Cohere Medical Policy - Kyphoplasty and Vertebroplasty

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.

Cohere Health, Inc. ("**Cohere**") has published these clinical guidelines to determine the medical necessity of services (the "**Guidelines**") for informational purposes only, and solely for use by Cohere's authorized "**End Users**". These Guidelines (and any attachments or linked third-party content) are not intended to be a substitute for medical advice, diagnosis, or treatment directed by an appropriately licensed healthcare professional. These Guidelines are not in any way intended to support clinical decision-making of any kind; their sole purpose and intended use is to summarize certain criteria Cohere may use when reviewing the medical necessity of any service requests submitted to Cohere by End Users. Always seek the advice of a qualified healthcare professional regarding any medical questions, treatment decisions, or other clinical guidance. The Guidelines, including any attachments or linked content, are subject to change at any time without notice.

Other Notices:

Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

Policy Information:

Specialty Area: Musculoskeletal Care
Policy Name: Cohere Medical Policy - Kyphoplasty and Vertebroplasty
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

Table of Contents

Medical Necessity Criteria

Service: Kyphoplasty and Vertebroplasty

Cohere Health takes an evidence-based approach to reviewing imaging and procedure requests, meaning that sufficient clinical information must be provided at the time of submission to determine medical necessity. Documentation must include a recent and detailed history, physical examination related to the onset or change in symptoms, relevant lab results, prior imaging, and details of previous treatments. Advanced imaging or procedures should be requested after a clinical evaluation by the treating provider, which may include referral to a specialist.

- When a specific clinical indication is not explicitly addressed in the Cohere Health medical policy, medical necessity will be determined based on established clinical best practices, as supported by evidence-based literature, peer-reviewed sources, professional society guidelines, and state or national recommendations, unless otherwise directed by the health plan.
- Requests submitted without clinical documentation, or those that do not align with the provided clinical information—such as mismatched procedure, laterality, body part, or CPT code—may be denied for lack of medical necessity due to insufficient or inconsistent clinical information.
- When there are multiple diagnostic or therapeutic procedures requested simultaneously or within the past three months, each will be reviewed independently. Clinical documentation must clearly justify all of the following:
    - The medical necessity of each individual request
    - Why prior imaging or procedures were inconclusive, or why additional/follow-up studies are needed
    - How the results will impact patient management or treatment decisions
- Requests involving adjacent or contiguous body parts may be considered not medically necessary if the documentation demonstrates that the patient's primary symptoms can be adequately assessed with a single study or procedure.

Description

Kyphoplasty and vertebroplasty are minimally invasive procedures that involve injecting bone cement into a vertebral body to relieve pain or a disease process that has affected normal bony architecture.[1] Vertebroplasty involves injecting bone cement directly into the vertebral body, while kyphoplasty involves creating several cavities with inflatable balloons, bone tamps, or osteotomes to attempt more controlled cement delivery and improved cement interdigitation.[2] The cement provides stability to the damaged vertebra, which may result in reduced pain and improved function.

Medical Necessity Criteria

Indications

Kyphoplasty and vertebroplasty are considered appropriate if **ALL** of the following are **TRUE**:

- **ANY** of the following:
  - Painful osteoporotic vertebral fracture(s)as evidenced by **ALL** of the following[3,4]:
    - Fracture is considered minimal or low-velocity[5]; **AND**
    - Acute (less than 6 weeks) or subacute (6-12 weeks) osteoporotic vertebral compression fracture (VCF) (T1 – L5) as evidenced by **ALL** of the following[3]:
      - Symptomatic onset; **AND**
      - VCF confirmed by advanced imaging (e.g., bone marrow edema on MRI or bone-scan/SPECT/CT uptake)[2,6-10]; **AND**
    - Failure of conservative management for greater than 4 weeks, including **ANY** of the following[2,3]:
      - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **OR**
      - Physical therapy or a physician-directed home exercise program; **OR**
      - External orthosis; **OR**
      - Bed rest[11]; **AND**
    - Pain leading to a reduction in activities of daily living (ADLs)[8]; **AND**
    - Symptomatic as evidenced by **ANY** of the following:

- Hospitalized with severe pain (Numeric Rating Scale [NRS] or Visual Analog Scale [VAS] pain score greater than or equal to 8)[12-15]; **OR**
- Non-hospitalized with moderate to severe pain (NRS or VAS greater than or equal to 5) despite optimal non-surgical management (NSM) as evidenced by **ANY** of the following[8]:
  - Worsening pain noted (NRS or VAS 6 or higher); **OR**
  - Stable to improved pain (NRS or VAS still greater than or equal to 5) as evidenced by **AT LEAST TWO** of the following:
    - Progression of vertebral body height loss; **OR**
    - More than 25% vertebral body height reduction but not flattened (vertebra plana); **OR**
    - New Kyphotic deformity; **OR**
    - Severe impact of VCF on daily functioning; **OR**
- The patient has **ANY** of the following:
  - Trauma resulting in acute osteoporotic fracture; **OR**
  - Vertebral bodies weakened by neoplasm (primary or metastatic)[3]; **OR**
  - Painful multiple myeloma involving the vertebral body[2]; **OR**
  - Severe kyphosis from osteoporotic VCF resulting in decreased pulmonary function[3]; **OR**
  - Painful and/or aggressive vertebral hemangioma[2]; **AND**
- Continuum of care for recurrent or subsequent fractures as evidenced by **ANY** of the following:
  - Referral for evaluation of bone mineral density; **OR**
  - Referral to osteoporosis education for subsequent treatment as indicated; **OR**
  - Referral to an osteoporosis prevention/treatment program; **OR**
  - Fracture is non-osteoporotic.

Non-Indications

Kyphoplasty and vertebroplasty are not considered appropriate if **ANY** of the following is **TRUE**[2,8,13,14]:

- Osteoporotic vertebral compression fracture in patients who are not intact neurologically[16]; **OR**
- Current back pain is not primarily due to the identified acute or subacute VCF(s)[2,8,13,14]; **OR**
- Osteomyelitis, discitis, active systemic or surgical site infection[1-3,8,13]; **OR**

- Infection along the intended trajectory of access[3]; **OR**
- Septicemia[3]; **OR**
- Asymptomatic compression fracture[11]; **OR**
- Greater than three vertebral fractures per procedure; **OR**
- Retropulsion of a fracture fragment with signs and/or symptoms of neurological compromise up to and including myelopathy or cauda equina syndrome[3]; **OR**
- Epidural tumor extension with significant encroachment on the spinal canal[3]; **OR**
- Prophylactic treatment for osteoporosis to prevent future fractures; **OR**
- Myelopathy from the fracture; **OR**
- Neurologic deficit from the fracture; **OR**
- Patient with an apparently stable fracture on imaging who is clinically improving[3]**.**

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
01941	Anesthesia for percutaneous image-guided neuromodulation or intravertebral procedures (e.g., kyphoplasty, vertebroplasty) on the spine or spinal cord; cervical or thoracic
01942	Anesthesia for percutaneous image-guided neuromodulation or intravertebral procedures (e.g., kyphoplasty, vertebroplasty) on the spine or spinal cord; lumbar or sacral
22510	Percutaneous vertebroplasty (bone biopsy included when performed), 1 vertebral body, unilateral or bilateral injection, inclusive of all imaging guidance; cervicothoracic
22511	Percutaneous vertebroplasty (bone biopsy included when performed), 1 vertebral body, unilateral or bilateral injection, inclusive of all imaging guidance; lumbosacral
22512	Percutaneous vertebroplasty (bone biopsy included when performed), 1 vertebral body, unilateral or

	bilateral injection, inclusive of all imaging guidance; each additional cervicothoracic or lumbosacral vertebral body (List separately in addition to code for primary procedure)
22513	Percutaneous vertebral augmentation, including cavity creation (fracture reduction and bone biopsy included when performed) using mechanical device (eg, kyphoplasty), 1 vertebral body, unilateral or bilateral cannulation, inclusive of all imaging guidance; thoracic
22514	Percutaneous vertebral augmentation, including cavity creation (fracture reduction and bone biopsy included when performed) using mechanical device (eg, kyphoplasty), 1 vertebral body, unilateral or bilateral cannulation, inclusive of all imaging guidance; lumbar
22515	Percutaneous vertebral augmentation, including cavity creation (fracture reduction and bone biopsy included when performed) using mechanical device (eg, kyphoplasty), 1 vertebral body, unilateral or bilateral cannulation, inclusive of all imaging guidance; each additional thoracic or lumbar vertebral body (List separately in addition to code for primary procedure)

Medical Evidence

In a meta-analysis comparing conservative management (including pharmacological pain control and physical therapy) with kyphoplasty for osteoporotic vertebral compression fractures (OCVF), Encalada et al. (2025) reported significantly more pain reduction 12 months following treatment in patients treated with kyphoplasty compared to conservatively treated patients. Additionally, there were no reported differences in the risk of subsequent vertebral compression fractures, leading the authors to conclude that kyphoplasty is superior to conservative treatment for painful OCVFs.[17]

Daher et al. (2023) conducted a meta-analysis of studies comparing balloon kyphoplasty to vertebroplasty in the management of osteoporotic VCF (OVCF). A total of 8 studies were included, which assessed clinical outcomes such as complications (cement leakage and adjacent level fractures), VAS pain scores, Oswestry disability index, kyphotic wedge angle, and vertebral body height restoration. In total, 619 patients were included (325 patients treated with kyphoplasty and 294 treated with vertebroplasty). The authors reported that kyphoplasty increased postoperative vertebral body height and decreased the risk of cement leakage to a greater extent than vertebroplasty. There were no other significant differences between groups.[16]

Clark et al. (2016) performed a double-blind, randomized controlled trial (RCT) of vertebroplasty in patients with one or two osteoporotic vertebral fractures of less than 6 weeks in duration and Numeric Rated Scale (NRS) back pain greater than or equal to 7 out of 10. The goal of this RCT was to test whether vertebroplasty provides effective pain relief for patients with poorly controlled pain and osteoporotic spinal fractures. The primary outcome was the proportion of patients with NRS pain below 4 out of 10 at 14 days post-intervention. In total, 120 patients were enrolled. 61 patients were assigned to undergo vertebroplasty and 59 were assigned to the placebo group. Vertebroplasty was performed with the adequate vertebral fill technique and the placebo procedure with simulated vertebroplasty. 24 patients in the vertebroplasty group and 12 in the control group had an NRS pain score below 4 out of 10 at 14 days. In total, there were 2 serious adverse events in each group, related to the procedure (vertebroplasty group) and the fracture (placebo group). The authors concluded that vertebroplasty is

superior to placebo intervention for pain reduction in patients with acute osteoporotic spinal fractures of less than 6 weeks in duration.[12]

The American Academy of Orthopaedic Surgeons (AAOS) published a clinical practice guideline on the treatment of symptomatic osteoporotic spinal compression fractures. Kyphoplasty is recommended for neurologically intact patients with an osteoporotic spinal compression fractures, as evidenced by imaging along with clinical symptoms. The AAOS does not provide a recommendation of support or non-support regarding the improvement of kyphosis angle in patients with osteopathic spinal compression fractures.[18]

The American College of Radiology (ACR), American Society of Neuroradiology (ASNR), American Society of Spine Radiology (ASSR), Society of Interventional Radiology (SIR), and the Society of NeuroInterventional Surgery (SNIS) published a Practice Parameter for the Performance of Vertebral Augmentation. The document includes indications, contraindications, and specifications of the procedure, and also notes that vertebral augmentation procedures improve patient mortality and quality of life while having low major complication rates.[3] ACR has also published an Appropriateness Criteria for the Management of Vertebral Compression Fractures, noting that vertebral augmentation procedures have been shown to be effective in relieving pain due to VCFs compared to medical management. They also note that vertebral augmentation is not useful for patients with compression fractures who do not present with pain or restricted physical activity.[6]

The Society of Interventional Radiology (SIR) issued a position statement on percutaneous vertebral augmentation in collaboration with the American Association of Neurological Surgeons (AANS), Congress of Neurological Surgeons (CNS), American College of Radiology (ACR), American Society of Neuroradiology (ASNR), American Society of Spine Radiology (ASSR), Canadian Interventional Radiology Association (CIRA), and Society of NeuroInterventional Surgery (SNIS). The Societies support percutaneous vertebral augmentation (PVA) with the use of vertebroplasty or kyphoplasty as a safe, effective, and durable procedure in appropriately selected patients with symptomatic osteoporotic and neoplastic fractures.[5]

In their clinical practice guideline on multiple myeloma, the National Comprehensive Cancer Network (NCCN) recommends vertebroplasty or kyphoplasty for symptomatic vertebral compression fractures.[20] The International Society for the Advancement of Spine Surgery (ISASS) published a policy supporting vertebroplasty and kyphoplasty for the early treatment of painful VCFs. The ISASS does not endorse any specific vertebroplasty/ kyphoplasty system.[21]

The National Institute for Health and Care Excellence (NICE) published a technology appraisal guidance on percutaneous vertebroplasty and balloon kyphoplasty for osteoporotic vertebral compression fractures.[12] Percutaneous vertebroplasty and percutaneous balloon kyphoplasty without stenting are recommended to treat osteoporotic vertebral compression fractures in patients with severe ongoing pain after a recent, unhealed vertebral fracture and in patients experiencing pain confirmed to be at the level of the fracture.

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Policy Revision History/Information

Original Date: September 29, 2023		
Review History		
Version 2	08/20/2024	Added 2 non-indications, some language edits to indications.
Version 3	08/21/2025	Annual review. Specified that continuum of care is not required for non-osteoporotic fractures. Removed nonindications for uncorrectable coagulopathy, allergy to cement, and pregnancy. Removed all relative non-indications (17). Literature review - Medical Evidence section updated (Tomasian et al., Madassery et al., Daher et al., Encalada et al.).