Reviewing Decompression, Arthrodesis, and Osteotomy Procedures

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In spine surgery, decompression involves removing any elements (most commonly bone, soft tissue, and/or fibrocartilaginous discs) causing pressure on neural elements and providing appropriate space for the relevant neural anatomy's best function. Surgical arthrodesis is the stabilization of a joint(s) with bone fusion, involving the decortication of affected bony elements, and in addition may be supplemented by bone grafts and instrumentation, stabilizing and promoting bony growth between two anatomically separate bony structures. Osteotomy involves cutting and/or removing bone to correct a deformity. How to properly code an osteotomy of the spine can be a potential source of confusion, as the removal of bone is inherent to both decompressive and osteotomy procedures. This article addresses the complexity of reporting spinal deformity correction procedures and provides revision of a previously published Frequently Asked Question discussing spinal surgery.

Spinal Deformity Correction Procedures

When reporting spinal deformity correction procedures, it is important to recognize that an osteotomy involves cutting and/or removing bone to alter the spine or to correct a curvature with the indication of restoring or improving spinal alignment. It may also serve a secondary purpose of decompressing neurovascular elements in order to prevent secondary compression of the neural elements during closure or reduction of the osteotomy. Providing clear documentation to indicate the incidental nature of the decompression, when appropriate, will assist in accurate reporting of Current Procedural Terminology (CPT?®) codes. In such cases, only the major spinal deformity correction procedure would be reported, and the decompression (incidental to the deformity correction from closure of the osteotomy) may not be reported separately.

CPT codes for reporting major spinal deformity correction reflect the work of managing scoliosis, abnormal kyphosis, subluxations, and spondylolistheses. Congenital and genetic deformities (eg, spina bifida, Scheuermann's kyphosis) tend to be managed in younger, often adolescent, patients and can continue into advanced age; however, major spinal deformities can affect patients at any age. Indications for surgery include spinal stenosis and neurologic compromise vs progressive spinal curvature deformity. An osteotomy may be considered to correct sagittal imbalance, junctional deformity, or other such regions that represent critical elements of the significant deformity and are medically necessary when there is a fixed spinal deformity that does not correct or change with flexion or extension and/or bending radiographs.

Spinal osteotomy procedures to reshape spinal curvature include the following codes:

22100 Partial excision of posterior vertebral component (eg, spinous process, lamina or facet) for intrinsic bony lesion, single vertebral segment; cervical

22101 thoracic

22102 lumbar

(For insertion of posterior spinous process distraction devices, see 22867, 22868, 22869, 22870)

+22103 each additional segment (List separately in addition to code for primary procedure)

(Use 22103 in conjunction with 22100, 22101, 22102)

Note that code selection is based on the anatomic area of the spine being operated on and the number of levels involved (eg, L1, L2). See Table 1 for a summary of spinal procedures, anatomic locations, and associated codes for spinal osteotomy.

Table 1. CPT Codes for Spinal Osteotomy Procedures by Location

Spine Location	Cervical CPT Code	Thoracic CPT Code	Lumbar CPT Code	CPT Add-On Codes	Spinal Osteotomy Procedures

Anterior	22220	22222	22224	+22226	N/A
Posterior	22210	22212	22214	+22216	Posterior column osteotomy (PCO); Smith-Petersen osteotomy (SPO); Chevron osteotomy; Ponte osteotomy; Suk osteotomy
Anterior and Posterior (Three Column)	N/A	22206	22207	+22208	Pedicle subtraction osteotomy (PSO); Heinig osteotomy; Thomasen osteotomy

Spinal osteotomy procedures to reshape the spine's curve include several different approaches and techniques: (1) posterior column osteotomy (PCO) (or single-column osteotomy). There are three different types of PCO, which are Ponte osteotomy, Smith-Petersen osteotomy, and Suk osteotomy (22210-22216) (see Figures 1 and 2); (2) three-column osteotomy (3CO) (or pedicle subtraction osteotomy [PSO]).

There are three types of 3CO, which are Heinig osteotomy, Thomasen osteotomy, and Modified-Thomasen osteotomy (22206-22208) (see Figures 3 and 4); (3) anterior column osteotomy (ACO) (22220-22226); and (4) kyphectomy (22819) or total vertebrectomy, which involves the removal of all bony elements at a vertebral level, including the affected discs to allow for osteotomy gap closure.

Codes 22210-22216 for reporting PCO procedures include laminectomy and decompression work, with the removal of spinous process and laminae, posterior ligaments, pars interarticularis, and adjacent (superior or inferior) facets bilaterally to create a bony gap. Because laminectomy is necessary and inherent to performing an osteotomy, additional decompression codes are not reportable at the same interspace. Compression through this junction, with closure of this gap, is performed to create or increase lordosis or sagittal deformity and/or correct scoliosis or coronal deformity. Posterior arthrodesis codes (22590-22614), add-on instrumentation codes (22840-22848, 22853, 22854, 22859), and bone grafting codes (20900-20938) may additionally be reported when performed.

Codes 22206-22208 for reporting PSO procedures involve a posterior or posterolateral approach toward the ventral aspect of the vertebral column. This

includes resection of spinous processes and laminae, posterior ligaments, pars interarticularis, adjacent facets and pedicles bilaterally, and a wedge into the vertebral body (typically involving the posterior third of the vertebral body) to create a gap, allowing for osteotomy closure in order to create or increase lordosis. Because laminectomy is necessary and inherent to performing an osteotomy, additional decompression codes are not reportable at the same interspace. Posterior arthrodesis codes (22590-22614), add-on instrumentation codes (22840-22848, 22853, 22854, 22859), and bone grafting codes (20900-20938), may be additionally reported, when performed.

Figures 1-4 illustrate PCO and PSO procedures and further clarify the variations between each spinal osteotomy procedure. Osteotomy codes at the same interspace as interbody fusion codes may be separately reportable in some clinical scenarios. If there is a fixed deformity, ie, postsurgical flatback or lumbar kyphosis, it may be appropriate to report osteotomy codes with appropriate modifier(s).

Codes 22220-22226 for reporting ACO procedures include an anterior or anterolateral approach (eg, laparotomy, thoracotomy) to the ventral spine, as well as disc removal, when performed, and the extent of corpectomy (removal of vertebral body) needed to create or improve the spine's curve. Typically, the technique involves removal of a wedge of bone in the middle of the vertebral body to assist in release of the deformity and extension of the spine to facilitate correction of the curve.

Reporting the spinal instrumentation codes is the same, regardless of whether the deformity is congenital or degenerative or whether the deformity is fixed or flexible. Code selection depends on whether the instrumentation is posterior, anterior (or both), segmental vs nonsegmental, and the number of elements spanned. Bone graft coding is the same when reporting all spinal surgery and code selection depends on the following: autograft or allograft, morselized or structural, and whether a separate incision was made to harvest the graft.

FAQ: Revised Answer

A frequently asked question (FAQ) for the musculoskeletal system in the July 2018 issue of the CPT?® Assistant has to be revised because the overall intent of the surgery in the question was not clear. Neither the answer nor the question specified whether the primary goal of the surgery was to correct major deformity or to decompress neural element(s), although it is recognized that the goals of surgery may overlap.

The original question and answer:

> **Question:** A middle-aged patient presents with spinal stenosis, post-laminectomy syndrome, radiculopathy, and degenerative joint disease, which is

causing a spinal deformity, such as secondary scoliosis. The surgeon performs posterior fusions of T10-S1 with additional interbody fusions at L3/4, L4/5, and L5/S1. What are the appropriate Current Procedural Terminology (CPT?®) code(s) to report for this operation?

Answer: If the indication for surgery is deformity, report code 22633, Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; lumbar; two units of code 22634, Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; each additional interspace and segment (List separately in addition to code for primary procedure); code 22802, Arthrodesis, posterior, for spinal deformity, with or without cast; 7 to 12 vertebral segments; code 22843, Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 7 to 12 vertebral segments (List separately in addition to code for primary procedure); and three units of code 22853, Insertion of interbody biomechanical device(s) (eg, synthetic cage, mesh) with integral anterior instrumentation for device anchoring (eg, screws, flanges), when performed, to intervertebral disc space in conjunction with interbody arthrodesis, each interspace (List separately in addition to code for primary procedure). In addition, bone graft code(s) (eg, 20900-20938), may also be reported as appropriate codes. Supporting documentation (eg, procedure report) should be submitted with the claim to provide an adequate description of the degree of deformity.

The issues raised in the question involve nuanced concepts in coding degenerative spondylotic surgeries, as well as major spinal deformity surgeries. Therefore, the revised answer to the question includes some qualifications and conditions.

The revised answer:

When a major spinal deformity is surgically corrected, it would be appropriate to report code(s) 22210-22226 for spinal osteotomy procedures based on the surgical work described to correct the spinal deformity. The osteotomy codes include laminectomy and decompression work; therefore, a separate decompression code, such as code 63047, would not be reported at the same level(s) of the osteotomy(ies). Arthrodesis codes specific to the involved osteotomy family of codes, as well as instrumentation codes, may be additionally reported, when performed. Decompression at additional levels without osteotomy may be separately reported, when performed.

The surgical correction of degenerative stenosis and spondylotic changes with degenerative facet disease and spondylolisthesis would be appropriately reported using codes 63047 and 63048 (decompression) with codes 22612 and 22614 (posterior arthrodesis), codes 22840-22844 (posterior

instrumentation), and codes 22845-22847 (anterior instrumentation). Note that decompressive laminectomies or mesial facetectomies and foraminotomies are performed with instrumented fusion. Lumbar interbody fusion (22630-22634) and related posterior instrumentation (22840-22844), and insertion of interbody biomechanical device(s) (22853), and/or bone grafting (20930-20938), may be separately reported, if performed, while adhering to documentation requirements and coding options for each level.

Certain scoliosis corrections do not require specific bony decompression or osteotomy work; rather, arthrodesis is used to improve the major deformity. In this case, codes 22800-22804 (arthrodesis, posterior, vertebral segments, with or without cast) would be the appropriate codes to report together with spinal instrumentation codes 22840-22844 (posterior instrumentation); codes 22845-22847 (anterior instrumentation); and codes 20900-20938 (grafting), when performed. Typically, this would be performed in the setting of a flexible (not fixed) deformity, which is more common in the adolescent deformity considerations. Note the language used to describe spinal flexible deformity is not the same as spinal instability. Flexible deformity refers to a curve that can be reduced with positioning, and often applies to compensatory curves or minor curves.

When deformity correction occurs, it may be beneficial to provide the degree of correction achieved in the operative report or medical report.

