against some resistance, full range of motion
5	Muscle activation against examiner's full resistance, full range of motion

- Pathological reflexes (e.g., Hoffmann's, Babinski, and Chaddock sign) should be reported as positive or negative.
- Asymmetric reflexes and reflex examination should be documented as follows:

Grading of Reflex Testing	
0	No response
1+	A slight but definitely present response
2+	A brisk response
3+	A very brisk response without clonus
4+	A tap elicits a repeating reflex (clonus)

- Advanced diagnostic imaging is often urgently indicated and may be necessary if serious underlying spinal and/or non-spinal disease is suggested by the presence of certain individual factors referred to as "red flags." See: **Red Flag Indications (SP-1.2)**.

- Spinal specialist evaluation can be helpful in determining the need for advanced diagnostic imaging, especially for individuals following spinal surgery.
- The need for repeat advanced diagnostic imaging should be carefully considered and may not be medically necessary if prior advanced diagnostic imaging has been performed. Requests for simultaneous, similar studies such as spinal MRI and CT need to be documented as required for pre-operative surgical planning. These studies may be helpful in the evaluation of complex failed spinal fusion cases or needed for pre-operative surgical planning when the determination of both soft tissue and bony anatomy is required.
- Serial advanced imaging, whether CT or MRI, for surveillance of healing or recovery from spinal disease is not supported by the currently available scientific evidence-based medicine for the majority of spinal disorders.
 - Requests for repeat imaging may be considered on a case-by-case basis (e.g., concern for delayed union or non-union of spinal fracture, pseudoarthrosis of fusion, etc.).
- Advanced imaging is not considered medically necessary for resolved or improving spinal pain and/or radiculopathy.
- Advanced diagnostic imaging has not been shown to be of value in individuals with stable, longstanding spinal pain without neurological features or without clinically significant or relevant changes in symptoms or physical examination findings.
- Anatomic regions of the spine/pelvis that are included in the following MRI and CT advanced diagnostic imaging studies:
 - Cervical spine: from the skull base/foramen magnum through T1
 - Thoracic spine: from C7 through L1
 - Lumbar spine: from T12 through mid-sacrum
 - Pelvis: includes hips, sacroiliac joints, sacrum, coccyx
- CT or MRI of the cervical and thoracic spine will image the entire spinal cord since the end of the spinal cord or conus medullaris usually ends at L1 in adults. Therefore, lumbar spine imaging is not needed when the goal is to image only the spinal cord unless there is known or suspected low lying conus medullaris (e.g., tethered cord).

Health Equity Consideration

Health equity is the highest level of health for all individuals; health inequity is the avoidable difference in health status or distribution of health resources due to the social conditions in which individuals are born, grow, live, work, and age. Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include the following: safe housing, transportation, and neighborhoods; racism, discrimination, and violence; education, job opportunities, and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

General Considerations (SP-1.1)

SP.GG.0001.1.A

v3.0.2026

- See: **General Guidelines (SP-1.0)**

Background and Supporting Information

Straight leg raise test (also known as the Lasegue's test) – With the individual in the supine position, the hip medially rotated and adducted, and the knee extended, the examiner flexes the hip until the individual complains of pain or tightness in the back or back of the leg. If the pain is primarily back pain, it is less specific whereas if the pain is primarily in the leg, it is more likely nerve root irritation/radiculopathy. Disc herniation or pathology causing pressure between the two extremes are more likely to cause pain in both areas. The examiner then slowly and carefully drops the leg back (extends it) slightly until the individual feels no pain or tightness. The individual is then asked to flex the neck so the chin is on the chest, or the examiner may dorsiflex the individual's foot, or both actions may be done simultaneously. Both maneuvers are considered to be provocative tests for neurological tissue.

Slump test – The individual is seated on the edge of the examination table with the legs supported, the hips in neutral position, and the hands behind the back. The examination is performed in sequential steps. First, the individual is asked to “slump” the back into thoracic and lumbar flexion. The examiner maintains the individual's chin in neutral position to prevent neck and head flexion. The examiner then uses one arm to apply overpressure across the shoulders to maintain flexion of the thoracic and lumbar spines. While this position is held, the individual is asked to actively flex the cervical spine and head as far as possible (i.e., chin to chest). The examiner then applies overpressure to maintain flexion of all three parts of the spine (cervical, thoracic, and lumbar) using the hand of the same arm to maintain overpressure in the cervical spine. With the other hand, the examiner then holds the individual's foot in maximum dorsiflexion. While the examiner holds these positions, the individual is asked to actively straighten the knee as much as possible. The test is repeated with the other leg and then with both legs at the same time. If the individual is unable to fully extend the knee because of pain, the examiner releases the overpressure to the cervical spine and the individual actively extends the neck. If the knee extends further, the symptoms decrease with neck extension, or the positioning of the individual increases the individual's symptoms, then the test is considered positive.

Femoral nerve tension test (also known as the prone knee bending test) – The individual lies prone while the examiner passively flexes the knee as far as possible so that the individual's heel rests against the buttock. At the same time, the examiner should ensure that the individual's hip is not rotated. If the examiner is unable to flex the

individual's knee past 90 degrees because of a pathological condition in the hip, the test may be performed by passive extension of the hip while the knee is flexed as much as possible. The flexed knee position should be maintained for 45 to 60 seconds. Unilateral neurological pain in the lumbar area, buttock, and/or posterior thigh may indicate an L2 or L3 nerve root lesion. Pain in the anterior thigh indicates tight quadriceps muscles or stretching of the femoral nerve.

Hoffmann's sign – The examiner holds the individual's middle finger and briskly flicks the distal phalanx. A positive test is noted if the interphalangeal joint of the thumb of the same hand flexes.

Babinski's sign – The examiner runs a sharp instrument along the plantar surface of the foot from the calcaneus along the lateral border to the forefoot. A positive test occurs with extension of the great toe with flexion and splaying of the other toes. A negative test occurs with no movement of the toes at all or uniform bunching up of the toes.

Chaddock sign – The examiner strokes the lateral malleolus. A positive test occurs with extension of the great toe.

Red Flag Indications (SP-1.2)

SP.GG.0001.2.A

v3.0.2026

Red Flag Indications are intended to represent the potential for life or limb threatening conditions. Red Flag Indications are clinical situations in which localized spine pain and associated neurological features are likely to reflect serious underlying spinal and/or non-spinal disease and warrant exception to the requirement for documented failure of six weeks of provider-directed treatment. Advanced diagnostic imaging of the symptomatic level is medically necessary **and/or** work-up for a non-spinal source of spine pain for Red Flag Indications.

- Red Flag Indications include:
 - Motor Weakness
 - Aortic Aneurysm or Dissection
 - Cancer
 - Cauda Equina Syndrome
 - Fracture
 - Infection
 - Severe Radicular Pain

Motor Weakness

(See: Grading of Manual Muscle Testing and Reflex Testing in **General Guidelines [SP-1.0]**)

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
Clinical presentation including one or more of the following: • New onset motor weakness of grade 3/5 or less of specified muscle(s) • New onset foot drop • New onset bilateral lower extremity weakness • Progressive objective motor/sensory/deep tendon reflex deficits on clinical re-evaluation	MRI of the relevant spinal level* without contrast OR MRI of the relevant spinal level* without and with contrast <i>*The SI joint and sacrum are relevant levels of the spine and are captured with pelvic imaging.</i>

Aortic Aneurysm or Dissection

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
• New onset of back and/or abdominal pain in an individual with a known AAA; or • Acute dissection is suspected.	Spine imaging is not medically necessary, see: <u>Aortic Disorders, Renal Vascular Disorders and Visceral Artery Aneurysms (PVD-6)</u> in the Peripheral Vascular Disease Imaging Guidelines

Cancer

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
There is clinical suspicion of spinal malignancy AND ONE or more of the following: • Night pain • Uncontrolled or unintended weight loss • Pain unrelieved by change in position • Age >70 years • Severe or worsening spinal pain	ONE of the following: • MRI of the relevant spinal level* without contrast OR • MRI of the relevant spinal level* without and with contrast OR • CT of the relevant spinal level* without contrast OR • CT Myelogram of the relevant spinal level* <i>*The SI joint and sacrum are relevant levels of the spine and are captured with pelvic imaging.</i>
Individual with a known history of cancer with back pain raising suspicion of spinal malignancy	See: Spinal/Vertebral Metastases (ONC-31.6) in the Oncology Imaging Guidelines

Cauda Equina Syndrome

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
Clinical presentation including one or more of the following: • Acute onset of bilateral sciatica • Perineal sensory loss (“saddle anesthesia”) • Decreased anal sphincter tone • New onset bowel/bladder incontinence • Otherwise unexplained acute urinary retention	MRI Lumbar Spine without contrast (CPT® 72148) OR MRI Lumbar Spine without and with contrast (CPT® 72158)

Fracture

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
- Clinical suspicion of a pathological spinal fracture. - Advanced imaging is medically necessary after x-ray; no conservative treatment is needed.	See: <u>Spinal Compression Fractures (SP-11.1)</u> for appropriate imaging studies
- Clinical suspicion of a spinal fracture after trauma - Advanced imaging is medically necessary after x-ray; no conservative treatment is needed.	See: <u>Neck (Cervical Spine) Trauma (SP-3.2), Upper Back (Thoracic Spine) Trauma (SP-4.2), or Low Back (Lumbar Spine) Trauma (SP-6.2)</u> for appropriate imaging studies
- Clinical suspicion of a spinal fracture related to ankylosing spondylitis or diffuse idiopathic skeletal hyperostosis (DISH) - Advanced imaging is medically necessary without x-ray or conservative treatment.	See: <u>Neck (Cervical Spine) Trauma (SP-3.2), Upper Back (Thoracic Spine) Trauma (SP-4.2), Low Back (Lumbar Spine) Trauma (SP-6.2), or Inflammatory Spondylitis (SP-10.2)</u> for appropriate imaging studies

Infection

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
There is a clinical suspicion of spinal infection (e.g., disc space infection, epidural abscess, or spinal osteomyelitis) and one or more of the following: • Fever • History of IV drug use • Recent bacterial infection (UTIs, pyelonephritis, pneumonia) • Recent spinal intervention (e.g., surgery, pain injection, or stimulator implantation) • Immunocompromised states • Long term use of systemic glucocorticoids • Organ transplant recipient taking anti-rejection medication • Diabetes mellitus • HIV/AIDS • Chronic dialysis • Immunosuppressant therapy • Neoplastic involvement of the spine • Laboratory values indicative of infection (e.g., elevated WBC, ESR, CRP, positive cultures) • Decubitus ulcer or wound overlying spine • Abnormal x-ray or CT suspicious for infection	ONE of the following: • MRI of the relevant spinal level* without and with contrast OR • MRI of the relevant spinal level* without contrast OR • CT of the relevant spinal level* without IV contrast OR • CT of the relevant spinal level* with IV contrast OR • FDG-PET/CT whole-body when x-ray or CT are abnormal AND when MRI cannot be performed or is inconclusive OR • 3-phase bone scan complete spine OR • Bone SPECT or Bone SPECT/CT OR • Gallium scan whole body or limited spine OR • Gallium SPECT or SPECT/CT OR • Gallium scan whole body or limited spine** with SPECT or SPECT/CT <i>*The SI joint and sacrum are relevant levels of the spine and are captured with pelvic imaging.</i> <i>**Any bone scan can be combined with any Gallium scan</i>

History, Symptoms or Physical Exam Findings (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
There is a clinical suspicion of spinal infection (e.g., disc space infection, epidural abscess, or spinal osteomyelitis) and one or more of the following: - New neurologic deficit on physical examination - Cauda equina syndrome	ONE of the following: - MRI of the relevant spinal level* without and with contrast OR - MRI of the relevant spinal level* without contrast OR - CT of the relevant spine level* without IV contrast OR - CT of the relevant spinal level* with IV contrast <i>*The SI joint and sacrum are relevant levels of the spine and are captured with pelvic imaging.</i>

Severe Radicular Pain

All the following must be present (In-person clinical evaluation for the current episode of the condition required)	Advanced Diagnostic Imaging
- Severe radicular pain in a specified spinal nerve root distribution (minimum 9/10 on the Visual Analog Scale (VAS); and - Documented significant functional loss at work or at home; and - Severity of pain unresponsive to a minimum of seven (7) days of provider-directed treatment; and - Treatment plan includes one of the following: - Transforaminal epidural steroid injection (TFESI) at any level(s); or - Interlaminar epidural steroid injection (ILES) at the cervical or thoracic levels; or - A plan for urgent/emergent spinal surgery; or - A plan for an urgent/emergent referral to/consultation from a spine specialist (Interventional Pain physician or Spine Surgeon)	MRI of the relevant spinal level* without contrast OR MRI of the relevant spinal level* without and with contrast <i>*The SI joint and sacrum are relevant levels of the spine and are captured with pelvic imaging.</i>

Definitions (SP-1.3)

SP.GG.0001.3.A

v3.0.2026

- **Radiculopathy**, for the purpose of this policy, is defined as the presence of pain resulting in significant functional limitations (i.e., diminished quality of life and impaired, age-appropriate activities of daily living), dysaesthesia(s) or paraesthesia(s) reported by the individual in a specified dermatomal distribution of an involved named spinal root(s) and **ONE or MORE** of the following:
 - Loss of strength of specific named muscle(s) or myotomal distribution(s) or demonstrated on detailed neurologic examination (within the prior 3 months), concordant with nerve root compression of the involved named spinal nerve root(s).
 - Altered sensation to light touch, pressure, pin prick or temperature demonstrated on a detailed neurologic examination (within the prior 3 months) in the sensory distribution concordant with nerve root compression of the involved named spinal nerve root(s).
 - Diminished, absent, or asymmetric reflex(es) on a detailed neurologic examination (within the prior 3 months) concordant with nerve root compression of the involved named spinal nerve root(s).
 - **Either** of the following:
 - A concordant radiologist's interpretation of an advanced diagnostic imaging study (MRI or CT) of the spine demonstrating compression of the involved named spinal nerve root(s) or foraminal stenosis at the concordant level(s) (performed within the prior 12 months).
 - Electrodiagnostic studies (EMG/NCV's) diagnostic of nerve root compression of the involved named spinal nerve root(s) (performed within the prior 12 months).
- **Radicular pain** is pain which radiates to the upper or lower extremity along the course of a spinal nerve root, typically resulting from compression, inflammation and/or injury to the nerve root.
- **Radiculitis** is defined, for the purpose of this policy, as radicular pain without objective neurological findings.

Evidence Discussion (SP-1)

v3.0.2026

Prior to advanced imaging, it is critical to perform a detailed history and physical examination in the evaluation of an individual for spinal pathology.^{22,23,24} Features of the clinical history and physical examination not only help in the formulation of a differential diagnosis but also influence decisions about diagnostic imaging.³ Also, as the more common findings on imaging studies are often nonspecific and non-diagnostic, clinical history and exam findings play a crucial role.³² These incidental findings may lead to unnecessary further diagnostic workup and additional negative downstream outcomes.

Multiple studies have shown most individuals with acute neck or back pain will improve with 6 weeks of conservative care;^{9,25,26} however, conservative care would not be necessary for individuals with Red Flag Indications.¹⁵

Risks associated with imaging include but are not limited to radiation exposure and contrast complications.^{27,29} Studies have also linked the increase rate of imaging with the increase rate of surgery and also found early magnetic resonance imaging (MRI) had an eight-fold increased risk of surgery.^{27,28} It should also be of note that routine repeat advanced imaging for many spinal conditions has been shown to have limited value.^{4,30,31}

References (SP-1)

v3.0.2026

1. el Barzouhi A, Vleggeert-Lankamp C, Lycklama à Nijeholt GJ, et al. Magnetic resonance imaging in follow-up assessment of sciatica. *N Engl J Med*. 2013;368(11):999-1007. doi:10.1056/NEJMoa1209250.
2. Deyo RA, Dieh AK, Rosenthal M. Reducing roentgenography use. *Arch Intern Med*. 1987;147(1):141-145. doi:10.1001/archinte.1987.00370010139029.
3. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992; 268(6):760-765. doi:10.1001/jama.1992.03490060092030.
4. Panagopoulos J, Hush J, Steffens D, Hancock, MJ. Do MRI findings change over a period of up to 1 year in patients with low back pain and/or sciatica? *Spine*. 2017;42(7):504-512. doi:10.1097/BRS.0000000000001790.
5. Fabiano V, Franchino G, Napolitano M, et. al. Utility of magnetic resonance imaging in the follow-up of children affected by acute osteomyelitis. *Curr Pediatr Res*. 2017;21(2):354-358.
6. Gilbert FJ, Grant AM, Gillan MG, et al. Low back pain: influence of early MR imaging or CT on treatment and outcome - multicenter randomized trial. *Radiology*. 2004;231:343-351. doi:10.1148/radiol.2312030886.
7. Hoppenfeld S. Physical Examination of the Spine and Extremities. Upper Saddle River: Prentice Hall; 1976.
8. Magee DJ. Orthopedic Physical Assessment. 4th ed. Philadelphia, PA:Saunders; 2002.
9. Hutchins TA, Peckham M, Shah LM, et. al. Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria®: Low Back Pain. American College of Radiology (ACR); Date of Origin: 1996. Revised: 2021. <https://acsearch.acr.org/docs/69483/Narrative/>.
10. Patrick N, Emanski E, Knaub MA. Acute and chronic low back pain. *Med Clin North Am*. 2016;100(1):169-81.
11. Reinus WR. Clinician's Guide to Diagnostic Imaging. New York, NY: Springer; 2014. doi:10.1007/978-1-4614-8769-2.
12. Sharma H, Lee SWJ, Cole AA. The management of weakness caused by lumbar and lumbosacral nerve root compression. *J Bone Joint Surg Br*. 2012;94-B(11):1442-1447. doi:10.1302/0301-620X.94B11.29148.
13. Stiell IG, Clement CM, McKnight RD, et al. The Canadian c-spine rule versus the NEXUS low-risk criteria in patients with trauma. *N Engl J Med*. 2003;349:2510-2518. doi:10.1056/NEJMoa031375.
14. Underwood M, Buchbinder R. Red flags for back pain. *BMJ*. 2013;347:f7432. doi:10.1136/bmj.f7432.
15. Verhagen A, Downie A, Popal N, et al. Red flags presented in current low back pain guidelines: a review. *Eur Spine J*. 2016; 25:2788-2802. doi:10.1007/s00586-016-4684-0.
16. Visconti AJ, Biddle J, Solomon M. Follow-up imaging for vertebral osteomyelitis a teachable moment. *JAMA*. 2014;174(2):184. doi:10.1001/jamainternmed.2013.12742.
17. Tsiang JT, Kinzy TG, Thompson N, et al. Sensitivity and specificity of patient-entered red flags for lower back pain. *The Spine Journal*. 2019;19(2):293-300. doi:10.1016/j.spinee.2018.06.342.
18. Ortiz AO, Levit A, Shah LM, et. al. Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria®: Suspected Spine Infection. American College of Radiology (ACR); Date of Origin: 2021. <https://acsearch.acr.org/docs/3148734/Narrative/>.
19. Le HV, Wick JB, Van BW, Klineberg EO. Diffuse idiopathic skeletal hyperostosis of the spine: pathophysiology, diagnosis, and management. *J Am Acad Orthop Surg*. 2021;29:1044-1051. doi:10.5435/JAAOS-D-20-01344.
20. Goodwin ML, Buchowski JM, Sciubba DM. Why x-rays? The importance of radiographs in spine surgery. *The Spine Journal*. 2022;22(11):1759-1767. doi:10.1016/j.spinee.2022.07.102.
21. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007;147:478-91.
22. Childress MA, Stueck SJ. Neck Pain: Initial Evaluation and Management. *Am Fam Physician*. 2020 Aug 1;102(3):150-156.
23. Mathieu J, Pasquier M, Descarreaux M, Marchand AA. Diagnosis Value of Patient Evaluation Components Applicable in Primary Care Settings for the Diagnosis of Low Back Pain: A Scoping Review of Systematic Reviews. *J Clin Med*. 2023;12(10):3581. Published 2023 May 21. doi:10.3390/jcm12103581.
24. Chou R, Fu R, Carrino JA, et al. Imaging strategies for low-back pain: systematic review and meta-analysis. *Lancet*. 2009;373:463-472.

25. Childress MA, Becker BA. Nonoperative management of cervical radiculopathy. *Am Fam Physician*. 2016;93(9):746-54.
26. Shubha SV, Deyo RA, Berger ZD. Application of "Less is More" to Low Back Pain. *Arch Intern Med*. 2012;172(13):1016-1020.
27. Webster BS, Cifuentes M. Relationship of early magnetic resonance imaging for work-related acute low back pain with disability and medical utilization outcomes. *J Occup Environ Med*. 2010;52:900-907.
28. Watson RE, Yu L. Safety Considerations in MRI and CT. *Continuum (Minneap Minn)*. 2023 Feb 1;29(1):27-53.
29. Lee BS, Nault R, Grabowski M, et al. Utility of repeat magnetic resonance imaging in surgical patients with lumbar stenosis without disc herniation. *Spine J*. 2019;19(2):191-198.
30. Ries ZG, Glassman SD, Vasilyev I, Metcalfe L, Carreon LY. Updated imaging does not affect revision rates in adults undergoing spine surgery for lumbar degenerative disease. *J Neurosurg Spine*. 2018;30(2):228-223. Published 2018 Nov 16. doi:10.3171/2018.8.SPINE18586.
31. Linna NB, Zhang S, Farooqi AS, et al. Association of thoracic MRI findings with specialty and training. *Global Spine Journal*. 2024;14(5):1472-1476. doi:10.1177/21925682221143991.
32. Ciesla N, Dinglas V, Fan E, Kho M, Kuramoto J, Needham D. Manual muscle testing: a method of measuring extremity muscle strength applied to critically ill patients. *J Vis Exp*. 2011;(50):2632. doi:10.3791/2632
33. Conable KM, Rosner AL. A narrative review of manual muscle testing and implications for muscle testing research. *J Chiropr Med*. 2011;10(3):157-165. doi:10.1016/j.jcm.2011.04.001
34. Shah VN, Parsons MS, Boulter DJ, et al. ACR Appropriateness Criteria® Thoracic Back Pain. Available at <https://acsearch.acr.org/docs/3195158/Narrative/>. American College of Radiology. 2024.
35. Eldalya RW, Parsons MS, Hutchins TA, et al. ACR Appropriateness Criteria® Cervical Pain or Cervical Radiculopathy. Available at <https://acsearch.acr.org/docs/69426/Narrative/>. American College of Radiology. Revised 2024.
36. World Health Organization. Low back pain. World Health Organization. Published June 19, 2023. <https://www.who.int/news-room/fact-sheets/detail/low-back-pain>
37. Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018 Nov 10;392(10159):1789-1858. doi: 10.1016/S0140-6736(18)32279-7. Epub 2018 Nov 8. Erratum in: *Lancet*. 2019 Jun 22;393(10190):e44. doi: 10.1016/S0140-6736(19)31047-5. PMID: 30496104; PMCID: PMC6227754.
38. Aroke EN, Jackson P, Overstreet DS, Penn TM, Rumble DD, Kehr CV, Michl AN, Hasan FN, Sims AM, Quinn T, Long DL, Goodin BR. Race, Social Status, and Depressive Symptoms: A Moderated Mediation Analysis of Chronic Low Back Pain Interference and Severity. *Clin J Pain*. 2020 Sep;36(9):658-666. doi: 10.1097/AJP.0000000000000849. PMID: 32487870; PMCID: PMC7725357.
39. Pak SS, Jiang Y, Lituiev DS, De Marchis EH, Peterson TA. Evaluating associations between social risks and health care utilization in patients with chronic low back pain. *Pain Rep*. 2024 Oct 8;9(6):e1191. doi: 10.1097/PR9.0000000000001191. PMID: 39391767; PMCID: PMC11463208.
40. Mathieu J, Roy K, Robert MÈ, Akeblersane M, Descarreaux M, Marchand AA. Sociodemographic determinants of health inequities in low back pain: a narrative review. *Front Public Health*. 2024 Sep 11;12:1392074. doi: 10.3389/fpubh.2024.1392074. PMID: 39324158; PMCID: PMC11422063.

Imaging Techniques (SP-2)

Guideline	Page
Anatomic Guidelines (SP-2.1)	23
MRI of the Spine (SP-2.2)	24
CT of the Spine (SP-2.3)	25
CT/Myelography (SP-2.4)	26
Imaging of Intervertebral Discs (SP-2.5)	27
Ultrasound of the Spinal Canal (SP-2.6)	29
Limitations of Spinal Imaging in Degenerative Disorders (SP-2.7)	30
Miscellaneous Spinal Lesions (SP-2.8)	31
MRA Spinal Canal (SP-2.9)	32
Spine PET/CT (SP-2.10)	33
Cone-beam CT (SP-2.11)	34
3D Rendering (SP-2.12)	35
Evidence Discussion (SP-2)	36
References (SP-2)	37

Anatomic Guidelines (SP-2.1)

SP.IM.0002.1.A

v3.0.2026

- Anatomic regions of the spine/pelvis that are included in the following MRI and CT advanced diagnostic imaging studies:
 - Cervical spine: from the skull base/foramen magnum through T1
 - Thoracic spine: from C7 through L1
 - Lumbar spine: from T12 through mid-sacrum
 - Pelvis: includes hips, sacroiliac joints, sacrum, coccyx
- CT or MRI cervical and thoracic spine will image the entire spinal cord since the end of the spinal cord or conus medullaris usually ends at L1 in adults. Therefore, lumbar spine imaging is not needed when the goal is to image only the spinal cord unless there is known or suspected low-lying conus medullaris (e.g., tethered cord).
- The results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider of the advanced imaging study for the following conditions:
 - See: **Spinal Compression Fractures (SP-11)**
 - See: **Lumbar Spine Spondylolysis/Spondylolisthesis (SP-8)**
 - See: **Inflammatory Spondylitis (SP-10.2)**
 - See: **Upper Back (Thoracic Spine) Pain without and with Neurological Features (Including Stenosis) (SP-4.1)**
 - See: **Neck (Cervical Spine) Trauma (SP-3.2)**
 - See: **Coccydynia without Neurological Features (SP-5.2)**
 - See: **Spinal Deformities (e.g., Scoliosis/Kyphosis) (SP-14)** and **Spinal Dysraphism (PEDSP-4)** in the Pediatric and Special Populations Spine Imaging Guidelines
 - See: **Sacro-Iliac (SI) Joint Pain, Inflammatory Spondylitis/Sacroiliitis and Fibromyalgia (SP-10)**
 - See: **Post-Operative Spinal Disorders (SP-15)**

MRI of the Spine (SP-2.2)

SP.IM.0002.2.A

v3.0.2026

- See: **Procedure Codes Associated with Spine Imaging**
- For MR Spectroscopy, all spine uses are considered not medically necessary.
 - See: **Imaging of Intervertebral Discs (SP-2.5)**
- MRI Spine is performed either without contrast, with contrast *or* without and with contrast. A “with contrast” study alone is medically necessary only to complete a study begun without contrast. Contrast is generally not medically necessary for most disc and nerve root disorders, fractures, and degenerative disease.
- MRI Spine indications include:
 - Evaluation of disc disease, spinal cord and nerve root disorders and most other spinal conditions including evaluation of congenital anomalies of the spine and spinal cord
 - Suspicion for or surveillance of known spine/spinal canal/spinal cord neoplastic disease
 - Suspicion, diagnosis of or surveillance of spinal infections, multiple sclerosis, or other causes of myelitis, syringomyelia, cauda equina syndrome or other “red flag” indications. See: **Red Flag Indications (SP-1.2)**.
 - Pre-operative evaluation to define abnormal or variant spinal anatomy that could influence the outcome of a potential surgical procedure. See: **Prior to Spine Surgery (SP-16.1)**
 - Spinal imaging for individuals having undergone recent spinal surgery (e.g., laminectomy, discectomy, spinal decompression), when history and physical examination is suspicious for hematoma, post-surgical infection, or cerebrospinal fluid (CSF) leak

Positional MRI

- Positional MRI is also referred to as dynamic, weight-bearing or kinetic MRI. Currently, there is inadequate scientific evidence to support the medical necessity of this study. As such, it should be considered not medically necessary.

CT of the Spine (SP-2.3)

SP.IM.0002.3.A

v3.0.2026

- See: **Procedure Codes Associated with Spine Imaging**
- CT Spine indications include:
 - Contraindication to MRI
 - CT (contrast as requested) is medically necessary when **ANY** of the following MRI contraindications are documented:
 - Implanted ferromagnetic materials
 - Electronically, magnetically, or mechanically activated implanted devices that are not determined by the manufacturer as MRI compatible/conditional
 - CT without contrast, or CT without and with contrast (even if MRI has already been performed), for any spinal trauma/fractures, especially spinal trauma/fractures that could result in spinal instability and spinal cord/spinal nerve compression
 - CT without contrast, or CT without and with contrast (even if MRI has already been performed), for spinal neoplastic disease – primary or metastatic
 - CT without contrast, or CT without and with contrast (even if MRI has already been performed), in conjunction with myelography or discography (see: **CT/Myelography [SP-2.4]** and **Imaging of Intervertebral Discs [SP-2.5]**)
 - CT without contrast, or CT without and with contrast (even if MRI has already been performed), for pre-operative evaluation to define abnormal or variant bony spinal anatomy that could influence the outcome of a potential surgical procedure (see: **Prior to Spine Surgery [SP-16.1]**)
 - CT without contrast, or CT without and with contrast, (even if MRI has already been performed), to assess spinal fusions when pseudoarthrosis is suspected (not to be used for routine post-operative assessment where x-rays are sufficient and/or there are no concordant clinical signs or symptoms)
 - CT without contrast, or CT without and with contrast (even if MRI has already been performed), for congenital, developmental, or acquired spinal deformity (see: **Spinal Deformities [e.g., Scoliosis/Kyphosis] [SP-14]**)
 - CT without contrast, or CT without and with contrast, for spondylolysis when routine x-rays are negative and/or MRI is equivocal, indeterminate, or non-diagnostic (see: **Lumbar Spine Spondylolysis/Spondylolisthesis [SP-8]**)
 - CT without contrast, or CT without and with contrast, to evaluate calcified lesions, (e.g., osteophytes, ossification of the posterior longitudinal ligament [OPLL])

CT/Myelography (SP-2.4)

SP.IM.0002.4.A

v3.0.2026

- See: **Procedure Codes Associated with Spine Imaging**
- CT/Myelography is generally unnecessary as an initial study when a diagnostic quality MRI has been obtained.
- CT/Myelography indications include:
 - To clarify equivocal, indeterminate, or non-diagnostic MRI findings or to further evaluate the significance of multiple spinal abnormalities
 - When an MRI is contraindicated (see: **CT of the Spine [SP-2.3]**)
 - Pre-operative planning for spine surgery, (e.g., multilevel spinal stenosis or when a previous MRI is insufficient, equivocal, indeterminate, or non-diagnostic) (see: **Prior to Spine Surgery (SP-16.1)**)
 - Evaluation after previous spinal surgery when an MRI without and with contrast is contraindicated or MRI results are equivocal, indeterminate, or non-diagnostic
 - The guidelines allow for the approval of the post-myelogram CT (i.e., CPT[®] 72126, CPT[®] 72129, and CPT[®] 72132) only and not any other myelogram-related procedure codes (i.e., CPT[®] 72265 or CPT[®] 62284).

Imaging of Intervertebral Discs (SP-2.5)

SP.IM.0002.5.A

v3.0.2026

Post-lumbar Discography CT

- The guidelines allow for the post-lumbar discography CT procedure codes only and do not include any other discography-related procedure codes. A post-lumbar discography CT is considered medically necessary following an approved discography and **ALL** the following apply:
 - A post-discography CT is coded as without contrast.
 - A CT Lumbar Spine without contrast (CPT[®] 72131) is medically necessary if verified to be performed as a post-discography CT.
 - When a post-discography CT is requested and the discography has already been approved, authorization will be issued for the post-discography CT procedure codes.

Magnetic Resonance Spectroscopy

- Magnetic Resonance Spectroscopy (MRS) involves the analysis of the levels of certain chemicals in pre-selected voxels (small regions) on an MRI scan done at the same time.
 - MRS (CPT[®] 76390, 0609T, 0610T, 0611T, and 0612T) is considered not medically necessary for all spine imaging uses at this time.

Background and Supporting Information

- Provocative Discography/CT and MR Spectroscopy lumbar spine are procedures purported to diagnose (or rule-out) a discogenic “pain generator” (i.e., the source of non-specific axial spinal pain). These diagnostic studies, when reported as positive, are often used as an indication for spinal fusion in individuals with non-specific axial back pain.
- The following uses of discography are considered controversial:
 - To identify a symptomatic pseudoarthrosis in a failed spinal fusion
 - To identify which of two herniated discs seen on MRI is symptomatic when not determined clinically or otherwise
 - To confirm the discogenic nature of pain in an individual with an abnormal disc seen on MRI and to rule out pain from an adjacent disc level
 - To confirm the presumptive diagnosis of “internal disc disruption”
 - Discography of the cervical and/or thoracic spine
- The following uses of MR Spectroscopy lumbar spine are considered controversial:

- To identify which of two herniated discs seen on MRI is symptomatic when not determined clinically or otherwise
- To confirm the discogenic nature of pain in an individual with an abnormal disc seen on MRI and to rule out pain from an adjacent disc level
- To confirm the presumptive diagnosis of “internal disc disruption”

Ultrasound of the Spinal Canal (SP-2.6)

SP.IM.0002.6.A

v3.0.2026

- Spinal canal ultrasound (CPT[®] 76800) describes the evaluation of the spinal cord (canal and contents), most often performed in newborns, infants, young children and intraoperatively.
- CPT[®] 76800 describes evaluation of the entire spine and should not be reported multiple times for imaging of different areas of the spinal canal.
- CPT[®] 76998, rather than CPT[®] 76800, should be used to report intraoperative spinal canal ultrasound (ultrasonic guidance). Intraoperative use of spinal ultrasound (CPT[®] 76998) would not require prior authorization.

Indications for spinal canal ultrasound (CPT[®] 76800):

- This study is generally limited to infants, newborns, and young children because of incomplete ossification of the vertebral segments surrounding the spinal cord, including the assessment of CSF in the spinal canal and for image-guided lumbar puncture.
- When ossification of the vertebral segments is incomplete for evaluation of suspected or known tethered cord (see: **Tethered Cord [PEDSP-5]** in the Pediatric and Special Populations Spine Imaging Guidelines).
- Evaluation of suspected occult and non-occult spinal dysraphism (see: **Spinal Dysraphism [PEDSP-4]** in the Pediatric and Special Populations Spine Imaging Guidelines).
- Evaluation of spinal cord tumors, vascular malformations, and cases of birth-related trauma.
- Contraindicated for use in the adult spine for the assessment of spinal pain, radiculopathy, facet inflammation, nerve root inflammation, disc herniation, and soft tissue conditions surrounding the adult spine other than for superficial masses.

Limitations of Spinal Imaging in Degenerative Disorders (SP-2.7)

SP.IM.0002.7.A

v3.0.2026

- Non-specific axial spinal pain is ubiquitous. Advanced diagnostic imaging infrequently identifies the source of the spinal pain (pain generator).
- Incidental findings on MRI and CT, including bulging, protruding, extruding or herniated discs, are often non-concordant, asymptomatic and increase in incidence as the spine ages.
- In individuals with poorly defined clinical presentations, “abnormal” spinal advanced diagnostic imaging results are infrequently clinically concordant, significant, material or substantive and may even lead to inappropriate treatment.
- Performing advanced spinal imaging based only on the presence of spinal degenerative findings identified on x-rays is not generally medically necessary in individuals who are either asymptomatic or present with non-specific axial spinal pain.

Miscellaneous Spinal Lesions (SP-2.8)

SP.IM.0002.8.A

v3.0.2026

Vertebral body hemangiomas

- Vertebral body hemangiomas are common and are generally benign and incidental findings on plain x-rays and advanced diagnostic imaging studies.
- If the appearance of a vertebral body hemangioma is typical on plain x-ray, further spinal advanced diagnostic imaging is not usually required, unless there are associated neurologic symptoms or signs on physical examination.
- If the appearance of a vertebral body hemangioma is atypical on plain x-ray, with or without neurological signs or symptoms on physical exam, MRI without contrast or MRI without and with contrast is medically necessary.
- Occasionally, MRI may be equivocal, indeterminate, or non-diagnostic and CT without contrast of the spinal area is medically necessary to help clarify the diagnosis.
- No follow-up imaging is necessary once the diagnosis of a vertebral body hemangioma is established without neurological features.

Tarlov cysts

- Tarlov cysts are most often cystic dilatations of nerve root sleeves in the lumbar spine and sacrum.
- Controversy exists as to whether Tarlov cysts can result in neurologic signs and symptoms but they can result in erosion of the adjacent bone.
- Usually Tarlov cysts are benign, incidental findings on advanced diagnostic imaging studies. Further evaluation of a known or suspected Tarlov cyst can be performed with an MRI Lumbar Spine without and with contrast study (CPT® 72158) or CT/Myelography Lumbar Spine (CPT® 72132).

Other spinal lesions

- MRI without and with contrast or a CT without contrast is medically necessary if:
 - Other spinal lesions are seen on routine x-rays or a non-contrast MRI; **and**
 - These additional advanced imaging studies are recommended by a spine specialist or radiologist to further characterize or diagnose the lesion; **or**
 - Required for surgical planning.

MRA Spinal Canal (SP-2.9)

SP.IM.0002.9.A

v3.0.2026

- MR angiography (MRA) Spine (CPT® 72159) imaging is utilized infrequently.
- Cerebrospinal Fluid (CSF) flow studies using MRI are included in CPT® codes 70551, 70552, and 70553 and should not be coded or reported separately, (see **CSF Flow Imaging (HD-24.4)**)

Indications may include:

- Suspected spinal cord arteriovenous malformation (AVM) or arteriovenous fistula (AVF):
 - MRI Spine of the relevant spine region without and with contrast should be the initial imaging study.
 - If suspicion for a spinal AVM or AVF is high based upon the results of the MRI Spine, catheter angiography is recommended.
- Subarachnoid hemorrhage where no brain aneurysm has been previously identified
 - Catheter angiography should be performed and is the most definitive study to define possible spinal pathology resulting in a spinal canal subarachnoid hemorrhage.
 - See: **General Guidelines – CT and MR Angiography (CTV and MRV) (HD-1.5)** in the Head Imaging Guidelines
 - See: **Cerebral Aneurysms (HD-12.1)** in the Head Imaging Guidelines
- Pre-operative planning
 - MRA Spinal canal may be useful in identifying major intercostal feeder vessels to the spinal cord prior to surgical procedures that might interfere with this blood supply. However, catheter angiography is generally a more definitive study for this purpose.
- 3D Rendering (CPT® 76377 or CPT® 76376) is medically necessary with spinal angiography to define the presence, location, and anatomy of intraspinal vascular malformations.

Spine PET/CT (SP-2.10)

SP.IM.0002.10.A

v3.0.2026

- At the present time there is controversy regarding spine PET/CT due to inadequate scientific evidence to support the medical necessity of PET/CT for the routine assessment of spinal disorders, other than for neoplastic disease.
- See: **Spinal/Vertebral Metastases (ONC-31.6)** in the Oncology Imaging Guidelines
- Spine PET/CT should be considered not medically necessary.

Cone-beam CT (SP-2.11)

SP.IM.0002.11.A

v3.0.2026

- Cone-beam CT for imaging of the cervical spine is considered not medically necessary.

3D Rendering (SP-2.12)

SP.IM.0002.12.A

v3.0.2026

- See: **3D Rendering (MS-3)** in the Musculoskeletal Imaging Guidelines

Evidence Discussion (SP-2)

v3.0.2026

- X-rays are first line imaging for suspected inflammatory spine disease⁶, following trauma¹³, concerns of spinal deformities⁷, or post-operative spinal disorders⁸. Although x-rays may not confirm a definitive diagnosis, they provide information that can better direct advanced imaging modalities.
- MRI utilizes a magnetic field and radio waves with computer processing to produce detailed images which have excellent soft tissue characterization and is the primary modality for evaluating the spinal cord, intervertebral disc disease and other soft tissue pathology of the spine.^{9,10,11} Positional MRI² and MR Spectroscopy²⁰ lacks sufficient scientific evidence to support its routine clinical use.²
- CT is medically necessary as an alternative to MRI when MRI is contraindicated or equivocal.^{10,12,13,15} CT is also medically necessary for evaluation of bony pathology including but not limited to fractures¹³, bony neoplastic disease¹⁵, calcified lesions¹⁶, post traumatic¹³ and perioperative bony processes.^{8,14} Following lumbar discography CT is medically necessary to evaluate disc anatomy.¹⁹
- CT/Myelography provides indirect visualization of the thecal sack in the spinal canal. MRI is the primary medically necessary advanced imaging for these indications as the cord, thecal sac, and spinal canal can be directly visualized. CT/Myelography may be medically necessary when MRI is indeterminate or contraindicated.^{17,18}
- Ultrasound can be used to visualize the spinal canal in young children before the posterior elements ossify. Ultrasound will not penetrate ossified bone.²¹
- MRA has limited indications in spine imaging but may be appropriate for evaluating spinal vascular malformations.
- There is inadequate scientific evidence to support the medical necessity of PET/CT for the routine assessment of spinal disorders, other than for neoplastic disease.
- There is inadequate scientific evidence to support the medical necessity of cone beam CT for the routine assessment of spinal disorders outside of the operative setting which is outside the coverage of these guidelines.

References (SP-2)

v3.0.2026

1. American Academy of Neurology. Review of the literature on spinal ultrasound for the evaluation of back pain and radicular disorders. Report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. 1998; 51:343-344. Reaffirmed July 13, 2013.
2. Weishaupt D, Schmid MR, Zanetti M, et al. Positional MR imaging of the lumbar spine: does it demonstrate nerve root compromise not visible at conventional MR imaging? *Radiology*. 2000;215:247-253.
3. Zhang L, Zeitoun D, Rangel A, et al. Preoperative evaluation of the cervical spondylotic myelopathy with flexion-extension magnetic resonance imaging. *Spine Journal*. 2011; 36(17): E1134-E1139.
4. Deyo RA, Dieh AK, Rosenthal M. Reducing roentgenography use. *Arch Intern Med*. 1987;147(1):141-145. doi:10.1001/archinte.1987.00370010139029.
5. North American Spine Society (NASS). Diagnosis and treatment of lumbar disc herniation with radiculopathy. Technical Report. 2012. Available at: <https://www.spine.org/researchclinicalcare/qualityimprovement/clinicalguidelines.aspx>.
6. Czuczman GJ, Mandell JC, Wessell DE, et al. Expert Panel on Musculoskeletal imaging. ACR Appropriateness Criteria® Inflammatory Back Pain: Known or Suspected Axial Spondyloarthritis. Available at <http://acsearch.acr.org/docs/3094107/Narrative/>. American College of Radiology. Revised: 2021.
7. Boas SR. Kyphoscoliosis: Adolescent Idiopathic Scoliosis and Congenital Scoliosis. In: Kliegman RM, Behrman RE, Jenson HB, et al, eds. *Nelson Textbook of Pediatrics*. 18th ed. Philadelphia, PA: Elsevier; 2007:1843-1844.
8. Corona-Cedillo R, Saavedra-Navarrete MT, Espinoza-Garcia JJ, Mendoza-Aguilar AN, Ternovoy SK, Roldan-Valadez E. Imaging Assessment of the Postoperative Spine: An Updated Pictorial Review of Selected Complications. *Biomed Res Int*. 2021;2021:9940001. doi: 10.1155/2021/9940001.
9. American College of Radiology. ACR Practice Parameter for performing and interpreting magnetic resonance imaging (MRI). 2022; Available at: <https://gravitas.acr.org/PPTS/GetDocumentView?docId=146>
10. Eldalya RW, Parsons MS, Hutchins TA, et al. ACR Appropriateness Criteria® Cervical Pain or Cervical Radiculopathy. Available at <https://acsearch.acr.org/docs/69426/Narrative/>. American College of Radiology. Revised 2024
11. Agarwal V, Shah LM, Parsons MS, et al. ACR Appropriateness Criteria® Myelopathy. Available at <https://acsearch.acr.org/docs/69484/Narrative/>. American College of Radiology. Revised 2020.
12. American College of Radiology. ACR–SPR practice parameter for the performing and interpreting diagnostic computed tomography (CT). 2022; Available at: <https://gravitas.acr.org/PPTS/GetDocumentView?docId=132>
13. Hassankhani A, Freeman CW, Banks J, et al. ACR Appropriateness Criteria® Acute Spinal Trauma. Available at <https://acsearch.acr.org/docs/69359/Narrative/>. American College of Radiology. Revised 2024 .
14. Weissman BN, Palestro CJ, Fox MG, et al. ACR Appropriateness Criteria® Imaging After Total Hip Arthroplasty. Available at <https://acsearch.acr.org/docs/3094200/Narrative/>. American College of Radiology. Revised 2023.
15. Bestic JM, Wessell DE, Beaman FD, et al. ACR Appropriateness Criteria® Primary Bone Tumors. Available at <https://acsearch.acr.org/docs/69421/Narrative/> American College of Radiology. Revised 2019.
16. Harsh GR 4th, Sybert GW, Weinstein PR, Ross DA, Wilson CB. Cervical spine stenosis secondary to ossification of the posterior longitudinal ligament. *J Neurosurg*. 1987;67(3):349-57. doi:10.3171/jns.1987.67.3.0349.
17. American College of Radiology. ACR–SPR–SSR Practice Parameter for the Performance of Myelography and Cisternography. 2024; Available at: <https://gravitas.acr.org/PPTS/DownloadPreviewDocument?ReleaseId=2&DocId=64>
18. Patel DM, Weinberg BD, Hoch MJ. CT myelography: Clinical indications and imaging findings. *Radiographics*. 2020;40(2):470-484. doi:10.1148/rg.2020190135.
19. Xi MA, Tong HC, Fahim DK, Perez-Cruet M. Using provocative discography and computed tomography to select patients with refractory discogenic low back pain for lumbar fusion surgery. *Cureus*. 2016;8(2):e514. doi:10.7759/cureus.514.
20. Jakoniuk M, Kochanowicz J, Lankau A, Wilkiel M, Socha K. Concentration of selected macronutrients and toxic elements in the blood in relation to pain severity and hydrogen magnetic resonance spectroscopy in people with osteoarthritis of the spine. *Int J Environ Res Public Health*. 2022;19(18):11377. doi:10.3390/ijerph191811377.

21. Rees MA, Squires JH, Coley BD, Hoehne B, Ho ML. Ultrasound of congenital spine anomalies. *Pediatr Radiol*. 2021;51(13):2442-2457. doi:10.1007/s00247-021-05178-6.
22. Pattany PM, Saraf-Lavi E, Bowen BC. MR angiography of the spine and spinal cord. *Top Magn Reson Imaging*. 2003;14(6):444-460. doi:10.1097/00002142-200312000-00003.
23. American College of Radiology. ACR-SIR-SPR Practice parameter for the performance of arteriography. 2022; Available at: <https://gravitas.acr.org/PPTS/DownloadPreviewDocument?DocId=128>

Neck (Cervical Spine) Pain Without/With Neurological Features (Including Stenosis) and Trauma (SP-3)

Guideline	Page
Neck (Cervical Spine) Pain without and with Neurological Features (Including Stenosis) (SP-3.1).....	40
Neck (Cervical Spine) Trauma (SP-3.2).....	41
Evidence Discussion (SP-3).....	43
References (SP-3).....	44

Neck (Cervical Spine) Pain without and with Neurological Features (Including Stenosis) (SP-3.1)

SP.NP.0003.1.A
v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**)
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**)

Advanced Diagnostic Imaging:	MRI Cervical Spine, without contrast (CPT [®] 72141)
Comments:	CT Cervical Spine without contrast (CPT [®] 72125) OR CT Myelography (CPT [®] 72126) is medically necessary when MRI is contraindicated.

Neck (Cervical Spine) Trauma (SP-3.2)

SP.NP.0003.2.A

v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**)
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**)
- Results of plain x-rays of the cervical spine performed after the current episode of symptoms started or changed need to be available to the requesting provider (not required for high-risk mechanisms as below**)

Advanced Diagnostic Imaging:	MRI Cervical Spine without contrast (CPT[®] 72141) OR CT Cervical Spine without contrast (CPT[®] 72125) For individuals with ankylosing spondylitis or DISH (diffuse idiopathic skeletal hyperostosis), both MRI of the entire spine (CPT[®] 72141, 72146, and/or 72148) AND CT of the entire spine (CPT[®] 72125, 72128, and/or 72131) are medically necessary For individuals with ankylosing spondylitis or DISH, plain x-rays and a 6-week trial of provider-directed treatment and clinical re-evaluation are NOT required.
Comments:	Plain x-rays ARE required for suspected fracture in non-high risk injuries. Plain x-rays and a 6-week trial of provider-directed treatment and clinical re-evaluation are NOT required for individuals with a high risk factor(s) for suspected cervical spine injury within the last 3 months (See below**).

**High-risk factors of suspected cervical spine injury may include:

- Long term use of systemic glucocorticoids
- History of prior low energy fractures
- History of low bone mineral density
- Age ≥ 65 years
- Head trauma and/or maxillofacial trauma
- Pedestrian in a motor vehicle accident
- Fall from elevation ≥ 3 feet/5 stairs
- Diving accident
- Head-on motor vehicle collision without/with airbag deployment
- Rollover motor vehicle collision
- Ejection from the vehicle in a motor vehicle collision
- High speed of the vehicle at the time of collision
- Not wearing a seatbelt/shoulder harness in a motor vehicle collision
- Minor direct/indirect trauma to the cervical spine/maxillofacial areas in individuals with ankylosing spondylitis or DISH

Background and Supporting Information

- Pain radiation patterns from the cervical spine area into the thoracic spine area do not necessarily justify the addition of thoracic spine advanced diagnostic imaging.
- Cervical radiculopathy is often confused with shoulder disorders, brachial plexopathy, peripheral nerve entrapment and/or motor/sensory neuropathies. Electrodiagnostic testing (EMGs/NCVs) is generally used to confirm, not establish, a diagnosis of peripheral nerve entrapment and/or a motor/sensory neuropathy based upon history and physical examination findings. Electrodiagnostic testing is often considered when advanced imaging of the spine does not reveal neurocompressive pathology and/or after 6 weeks of unimproved symptoms of extremity pain, weakness, numbness and/or tingling.
- Individuals with ankylosing spondylitis or DISH are at high risk of cervical spine fractures even with minor direct/indirect trauma to the cervical spine which can result in quadriparesis/quadriplegia.

Evidence Discussion (SP-3)

v3.0.2026

X-rays provide critical information that cannot be obtained with advanced imaging modalities and remain central to providing optimal care for spine individuals.^{8,15,17} Unnecessary CT scans increase individuals' radiation exposure,¹⁸ however, is the initial imaging for individuals involved in trauma with a high-risk factor for cervical spine injury.⁷ Additionally, for individuals with diffuse idiopathic skeletal hyperostosis (DISH) or ankylosing spondylitis with a history of low-energy trauma, whole spine MRI or CT imaging is mandatory due to the high prevalence of acute fractures and the low specificity for fracture detection on radiographs.^{10,12} The American College of Radiology (ACR) Appropriateness Criteria for Cervical Neck Pain or Cervical Radiculopathy (revised 2018) indicates that in the absence of red flag symptoms, early advanced imaging may not be required as abnormal findings are not uncommon in asymptomatic individuals and correlate poorly with the presence of neck pain.⁸

References (SP-3)

v3.0.2026

1. Thompson WL, Stiell IG, Clement CM, et al. Association of injury mechanism with the risk of cervical spine fractures. *CJEM*. 2009;11(1):14-22.
2. Bogduk N, Karasek M. Precision diagnosis and treatment of back and neck pain. *Continuum: Pain and Palliative Care*. 2005;11(6):94-136.
3. Levin KH, Covington ED, Devereaux MW, et al. Neck and back pain part A. *Continuum*. 2001;7(1):142-151.
4. Werner, B, Samartzis, D, Shen, F. Spinal fractures in patients with ankylosing spondylitis: etiology, diagnosis and management. *JAAOS*. 2016;24(4):241-249.
5. Koivikko MP, Koskinen SK. MRI of cervical spine injuries complicating ankylosing spondylitis. *Skeletal Radiology*. 2008;37(9):813-819.
6. Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. *N Engl J Med*. 2000;343(2):94-99.
7. Hassankhani A, Freeman CW, Banks J, et al. ACR Appropriateness Criteria® Acute Spinal Trauma. Available at <https://acsearch.acr.org/docs/69359/Narrative/>. American College of Radiology. Revised 2024.
8. Eldalya RW, Parsons MS, Hutchins TA, et al. ACR Appropriateness Criteria® Cervical Pain or Cervical Radiculopathy. Available at <https://acsearch.acr.org/docs/69426/Narrative/>. American College of Radiology. Revised 2024.
9. Czuczman GJ, Mandell JC, Wessell DE, et al. ACR Appropriateness Criteria® Inflammatory Back Pain: Known or Suspected Axial Spondyloarthritis. Available at <http://acsearch.acr.org/docs/3094107/Narrative/>. American College of Radiology. Revised 2021.
10. Lantsman CD, Barkay G, Friedlander A, Barbi M, Stern M, Eshed I. Whole spine CT scan for the detection of acute spinal fractures in Diffuse Idiopathic Skeletal Hyperostosis patients who sustained low-energy trauma. *Spine*. 2020;45(19):1348-1353. doi:10.1097/BRS.0000000000003536.
11. Saragiotto BT, Maher CG, Lin CC, Verhagen AP, Goergen S, Michaleff ZA. Canadian C-spine rule and the National Emergency X-Radiography Utilization Study (NEXUS) for detecting clinically important cervical spine injury following blunt trauma. *Cochrane Database Syst Rev*. 2018;2018(4):CD012989. doi:10.1002/14651858.CD012989.
12. Le HV, Wick JB, Van BW, Klineberg EO. Diffuse idiopathic skeletal hyperostosis of the spine: pathophysiology, diagnosis, and management. *J Am Acad Orthop Surg*. 2021;29:1044-1051. doi:10.5435/JAAOS-D-20-01344.
13. Childress MA, Becker BA. Nonoperative management of cervical radiculopathy. *Am Fam Physician*. 2016;93(9):746-54.
14. Brinjikji W, Luetmer PH, Comstock B, et al. Systematic literature review of imaging features of spinal degeneration in asymptomatic populations. *AJNR Am J Neuroradiol*. 2015;36:811-816. doi:10.3174/ajnr.A4173
15. Matsumoto M, Fujimura Y, Suzuki N, Nishi Y, Nakamura M, Yabe Y, Shiga H. MRI of cervical intervertebral discs in asymptomatic subjects. *J Bone Joint Surg Br*. 1998;80(1):19-24.
16. Goodwin ML, Buchowski JM, Sciubba DM. Why X-rays? The importance of radiographs in spine surgery. *Spine J*. 2022;22(11):1759-1767.
17. Baker M, Jaeger C, Hafley C, Waymack J. Appropriate CT cervical spine utilisation in the emergency department. *BMJ Open Qual*. 2020 Oct;9(4):e000844. doi: 10.1136/bmjopen-2019-000844.

Upper Back (Thoracic Spine) Pain Without/With Neurological Features (Including Stenosis) and Trauma (SP-4)

Guideline	Page
Upper Back (Thoracic Spine) Pain without and with Neurological Features (Including Stenosis) (SP-4.1).....	46
Upper Back (Thoracic Spine) Trauma (SP-4.2).....	47
Evidence Discussion (SP-4).....	49
References (SP-4).....	50

Upper Back (Thoracic Spine) Pain without and with Neurological Features (Including Stenosis) (SP-4.1)

SP.TS.0004.1.A
v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**).
- Plain x-rays are required for thoracic back pain without neurological features (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).

Advanced Diagnostic Imaging:	MRI Thoracic Spine without contrast (CPT® 72146)
Comments:	A CT Thoracic spine without contrast (CPT® 72128) OR CT Myelography (CPT® 72129) is medically necessary when MRI is contraindicated.

Upper Back (Thoracic Spine) Trauma (SP-4.2)

SP.TS.0004.2.A

v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**).
- Conservative treatment and clinical re-evaluation are not required in high-risk individuals.
 - High-risk individuals include those that have sustained an acute traumatic injury with midline thoracolumbar tenderness, high-energy injury mechanisms, or >60 years of age.
- **After above criteria are met:** MRI Thoracic Spine without contrast (CPT® 72146) OR CT Thoracic Spine without contrast (CPT® 72128)

Indication:	Advanced Imaging
Ankylosing Spondylitis (AS) or Diffuse Idiopathic Skeletal Hyperostosis (DISH)	• MRI of the entire spine (CPT® 72141, 72146, and/or 72148) AND • CT of the entire spine (CPT® 72125, 72128, and/or 72131) For individuals with AS or DISH, a 6-week trial of provider-directed treatment and clinical re-evaluation are NOT required

Background and Supporting Information

- Thoracic radiculopathy presents with pain radiation from the thoracic spine around the trunk. At upper thoracic spine levels, the pain radiation is from the thoracic spine around the rib cage following the sensory distribution of an intercostal nerve.

- Advanced diagnostic imaging is generally not medically necessary in evaluation of axial low back pain with radiation toward the thoracic region unless there are documented clinical features indicating a thoracic spine disorder.

Evidence Discussion (SP-4)

v3.0.2026

The precision in identifying thoracic spine diseases is dependent on a meticulous association with the individual's clinical examination and medical history because the usual observations from imaging studies are frequently ambiguous and non-conclusive.⁵

Wood et al. demonstrated that asymptomatic individuals may exhibit positive findings on thoracic spine MRI at a rate as high as 70%.⁶ For individuals with atraumatic thoracic back pain, data from Linna, et al. support initial conservative management followed by evaluation by a surgical specialist before ordering a thoracic spine MRI.⁵ Red flag indications, however, obviate the need for conservative care.

Regarding the value of x-rays, Goodwin et al. stated that plain films provide critical information that cannot be obtained with other imaging modalities, and they remain central to providing optimal care for spine individuals.⁷ When there is a history of blunt trauma and a high-risk factor for thoracic spine injury, however, CT imaging is appropriate for initial imaging.^{8,2}

Additionally, for individuals with diffuse idiopathic skeletal hyperostosis (DISH) or ankylosing spondylitis with a history of low-energy trauma, whole spine MRI or CT imaging is considered medically necessary due to the high prevalence of acute fractures and the low specificity for fracture detection on radiographs.^{3,4}

References (SP-4)

v3.0.2026

1. Nadgir R, Yousem DM. *Neuroradiology: the requisites*. Philadelphia, PA: Elsevier; 2017.
2. Hassankhani A, Freeman CW, Banks J, et al. ACR Appropriateness Criteria® Acute Spinal Trauma. Available at <https://acsearch.acr.org/docs/69359/Narrative/>. American College of Radiology. Revised 2024.
3. Lantsman CD, Barkay G, Friedlander A, Barbi M, Stern M, Eshed I. Whole spine CT scan for the detection of acute spinal fractures in Diffuse Idiopathic Skeletal Hyperostosis patients who sustained low-energy trauma. *Spine*. 2020;45(19):1348-1353. doi:10.1097/BRS.0000000000003536.
4. Le HV, Wick JB, Van BW, Klineberg EO. Diffuse idiopathic skeletal hyperostosis of the spine: pathophysiology, diagnosis, and management. *J Am Acad Orthop Surg*. 2021;29:1044-1051. doi:10.5435/JAAOS-D-20-01344.
5. Linna NB, Zhang S, Farooqi AS, et al. Association of Thoracic MRI Findings With Specialty and Training. *Global Spine Journal*. 2024;14(5):1472-1476. doi:10.1177/21925682221143991
6. Wood KB, Garvey TA, Gundry C, et al. Magnetic resonance imaging of the thoracic spine. Evaluation of asymptomatic individuals. *J Bone Jt Surg*. 1995;77:1631-1638.
7. Goodwin ML, Buchowski JM, Sciubba DM. Why X-rays? The importance of radiographs in spine surgery. *Spine J*. 2022;22(11):1759-1767.
8. Inaba K, Nosanov L, Menaker J, et al. Prospective derivation of a clinical decision rule for thoracolumbar spine evaluation after blunt trauma: An American Association for the Surgery of Trauma Multi-Institutional Trials Group Study. *J Trauma Acute Care Surg*. 2015;78:459-65; discussion 65-7.
9. Shah VN, Parsons MS, Boulter DJ, et al. ACR Appropriateness Criteria® Thoracic Back Pain. Available at <https://acsearch.acr.org/docs/3195158/Narrative/>. American College of Radiology. 2024.

Low Back (Lumbar Spine) Pain/Coccydynia without Neurological Features (SP-5)

Guideline	Page
Low Back (Lumbar Spine) Pain without Neurological Features (SP-5.1).....	52
Coccydynia without Neurological Features (SP-5.2).....	53
Evidence Discussion (SP-5).....	54
References (SP-5).....	55

Low Back (Lumbar Spine) Pain without Neurological Features (SP-5.1)

SP.LB.0005.1.A
v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**)).

Advanced Diagnostic Imaging:	MRI Lumbar Spine without contrast (CPT® 72148)
Comments:	A CT Lumbar spine without contrast (CPT® 72131) OR CT Myelography (CPT® 72132) is medically necessary when MRI is contraindicated.

Coccydynia without Neurological Features (SP-5.2)

SP.LB.0005.2.A
v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**)
- Plain x-rays of the sacrum/coccyx are negative for fracture.

Advanced Diagnostic Imaging:	MRI Pelvis without contrast (CPT® 72195)
Comments:	A CT Pelvis without contrast (CPT® 72192) when MRI is contraindicated.

Background and Supporting Information

Coccydynia is often reported by individuals as “tailbone” pain that is usually idiopathic or post-traumatic and generally follows a benign course.

Evidence Discussion (SP-5)

v3.0.2026

Acute low back pain is usually a self-limited condition and improves with conservative treatment in 6 weeks. The American College of Radiology (ACR) Appropriateness Criteria for low back pain (revised 2021) states that imaging may be considered in those individuals who have had up to 6 weeks of medical management and physical therapy that resulted in little or no improvement in their back pain.²⁹

A meta-analysis by Chou et al. found no clinically significant difference in individual outcomes between those who had immediate lumbar imaging versus usual care.³³

It should also be noted that there are risks associated with imaging including but not limited to radiation exposure and contrast complications.³⁴ Studies have also linked the increase rate of imaging with the increase rate of surgery and also found early magnetic resonance imaging (MRI) had an eight-fold increased risk of surgery.^{34,35}

Health Equity Consideration - Low Back Pain

Low back pain (LBP) is defined by the World Health Organization as the pain between the lower edge of the ribs and the buttocks and is considered acute if it happens suddenly or chronic if it lasts more than 3 months (WHO). In the Global Burden of Diseases, Injuries, and Risk Factors study (2017), over the 28-year period studied, LBP was one of the three leading chronic non-communicable diseases (GBD 2017). There has been exploration of a biopsychosocial paradigm of pain for chronic LBP, which considers influences including psychological, social and environmental factors (Aroke et al. 2020).

Social factors were associated with higher rates of often avoidable/unnecessary utilization outcomes such as Emergency Department visits and hospitalizations, imaging, and associated with lower preventive utilization outcomes, such as PT visits (Pak et al. 2024). In a study (Pak, 2024) social risk factors such as food insecurity and housing instability have shown to have detrimental effects on health, health care outcomes and health disparities. Income, geographic location, and educational level were identified as contributing to LBP treatment disparities, with increased risk of receiving non-guideline concordant care, including opioid and MRI prescriptions, before conservative treatments were prescribed (Mathieu et al. 2024). Better understanding is needed to address the needs and expectations of patients suffering from LBP and how their individual characteristics may affect their access and utilization of healthcare services.

References (SP-5)

v3.0.2026

1. Puhakka KB. Magnetic resonance imaging of sacroiliitis in early seronegative spondyloarthritis. Abnormalities correlated to clinical and laboratory findings. *Rheumatology*. 2003;43(2):234-237. doi:10.1093/rheumatology/keh008.
2. Rao, RD, Smuck M. Orthopaedic Knowledge Update 4: Spine, AAOS, 41:477-478.
3. American Academy of Orthopedic Surgeons (AAOS) clinical guidelines on low back pain/sciatica (acute) (phase I and II). Clinical Practice Guidelines.
4. NASS Task Force on clinical guidelines. Herniated disc. In: *Phase III clinical guidelines for multidisciplinary spine care specialists*. Unremitting low back pain. 1st ed. Burr Ridge, IL: North American Spine Society; 2000.
5. Chou R, Qaseem A, Owens DK, et al. Diagnostic imaging for low back pain: Advice for high-value health care from the American College of Physicians. *Ann Intern Med*. 2011;154:181-189.
6. Roudsari B, Jarvik JG. Lumbar spine MRI for low back pain: indications and yield. *AJR*. 2010;195:550-559.
7. Weinstein JN, Lurie JD, Tosteson TD, et al. Surgical versus nonoperative treatment for lumbar disc herniation. *Spine*. 2008;33(25):2789-2800.
8. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007;147:478-491.
9. Levin KH, Covington ED, Devereaux MW, et al. Neck and back pain part A. *Continuum*. 2001;7(1):142-151.
10. Roudsari B, Jarvik JG. Lumbar spine MRI for low back pain: indications and yield. *American Journal of Roentgenology*. 2010;195(3):550-559. doi:10.2214/ajr.10.4367.
11. Cherkin DC, Deyo RA, Battié M, Street J, Barlow W. A comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back pain. *New England Journal of Medicine*. 1998;339(15):1021-1029. doi:10.1056/nejm199810083391502.
12. Lieberman JR, ed. AAOS comprehensive orthopaedic review 2009. Rosemont, IL: AAOS (American Academy of Orthopaedic Surgeons); 2009.
13. Deyo RA, Mirza SK, Turner JA, et al. Overtreating chronic back pain: time to back off? *J Am Board Fam Med*. 2009;22(1):62-68.
14. Jarvik JG, Deyo R. Diagnostic evaluation of low back pain with emphasis on imaging. *Ann Intern Med*. 2000;137:586-597.
15. Gillan MGC, Gilbert FJ, Andrew JE. Influence of imaging on clinical decision making in the treatment of low back pain. *Radiol*. 2001;220:393-395.
16. Deyo RA, Weinstein JN. Low back pain. *N Engl J Med*. 2001;344(5):363-370.
17. Carragee EJ. Persistent low back pain. *N Engl J Med*. 2005;352:1891-1898.
18. Sheybani EF, Khanna G, White AJ, Demertzis JL. Imaging of juvenile idiopathic arthritis: a multimodality approach. *Radiographics*. 2013;33(5):1253-1273.
19. Restrepo R, Lee EY, Babyn PS. Juvenile idiopathic arthritis: Current practical imaging assessment with emphasis on magnetic resonance imaging. *Radiol Clin N Am*. 2013;51:703-719.
20. Landewe RBM, Hermann KGA, Van Der Heijde DMFM, Baraliakos X, et al. Scoring sacroiliac joints by magnetic resonance imaging. A multiple-reader reliability experiment. *The Journal of Rheumatology*. 2005;32:10.
21. Lambert RGW, Salonen D, Rahman P, Inman RD, et al. Adalimumab significantly reduces both spinal and sacroiliac joint inflammation in patients with ankylosing spondylitis. *Arthritis & Rheumatism*. 2007;56(12):4005-4014.
22. Modic M, Obuchowski N, Ross J, et al. Acute low back pain and radiculopathy: MR imaging findings and their prognostic role and effect on outcome. *Neuroradiology*. 2005;237:597-604. doi:10.1148/radiol.2372041509.
23. Jarvik JG, Gold LS, Comstock BA, et al. Association of early imaging for back pain with clinical outcomes in older patients. *JAMA*. 2015;313(11):1143-1153. doi:10.1001/jama.2015.1871.
24. Ayers JW, Leas EC, Dredze M, et al. Clinicians' perceptions of barriers to avoiding inappropriate imaging for low back pain-knowing is not enough. *JAMA*. 2014;311(14):1399-1400. doi:10.1001/jamainternmed.2016.6274.
25. Panagopoulos J, Hush J, Steffens D, et al. Do MRI findings change over a period of up to 1 year in patients with low back pain and/or sciatica. *Spine Journal*. 2017;42:504-512. doi:10.1097/BRS.0000000000001790.

26. Gilbert FJ, Grant AM, Gillan MG, et al. Low back pain: influence of early MR imaging or CT on treatment and outcome-multicenter randomized trial. *Radiology*. 2004; 231:343-351. doi:10.1148/radiol.2312030886.
27. Kerry S, Hilton S, Dundas D, et al. Radiography for low back pain: a randomized controlled trial and observational study in primary care. *British Journal of General Practice*. 2002;52:469-474.
28. Djais N, Kalim H. The role of lumbar spine radiography in the outcomes of patients with simple acute low back pain. *APLAR Journal of Rheumatology*. 2005;8:45-50.
29. Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® Low Back Pain. Available at <https://acsearch.acr.org/docs/69483/Narrative/>. American College of Radiology. Revised 2021.
30. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992;268(6):760-765.
31. Patrick N, Emanski E, Knaub MA. Acute and Chronic Low Back Pain. *Med Clin N Am*. 2016; 100:169–181.
32. Chutkan NB, Lipson AC, Lisi AJ, et. al. Evidence-based clinical guidelines for multidisciplinary spine care: diagnosis and treatment of low back pain. Burr Ridge, IL: North American Spine Society. 2020.
33. Chou R, Fu R, Carrino JA, et al. Imaging strategies for low-back pain: systematic review and meta-analysis. *Lancet*. 2009;373:463-472.
34. Shubha SV, Deyo RA, Berger ZD. Application of "less is more" to low back pain. *Arch Intern Med*. 2012;172(13):1016-1020.
35. Webster BS, Cifuentes M. Relationship of early magnetic resonance imaging for work-related acute low back pain with disability and medical utilization outcomes. *J Occup Environ Med*. 2010;52:900-907.
36. World Health Organization. Low back pain. World Health Organization. Published June 19, 2023. <https://www.who.int/news-room/fact-sheets/detail/low-back-pain>
37. Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018 Nov 10;392(10159):1789-1858. doi: 10.1016/S0140-6736(18)32279-7. Epub 2018 Nov 8. Erratum in: *Lancet*. 2019 Jun 22;393(10190):e44. doi: 10.1016/S0140-6736(19)31047-5. PMID: 30496104; PMCID: PMC6227754.
38. Aroke EN, Jackson P, Overstreet DS, Penn TM, Rumble DD, Kehrer CV, Michl AN, Hasan FN, Sims AM, Quinn T, Long DL, Goodin BR. Race, Social Status, and Depressive Symptoms: A Moderated Mediation Analysis of Chronic Low Back Pain Interference and Severity. *Clin J Pain*. 2020 Sep;36(9):658-666. doi: 10.1097/AJP.0000000000000849. PMID: 32487870; PMCID: PMC7725357
39. Pak SS, Jiang Y, Lituiev DS, De Marchis EH, Peterson TA. Evaluating associations between social risks and health care utilization in patients with chronic low back pain. *Pain Rep*. 2024 Oct 8;9(6):e1191. doi: 10.1097/PR9.0000000000001191. PMID: 39391767; PMCID: PMC11463208.
40. Mathieu J, Roy K, Robert MÈ, Akeblersane M, Descarreaux M, Marchand AA. Sociodemographic determinants of health inequities in low back pain: a narrative review. *Front Public Health*. 2024 Sep 11;12:1392074. doi: 10.3389/fpubh.2024.1392074. PMID: 39324158; PMCID: PMC11422063

Lower Extremity Pain with Neurological Features (Radiculopathy, Radiculitis, or Plexopathy and Neuropathy) With or Without Low Back (Lumbar Spine) Pain (SP-6)

Guideline	Page
Lower Extremity Pain with Neurological Features (Radiculopathy, Radiculitis, or Plexopathy and Neuropathy) with or without Low Back (Lumbar Spine) Pain (SP-6.1).....	58
Low Back (Lumbar Spine) Trauma (SP-6.2).....	59
Evidence Discussion (SP-6).....	61
References (SP-6).....	62

Lower Extremity Pain with Neurological Features (Radiculopathy, Radiculitis, or Plexopathy and Neuropathy) with or without Low Back (Lumbar Spine) Pain (SP-6.1)

SP.LE.0006.1.A
v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6 week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**).

Advanced Diagnostic Imaging:	MRI Lumbar Spine without contrast (CPT [®] 72148)
Comments:	A CT Lumbar spine without contrast (CPT[®] 72131) OR CT Myelography (CPT[®] 72132) is medically necessary when MRI is contraindicated. See also: Lumbar Spinal Stenosis (SP-9.1)

Low Back (Lumbar Spine) Trauma (SP-6.2)

SP.LE.0006.2.A

v3.0.2026

All the following are required prior to advanced imaging:

- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging is considered. This may have been either the initial clinical evaluation or a clinical re-evaluation (see also: **General Guidelines (SP-1.0)**).
- Failure of a 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed (unless presence of a red flag as defined in **Red Flag Indications (SP-1.2)**).
- Clinical re-evaluation after treatment period (may consist of an in-person evaluation or other meaningful contact (see also: **General Guidelines (SP-1.0)**).
- Conservative treatment and clinical re-evaluation are not required in high-risk individuals.
 - High-risk individuals include those that have sustained an acute traumatic injury with midline thoracolumbar tenderness, high-energy injury mechanisms, or >60 years of age.
- **After above criteria are met:** MRI Lumbar Spine without contrast (CPT® 72148) **OR** CT Lumbar Spine without contrast (CPT® 72131)

Indication:	Advanced Diagnostic Imaging
Ankylosing Spondylitis (AS) or Diffuse Idiopathic Skeletal Hyperostosis (DISH)	• MRI of the entire spine (CPT® 72141, 72146, and/or 72148) AND • CT of the entire spine (CPT® 72125, 72128, and/or 72131) For individuals with AS or DISH, a 6-week trial of provider-directed treatment and clinical re-evaluation are NOT required.

- Definitions of radiculopathy, radiculitis, and radicular pain: See **Definitions (SP-1.3)**
- Sciatic Neuropathy, Femoral Neuropathy, Peroneal Neuropathy and Meralgia Paresthetica: See **Focal Neuropathy (PN-2)** in the Peripheral Nerve and Neuromuscular Disorders Imaging Guidelines
- Lumbar and/or Lumbosacral Plexopathy: See **Lumbar and Lumbosacral Plexus (PN-5)** in the Peripheral Nerve and Neuromuscular Disorders Imaging Guidelines

- Advanced imaging of the hip or pelvis is not generally required in the evaluation of apparent lumbar radiculopathy unless a separate recognized indication for such studies is documented. See: **Hip (MS-24)** in the Musculoskeletal Imaging Guidelines.

Evidence Discussion (SP-6)

v3.0.2026

Acute low back pain is usually a self-limited condition and improves with conservative treatment in 6 weeks. The American College of Radiology (ACR) Appropriateness Criteria® for low back pain (revised 2021) states that imaging may be considered in those individuals who have had up to 6 weeks of medical management and physical therapy that resulted in little or no improvement in their back pain.²⁶

A meta-analysis by Chou et al. found no clinically significant difference in individual outcomes between those who had immediate lumbar imaging versus usual care.³¹ It should also be noted that there are risks associated with imaging including but not limited to radiation exposure and contrast complications.³² Studies have also linked the increase rate of imaging with the increase rate of surgery and also found early magnetic resonance imaging (MRI) had an eight-fold increased risk of surgery.^{32,33} In typical individuals with low back pain or radiculopathy, MR imaging does not appear to have measurable value in terms of planning conservative care, that knowledge of imaging findings does not alter outcome, and that individual knowledge of imaging findings is associated with a lesser sense of well-being.²³

References (SP-6)

v3.0.2026

1. Puhakka KB, Jurik AG, Schiottz-Christensen B, et al. Magnetic resonance imaging of sacroiliitis in early seronegative spondyloarthritis. Abnormalities associated to clinical and laboratory findings. *Rheumatology*. 2004;43(2):234-237.
2. Rao, RD, Smuck M. Orthopaedic Knowledge Update 4: *Spine*. AAOS. 41:477-478.
3. American Academy of Orthopedic Surgeons (AAOS) clinical guidelines on low back pain/sciatica (acute) (phase I and II). Clinical Practice Guidelines.
4. NASS Task Force on clinical guidelines. *Herniated disc*. In: Phase III clinical guidelines for multidisciplinary spine care specialists. Unremitting low back pain. 1st ed. Burr Ridge, IL: North American Spine Society; 2000.
5. Chou R. Diagnostic imaging for low back pain: advice for high-value health care from the American College of Physicians. *Annals of Internal Medicine*. 2011;154(3):181-189. doi:10.7326/0003-4819-154-3-201102010-00008.
6. Roudsari B, Jarvik JG. Lumbar spine MRI for low back pain: indications and yield. *American Journal of Roentgenology*. 2010;195(3):550-559. doi:10.2214/ajr.10.4367.
7. Weinstein JN, Lurie JD, Tosteson TD, et al. Surgical versus nonsurgical treatment for lumbar degenerative spondylolisthesis. *New England Journal of Medicine*. 2007;356(22):2257-2270. doi:10.1056/nejmoa070302.
8. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med* 2007;147:478-491.
9. Levin KH, Covington ED, Devereaux MW, et al. Neck and back pain part A. *Continuum*. 2001;7(1):142-151.
10. Cherkin DC, Deyo RA, Battié M, Street J, Barlow W. A comparison of physical therapy, chiropractic manipulation, and provision of an educational booklet for the treatment of patients with low back Pain. *New England Journal of Medicine*. 1998;339(15):1021-1029. doi:10.1056/nejm199810083391502.
11. Lieberman JR, ed. *AAOS comprehensive orthopaedic review 2009*. Rosemont, IL.: AAOS (American Academy of Orthopaedic Surgeons); 2009.
12. Deyo RA, Mirza SK, Turner JA, et al. Overtreating chronic back pain: time to back off? *J Am Board Fam Med*. 2009;22(1):62-68.
13. Jarvik JG, Deyo R. Diagnostic evaluation of low back pain with emphasis on imaging. *Ann Intern Med*. 2000;137:586-597.
14. Gillan MGC, Gilbert FJ, Andrew JE. Influence of imaging on clinical decision making in the treatment of low back pain. *Radiol*. 2001; 220:393-395.
15. Deyo RA, Weinstein JN. Low back pain. *N Engl J Med*. 2001;344(5):363-370.
16. Carragee EJ. Persistent low back pain. *N Engl J Med*. 2005;352:1891-1898.
17. Sheybani EF, Khanna G, White AJ, Demertis JL. Imaging of juvenile idiopathic arthritis: A multimodality approach. *Radiographics*. 2013;33(5):1253-1273.
18. Restrepo R, Lee EY, Babyn PS. Juvenile idiopathic arthritis: Current practical imaging assessment with emphasis on magnetic resonance imaging. *Radiol Clin N Am*. 2013;51:703-719.
19. Landewe RBM, Hermann KGA, Van Der Heijde DMFM, Baraliakos X, et al. Scoring sacroiliac joints by magnetic resonance imaging. A multiple-reader reliability experiment. *The Journal of Rheumatology*. 2005;32:10.
20. Lambert RGW, Salonen D, Rahman P, Inman RD, et al. Adalimumab significantly reduces both spinal and sacroiliac joint inflammation in patients with ankylosing spondylitis. *Arthritis & Rheumatism*. 2007; 56(12):4005-4014.
21. Panagopoulos J, Hush J, Steffens D, et al. Do MRI findings change over a period of up to 1 year in patients with low back pain and/or sciatica. *Spine Journal*. 2017;42:504-512. doi:10.1097/BRS.0000000000001790.
22. Gilbert FJ, Grant AM, Gillan MG, et al. Low back pain: influence of early MR imaging or CT on treatment and outcome-multicenter randomized trial. *Radiology*. 2004;231:343-351. doi:10.1148/radiol.2312030886.
23. Modic M, Obuchowski N, Ross J, et al. Acute low back pain and radiculopathy: MR imaging findings and their prognostic role and effect on outcome. *Neuroradiology*. 2005;237:597-604. doi:10.1148/radiol.2372041509.
24. Barzouhi A, Vleggeert-Lankamp C, Lycklama a Nijehold G, et al. Magnetic resonance imaging in follow-up assessment of sciatica. *N Engl J Med*. 2013;368;11:999-1007.

25. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992;268(6): 760-765.
26. Hutchins TA, Peckham M, Shah LM, et. al. Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria®: Low Back Pain. American College of Radiology (ACR); Date of Origin: 1996. Revised: 2021. <https://acsearch.acr.org/docs/69483/Narrative/>.
27. Hassankhani A, Freeman CW, Banks J, et al. ACR Appropriateness Criteria® Acute Spinal Trauma. Available at <https://acsearch.acr.org/docs/69359/Narrative/>. American College of Radiology. Revised 2024.
28. Lantsman CD, Barkay G, Friedlander A, Barbi M, Stern M, Eshed I. Whole spine CT scan for the detection of acute spinal fractures in Diffuse Idiopathic Skeletal Hyperostosis patients who sustained low-energy trauma. *Spine*. 2020;45(19):1348-1353. doi:10.1097/BRS.0000000000003536.
29. Chutkan NB, Lipson AC, Lisi AJ, et. al. Evidence-based clinical guidelines for multidisciplinary spine care: diagnosis and treatment of low back pain. Burr Ridge, IL: North American Spine Society. 2020.
30. Le HV, Wick JB, Van BW, Klineberg EO. Diffuse idiopathic skeletal hyperostosis of the spine: pathophysiology, diagnosis, and management. *J Am Acad Orthop Surg*. 2021;29:1044-1051. doi:10.5435/JAAOS-D-20-01344.
31. Chou R, Fu R, Carrino JA, Deyo RA. Imaging strategies for low-back pain: systematic review and meta-analysis. *Lancet*. 2009;373:462-472.
32. Shubha SV, Deyo RA, Berger ZD. Application of "less is more" to low back pain. *Arch Intern Med*. 2012;172(13):1016-1020.
33. Webster BS, Cifuentes M. Relationship of early magnetic resonance imaging for work-related acute low back pain with disability and medical utilization outcomes. *J Occup Environ Med*. 2010;52:900-907.

Myelopathy (SP-7)

Guideline	Page
Myelopathy (SP-7.1).....	65
Evidence Discussion (SP-7).....	67
References (SP-7).....	68

Myelopathy (SP-7.1)

SP.MI.0007.1.A

v3.0.2026

- Myelopathy is the development of abnormal spinal cord function with long tract signs usually secondary to spinal cord compression, but also inflammation (transverse myelitis, MS, etc.), neoplastic disease or spinal cord infarction.
 - For imaging of transverse myelitis, see: **Transverse Myelitis (HD-16.4)** in the Head Imaging Guidelines.
- Examination findings may include loss of manual dexterity, spastic legs, ataxia, hyperreflexia, upgoing toes (positive Babinski), Hoffmann's sign, sustained clonus, Lhermitte's sign, crossed radial reflex, inverted radial reflex, and/or finger escape sign. Sensory level and urinary incontinence/retention may be seen.
 - Advanced imaging is generally medically necessary in the initial evaluation of documented or reasonably suspected myelopathy.
- X-rays are not required for advanced imaging in individuals with potential myelopathy regardless of any history of spine surgery, trauma, or other reasons which may otherwise require x-rays (e.g., **Neck (Cervical Spine) Trauma (SP-3.2)**, **Upper Back (Thoracic Spine) Trauma (SP-4.2)**, **Post-Operative Spinal Disorders (SP-15)**).
- Conservative treatment is not a requirement for advanced imaging in individuals with potential myelopathy.
- MRI Cervical and Thoracic Spine without contrast, or without and with contrast, are medically necessary for:
 - Evaluation of reasonably suspected myelopathy
 - Post-traumatic syrinx with increased spinal pain or worsening neurological symptoms
 - Sustained, prominent, and unexplained Lhermitte's sign
 - Unexplained Babinski's or Hoffmann's signs
 - Unexplained hyperreflexia
 - Unexplained bilateral motor weakness
- MRI Cervical, Thoracic, and Lumbar Spine without contrast, or without and with contrast, are medically necessary for:
 - Suspected tethered cord and/or low-lying conus medullaris.
- CT without contrast, or CT with contrast (myelography), can also be considered for either of the following:
 - An alternative to MRI, when MRI is contraindicated
 - In addition to MRI, for surgical planning

Background and Supporting Information

Lhermitte's sign – With the individual in the long leg sitting position on the examination table, the examiner passively flexes the individual's head and one hip simultaneously with the leg kept straight. A positive test occurs if there is sharp pain down the spine and into the upper or lower extremities.

Babinski's sign – The examiner runs a sharp instrument along the plantar surface of the foot from the calcaneus along the lateral border to the forefoot. A positive test occurs with extension of the great toe with flexion and splaying of the other toes. A negative test occurs with no movement of the toes at all or uniform bunching up of the toes.

Hoffman's sign – The examiner holds the individual's middle finger and briskly flicks the distal phalanx. A positive test is noted if the interphalangeal joint of the thumb of the same hand flexes.

Evidence Discussion (SP-7)

v3.0.2026

- MRI is the preferred imaging modality for evaluation of myelopathy. It provides superior soft tissue definition to other options and allows direct visualization of intramedullary cord signal changes which can affect prognosis and management.¹⁰
- CT Myelogram may be appropriate when MRI is contraindicated or for surgical planning. It may allow better visualization of bony neuroforaminal narrowing and may provide additional anatomic information when the MRI is ambiguous.^{10,11}
- CT can be useful in demonstrating bony encroachment on the cord, but MRI is superior in demonstrating bone marrow changes and intramedullary cord signal. It is of limited value in evaluation of non-compressive causes of myelopathy.¹⁰

References (SP-7)

v3.0.2026

1. Green C, Butler J, Eustace S, Poynton A, Obyrne JM. Imaging Modalities for Cervical Spondylotic Stenosis and Myelopathy. *Advances in Orthopedics*. 2012;2012:1-4. doi:10.1155/2012/908324.
2. Avadhani A, Rajasekaran S, Shetty AP. Comparison of prognostic value of different MRI classifications of signal intensity change in cervical spondylotic myelopathy. *Spine Journal*. 2010;10:475-485.
3. Harada T, Tsuji Y, Mikami Y et al. The clinical usefulness of preoperative dynamic MRI to select decompression levels for cervical spondylotic myelopathy. *Magnetic Resonance Imaging*. 2010;28:820-826.
4. Ohshio I, Hatayama K, Takahara M, Nagashima K. Correlation between histopathologic features and magnetic resonance images of spinal cord lesions. *Spine*. 1993;18:1140-1149.
5. Zhang L, Zeitoun D, Rangel A, et al. Preoperative evaluation of the cervical spondylotic myelopathy with flexion-extension magnetic resonance imaging. *Spine Journal*. 2011;36(17): E1134-E1139.
6. Magee DJ. *Orthopedic Physical Assessment*. 4th ed. Philadelphia, PA: Saunders; 2002.
7. Hoppenfeld S. *Physical Examination of the Spine and Extremities*. Upper Saddle River: Prentice Hall; 1976.
8. Hellmann MA, Djaldetti, Luckman J, Dabby R. Thoracic sensory level as a false localizing sign in cervical spinal cord and brain lesions. *Clin Neurol Neurosurg*. 2013;115(1):54-56. doi:10.1016/j.clineuro.2012.04.011.
9. American College of Radiology. ACR–ASNR–SAB–SSR practice parameter for the performance of magnetic resonance imaging (MRI) of the adult spine. 2023; Available at: <https://gravitas.acr.org/PPTS/GetDocumentView?docId=4>
10. Agarwal V, Shah LM, Parsons MS, et al. ACR Appropriateness Criteria® Myelopathy. Available at <https://acsearch.acr.org/docs/69484/Narrative/>. American College of Radiology. Revised 2020.
11. Song KJ, Choi BW, Kim GH, Kim JR. Clinical usefulness of CT-myelogram comparing with the MRI in degenerative cervical spinal disorders: is CTM still useful for primary diagnostic tool? *Clinical Spine Surgery*. 2009 Jul 1;22(5):353-7.
12. Shah VN, Parsons MS, Boulter DJ, et al. ACR Appropriateness Criteria® Thoracic Back Pain. Available at <https://acsearch.acr.org/docs/3195158/Narrative/>. American College of Radiology. 2024.
13. Mustafa R, Zalewski NL, Flanagan EP, Kumar N. Challenging myelopathy cases. *Semin Neurol*. 2022;42(6):723-734. doi:10.1055/a-1985-0124.
14. Banerjee A, Mowforth OD, Nouri A, et al. The prevalence of degenerative cervical myelopathy-related pathologies on magnetic resonance imaging in healthy/asymptomatic individuals: A meta-analysis of published studies and comparison to a symptomatic cohort. *J Clin Neurosci*. 2022;99:53-61. doi:10.1016/j.jocn.2022.03.002.

Lumbar Spine Spondylolysis/ Spondylolisthesis (SP-8)

Guideline	Page
Spondylolysis (SP-8.1).....	70
Spondylolisthesis (SP-8.2).....	72
Evidence Discussion (SP-8).....	73
References (SP-8).....	74

Spondylolysis (SP-8.1)

SP.SP.0008.1.A

v3.0.2026

Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider, unless otherwise specified below.

Indication	Imaging Study
Clinical suspicion of spondylolysis is high	- X-ray is not required - Tomographic SPECT Planar (CPT[®] 78803 or 78831) - SPECT/CT Hybrid (CPT[®] 78830 or 78832)
Negative SPECT bone scan	MRI Lumbar Spine without contrast (CPT [®] 72148) OR CT Lumbar Spine without contrast (CPT [®] 72131)
Evaluation of a lesion seen on SPECT bone scan	CT Lumbar Spine without contrast (CPT [®] 72131)
Documented need for preoperative planning	MRI Lumbar Spine without contrast (CPT [®] 72148) AND/OR CT Lumbar Spine without contrast (CPT [®] 72131)
Failure of 6 weeks of provider-directed conservative treatment (which may include immobilization with a spinal orthosis) after the current set of symptoms or physical exam findings started or changed with clinical re-evaluation	MRI Lumbar Spine without contrast (CPT [®] 72148) OR CT Lumbar Spine without contrast (CPT [®] 72131)
Evaluation for stress reaction in bone, to visualize nerve roots	MRI Lumbar Spine without contrast (CPT [®] 72148)
When an MRI is medically necessary, however, it is contraindicated	CT Lumbar Spine without contrast (CPT [®] 72131)

Indication	Imaging Study
Evaluation of bony anatomy	CT Lumbar Spine without contrast (CPT [®] 72131)
Monitor healing of a pars interarticularis fracture that was determined to have healing potential on a prior CT (i.e., non-sclerotic lesion)	CT Lumbar Spine without contrast (CPT [®] 72131) of the symptomatic spinal level

- For pediatric spondylolysis, see: **Spondylolysis (PEDSP-2.4)** in the Pediatric and Special Populations Spine Imaging Guidelines
- Bony healing cannot be achieved non-surgically in an established well defined isthmic pars interarticularis defect whether it is developmental or the result of a pars interarticularis fracture non-union. Repeat advanced diagnostic imaging is not medically necessary in this setting.

Background and Supporting Information

- Spondylolysis is most often an incidental finding on plain x-rays, and advanced imaging is generally not medically necessary.
- MRI is not medically necessary in the early diagnosis of spondylolysis due to the potential for false negative results.

Spondylolisthesis (SP-8.2)

SP.SP.0008.2.A

v3.0.2026

- CT Lumbar Spine without contrast (CPT[®] 72131) or MRI Lumbar Spine without contrast (CPT[®] 72148) can be considered after plain x-ray (results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider) for the following:
 - Failure of 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed and clinical re-evaluation (see also: **General Guidelines [SP-1.0]**); **or**
 - Preoperative evaluation; **or**
 - See: **Red Flag Indications (SP-1.2)**

Background and Supporting Information

- Stress reactions and stress fractures of the pars interarticularis are most common in athletes and others whose activities involve repetitive flexion/extension loading of the lumbar spine and may be acute or chronic and unilateral or bilateral. Pars interarticularis defects can be an incidental finding on plain x-rays and is frequently asymptomatic.
- Spondylolisthesis is the forward (anterolisthesis) or backward (retrolisthesis, usually not clinically significant) displacement of one vertebra in relation to an adjacent vertebra, most commonly at L4-5 and L5-S1, although other levels of the spine may be involved. Spondylolisthesis is often an incidental finding on plain x-ray and is frequently asymptomatic.

Evidence Discussion (SP-8)

v3.0.2026

Spondylolysis is a very common incidental finding on radiographs in the general population but majority will be asymptomatic.⁷ Spondylolysis is one of the potential causes of back pain in gymnasts.⁶ Symptomatic pars lesions are particularly a clinical problem in adolescent athletes.^{7,8} Spondylolysis and spondylolisthesis are a common cause of low back pain especially in young athletes but is a less common cause of neurologic compromise.⁴ Plain radiographs with particular views display the majority of defects.⁵ MRI has sensitivity of 78% for detecting L4-L5 lumbar degenerative spondylolisthesis compared with 98% for lateral standing films.³ MRI is less sensitive than CT for detecting pars defects but it is useful for evaluating bone marrow edema, nerve root compression, and stress reactions.⁸

Lumbar spondylolysis can heal with conservative treatment depending on the spinal level affected and stage of the defects. The site of defects in the pars, condition of contralateral pars, presence of spondylolisthesis, the degree of lumbar lordosis are among other factors significantly affecting union.¹⁰

References (SP-8)

v3.0.2026

1. Rao, RD, Smuck M. Orthopaedic Knowledge Update 4: Spine. AAOS. 41:477-478.
2. Lieberman JR, ed. *AAOS comprehensive orthopaedic review 2009*. Rosemont, IL.: AAOS (American Academy of Orthopaedic Surgeons); 2009. 771-775.
3. Kuhns BD, Kouk S, Buchanan C, et al. Sensitivity of magnetic resonance imaging in the diagnosis of mobile and non-mobile L4-5 degenerative spondylolisthesis. *The Spine Journal*; 2014. doi:10.1016/j.spinee.2014.08.006.
4. Foreman P, et al. L5 spondylolysis/spondylolisthesis: a comprehensive review with an anatomic focus. *Childs Nerv Syst*. 2013;29:209-16.
5. Harvey CJ, Richenberg JL, Saifuddin A, Wolman RL. The radiological investigation of lumbar spondylolysis. *Clin Radiol*. 1998 Oct;53(10):723-8. doi: 10.1016/s0009-9260(98)80313-9. PMID: 9817088.
6. Kruse D, Lemmen B. Spine injuries in the sport of gymnastics. *Curr Sports Med Rep*. 2009;8(1):20-28. doi:10.1249/JSR.0b013e3181967ca6.
7. Standaert CJ, Herring SA. Spondylolysis: a critical review. *Br J Sports Med*. 2000;34(6):415-422. doi:10.1136/bjsm.34.6.415.
8. Leone A, et al. Lumbar spondylolysis: a review. *Skeletal Radiol*. 2011;40:683-700.
9. Kobayashi A, et al. Diagnosis of radiographically occult lumbar spondylolysis in young athletes by magnetic resonance imaging. *Am J Sports Med*. 2013;41:169-76.
10. Fujii K, Katoh S, Sairyo K, et al. Union of defects in the pars interarticularis of the lumbar spine in children and adolescents: the radiologic outcome after conservative treatment. *J Bone Joint Surg Br*. 2004;86:225-31.
11. Puhakka KB, Jurik AG, Schiottz-Christensen B, et. al. Magnetic resonance imaging of sacroiliitis in early seronegative spondyloarthropathy. Abnormalities correlated to clinical and laboratory findings. *Rheumatology*. 2004;43(2):234-237.
12. Expert Panel on Pediatric Imaging;; Booth TN, Iyer RS, Falcone RA Jr, Hayes LL, Jones JY, Kadom N, Kulkarni AV, Myseros JS, Partap S, Reitman C, Robertson RL, Ryan ME, Saigal G, Soares BP, Tekes-Brady A, Trout AT, Zumberge NA, Coley BD, Palasis S. ACR Appropriateness Criteria® Back Pain-Child. *J Am Coll Radiol*. 2017 May;14(5S):S13-S24. doi: 10.1016/j.jacr.2017.01.039. PMID: 28473069.
13. Bellah RD, Summerville DA, Treves ST, Micheli LJ. Low-back pain in adolescent athletes: detection of stress injury to the pars interarticularis with SPECT. *Radiology*. 1991 Aug;180(2):509-12. doi: 10.1148/radiology.180.2.1829845. PMID: 1829845.
14. Ekhtator C, Bellegarde SB, Nduma BN, Qureshi MQ, Fonkem E. The Spine is the Tree of Life: A Systematic Review and Meta-Analysis of the Radiographic Findings Related to Spinal Injuries in Athletes. *Cureus*. 2024;16(4):e58780. Published 2024 Apr 22. doi:10.7759/cureus.58780
15. Sima S, Chen X, Sheldrick K, Lu A, Diwan AD. Imaging predictors of progression of lumbar spondylolysis to spondylolisthesis: a systematic review. *Spine J*. 2024;24(8):1431-1442. doi:10.1016/j.spinee.2024.03.010
16. Expósito Jiménez D, Álvarez de Sierra García B. Magnetic resonance imaging (MRI) vs. computed tomography (CT) in the diagnosis and classification of spondylolysis and spondylolisthesis-a narrative review. *Quant Imaging Med Surg*. 2024;14(11):7891-7907. doi:10.21037/qims-24-574

Lumbar Spinal Stenosis (SP-9)

Guideline	Page
Lumbar Spinal Stenosis (SP-9.1).....	76
Evidence Discussion (SP-9).....	77
References (SP-9).....	78

Lumbar Spinal Stenosis (SP-9.1)

SP.ST.0009.1.A

v3.0.2026

- MRI Lumbar Spine without contrast (CPT[®] 72148) or CT Lumbar Spine without contrast (CPT[®] 72131) is medically necessary for those individuals with clinical suspicion of lumbar spinal stenosis if:
 - Failure of 6-week trial of provider-directed treatment after the current set of symptoms or physical exam findings started or changed and clinical re-evaluation (see also: **General Guidelines (SP-1.0)**); **or**
 - Red Flag Indications (see: **Red Flag Indications (SP-1.2)**); **or**
 - Severe symptoms of neurogenic claudication restricting normal activity or requiring the frequent use of narcotic analgesics
- A CT/Myelogram Lumbar Spine (CPT[®] 72132) may also be considered for individuals who have failed 6-weeks of provider-directed treatment if requested by the operating surgeon for surgical planning, especially for multi-level lumbar spinal stenosis.

Background and Supporting Information

Lumbar spinal stenosis refers to a decrease in the space available for the neural elements within the spinal canal that include spinal nerve roots and the cauda equina. It is usually a degenerative condition of the aging spine which can be asymptomatic or a common cause of buttock/low back and/or leg pain (neurogenic claudication) in this population. Neurogenic claudication is a common symptom of lumbar spinal stenosis that is aggravated by walking, especially down hills or stairs, with prolonged standing and is often relieved by sitting and bending forward. Neurogenic claudication should be differentiated from vascular claudication (leg/calf pain) that is often aggravated by walking and relieved fairly rapidly by stopping and rest. The differential diagnosis for lumbar spinal stenosis should include peripheral vascular disease, hip disorders, and peripheral neuropathy.

Evidence Discussion (SP-9)

v3.0.2026

A presumptive diagnosis of symptomatic lumbar stenosis can be made with the history and physical examination.⁵ Imaging can help differentiate neurogenic claudication from vascular claudication. MRI or CT may confirm the presence of spinal stenosis. The American College of Radiology (ACR) Appropriateness Criteria for low back pain (revised 2021) states MRI may be helpful when there is low back pain with radiculopathy or signs of spinal stenosis.¹ Bony findings can be seen better on CT and soft-tissue lesions are more detectable on MRI.¹ In individuals with subacute or chronic low back pain with or without radiculopathy that is a surgical or intervention candidate with persisting symptoms after six weeks of conservative treatment, CT lumbar spine without IV contrast can also be used to assess facets and neural foramina and is equal to MRI for predicting significant spinal stenosis.¹ For those not responsive to conservative treatment, surgery should be considered. A prospective cohort study evaluating individual outcomes two years after spine surgery for spinal stenosis showed individuals had better outcomes than individuals who did not have surgery.⁴

References (SP-9)

v3.0.2026

1. Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® Low Back Pain. Available at <https://acsearch.acr.org/docs/69483/Narrative/>. American College of Radiology. Revised 2021.
2. North Am Spine Society, Clinical guidelines for multidisciplinary spine care specialists: spinal stenosis. Version 1.02002. <http://www.guideline.gov>.
3. Highlights from the 2007 North American Spine Society Meeting. Sg2 Web Seminar, November 8, 2007.
4. Tosteson ANA, Lurie JD, Tosteson TD, et al. Surgical treatment of spinal stenosis with and without degenerative spondylolisthesis: cost-effectiveness after 2 years. *Ann Intern Med*. 2008;149(12):845-853. doi:10.7326/0003-4819-149-12-200812160-00003
5. Katz JN, Harris MB. Clinical practice. Lumbar spinal stenosis. *N Engl J Med*. 2008;358:818-825.
6. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992; 268(6):760-765.
7. Devin CJ, McCullough KA, Morris BJ, et al. Hip-spine syndrome. *J Am Acad Orthop Surg*. 2012;20:434-442.
8. Aaen J, Austevoll IM, Hellum C, et al. Clinical and MRI findings in lumbar spinal stenosis: baseline data from the NORDSTEN study. *Eur Spine J*. 2022;31(6):1391-1398. doi:10.1007/s00586-021-07051-4
9. Jensen RK, Jensen TS, Koes B, Hartvigsen J. Prevalence of lumbar spinal stenosis in general and clinical populations: a systematic review and meta-analysis. *Eur Spine J*. 2020;29(9):2143-2163. doi:10.1007/s00586-020-06339-1
10. Ammendolia C, Hofkirchner C, Plener J, et al. Non-operative treatment for lumbar spinal stenosis with neurogenic claudication: an updated systematic review. *BMJ Open*. 2022;12(1):e057724. doi:10.1136/bmjopen-2021-057724
11. Sobański D, Staszkiwicz R, Stachura M, Gadzieliński M, Grabarek BO. Presentation, diagnosis, and management of lower back pain associated with spinal stenosis: A narrative review. *Med Sci Monit*. 2023;29:e939237. doi:10.12659/MSM.939237

Sacro-Iliac (SI) Joint Pain, Inflammatory Spondylitis/Sacroiliitis and Fibromyalgia (SP-10)

Guideline	Page
Sacro-Iliac (SI) Joint Pain/Sacroiliitis (SP-10.1).....	80
Inflammatory Spondylitis (SP-10.2).....	81
Fibromyalgia (SP-10.3).....	82
Evidence Discussion (SP-10).....	83
References (SP-10).....	84

Sacro-Iliac (SI) Joint Pain/Sacroiliitis (SP-10.1)

SP.SI.0010.1.A

v3.0.2026

- CT Pelvis without contrast (CPT[®] 72192) or MRI Pelvis without contrast (CPT[®] 72195) is medically necessary if:
 - Initial plain x-rays are equivocal or not diagnostic; **and**
 - Failure of 6 weeks of provider-directed treatment after the current set of symptoms or physical exam findings started or changed and clinical re-evaluation (see also: **General Guidelines (SP-1.0)**); **or**
 - Any ONE of the following:
 - Fractures of the sacrum or sacroiliac joint(s); **or**
 - See: **Red Flag Indications (SP-1.2)**; **or**
 - Pre-operative planning
- For suspected neoplastic or infectious disease, see **Red Flags (SP-1.2)**
- See: **Rheumatoid Arthritis (RA) and Inflammatory Arthritis (MS-15.1)** in the Musculoskeletal Imaging Guidelines

Inflammatory Spondylitis (SP-10.2)

SP.SI.0010.2.A

v3.0.2026

- **Initial imaging**

- Plain x-rays are required initially, then:
 - MRI Sacroiliac Joints (MRI Pelvis) without and with contrast (CPT® 72197) AND MRI Spine area of interest without and with contrast) **OR**
 - MRI Sacroiliac Joints (MRI Pelvis) without contrast (CPT® 72195) AND MRI Spine area of interest without contrast **OR**
 - MRI Sacroiliac Joints (MRI Pelvis) without and with contrast (CPT® 72197) **OR**
 - MRI Sacroiliac Joints (MRI pelvis) without contrast (CPT® 72195) **OR**
 - MRI Spine area of interest without and with contrast **OR**
 - MRI Spine area of interest without contrast **OR**
 - If MRI is contraindicated:
 - CT Sacroiliac Joints (CT Pelvis) without contrast (CPT® 72192) **OR**
 - CT Sacroiliac Joints (CT Pelvis) without contrast (CPT® 72192) AND CT Spine area of interest without contrast **OR**
 - CT Spine area of interest without contrast
- When plain x-rays **AND** MRI of the sacroiliac joints are negative, then:
 - MRI Spine area of interest without and with contrast **OR**
 - MRI Spine area of interest without contrast **OR**
 - CT Spine area of interest without contrast

- **Follow-up imaging for treatment response or disease progression**

- Repeat plain x-rays show no progression of disease of the SI joints **OR** SI joints and spine area of interest then,
 - MRI Sacroiliac Joints (MRI Pelvis) without and with contrast (CPT® 72197) AND MRI Spine area of interest without and with contrast) **OR**
 - MRI Sacroiliac Joints (MRI Pelvis) without contrast (CPT® 72195) AND MRI Spine area of interest without contrast **OR**
 - MRI Sacroiliac Joints (MRI Pelvis) without and with contrast (CPT® 72197) **OR**
 - MRI Sacroiliac Joints (MRI Pelvis) without contrast (CPT® 72195)
- If there is documented ankylosing spondylitis or DISH (diffuse idiopathic skeletal hyperostosis) and spine pain following trauma, then:
 - See: **Neck Trauma (SP-3.2)**, **Upper Back Trauma (SP-4.2)**, **Low Back Trauma (SP-6.2)**

Fibromyalgia (SP-10.3)

SP.DI.0010.3.A

v3.0.2026

- Advanced diagnostic imaging is not supported by the scientific evidence for the evaluation and treatment of fibromyalgia.

Background and Supporting Information

- Sacroiliitis can present with pain localized to the SI joint or referred pain to the buttock and/or posterior thigh without neurologic signs or symptoms. Affected individuals can often point to the SI joint as the pain source. Provocative and/or therapeutic SI joint anesthetic/corticosteroid injections can have diagnostic value.
- There is no evidence demonstrating that advanced diagnostic imaging substantiates changes to individual management decisions in individuals with proven SI joint disorders when visible on routine plain x-rays.
- MRI has shown inflammatory changes in the SI joints prior to visible x-ray changes in several studies. However, the ability of MRI to characterize inflammation in early ankylosing spondylitis, the ability of MRI to predict erosive changes, and the value of monitoring treatment effects using serial MRI studies remains controversial in adults.

Evidence Discussion (SP-10)

v3.0.2026

For individuals with proven sacro-iliac joint disorders visible on routine plain x-rays, there is no evidence that advanced diagnostic imaging substantiates changes to individual management decisions.

X-rays are first line imaging for suspected inflammatory sacroiliitis but have a low sensitivity for detecting abnormalities in early disease, and x-ray findings may not be visible until several years after onset of symptoms.¹² SI Joint MRI is appropriate when X-ray is equivocal or non-diagnostic.¹² There is increase the diagnostic accuracy of MRI in sacroiliitis with use of contrast.¹² Contrast use benefits must be weighed against potential disadvantages of need for IV access, potential risk for nephrogenic systemic fibrosis or contrast reaction, and increased cost. If an individual is unable to undergo MRI, a non-contrast CT may be helpful as it has improved sensitivity over conventional radiography for detection of subtle erosions, although it lacks sensitivity for inflammatory changes of inflammatory sacroiliitis.¹²

With suspected inflammatory spondylitis, x-rays are useful to assess for structural changes of syndesmophytes, erosions, vertebral body squaring, and ankylosis.⁹ When x-rays are non-diagnostic, MRI (without or with contrast) can demonstrate active inflammatory changes.⁹ The value of monitoring treatment response using serial MRIs remains controversial and investigational in adults.

Plain x-rays are not required prior to advanced imaging in individuals with documented ankylosing spondylitis or DISH (diffuse idiopathic skeletal hyperostosis) and spine pain following trauma, due to high risk of spinal fractures even with low-energy trauma and the low specificity for fracture detection on x-ray in these individuals.⁸

Advanced diagnostic imaging is not supported by scientific evidence for the evaluation and treatment of fibromyalgia.

References (SP-10)

v3.0.2026

1. Puhakka KB, Jurik AG, Schiøttz-Christensen B, et al. Magnetic resonance imaging of sacroiliitis in early seronegative spondylarthropathy. Abnormalities correlated to clinical and laboratory findings. *Rheumatology* 2004;43:234-237.
2. Dreyfuss P, Dreyer SJ, Cole A, et al. Sacroiliac joint pain. *Am Acad Orthop Surg*. 2004;12:255-265.
3. Maigne JY, Tamalet B. Standardized radiologic protocol for the study of common coccygodynia and characteristics of the lesions observed in the sitting position. Clinical elements differentiating luxation, hypermobility, and normal mobility. *Spine*. 1996;21:2588-2593.
4. Maigne JY, Doursounian L, Chatellier G. Causes and mechanisms of common coccydynia: role of BMI and coccygeal trauma. *Spine*. 2000;25:3072-3079.
5. Landewe RBM, Hermann KGA, Van Der Heijde DMFM, Baraliakos X, et al. Scoring sacroiliac joints by magnetic resonance imaging. A multiple-reader reliability experiment. *The Journal of Rheumatology*. 2005;32:10.
6. Lambert RGW, Salonen D, Rahman P, Inman RD, et al. Adalimumab significantly reduces both spinal and sacroiliac joint inflammation in patients with ankylosing spondylitis. *Arthritis & Rheumatism*. 2007;56(12):4005-4014.
7. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992;268(6):760-765.
8. Lantsman CD, Barkay G, Friedlander A, Barbi M, Stern M, Eshed I. Whole spine CT scan for the detection of acute spinal fractures in Diffuse Idiopathic Skeletal Hyperostosis patients who sustained low-energy trauma. *Spine*. 2020;45(19):1348-1353. doi:10.1097/BRS.0000000000003536.
9. Czuczman GJ, Mandell JC, Wessell DE, et. al. ACR Appropriateness Criteria®: Inflammatory Back Pain: Known or Suspected Axial Spondyloarthritis. Available at <http://acsearch.acr.org/docs/3094107/Narrative/>. American College of Radiology. Revised: 2021.
10. Le HV, Wick JB, Van BW, Klineberg EO. Diffuse idiopathic skeletal hyperostosis of the spine: pathophysiology, diagnosis, and management. *J Am Acad Orthop Surg*. 2021;29:1044-1051. doi:10.5435/JAAOS-D-20-01344.
11. Bhimreddy M, Weber-Levine C, Jiang K, et al. Sacroiliitis: current imaging modalities and future directions: a narrative review. *Spine J*. 2025;25(5):863-875. doi:10.1016/j.spinee.2024.11.011
12. Bernard SA, Kransdorf MJ, Beaman FD, et. al. ACR Appropriateness Criteria®: Chronic Back Pain: Suspected Sacroiliitis/Spondylarthropathy. Available at <https://acsearch.acr.org/docs/3094107/Narrative/>. Revised: 2021.

Spinal Compression Fractures (SP-11)

Guideline	Page
Spinal Compression Fractures (SP-11.1).....	86
Evidence Discussion (SP-11).....	87
References (SP-11).....	88

Spinal Compression Fractures (SP-11.1)

SP.FX.0011.1.A

v3.0.2026

Individuals with no history of malignancy

- MRI without contrast, CT without contrast, or whole-body bone scan (CPT[®] 78306), SPECT (CPT[®] 78803), or SPECT/CT (CPT[®] 78830) of the affected spinal region is medically necessary after plain x-ray evaluation **and** the location of the individual's spinal pain is concordant with the spinal x-rays for any **ONE** of the following:
 - X-rays reveal a new spinal compression fracture **or**
 - X-rays are non-diagnostic and severe spinal pain persists for more than one week in an individual already predisposed to low energy/insufficiency fractures **or**
 - The age of the spinal compression fracture deformity on plain x-ray is indeterminate **or**
 - Surgical planning following known insufficiency spinal compression fractures in individuals who are candidates for kyphoplasty, vertebroplasty or other spine surgical procedures

Individuals with a history of malignancy

- For individuals with new symptomatic or asymptomatic vertebral compression fractures on radiographs, please refer to the cancer-specific guidelines within the General Oncology Imaging Guidelines for appropriate imaging studies.
- See also: **Red Flag Indications (SP-1.2)**

Background and Supporting Information

Insufficiency/low energy spinal compression fractures of the spine occur due to the lack of structural integrity to withstand physiologic loads and minor spinal trauma. Low bone mineral density is the primary etiology for most of these fractures but could also occur in the setting of other bone disease and medical conditions, in addition to neoplastic disease and infection. Sudden localized back pain, with or without trauma, is a typical presentation of insufficiency/low energy spinal compression fractures and can often be an incidental finding on plain x-rays and can be asymptomatic.

Evidence Discussion (SP-11)

v3.0.2026

The diagnosis of a spinal compression fracture may be suspected based on history and physical examination. Plain anteroposterior and lateral radiographs should be the initial imaging study obtained for a suspected compression fracture.^{3,7}

For individuals (without a known malignancy) with a new symptomatic vertebral compression fracture identified on radiographs, MRI without contrast, CT without contrast, whole-body bone scan, SPECT or SPECT/CT is supported by the American College of Radiology (ACR) Appropriateness Criteria for Management of Vertebral Compression Fractures (revised 2022).² Advanced imaging can also be helpful for identifying a fracture that is not well visualized on plain films.^{3,5}

It has been shown that bone marrow signal on MRI can help identify an acute fracture and distinguish ages of compression fractures.^{8,9} Additionally, the benefits of advanced imaging prior to vertebral augmentation have been reported.^{10,11,12}

References (SP-11)

v3.0.2026

1. Hutchins TA, Peckham M, Shah LM, et. al. Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria®: *Low Back Pain*. American College of Radiology (ACR); Date of Origin: 1996. Revised: 2021. <https://acsearch.acr.org/docs/69483/Narrative/>.
2. Khan MA, Jennings JW, Baker JC, et. al. ACR Appropriateness Criteria® Management of Vertebral Compression Fractures. Available at <https://acsearch.acr.org/docs/70545/Narrative/>. American College of Radiology. Revised 2022.
3. Old JL, Calvert M. Vertebral compression fractures in the elderly. *Am Fam Physician*. 2004;69:111-116.
4. Brunton S, Carmichael B, Gold D, et al. Vertebral compression fractures in primary care. *J Fam Practice*. 2005 Sept. (Supplement):781-788.
5. McCarthy J, Davis A. Diagnosis and management of vertebral compression fractures. *Am Fam Physician*. 2016 94:44-50.
6. Deyo RA, Rainville J, Kent DL. What can the history and physical examination tell us about low back pain? *JAMA*. 1992;268(6):760-765.
7. Alexandru D, So W. Evaluation and management of vertebral compression fractures. *Perm J*. 2012;16(4):46-51. doi:10.7812/TPP/12-037
8. Yamato M, Nishimura G, Kuramochi E, Saiki N, Fujioka M. MR appearance at different ages of osteoporotic compression fractures of the vertebrae. *Radiat Med*. 1998;16:329-34.
9. Piazzolla A, Solarino G, Lamartina C, et al. Vertebral Bone Marrow Edema (VBME) in Conservatively Treated Acute Vertebral Compression Fractures (VCFs): Evolution and Clinical Correlations. *Spine (Phila Pa 1976)*. 2015;40:E842-8.
10. Benz BK, Gemery JM, McIntyre JJ, Eskey CJ. Value of immediate preprocedure magnetic resonance imaging in patients scheduled to undergo vertebroplasty or kyphoplasty. *Spine (Phila Pa 1976)*. 2009;34:609-12.
11. Ma X, Wang LX, Wang HL, Jiang L, Lu FZ, Jiang JY. Value of preoperative magnetic resonance imaging measurements in thoracic percutaneous vertebroplasty using unilateral puncture. *Chin Med J (Engl)*. 2010;123(21):2983-2988. doi: 10.3760/cma.j.issn.0366-6999.2010.21.006.
12. Spiegl UJ, Beisse R, Hauck S, Grillhosi A, Buhren V. Value of MRI imaging prior to a kyphoplasty for osteoporotic insufficiency fractures. *Eur Spine J*. 2009;18(9):1287-1292. doi:10.1007/s00586-009-1045-2
13. Kim AY, Yoon MA, Ham SJ, et al. Prediction of the acuity of vertebral compression fractures on CT using radiologic and radiomic Features. *Acad Radiol*. 2022;29(10):1512-1520. doi:10.1016/j.acra.2021.12.008
14. Chang MY, Lee SH, Ha JW, Park Y, Zhang HY, Lee SH. Predicting bone marrow edema and fracture age in vertebral fragility fractures using MDCT. *AJR Am J Roentgenol*. 2020;215(4):970-977. doi:10.2214/AJR.19.22606

Spinal Pain related to Cancer (SP-12)

Guideline	Page
Spinal Pain related to Cancer (SP-12).....	90

Spinal Pain related to Cancer (SP-12)

SP.CA.0012.A

v3.0.2026

- For guidelines regarding advanced diagnostic imaging in this clinical setting, See **Spinal/Vertebral Metastases (ONC-31.6)**

Spinal Canal/Cord Disorders (e.g., Syringomyelia) (SP-13)

Guideline	Page
Initial Imaging Pathway (SP-13.1).....	92
Follow-up Imaging (SP-13.2).....	93
Evidence Discussion (SP-13).....	94
References (SP-13).....	95

Initial Imaging Pathway (SP-13.1)

SP.CD.0013.1.A

v3.0.2026

- MRI Cervical Spine without contrast or without and with contrast (CPT[®] 72141 or CPT[®] 72156) and MRI Thoracic Spine without contrast or without and with contrast (CPT[®] 72146 or CPT[®] 72157) is medically necessary when syringomyelia is suspected.
- Once a syrinx is identified by prior imaging, the following are medically necessary if not already performed:
 - MRI Brain without contrast (CPT[®] 70551) to evaluate for syringobulbia **AND**
 - MRI Cervical Spine without contrast or without and with contrast (CPT[®] 72141 or CPT[®] 72156) **AND**
 - MRI Thoracic Spine without contrast or without and with contrast (CPT[®] 72146 or CPT[®] 72157) **AND**
 - MRI Lumbar Spine without contrast or without and with contrast (CPT[®] 72148 or CPT[®] 72158) to define the lower most extent of the syrinx or to identify a skip lesion

Follow-up Imaging (SP-13.2)

SP.CD.0013.2.A

v3.0.2026

- MRI Cervical Spine without contrast (CPT[®] 72141) and MRI Brain without contrast (CPT[®] 70551) and/or MRI Thoracic Spine without contrast (CPT[®] 72146) are medically necessary in the following scenarios:
 - If there is a concern for malignancy, imaging can be performed without and with contrast
 - Annual imaging until non-progression of the syringomyelia is established
 - Following surgical treatment (including posterior fossa decompression)
 - Advanced diagnostic imaging every three years for life can be performed once non-progression of the syringomyelia is established
 - Repeat advanced diagnostic imaging is medically necessary when there is evidence of neurologic deterioration

Background and Supporting Information

Syringomyelia may begin to form in childhood but rarely becomes symptomatic before the adult years.

Evidence Discussion (SP-13)

v3.0.2026

- MRI of the spinal cord is the modality of choice to characterize the size and extent of a syrinx both at time of original discovery and on follow up imaging.⁴
- MRI of the brain is the modality of choice to characterize syringobulbia in the hindbrain.^{4,5}

References (SP-13)

v3.0.2026

1. Mancall ER. Syringomyelia. In: Rowland LP, ed. *Merritt's Neurology*. 11th ed. Philadelphia, PA: Lippincott; 2005:870-874.
2. Tsitouras V, Sgouros S. Syringomyelia and tethered cord in children. *Childs Nerv Syst*. 2013;29:1625-1634. doi:10.1007/s00381-013-2180-y.
3. Agarwal V, Shah LM, Parsons MS, et al. ACR Appropriateness Criteria® Myelopathy. Available at <https://acsearch.acr.org/docs/69484/Narrative/>. American College of Radiology. Revised 2020
4. Ciaramitaro P, Massimi L, et al. Diagnosis and treatment of Chiari malformation and syringomyelia in adults: international consensus document. *Neurological Sciences*. 2022;43(2):1327-42.
5. Flint G. Syringomyelia: diagnosis and management. *Practical neurology*. 2021;21(5):403-11.

Spinal Deformities (e.g., Scoliosis/ Kyphosis) (SP-14)

Guideline	Page
Spinal Deformities (e.g., Scoliosis/Kyphosis) (SP-14.1).....	97
Revision Anterior Spinal Deformity Surgery (SP-14.2).....	98
Evidence Discussion (SP-14).....	99
References (SP-14).....	100

Spinal Deformities (e.g., Scoliosis/ Kyphosis) (SP-14.1)

SP.SC.0014.1.A

v3.0.2026

- MRI without contrast, MRI without and with contrast, or CT/Myelography if MRI is contraindicated of the affected spinal regions is medically necessary after plain x-rays (e.g., Cobb radiographs) of the affected spinal regions have been performed and results are available to the requesting provider:
 - For pre-operative evaluation; **or**
 - For cases of congenital scoliosis and other atypical curves that may be associated with spinal canal/cord pathology such as tethered cord, syringomyelia, diastematomyelia, or tumors; **or**
 - For cases of scoliosis and/or kyphosis when there are associated neurologic signs and symptoms on physical examination; **or**
 - Scoliosis with a convex left thoracic curve due to a high association of a convex left thoracic curve with underlying spinal canal/cord pathology
- CT of the affected spinal regions (contrast as requested) is medically necessary in cases with a complex osseous deformity for pre-operative evaluation
- CT Angiography (CTA) or MR Angiography (MRA) is not medically necessary for pre-operative planning for initial anterior spinal surgery for surgical correction of spinal deformities

Revision Anterior Spinal Deformity Surgery (SP-14.2)

SP.SC.0014.2.A

v3.0.2026

- If requested by the operating surgeon, the following studies can be performed for pre-operative planning for revision of anterior thoracic or lumbar spinal surgery:
 - CTA Pelvis (CPT[®] 72191) **OR**
 - CTA Abdomen (CPT[®] 74175) **OR**
 - CTA Abdomen and Pelvis (CPT[®] 74174) **OR**
 - MRA Pelvis (CPT[®] 72198) and/or MRA Abdomen (CPT[®] 74185)

Background and Supporting Information

- Scoliosis is defined as a curvature of the spine in the coronal plane. Scoliosis can involve any or all levels of the spine but generally involves the thoracic and/or lumbar spine. Scoliosis initially occurs in the pediatric and adolescent population and persists throughout life. If scoliosis begins in adulthood, it is usually secondary to neurologic disorders (e.g., post-traumatic paralysis) or degenerative spondylosis. Sagittal plane spinal deformity (e.g., kyphosis, hyperlordosis) may be associated with scoliosis.

Evidence Discussion (SP-14)

v3.0.2026

Plain radiography continues to be the primary imaging modality for the initial diagnosis of spinal deformity and for follow up of deformity progression.^{13,14} Plain x-rays allow the easy measurement of Cobb angles which remains essential in the evaluation of scoliosis.¹³

Individuals with congenital scoliosis, atypical curves (for example, left thoracic) or abnormal neurological findings will benefit from MRI to help identify spinal cord abnormalities.^{13,15,16,17} CT is considered the gold standard for the evaluation of osseous structures and can be useful in the evaluation of complex bony deformity.¹³ Additionally, MRI and CT can be valuable for pre-operative evaluation.^{18,19,20}

For revision anterior spinal deformity surgery, CT angiography or MR angiography may be medically necessary, however, concerns associated with these modalities are radiation exposure (CT), availability of the imaging modalities in close proximity to individuals, potential out of pocket costs to individuals and sensitivity to individual movement (MRI).^{11,21}

References (SP-14)

v3.0.2026

1. Boas SR. Kyphoscoliosis: Adolescent Idiopathic Scoliosis and Congenital Scoliosis. In: Kliegman RM, Behrman RE, Jenson HB, et al, eds. *Nelson Textbook of Pediatrics*. 18th ed. Philadelphia, PA: Elsevier; 2007:1843-1844.
2. Spiegel DA, Hosalkar HS, Dormans JP. The Spine. In: Kliegman RM, Behrman RE, Jenson HB, et al., eds. *Nelson Textbook of Pediatrics*. 18th ed. Philadelphia, PA: Elsevier; 2007:2811-2815.
3. Do T, Fras C, Burke S, et al. Clinical value of routine preoperative magnetic resonance imaging in adolescent idiopathic scoliosis. *J Bone Joint Surg Am*. 2001;83:577-579.
4. Dobbs MB, Lenke LG, Szymanski DA, et al. Prevalence of neural axis abnormalities in patients with infantile idiopathic scoliosis. *J Bone Joint Surg Am*. 2002;84:2230-2234.
5. Rao, RD, Smuck M. Orthopaedic Knowledge Update 4: Spine. AAOS. 41:477-478.
6. Lieberman JR. AAOS comprehensive orthopaedic review. Rosemont, IL.: *American Academy of Orthopaedic Surgeons*; 2009.
7. Pollak AN, Ficke JR. Extremity war injuries: Challenges in definitive reconstruction. *J Am Acad Orthop Surg*. 2008;16(11):407-417.
8. Swiontkowski MF. The journal of bone and joint surgery. *JBJS*. 1993;75A(9):1308-1317.
9. Bach HG, Goldberg BA. Posterior Capsular Contracture of the Shoulder. *J Am Acad Orthop Surg*. 2006;14(5):101-112.
10. Hedequist, D., Emans, J. Congenital scoliosis. *J Am Acad Orthop Surg*. 2004;12:266-275.
11. Gstottner M, Godny B, Petersen J., et al. CT angiography for anterior lumbar spine access: High radiation exposure and low clinical relevance. *Clin Orthop Relat Res*. 2011;469(3):819-824. doi:10.1007/s11999-010-1520-4
12. Kim H, Kim HS, Moon ES, et al. Scoliosis Imaging: what radiologists should know. *Radiographics*. 2010;30:1823-1842.
13. Calloni SF, Huisman TA, Poretti A, Soares BP. Back pain and scoliosis in children: When to image, what to consider. *Neuroradiol J*. 2017 Oct;30(5):393-404. doi:10.1177/1971400917697503
14. Wright N. Imaging in scoliosis. *Arch Dis Child*. 2000 Jan;82(1):38-40. doi:10.1136/adsc.82.1.38 (references the below 2 articles)
15. Winter RB, Lonstein JE, Denis F, Koop SE. Prevalence of spinal canal or cord abnormalities in idiopathic, congenital, and neuromuscular scoliosis. *Orthopedic Transcripts*. 1992; 16:135.
16. Barnes PD, Brody JD, Jaramillo D, Akbar JU, Emans JB. Atypical idiopathic scoliosis: MR imaging evaluation. *Radiology*. 1993;186:247-53
17. Belmont PJ, Jr., Kuklo TR, Taylor KF, Freedman BA, Prahinski JR, Kruse RW. Intraspinous anomalies associated with isolated congenital hemivertebra: the role of routine magnetic resonance imaging. *J Bone Joint Surg Am*. 2004;86-A:1704-10.
18. 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
19. Garg, B., Aryal, A. (2023). Preoperative Evaluation and Imaging in AIS. In: Zacharia, B., Raja, S.D.C., KV, N. (eds) *Paediatric Scoliosis*. Springer, Singapore.
20. Negrini S, Donzelli S, Aulisa AG, et al. 2016 SOSORT guidelines: orthopaedic and rehabilitation treatment of idiopathic scoliosis during growth. *Scoliosis Spinal Disord*. 2018;13:3. doi:10.1186/s13013-017-0145-8
21. Watson RE, Yu L. Safety Considerations in MRI and CT. *Continuum (Minneapolis)*. 2023;29(1):27-53.
22. Shah VN, Parsons MS, Boulter DJ, et al. ACR Appropriateness Criteria® Thoracic Back Pain. Available at <https://acsearch.acr.org/docs/3195158/Narrative/>. American College of Radiology. New 2024

Post-Operative Spinal Disorders (SP-15)

Guideline	Page
Greater than Six Months Post-Operative (SP-15.1).....	102
Routine Post-Fusion Imaging (SP-15.2).....	103
Prolonged Intractable Pain Following Spinal Surgery Within Six Months (SP-15.3)....	104
Revision Anterior Fusion Surgery (SP-15.4).....	105
Evidence Discussion (SP-15).....	106
References (SP-15).....	107

Greater than Six Months Post-Operative (SP-15.1)

SP.OP.0015.1.C

v3.0.2026

- Following plain x-rays of the affected spinal regions post-surgical and performed after the current episode of symptoms started or changed with results available to the requesting provider, MRI without and with contrast, MRI without contrast, or CT without contrast of the affected spinal region(s) is medically necessary when:
 - Individual is more than six months post-operative **AND**
 - Failure of a six-week trial of provider-directed treatment after the current set of symptoms started or changed with clinical re-evaluation **OR**
 - See: **Red Flag Indications (SP-1.2)**

Routine Post-Fusion Imaging (SP-15.2)

SP.OP.0015.2.A

v3.0.2026

- Following a clinically successful spinal fusion, advanced diagnostic imaging is generally not medically necessary.
- **PET** is not currently medically necessary for the routine assessment of spinal fusions or unsuccessful spine surgery (see also: **Spine PET (SP-2.10)**).

Prolonged Intractable Pain Following Spinal Surgery Within Six Months (SP-15.3)

SP.OP.0015.3.A

v3.0.2026

- Following plain x-rays of the affected spinal regions post-surgical with results available to the requesting provider, MRI without and with contrast of the affected spinal region(s) is medically necessary if there are residual, new, recurrent, or worsening symptoms related to the spinal region(s) for which surgery was performed within the last 6 months.
 - CT without contrast, or CT with contrast (Myelography) of the affected spinal region(s) if MRI is contraindicated.

Revision Anterior Fusion Surgery (SP-15.4)

SP.OP.0015.4.A**v3.0.2026**

- If requested by the operating surgeon, the following studies for pre-operative planning prior to surgical revision of a thoracic or lumbar anterior spinal arthrodesis:
 - CTA Pelvis (CPT[®] 72191) **OR**
 - CTA Abdomen (CPT[®] 74175) **OR**
 - CTA Abdomen and Pelvis (CPT[®] 74174) **OR**
 - MRA Pelvis (CPT[®] 72198) and/or MRA Abdomen (CPT[®] 74185)

Evidence Discussion (SP-15)

v3.0.2026

Despite advances made in high-resolution spinal imaging, plain films remain integral in providing optimal care for spine individuals and continue to provide critical information that cannot be obtained with other imaging modalities.⁶ X-ray imaging with anteroposterior, lateral, oblique, and flexion-extension views is considered the primary imaging modality for post-operative evaluation and can provide complementary information to advanced imaging.^{1,7} X-rays can provide information as to whether a concomitant instability is present which would further assist with pre-operative planning. Also, when prior surgery is a concern, x-ray provides additional clinical information as to the details of the hardware for which this detail can many times be obscured with advanced imaging techniques (MRI/CT). An x-ray often has a larger field-of-view than an MRI or CT and has the potential to identify more proximal or distal pathology in the spine that could ultimately assist in determining the individual's diagnosis.⁶ X-rays can also determine whether an advanced diagnostic imaging study is actually needed, what specific advanced diagnostic imaging study is warranted and if contrast is required.

There are risks associated with advanced imaging including but not limited to radiation exposure, implanted device complications, metallic foreign body complications and contrast complications.¹⁰ Studies have also linked the increase rate of imaging with the increase rate of surgery and also found early magnetic resonance imaging (MRI) had an eightfold increased risk of surgery.^{11,12}

Although most individuals with acute neck or back pain will improve with 6 weeks of conservative care^{7,8,9}, conservative care would not be necessary for individuals with prolonged intractable pain present within 6 months of surgery or if a red flag indication was present. In general, initial plain x-rays and an initial course of conservative care can provide a significant clinical benefit that would outweigh the clinical harm from perhaps briefly delaying advanced imaging if needed. A course of conservative care or plain x-ray findings many times may obviate the need for advanced imaging which possess their own set of significant risks.

For revision thoracic or lumbar anterior spinal arthrodesis, CT angiography or MR angiography may be medically necessary, however, risks are present with these modalities including radiation exposure (CT), availability of the imaging modalities in close proximity to individuals, potential out-of-pocket costs to individuals, and sensitivity to individual movement (MRI).^{5,10}

References (SP-15)

v3.0.2026

1. Hayashi D, Roemer FW, Mian A, Gharaibeh M, et al. Imaging features of post-operative complications after spinal surgery and instrumentation. *AJR Am J Roentgenol*. 2012;199(1):W123-W129. doi:10.2214/AJR.11.6497.
2. Thakkar RS, Malloy JP, Thakkar SC, Carrino JA, Khanna AJ. Imaging the post-operative spine. *Rad Clin North Am*. 2012;50:731-747.
3. Kathuria S. Post-vertebral augmentation spine imaging. *Neuroimaging Clin N Am*. 2014;24(2):337-347.
4. Savage JW, Schroeder GD, Anderson PA. Vertebroplasty and kyphoplasty for the treatment of osteoporotic vertebral compression fractures. *J Am Acad Orthop Surg*. 2014;22:653-664.
5. Gstottner M, Godny B, Petersen J., et al. CT angiography for anterior lumbar spine access: high radiation exposure and low clinical relevance. *Clin Orthop Relat Res*. 2011;469(3):819-824. doi:10.1007/s11999-010-1520-4
6. Goodwin ML, Buchowski JM, Sciubba DM. Why X-rays? The importance of radiographs in spine surgery. *Spine J*. 2022 Nov;22(11):1759-1767.
7. Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® Low Back Pain. Available at <https://acsearch.acr.org/docs/69483/Narrative/>. American College of Radiology. Revised 2021.
8. Chou R, Fu R, Carrino JA, et al. Imaging strategies for low-back pain: systematic review and meta-analysis. *Lancet*. 2009;373:463-472.
9. Childress MA, Becker BA. Nonoperative management of cervical radiculopathy. *Am Fam Physician*. 2016;93(9):746-54.
10. Watson RE, Yu L. Safety Considerations in MRI and CT. *Continuum (Minneap Minn)*. 2023 Feb 1;29(1):27-53.
11. Shubha SV, Deyo RA, Berger ZD. Application of "Less is More" to Low Back Pain. *Arch Intern Med*. 2012;172(13):1016-1020.
12. Webster BS, Cifuentes M. Relationship of early magnetic resonance imaging for work-related acute low back pain with disability and medical utilization outcomes. *J Occup Environ Med*. 2010;52:900-907.
13. Eldalya RW, Parsons MS, Hutchins TA, et al. ACR Appropriateness Criteria® Cervical Pain or Cervical Radiculopathy. Available at <https://acsearch.acr.org/docs/69426/Narrative/>. American College of Radiology. Revised 2024.
14. Shah VN, Parsons MS, Boulter DJ, et al. ACR Appropriateness Criteria® Thoracic Back Pain. Available at <https://acsearch.acr.org/docs/3195158/Narrative/>. American College of Radiology. 2024.

Other Imaging Studies and Procedures Related to the Spine Imaging Guidelines (SP-16)

Guideline	Page
Prior to Spine Surgery (SP-16.1).....	109
Prior to Interventional Spinal Injections (SP-16.2).....	110
Prior to Spinal Cord Stimulator (SCS) Placement/Removal (SP-16.3).....	111
Following Vertebral Augmentation Procedures (SP-16.4).....	112
Evidence Discussion (SP-16).....	113
References (SP-16).....	114

Prior to Spine Surgery (SP-16.1)

SP.OI.0016.1.A

v3.0.2026

- Advanced imaging needed for surgical planning (e.g., MRI and/or CT) should be performed within the past 6 months for pre-operative planning prior to spine surgery when the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines. (See: **MRI of the Spine [SP-2.2]**, **CT of the Spine [SP-2.3]**, **CT/Myelography [SP-2.4]**)
- MR Angiography (MRA) and CT Angiography (CTA) are generally not medically necessary for pre-operative planning of initial anterior spinal surgery unless abnormal vasculature is known or reasonably anticipated.

Prior to Interventional Spinal Injections (SP-16.2)

SP.OI.0016.2.A

v3.0.2026

- Advanced diagnostic imaging studies of the spine are not required prior to facet joint injections, medial branch blocks or radiofrequency ablations unless the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines.
- Advanced diagnostic imaging studies of the cervical spine and/or thoracic spine are medically necessary within 24 months prior to interlaminar or transforaminal epidural steroid injections of the cervical and/or thoracic spine when the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines.
- Advanced diagnostic imaging studies of the lumbar spine are medically necessary prior to transforaminal epidural steroid injections of the lumbar spine when the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines.
- Advanced diagnostic imaging studies of the lumbar spine are not required prior to lumbar spine interlaminar or caudal epidural steroid injections unless the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines.
- For an individual with evidence of symptomatic spinal stenosis, MRI or CT with or without myelography demonstrating severe spinal stenosis at the level to be treated within the past 24 months is required for an initial trial of a transforaminal, interlaminar or caudal epidural steroid injection when **ALL** of the following criteria are met:
 - Diagnostic evaluation has ruled out other potential causes of pain
 - Significant functional limitations resulting in diminished quality of life and impaired age-appropriate activities of daily living (ADLs)
 - Failure of at least 4 weeks of conservative treatment (e.g., exercise, physical methods including physical therapy and/or chiropractic care, NSAIDs, and/or muscle relaxants)
- See: **Red Flag Indications (SP-1.2)** for severe radicular pain

Prior to Spinal Cord Stimulator (SCS) Placement/Removal (SP-16.3)

SP.OI.0016.3.A

v3.0.2026

- MRI Thoracic Spine without contrast (CPT[®] 72146) is generally the study of choice prior to SCS placement. CT Thoracic Spine without contrast (CPT[®] 72128) **OR** CT/Myelography Thoracic Spine (CPT[®] 72129) are acceptable alternatives.
- Imaging of the lumbar spine is not medically necessary for placement nor removal of spinal cord stimulators.

Following Vertebral Augmentation Procedures (SP-16.4)

SP.OI.0016.4.A

v3.0.2026

- CT without contrast of the affected spinal region(s) within 24 hours post-procedure to evaluate neurologic sequelae resulting from cement extravasation

Background and Supporting Information

- MRI has not been shown to change the outcome of interventional pain procedures in recent scientific evidence-based studies and without substantial change in the clinical picture or intervening surgery. Repeat advanced diagnostic imaging studies are not necessary with each spinal injection or series of spinal injections.

Evidence Discussion (SP-16)

v3.0.2026

- Advanced imaging needed for surgical planning (e.g., MRI and/or CT) should be performed for pre-operative planning prior to spine surgery.^{9,10} MRA and CTA are generally not medically necessary for pre-operative planning of initial anterior spinal surgery unless abnormal vasculature is known or reasonably anticipated.
- Advanced diagnostic imaging studies of the spine are not required prior to facet joint injections, medial branch blocks or radiofrequency ablations unless the criteria for advanced imaging studies of the spine are met as otherwise stated in the Spine Imaging Guidelines.^{5,7}
- MRI Thoracic Spine without contrast is generally the study of choice prior to SCS placement, however, CT Thoracic Spine without contrast or CT/ Myelography Thoracic Spine are acceptable alternatives. Imaging of the lumbar spine is not medically necessary for placement nor removal of spinal cord stimulators.¹¹
- CT without contrast of the affected spinal region(s) within 24 hours post-procedure to evaluate neurologic sequelae resulting from cement extravasation.¹²

References (SP-16)

v3.0.2026

1. Cohen SP, Gupta A, Strassels SA, et al. Effect of MRI on treatment results or decision making in patients with lumbosacral radiculopathy referred for epidural steroid injections. *Arch Intern Med*. 2012;172:134-142. doi:10.1001/archinternmed.2011.593.
2. North American Spine Society (NASS) Coverage Committee. *Lumbar Epidural Injections: Defining Appropriate Coverage Positions*. About Coverage Recommendations. <https://www.spine.org/PolicyPractice/CoverageRecommendations/AboutCoverageRecommendations.aspx>.
3. Rathmell JP, Benzon HT, Dreyfuss P, et al. Safeguards to prevent neurologic complications after epidural steroid injections. *Anesthesiology*. 2015;122(5):974-984. doi:10.1097/aln.0000000000000614.
4. Ghahreman A, Ferch R, Bogduk N. The efficacy of transforaminal injection of steroids for the treatment of lumbar radicular pain. *Pain Medicine*. 2010;11:1149-1168.
5. Ghaly RF, Lissounov A, Candido KD, Knezevic NN. Should routine MRI of the lumbar spine be required prior to lumbar epidural steroid injection for sciatica pain? *Surg Neuro Int*. 2015;6:48. Published 2015 Mar 25. doi:10.4103/2152-7806.153888
6. Benzon HT, Huntoon MA, Rathmell JP. Improving the safety of epidural steroid injections. *JAMA*. 2015;313:1713-1714.
7. Cohen SP, Maus T. Point/Counterpoint-The need for magnetic resonance imaging before epidural corticosteroid injection. *American Academy of Physical Medicine and Rehabilitation*. 2013;5:230-237.
8. Shim E, Lee JW, Lee E, et al. Fluoroscopically guided epidural injections of the cervical and lumbar spine. *RadioGraphics*. 2017; 37:537-561.
9. Curtis S. MRI Scan of the Spine. Published October 24, 2022. <https://www.spine-health.com/treatment/diagnostic-tests/mri-scan-spine>.
10. Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® Low Back Pain. Available at <https://acsearch.acr.org/docs/69483/Narrative/>. American College of Radiology. Revised 2021.
11. Best BJ, Porwal MH, Pahapill PA. Preoperative thoracic spine magnetic resonance imaging for spinal cord stimulation: Should such a recommendation be an absolute requirement?. *Neuromodulation*. 2022;25(5):758-762. doi:10.1111/ner.13518.
12. Baek IH, Park HY, Kim KW, Jang TY, Lee JS. Paraplegia due to intradural cement leakage after vertebroplasty: a case report and literature review. *BMC Musculoskelet Disord*. 2021;22(1):741. doi:10.1186/s12891-021-04625-7

This section intentionally left blank (SP-17)

Guideline

Page