



Subject: Kyphoplasty and Vertebroplasty*

Effective Date: March 27, 2007

Department(s): Utilization Management

Policy: Kyphoplasty (also called vertebral augmentation) and vertebroplasty are reimbursable for medically necessary indications as delineated in this policy, under Plans administered by QualCare, Inc.

Objective: To assure proper and consistent reimbursement and to provide objective criteria for a medically necessary service.

Procedure:

- A. Kyphoplasty (**CPT 22513** [thoracic], **22514** [lumbar], **22515** [each additional segment]) and vertebroplasty (**S2360, S2361** [cervical], **22510** [thoracic], **22511** [lumbar], **22512** [each additional segment]) are reimbursable under circumstances that include but are not limited to the following:
1. Osteoporotic vertebral collapse (**733.00 – 733.09**) causing debilitating pain, which has not responded to less invasive medical treatment for at least six weeks including but not limited to braces, analgesics and NSAIDs
 2. Traumatic fracture of a vertebral body (**721.7, 805.0 – 805.7, 806.00 – 806.79**)

3. Primary malignant tumor of bone or marrow (**170.2, 200.00 – 208.92**)
4. Metastatic bone tumor (**198.5**)
5. Multiple myeloma (**203.0**)
6. Pathologic vertebral fracture (**733.13**)
7. Painful osseous hemangioma (**228.90**)
8. Other bone pathology causing progressive bone destruction or imminent risk of vertebral collapse, including but not limited to the following:
 - a. Eosinophilic granuloma of bone (**277.89**)

ICD-10 codes: M81.0, M81.6, M81.8, M48.32-M48.36, S12.9XXA, S12.000A, S12.0001A, S12.130A-S12.191A, S12.200A-S12.291A, S12.300A-S12.391A, S12.400A-S12.491A, S12.500A-S12.591A, S12.600A-S12.691A S12.000B-S12.601B, S22.009A-S22.089A, S22.009B-S22.089B, S32.009A-S32.059A, S32.009B-S32.059B, C41.2, D16.6, C79.51, C79.52, C90.00, C90.01, C90.02, M48.51XA-M48.56XA, C96.5, C96.6

Imaging guidance is included in the procedure code for the vertebroplasty or kyphoplasty per 2015 coding guidelines.

C. Kyphoplasty and vertebroplasty are not reimbursable for the following as there is not a significant body of peer-reviewed literature supporting their efficacy for these diagnoses. Under these circumstances they are therefore deemed experimental, investigational, or unproven.

1. Asymptomatic fractures or fractures healing by conservative means with progressive decrease of pain and disability (**805.0 – 805.7, 806.00 – 806.79**)
2. Kyphosis without fracture (**737.0, 737.1**)
3. Treatment of secondary complications of kyphosis, including but not limited to reduced pulmonary function (**518.89**)
4. Other causes of pain, including but not limited to: herniated intervertebral disk (**722.0 – 722.3**)

**ICD-10 Codes: M40.00-M40.05, M40.202-M40.209
S12.9XXA, S12.000A, S12.0001A, S12.130A-S12.191A,
S12.200A-S12.291A, S12.300A-S12.391A, S12.400A-
S12.491A, S12.500A-S12.591A, S12.600A-S12.691A
S12.000B-S12.601B, S22.009A-S22.089A, S22.009B-
S22.089B, S32.009A-S32.059A, S32.009B-S32.059B
J98.4**

- D. Either vertebroplasty or kyphoplasty may be done per vertebra, but not both. If both are reported, one procedure will be denied.
- E. Percutaneous sacroplasty (CPT 0200T, 0201T) is not covered for any indication because it is considered experimental, investigational, or unproven.

References

- Yuan WH, Hsu HC, Lai KL. Vertebroplasty and balloon kyphoplasty versus conservative treatment for osteoporotic vertebral compression fractures: A meta-analysis. *Medicine (Baltimore)*. 2016;95(31):e4491(Aug)
- Pron G, Holubowich C, Kaulback K. Vertebral Augmentation Involving Vertebroplasty or Kyphoplasty for Cancer-Related Vertebral Compression Fractures: A Systematic Review. *Ont Health Technol Assess Ser*. 2016;16(11):1-202(May)
- Walega DR, Rosen HN. Uptodate. Osteoporotic thoracolumbar vertebral compression fractures: Clinical manifestations and treatment. Version 29. Updated November 29, 2016. Accessed at uptodate.com
- Rommens PM, Ossendorf C, Pairen P, Dietz SO, Wagner D, Hofmann A. Clinical pathways for fragility fractures of the pelvic ring: personal experience and review of the literature. *J Orthop Sci*. 2015;20(1):1-11(Jan)
- Gupta AC, Chandra RV, Yoo AJ, Leslie-Mazwi TM. Safety and effectiveness of sacroplasty: a large single-center experience. *AJNR Am J Neuroradiol*. 2014;35(11):2202-6(Nov-Dec)
- Stevenson M, Gomersall T, Lloyd Jones M, Rawdin A, Hernández M, Dias S, Wilson D, Rees A. Percutaneous vertebroplasty and percutaneous balloon kyphoplasty for the treatment of osteoporotic vertebral fractures: a systematic review and cost-effectiveness analysis. *Health Technol Assess*. 2014;18(17):1-290(Mar)

Hazzard MA, Huang KT, Toche UN, Ugiliweneza B, Patil CG, Boakye M, Lad SP. Comparison of Vertebroplasty, Kyphoplasty, and Nonsurgical Management of Vertebral Compression Fractures and Impact on US Healthcare Resource Utilization. *Asian Spine J*. 2014;8(5):605-14(Oct)

Papanastassiou ID, Phillips FM, Van Meirhaeghe J, et al. Comparing effects of kyphoplasty, vertebroplasty, and non-surgical management in a systematic review of randomized and non-randomized controlled studies. *Eur Spine J* 2012;21:1826-43

Ma XL, Xing D, Ma JX, Xu WG, Wang J, Chen Y. Balloon kyphoplasty versus percutaneous vertebroplasty in treating osteoporotic vertebral compression fracture: grading the evidence through a systematic review and meta-analysis. *Eur Spine J* 2012;21:1844-59

Boonen S, Van Meirhaeghe J, Bastian L, et al. Balloon kyphoplasty for the treatment of acute vertebral compression fractures: 2-year results from a randomized trial. *J Bone Miner Res* 2011;26:1627-37.

Berenson J, Pflugmacher R, Jarzem P, Zonder J, et al. Balloon kyphoplasty versus non-surgical fracture management for treatment of painful vertebral body compression fractures in patients with cancer: a multicentre, randomised controlled trial. *Lancet Oncol*. 2011;12(3):225-35(Mar)

Bayley E, Srinivas S, Boszczyk BM. Clinical outcomes of sacroplasty in sacral insufficiency fractures: a review of the literature. Eur Spine J. 2009;18(9):1266–71(Sep)

Wardlaw D, Cummings SR, Van Meirhaeghe J, et al. Efficacy and safety of balloon kyphoplasty compared with non-surgical care for vertebral compression fracture (FREE): a randomised controlled trial. *Lancet* 2009;373:1016-24

Bouza C, López-Cuadrado T, Cedié P, Saz-Parkinson Z, Amate JM. Balloon kyphoplasty in malignant spinal fractures: a systematic review and meta-analysis. *BMC Palliat Care*. 2009 9;8:12(Sep)

Han S, Wan S, Ning L, Tong Y, Zhang J, Fan S. Percutaneous vertebroplasty versus balloon kyphoplasty for treatment of osteoporotic vertebral compression fracture: a meta-analysis of randomised and non-randomised controlled trials. *Int Orthop*. 2011;35(9):1349-58(Sep)

Weinstein JN. Balancing Science and Informed Choice in Decision about Vertebroplasty. *New Eng J Med* 2009;361(6):619-621 (Aug 6)

Kallmes DF, Comstock BA, Heagerty PJ, et al. A Randomized Trial of Vertebroplasty for Osteoporotic Spinal Fractures. *New Eng J Med* 2009;361(6):569-579 (Aug 6)

Buchbinder R, Osborne RH, Ebeling PR, et al. A Randomized Trial of Vertebroplasty for Painful Osteoporotic Vertebral Fractures. *New Eng J Med* 2009;361(6):557-568 (Aug 6)

Lee B, Franklin I, Lewis JS, *et al.* The efficacy of percutaneous vertebroplasty for vertebral metastases associated with solid malignancies. *Eur J Cancer* 2009;45(9):1597-1602 (Jun)

Schmelzer-Schmied N, Cartens C, Meeder PJ, *et al.* Comparison of kyphoplasty with use of a calcium phosphate cement and non-operative therapy I patients with traumatic non-osteoporotic vertebral fractures. *Eur Spine J* 2009;18(5):624-629 (May)

Hiwatashi A, Westesson PL, Yoshiura T, *et al.* Kyphoplasty and Vertebroplasty Produce the Same Degree of Height Restoration. *Am J Neuroradiol* 2009;30(4):669-73 (Apr)

Heo DH, Chin DK, Yoon YS, *et al.* Recollapse of previous vertebral compression fracture after percutaneous vertebroplasty. *Osteoporos Int* 2009;20(3):473-480 (Mar)

Pflugmacher R, Agarwal A, Kandziora F, *et al.* Balloon kyphoplasty combined with posterior instrumentation for the treatment of burst fractures of the spine – 1-year results. *J Orthop Trauma* 2009;23(2):126-131 (Feb)

Pitton MB, Koch U, Drees P, *et al.* Midterm Follow-Up of Vertebral Geometry and Remodeling of the Vertebral Bidisk Unit (VDU) After Percutaneous Vertebroplasty of Osteoporotic Vertebral Fractures. *Cardiovasc Intervent Radiol* 2009 Feb 17 (Epub ahead of print)

Shin JJ, Chin DK, Yoon YS. Percutaneous vertebroplasty for the treatment of osteoporotic burst fractures. *Ancta Neurochir (Wien)* 2009;151(2):141-148 (Feb)

Blattert TR, Jestaedt L, Weckbach A. Suitability of a calcium phosphate cement in osteoporotic vertebral fracture augmentation: A controlled, randomized, clinical trial of balloon kyphoplasty comparing calcium phosphate versus polymethylmethacrylate. *Spine* 2009;34(2):108-114 (Jan 15)

Marco RA, Kushwaha VP. Thoracolumbar burst fractures treated with posterior decompression and pedicle screw instrumentation supplemented with balloon-assisted vertebroplasty and calcium phosphate reconstruction. *J Bone Joint Surg* 2009;91(1):20-28 (Jan)

Lo YP, Chen WJ, Chen LH, *et al.* New vertebral fracture after vertebroplasty. *J Trauma* 2008;65(6):1439-1445 (Dec)

Trumm CG, Jakobs TF, Zech CJ, *et al.* CT fluoroscopy-guided percutaneous vertebroplasty for the treatment of osteolytic breast cancer metastases: Results in 62 sessions with 86 vertebrae treated. *J Vasc Interv Radiol* 2008;19(11):1596-1606 (Nov)

Rad AD, Kallmes DF. Pain relief following vertebroplasty in patients with and without localizing tenderness on palpation. *Am J Neuroradiol* 2008;29(9):1622-1626 (Oct)

Tseng YY, Yang ST, Tu PH, *et al.* Minimally invasive vertebroplasty in the treatment of pain induced by spinal metastatic tumor. *Minim Invasive Neurosurg* 2008;51(5):280-284 (Oct)

Gray DT, Hollingworth W, Onwudiwe N, *et al.* Costs and state-specific rates of thoracic and lumbar vertebroplasty 2001-2005. *Spine* 2008;33(17):1905-1912 (Aug 1)

Pflugmacher R, Taylor R, Agarwal A, *et al.* Balloon kyphoplasty in the treatment of metastatic disease of the spine: A 2-year prospective evaluation. *Eur J Spine* 2008;17(8):1042-1048 (Aug)

Sugimoto T, Tanigawa N, Ideda K, *et al.* Diffusion-weighted imaging for predicting new compression fractures following percutaneous vertebroplasty. *Acta Radiol* 2008;49(4):419-426 (May)

Grafe IA, Baier M, Nöldge G, *et al.* Calcium-phosphate and polymethylmethacrylate cement in long-term outcome after kyphoplasty of painful Osteoporotic vertebral fractures. *Spine* 2008;15(33):1284-1290 (May)

Eck JC, Nachtigall D, Humphreys SC, *et al.* Comparison of vertebroplasty and balloon kyphoplasty for treatment of vertebral compression fractures: A meta-analysis of the literature. *Spine J* 2008;8(30):488-497 (May-Jun)

Lee CW, Wang YH, Liu HM, *et al.* Vertebroplasty using real-time, fluoroscopy-controlled, catheter-assisted, low-viscosity cement injection. *Spine* 2008;33(8):919-924 (Apr 15)

Hayes, Inc. Hayes Medical Technology Directory. *Percutaneous Vertebroplasty*. Lansdale, PA: Hayes, Inc.; March 3, 2008

Hayes, Inc. Hayes Medical Technology Directory. *Percutaneous Kyphoplasty*. Lansdale, PA: Hayes, Inc.; February 23, 2008

National Health Service (United Kingdom) National Institute for Health and Clinical Excellence (NICE). Balloon kyphoplasty for vertebral compression fractures. *Interventional Procedure Guidance 166*. April 2006.

National Health Service (United Kingdom) National Institute for Health and Clinical Excellence (NICE). Percutaneous vertebroplasty. *Interventional Procedure Guidance 12*. September 2003.

Hardouin P, Fayada P, Leclet H, *et al.* Kyphoplasty. *Joint Bone Spine* 2002;69(3):256-261 (May)

Dudeney S, Lieberman IH, Reinhardt MK, *et al.* Kyphoplasty in the treatment of osteolytic vertebral compression fractures as a result of multiple myeloma. *J Clin Oncol* 2002;20(9):2382-2387 (May)

Watts NB, Harris ST, Genant HK. Treatment of painful osteoporotic vertebral fractures with percutaneous vertebroplasty or kyphoplasty. *Osteoporos Int* 2001;12(6):429-437 (Jun)

Barr JD, Barr MS, Lemley TJ, *et al.* Percutaneous vertebroplasty for pain relief and spinal stabilization. *Spine* 2000;25(8):923-928 (Apr 15)

Levine SA, Perin LA, Hayes D, *et al.* An evidence-based evaluation of percutaneous vertebroplasty. *Manag Care* 2000;9(3):56-60 (Mar)

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*Consistent with Summary Plan Description (SPD). When there is discordance between this policy and the SPD, the provisions of the SPD prevail.