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Medical Policies

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Policy Number:	X-5125		
Policy Name:	Minimally Invasive Approaches to Vertebral Fractures and Osteolytic Lesions of the Spine		
Policy Type:	Medical	**Policy Subtype:**	Radiology
Effective Date:	11-03-2025	**Review Date:**	09-01-2026
Last Review Date:	09-04-2025		

Description

Percutaneous vertebroplasty, percutaneous balloon kyphoplasty, radiofrequency kyphoplasty, and mechanical vertebral augmentation are interventional techniques involving the fluoroscopically guided injection of polymethyl methacrylate into a weakened vertebral body or a cavity created in the vertebral body with a balloon or mechanical device. The techniques have been investigated to provide mechanical support and symptomatic relief in patients with osteoporotic vertebral compression fractures or those with osteolytic lesions of the spine (eg, multiple myeloma, metastatic malignancies); as a treatment for sacral insufficiency fractures; and as a technique to limit blood loss related to surgery.

Policy Application

All claims submitted under this policy's section will be processed according to the policy effective date and associated revision effective dates in effect on the date of service

Policy

Coverage is subject to the specific terms of the member's benefit plan

Percutaneous Vertebroplasty and Sacroplasty

Percutaneous vertebroplasty may be considered **medically necessary** for the treatment of symptomatic osteoporotic vertebral fractures that have failed to respond to conservative treatment (eg, analgesics, physical therapy, rest) for at least 6 weeks.

Percutaneous vertebroplasty may be considered **medically necessary** for the treatment of symptomatic osteoporotic vertebral fractures that are less than 6 weeks in duration that have led to hospitalization or persist at a level that prevents ambulation.

Percutaneous vertebroplasty may be considered **medically necessary** for the treatment of severe pain due to osteolytic lesions of the spine related to multiple myeloma or metastatic malignancies.

Percutaneous vertebroplasty is considered **investigational** for all other indications, including use in acute vertebral fractures due to osteoporosis or trauma.

Percutaneous sacroplasty is considered **investigational** for all indications, including use in sacral insufficiency fractures due to osteoporosis and sacral lesions due to multiple myeloma or metastatic malignancies.

Procedure Codes

22510	22511	22512	0200T	0201T

Percutaneous Balloon Kyphoplasty, Radiofrequency Kyphoplasty, and Mechanical Vertebral Augmentation

Balloon kyphoplasty may be considered **medically necessary** for the treatment of symptomatic thoracolumbar osteoporotic vertebral compression fractures that have failed to respond to conservative treatment (eg, analgesics, physical therapy, rest) for at least 6 weeks.

Mechanical vertebral augmentation with a Food and Drug Administration (FDA)-cleared device may be considered **medically necessary** for the treatment of symptomatic thoracolumbar osteoporotic vertebral compression fractures that have failed to respond to conservative treatment (eg, analgesics, physical therapy, rest) for at least 6 weeks.

Balloon kyphoplasty may be considered **medically necessary** for the treatment of severe pain due to osteolytic lesions of the spine related to multiple myeloma or metastatic malignancies.

Mechanical vertebral augmentation with an FDA-cleared device may be considered **medically necessary** for the treatment of severe pain due to osteolytic lesions of the spine related to multiple myeloma or metastatic malignancies.

Balloon kyphoplasty or mechanical vertebral augmentation with an FDA-cleared device is considered **investigational** for all other indications, including use in acute vertebral fractures due to osteoporosis or trauma.

Radiofrequency kyphoplasty is considered **investigational**.

Mechanical vertebral augmentation using any other device is considered **investigational**.

Procedure Codes

22513	22514	22515

Summary of Evidence

For individuals who have symptomatic osteoporotic vertebral fractures between 6 weeks and 1 year old who receive vertebroplasty, the evidence includes 2 randomized sham-controlled trials, nonblinded randomized controlled trials (RCTs) comparing vertebroplasty with conservative management, and several meta-analyses. Relevant outcomes are symptoms, functional outcomes, quality of life, hospitalizations, medication use, and treatment-related morbidity. Despite the completion of multiple RCTs, including 2 with sham controls, the efficacy of vertebroplasty for painful osteoporotic compression fractures remains uncertain. Two meta-analysis studies, which included the 2 sham-controlled trials, have demonstrated mixed results. The 2 studies had methodologic issues, including the choice of sham procedure and the potential of the sham procedure to have a therapeutic effect by reducing pain. Questions have also been raised about the low percentage of patients screened who participated in the trial, the volume of polymethylmethacrylate injected, and the inclusion of patients with chronic pain. One network meta-analysis found that relative to conservative treatment, vertebroplasty provided short-term and long-term improvements to pain relief and disability scores. Other meta-analyses had numerous limitations due to the heterogeneity of included studies or not specifying the timeframe for osteoporotic vertebral compression fractures. Overall, conclusions about the effect of vertebroplasty remain unclear. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with symptomatic osteoporotic vertebral fractures less than 6 weeks old who receive vertebroplasty, the evidence includes a randomized sham-controlled trial and nonblinded RCTs comparing vertebroplasty with conservative management. Relevant outcomes are symptoms, functional outcomes, quality of life, hospitalizations, medication use, and treatment-related morbidity. For acute fractures, conservative therapy consisting of rest, analgesics, and physical therapy is an option, and symptoms will resolve in a large percentage of patients with conservative treatment only. However, a sham-controlled randomized trial in patients who had severe pain of fewer than 6 weeks in duration found a significant benefit of vertebroplasty for the treatment of osteoporotic vertebral fracture at the thoracolumbar junction. Other RCTs without sham controls have reported that vertebroplasty is associated with significant improvements in pain and reductions in the duration of bed rest. Given the high morbidity associated with extended bed rest in older adults, this procedure is considered to have a significant health benefit. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with sacral insufficiency fractures who receive sacroplasty, the evidence includes 3 prospective cohort studies and a case series. Relevant outcomes are symptoms, functional outcomes, quality of life,

hospitalizations, medication use, and treatment-related morbidity. No RCTs have been reported. The prospective cohort studies and retrospective series of 243 patients have reported rapid and sustained decreases in pain following percutaneous sacroplasty. Additional literature has mostly reported immediate improvements following the procedure. However, due to the small size of the evidence base, the harms associated with sacroplasty have not been adequately studied. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have osteoporotic vertebral compression fracture who receive balloon kyphoplasty or mechanical vertebral augmentation, the evidence includes an Agency for Healthcare Research and Quality (AHRQ) comparative effectiveness review, RCTs, and meta-analyses. Relevant outcomes include symptoms, functional outcomes, quality of life, hospitalizations, and treatment-related morbidity. The AHRQ review concluded that vertebroplasty was probably more effective at reducing pain and improving function in patients greater than 65 years of age, but benefits were small. Kyphoplasty was found to be probably more effective than usual care for pain and function in older patients with vertebral compression fracture at up to 1 month, and may be more effective at greater than 1 month to 1 year or more, but has not been compared against sham therapy. A meta-analysis and moderately-sized unblinded RCT have compared kyphoplasty with conservative care and found short-term benefits in pain and other outcomes. One systematic review of RCTs found no significant difference in subsequent fracture between vertebroplasty and conservative treatment, and another systematic review of prospective and retrospective studies reported improved mortality with either vertebroplasty or balloon kyphoplasty compared with conservative treatment. A network meta-analysis found that relative to conservative treatment, kyphoplasty provided short-term and long-term improvements to pain and disability scores. Other RCTs, summarized in a meta-analysis, have reported similar outcomes for kyphoplasty and vertebroplasty. A systematic review that compared mechanical vertebral augmentation (Kiva or SpineJack) with kyphoplasty have reported similar outcomes for both procedures. A major limitation of the available RCTs is the lack of a sham procedure. Due to the possible sham effect observed in the recent trials of vertebroplasty, the validity of the results from non-sham-controlled trials is unclear. Therefore, whether these improvements represent a true treatment effect is uncertain. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have osteolytic vertebral compression fracture who receive balloon kyphoplasty or mechanical vertebral augmentation, the evidence includes RCTs, case series, and systematic reviews of these studies. Relevant outcomes include symptoms, functional outcomes, quality of life, hospitalizations, and treatment-related morbidity. Two RCTs have compared balloon kyphoplasty with conservative management, and another has compared Kiva with balloon kyphoplasty. Results of these trials, along with case series, would suggest a reduction in pain, disability, and analgesic use in patients with cancer-related compression fractures. However, because the results of the comparative studies of vertebroplasty have suggested possible placebo or natural history effects, the evidence that these studies provide is insufficient to warrant conclusions about the effect of kyphoplasty on health outcomes. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have osteoporotic or osteolytic vertebral compression fracture who receive radiofrequency kyphoplasty, the evidence includes a systematic review and an RCT. Relevant outcomes include symptoms, functional outcomes, quality of life, hospitalizations, and treatment-related morbidity. The only RCT (N=80) identified showed similar results between radiofrequency kyphoplasty and balloon kyphoplasty. The systematic review suggested that radiofrequency kyphoplasty is superior to balloon kyphoplasty in pain relief, but the review itself was limited by the inclusion of a small number of studies as well as possible bias. Corroboration of these results in a larger number of patients would be needed to determine with greater certainty whether radiofrequency kyphoplasty provides outcomes similar to balloon kyphoplasty. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Professional Statements and Societal Positions Guidelines

Not Applicable

Diagnosis Codes

Diagnosis codes for 22510, 22511, 22512

C41.2	C79.51	C79.52	C90.00	C90.01	C90.02	D18.09
D47.Z9	M48.50XA	M48.50XD	M48.50XG	M48.50XS	M48.51	M48.51XA
M48.51XD	M48.51XG	M48.51XS	M48.52	M48.52XA	M48.52XD	M48.52XG
M48.52XS	M48.53	M48.53XA	M48.53XD	M48.53XG	M48.53XS	M48.54
M48.54XA	M48.54XD	M48.54XG	M48.54XS	M48.55	M48.55XA	M48.55XD
M48.55XG	M48.55XS	M48.56	M48.56XA	M48.56XD	M48.56XG	M48.56XS
M48.57	M48.57XA	M48.57XD	M48.57XG	M48.57XS	M48.58	M48.58XA
M48.58XD	M48.58XG	M48.58XS	M80.08XA	M80.08XD	M80.08XG	M80.08XK
M80.08XP	M80.08XS	M84.48XA	M84.48XD	M84.48XG	M84.48XK	M84.48XP
M84.48XS	M84.58XA	M84.58XD	M84.58XG	M84.58XK	M84.58XP	M84.58XS
M84.68XA	M84.68XD	M84.68XG	M84.68XK	M84.68XP	M84.68XS	

Diagnosis codes for 22513, 22514, 22515

C41.2	C79.51	C79.52	C90.00	C90.01	C90.02	D18.09
D47.Z9	M48.50XA	M48.50XD	M48.50XG	M48.50XS	M48.51XA	M48.51XD
M48.51XG	M48.51XS	M48.52XA	M48.52XD	M48.52XG	M48.52XS	M48.53XA
M48.53XD	M48.53XG	M48.53XS	M48.54XA	M48.54XD	M48.54XG	M48.54XS
M48.55XA	M48.55XD	M48.55XG	M48.55XS	M48.56XA	M48.56XD	M48.56XG
M48.56XS	M48.57XA	M48.57XD	M48.57XG	M48.57XS	M48.58XA	M48.58XD

M48.58XG	M48.58XS	M54.6	M80.08XA	M80.08XD	M80.08XG	M80.08XK
M80.08XP	M80.08XS	M84.48XA	M84.48XD	M84.48XG	M84.48XK	M84.48XP
M84.48XS	M84.58XA	M84.58XD	M84.58XG	M84.58XK	M84.58XP	M84.58XS
M84.68XA	M84.68XD	M84.68XG	M84.68XK	M84.68XP	M84.68XS	

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ND Committee Review

Internal Medical Policy Committee 09-04-2025 *Effective November 3, 2025*

- *Adopted* policy

Disclaimer

Current medical policy is to be used in determining a Member's contract benefits on the date that services are rendered. Contract language, including definitions and specific inclusions/exclusions, as well as state and federal law, must be considered in determining eligibility for coverage. Members must consult their applicable benefit plans or contact a Member Services representative for specific coverage information. Likewise, medical policy, which addresses the issue(s) in any specific case, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and the Company reserves the right to review and update medical policy periodically.