Name of Policy:  
Lumbar Spinal Fusion Surgery

Policy #: 517  
Category: Surgery

Background/Definitions:
As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. The technology must have final approval from the appropriate government regulatory bodies;
2. The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;
3. The technology must improve the net health outcome;
4. The technology must be as beneficial as any established alternatives;
5. The improvement must be attainable outside the investigational setting.

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. In accordance with generally accepted standards of medical practice; and
2. Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient’s illness, injury or disease; and
3. Not primarily for the convenience of the patient, physician or other health care provider; and
4. Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient’s illness, injury or disease.
**Description of Procedure:**
Low back pain is a common affliction affecting 80% of the general population at some time in the course of life. Low back pain can be caused by a variety of conditions including muscle strain, skeletal trauma, skeletal deformities, degenerative disc disease, tumors, and infection. Many patients can be managed with non-surgical conservative treatments. These treatments include, but are not limited to, physical therapy, exercise, and the use of analgesics for six or more weeks. A small subset of patients will not respond to medical or conservative management and may need to resort to surgical intervention(s).

Lumbar spinal fusion (arthrodesis) is a surgical technique that involves fusion of two or more lumbar vertebrae using local bone, autologous bone taken from the iliac crest of the patient, allogeneic donor bone, or bone graft substitutes. There are numerous potential indications for lumbar spinal fusion. These procedures may be used to treat spine instability, cord compression due to severe degenerative disc disease, fractures in the lumbar spine or destruction of the vertebrae by infection or tumor. Some of these indications are controversial, for example when lumbar spinal fusion is performed in combination with discectomy for either herniated discs or degenerative disc disease, or in combination with decompression of the spinal canal for spinal stenosis when there is no suggestion of instability.

Fusion of the lumbar spine can be approached from anterior, lateral, or posterior direction. Anterior or posterior lumbar interbody fusion (ALIF/PLIF) are traditionally performed with an open approach (long incision with wide retraction of the musculature), but can also be performed through minimally invasive/minimal access procedures. Minimally invasive approaches that use specialized retractors include lateral transpsoas interbody fusion/lateral interbody fusion (e.g., lateral transpsoas interbody fusion [LTIF], extreme lateral interbody fusion [XLIF], direct lateral lumbar interbody fusion [DLIF]), and transforaminal interbody fusion (TLIF). Posterolateral fusion (PLF) fuses the transverse processes alone and should be differentiated from the interbody procedures (e.g., PLIF) just described. Interbody cages, instrumentation such as plates, pedicle screws, or rods, and osteoinductive agents such as recombinant human bone morphogenetic protein (rhBMP) may be used to stabilize the spine during the months that fusion is taking place and to improve fusion success rates.

The objective of interbody fusion is to permanently immobilize the functional spinal unit (two adjacent vertebrae and the disc between them) that is believed to be causing pain and/or neurologic impingement. An alternative or supplemental approach is fusion of the transverse processes. Lumbar fusion is most commonly accepted when it is used to stabilize an unstable spine or to correct deformity. For example, lumbar spondylolisthesis is an acquired anterior displacement (slip) of one vertebra over the subjacent vertebra that is associated with degenerative changes. Patients who do not have neurologic deficits will typically do well with conservative care. However, patients who present with sensory changes, muscle weakness or cauda equina syndrome are more likely to develop progressive functional decline without surgery. Scoliosis, an abnormal lateral and rotational curvature of the vertebral column, can result in severe deformity that is associated with back pain in adulthood and may lead to compromised respiratory function if it is not corrected. Scoliosis with severe deformity is also an accepted indication for spinal fusion.
Lumbar spinal fusion is more controversial when the conditions previously described are not present. For example, fusion is frequently performed in combination with discectomy or laminectomy when these procedures do not result in instability of the spine. Fusion has also been performed for degenerative disc disease (DDD). DDD is a universal age-related condition consisting of morphologic changes in the lumbar motion segment. As many degenerative changes seen on imaging are asymptomatic, and invasive provocative discography has variable accuracy in the ability to localize the pain generator, identifying the source of low back pain can be difficult. A large number of fusion operations are also performed for nonspecific low back pain that is not responsive to nonsurgical measures (e.g., nonsteroidal antiinflammatory drugs, analgesics, physical therapy), when definite indications for fusion are not present. Across the United States, there is wide variation in the rates of lumbar spinal fusion, and many experts consider lumbar fusion to be overused, indicating a need for better standardization and uniformity in the application of this procedure.

**Smoking and Neurosurgery**

The NIH also recommends all smokers should quit smoking due to the high risk smoking adds to all patients. Smoking is a risk factor for post-operative pulmonary complications as has been demonstrated repeatedly since the first report in 1944. Smoking increases risks even among those without chronic lung disease. The relative risk of pulmonary complications among smokers as compared with non-smokers ranges from 1.4 to 4.3. The risk declines only after 8 weeks of pre-operative cessation. Warner et al prospectively studied 200 smokers preparing for coronary bypass surgery and found a lower risk of pulmonary complications among those who have stopped smoking at least eight weeks before surgery than among current smokers.

Expanding evidence demonstrates that active tobacco smoking is a major risk factor for perioperative morbidity and complications after neurosurgical intervention. In regards to spinal surgery, smoking is associated with delayed spinal fusion poor spinal fusion rates and higher rates of pseudarthrosis following spinal instrumentation. There is also an increased risk for higher subsidence rates in the placement of carbon fiber cages following anterior cervical discectomy and fusion. The mechanism behind poor fusion and greater rates of subsidence in smokers is related to poor bone quality secondary to tobacco smoking. Reduced levels of osteogenesis and hypocellular fusion mass can result from delayed vascularization and smaller areas of revascularization associated with nicotine exposure. Evidence also suggests that smokers have higher rates of recurrent lumbar disc herniation after surgery due to nicotine-induced vasoconstriction and decreased blood flow to the area of prior surgery. This results in the inhibition of the annular healing process and degeneration. Smoking cessation should be encouraged preoperatively to mitigate the associated risk for complications and to reap the long-term benefits of neurosurgical treatment.
Policy:
Effective for dates of service on or after October 10, 2016:
These criteria only apply to patients aged 18 years and older.
Medical clearance is required for patients with moderate to severe co-morbid conditions (e.g., cardiac disease, pulmonary disease, or diabetes) for assessment of pre-surgical risk and/or patient’s ability for compliance with postoperative rehabilitation activities.

I. Lumbar spinal fusion surgery meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for ANY of the following indications regardless of smoking status:
(a) Emergency Situations
   1. Acute spinal fractures of less than three months duration with instability resulting in neural compression or spinal dislocation; or
   2. Trauma (e.g., motor vehicle collisions, vertical fall).
(b) Tumors
   1. Primary spinal tumor(s); or
   2. Metastasis to the spine; or
   3. Abscess or other growth creating a mass affect that damages or displaces the spine/spinal cord/nerves.
(c) Infections affecting the spine (e.g., spinal tuberculosis, vertebral osteomyelitis, discitis).

II. Lumbar spinal fusion surgery meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when a statement is provided from the physician that the individual is a non-smoker OR the individual will refrain from smoking for eight weeks prior to the planned surgery for ANY of the following indications:
(a) Degenerative disc disease (DDD) of the lumbar spine in the absence of instability when ALL of the following apply:
   1. Maximum of two level fusion; and
   2. The patient presents with discogenic pain for greater than 6 consecutive months; and
   3. MRI (or other imaging) demonstrates morphological disc degeneration; and
   4. Patient has previously not shown improvement from a minimum of six consecutive months of conservative therapy**; and
   5. The patient has been screened for possible mental illness and/or substance abuse issues, and if present, has undergone professional treatment for these issues.

NOTE: A pre-operative mental health screening is not required by Blue Cross and Blue Shield of Alabama, but may be covered when requested by the surgeon for those patients with a history of substance abuse or severe psychiatric illness (i.e., schizophrenia, borderline personality disorder, suicidal ideation, severe depression), and those patients currently under the care of a psychiatrist/psychologist or on psychotropic medications.
Any of the above conditions may impair the ability to give consent or be compliant post-operatively.

(b) **Recurrent Lumbar disc herniation** when **ALL** of the following apply:
1. A single level fusion is requested; **and**
2. The patient has previously been operated on for disc herniation on two separate occasions and experienced relief of pain symptoms for a minimum of **three** consecutive months; **and**
3. The third disc herniation is seen on imaging at the same level of previous disc herniation surgeries; **and**
4. Patient presents with recurrent neurogenic symptoms (e.g., radicular pain) with impairment or loss of function consistent with the level of recurrence; **and**
5. Patient is at least **six** months status post previous back surgery and symptoms have been unresponsive to at least **three** consecutive months of conservative therapy**.

(c) **Lumbar spondylolisthesis with or without spinal stenosis** when **ALL** of the following apply:
1. The spondylolisthesis has been radiographically documented in an anatomic area consistent with the location of these symptoms; **AND**
2. Any **one** of the following
   a. Neurogenic claudication or radicular pain that results in significant functional impairment in a patient who has failed at least **three** consecutive months of conservative therapy**,

   **OR**

   b. Severe or rapidly progressive symptoms of motor loss, neurogenic claudication, or cauda equina syndrome.

(d) **Lumbar spondylolysis** when **ALL** of the following apply:
1. The patient presents with pain in back and/or leg(s); **and**
2. The spondylolysis has been radiographically documented in an anatomic area consistent with the location of the pain; **and**
3. The patient has failed to improve from a minimum of **six** consecutive months of conservative therapy**.

(e) **Severe, progressive idiopathic scoliosis** (i.e., lumbar or thoracolumbar) with radiographically documented Cobb angle of > 35 degrees (this criteria only applies to patients age 18 and older).

(f) **Severe degenerative scoliosis** with **EITHER** of the following:
1. Documented progression of deformity with persistent axial pain (non-radiating) and impairment or loss of function unresponsive to at least **three** consecutive months of conservative therapy**,
2. Persistent and significant neurological impairment* or loss of function, unresponsive to at least three consecutive months of conservative therapy**.

(g) Flat-back syndrome (iatrogenic loss of lumbar lordosis, accompanied by back pain, forward inclination of the trunk, and inability to stand erect) due to a previous spinal surgery, degenerative condition, post-traumatic, post-infectious, or congenital etiologies when the patient presents with clinical symptoms or with sagittal imbalance.

(h) Pseudoarthrosis of prior fusion at the same level when ALL of the following apply:
1. The patient is greater than six months out from previous spinal fusion; and
2. Radiographic imaging indicates that fusion has not been achieved at attempted fusion level under consideration; and
3. The patient has pain with or without significant neurological impairment* from the spinal level of the prior fusion; and
4. Persistent pain despite at least three consecutive months of conservative therapy**.

(i) Adjacent Segment Degeneration when ALL of the following apply:
1. The patient is greater than six months out from previous fusion with recurrent neurogenic symptoms; and
2. Loss of function or impairment; and
3. Patient experienced significant interval relief of prior symptoms for a minimum of six months; and
4. Imaging demonstrates disc degeneration, instability, and/or stenosis at a level immediately adjacent to the fusion; and
5. The patient presents with pain or neurological symptoms, which have been unresponsive to a minimum of three consecutive months of conservative therapy**.

(j) Lumbar Fusion Revisions when ALL of the following apply:
1. Must be at the same level of a previous surgery; and
2. Must show evidence of complications, either causing significant neurological impairment* or risking harm to the patient (e.g., device failure from a previous lumbar surgery or iatrogenic instability). This indication does not include cases where there is a mere lack of clinical improvement from an initial surgery.

(k) Surgical procedures that create an unstable spine***:

Pre-operatively, for anticipated creation of spine instability when performing a decompression surgery for spinal stenosis.
OR

Intra-operatively, when spinal instability occurs because adequate decompression required creation of a pars defect or removal of either 75% of one facet joint or >50% of both facet joints.

***Selection of either of these criteria requires submission of medical records.

III. Lumbar spinal fusion surgery does not meet Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when ANY of the following contraindications apply (this section does not apply to patients with trauma, tumor(s), or infection):

a) Patient smokes or does not refrain from smoking for eight weeks prior to spinal fusion surgery.

b) Chronic low back pain, without a clear cause demonstrated on imaging studies.

c) Treatment of spinal stenosis without instability or spondylolisthesis.

d) BMI greater than or equal to 50.

e) Present alcohol or drug abuse/dependency or history within the past six months.

f) History of noncompliance with conservative therapy**.

g) Severe (T score ≤ - 2.5 SD with 1or more fragility fractures) osteoporosis.

h) Systemic infection.

i) Psychiatric issues (e.g., drug seeking behavior, malingering, body image disorder, concerns regarding cosmetic results, Munchausen syndrome) diagnosed by a qualified provider.

*Significant neurological impairment or loss of function must include documentation of the inability or decreased ability to perform normal activities of daily living.

**Conservative therapy is the use of structured physician-directed modalities which may include: prescription strength analgesics/anti-inflammatory medications if not contraindicated; participation in physical therapy modality(ies) when rendered by an eligible provider (including active exercise); evaluation and appropriate management of associated cognitive, behavioral and addiction issues when present.

***Medical record documentation maintained by the physician must substantiate the medical need for lumbar spinal fusion surgery and must include the following:

- Office notes/hospital record, including history and physical by the attending/treating physician; and

- Documentation of the history and duration of unsuccessful conservative therapy (non-surgical medical management) when applicable. Interpretation and reports for X-rays, MRI’s, CT’s, etc.; and

- Medical clearance reports (as applicable); and
Documentation of smoking history, and that the patient has received counseling on the effects of smoking on surgical outcomes and treatment for smoking cessation if accepted (if applicable).

Effective for dates of service May 26, 2016 through October 9, 2016:
These criteria only apply to patients aged 18 years and older.
Medical clearance is required for patients with moderate to severe co-morbid conditions (e.g., cardiac disease, pulmonary disease, or diabetes) for assessment of pre-surgical risk and/or patient’s ability for compliance with postoperative rehabilitation activities.

I. Lumbar spinal fusion surgery meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for ANY of the following indications regardless of smoking status:
   (a) Emergency Situations
       1. Acute spinal fractures of less than three months duration with instability resulting in neural compression or spinal dislocation; or
       2. Trauma (e.g., motor vehicle collisions, vertical fall).
   
   (b) Tumors
       1. Primary spinal tumor(s); or
       2. Metastasis to the spine; or
       3. Abscess or other growth creating a mass affect that damages or displaces the spine/spinal cord /nerves.

   (c) Infections affecting the spine (e.g., spinal tuberculosis, vertebral osteomyelitis, discitis).

II. Lumbar spinal fusion surgery meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when a statement is provided from the physician that the individual is a non-smoker OR the individual will refrain from smoking for eight weeks prior to the planned surgery for ANY of the following indications:
   (a) Degenerative disc disease (DDD) of the lumbar spine in the absence of instability when ALL of the following apply:
       1. Maximum of two level fusion; and
       2. The patient presents with discogenic pain for greater than 6 consecutive months; and
       3. MRI (or other imaging) demonstrates morphological disc degeneration; and
       4. Patient has previously not shown improvement from a minimum of six consecutive months of conservative therapy**; and
       5. The patient has been screened for possible mental illness and/or substance abuse issues, and if present, has undergone professional treatment for these issues
(b) **Recurrent Lumbar disc herniation** when **ALL** of the following apply:

6. A single level fusion is requested; and
7. The patient has previously been operated on for disc herniation on two separate occasions and experienced relief of pain symptoms for a minimum of **three** consecutive months; and
8. The third disc herniation is seen on imaging at the same level of previous disc herniation surgeries; and
9. Patient presents with recurrent neurogenic symptoms (e.g., radicular pain) with impairment or loss of function consistent with the level of recurrence; and
10. Patient is at least **six** months status post previous back surgery and symptoms have been unresponsive to at least **three** consecutive months of conservative therapy**.

(c) **Lumbar spondylolisthesis with or without spinal stenosis** when **ALL** of the following apply:

3. The spondylolisthesis has been radiographically documented in an anatomic area consistent with the location of these symptoms; AND
4. Any **one** of the following
   a. Neurogenic claudication or radicular pain that results in significant functional impairment in a patient who has failed at least **three** consecutive months of conservative therapy**,
   OR
   b. Severe or rapidly progressive symptoms of motor loss, neurogenic claudication, or cauda equina syndrome.

(d) **Lumbar spondylolysis** when **ALL** of the following apply:

1. The patient presents with pain in back and/or leg(s); and
2. The spondylolysis has been radiographically documented in an anatomic area consistent with the location of the pain; and
3. The patient has failed to improve from a minimum of **six** consecutive months of conservative therapy**.

(e) **Severe, progressive idiopathic scoliosis** (i.e., lumbar or thoracolumbar) with radiographically documented Cobb angle of > 35 degrees (this criteria only applies to patients age 18 and older).

(f) **Severe degenerative scoliosis** with EITHER of the following:

1. Documented progression of deformity with persistent axial pain (non-radiating) and impairment or loss of function unresponsive to at least **three** consecutive months of conservative therapy**; OR
2. Persistent and significant neurological impairment* or loss of function, unresponsive to at least **three** consecutive months of conservative therapy**.
(g) **Flat-back syndrome** (iatrogenic loss of lumbar lordosis, accompanied by back pain, forward inclination of the trunk, and inability to stand erect) due to a previous spinal surgery, degenerative condition, post-traumatic, post-infectious, or congenital etiologies when the patient presents with clinical symptoms or with sagittal imbalance.

(h) **Pseudoarthrosis** of prior fusion at the same level when ALL of the following apply:
1. The patient is greater than **six months** out from previous spinal fusion; and
2. Radiographic imaging indicates that fusion has not been achieved at attempted fusion level under consideration; and
3. The patient has pain with or without significant neurological impairment* from the spinal level of the prior fusion; and
4. Persistent pain despite at least three consecutive months of conservative therapy**.

(i) **Adjacent Segment Degeneration** when ALL of the following apply:
1. The patient is greater than **six months** out from previous fusion with recurrent neurogenic symptoms; and
2. Loss of function or impairment; and
3. Patient experienced significant interval relief of prior symptoms for a minimum of **six months**; and
4. Imaging demonstrates disc degeneration, instability, and/or stenosis at a level immediately adjacent to the fusion; and
5. The patient presents with pain or neurological symptoms, which have been unresponsive to a minimum of three consecutive months of conservative therapy**.

(j) **Lumbar Fusion Revisions** when ALL of the following apply:
1. Must be at the same level of a previous surgery; and
2. Must show evidence of complications, either causing significant neurological impairment* or risking harm to the patient (e.g., device failure from a previous lumbar surgery or iatrogenic instability). **This indication does not include cases where there is a mere lack of clinical improvement from an initial surgery.**

(k) **Surgical procedures** that create an unstable spine**: **

**Pre-operatively,** for anticipated creation of spine instability when performing a decompression surgery for spinal stenosis.

**OR**

**Intra-operatively,** when spinal instability occurs because adequate decompression required creation of a pars defect or removal of either 75% of one facet joint or >50% of both facet joints.
***Selection of either of these criteria requires submission of medical records.

III. **Lumbar spinal fusion surgery does not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when **ANY** of the following contraindications apply (this section does not apply to patients with trauma, tumor(s), or infection):

   a) Patient smokes or does not refrain from smoking for eight weeks prior to spinal fusion surgery.
   b) Chronic low back pain, without a clear cause demonstrated on imaging studies.
   c) Treatment of spinal stenosis without instability or spondylolisthesis.
   d) BMI greater than or equal to 50.
   e) Present alcohol or drug abuse/dependency or history within the past six months.
   f) History of noncompliance with conservative therapy**.
   g) Severe (T score ≤ - 2.5 SD with 1 or more fragility fractures) osteoporosis.
   h) Systemic infection.
   i) Psychiatric issues (e.g., drug seeking behavior, malingering, body image disorder, concerns regarding cosmetic results, Munchausen syndrome) diagnosed by a qualified provider.

*Significant neurological impairment* or loss of function must include documentation of the inability or decreased ability to perform normal activities of daily living.

**Conservative therapy** is the use of structured physician-directed modalities which may include: prescription strength analgesics/anti-inflammatory medications if not contraindicated; participation in physical therapy modality(ies) when rendered by an eligible provider (including active exercise); evaluation and appropriate management of associated cognitive, behavioral and addiction issues when present.

***Medical record documentation** maintained by the physician must substantiate the medical need for lumbar spinal fusion surgery and must include the following:

- Office notes/hospital record, including history and physical by the attending/treating physician; **and**
- Documentation of the history and duration of unsuccessful conservative therapy (non-surgical medical management) when applicable. Interpretation and reports for X-rays, MRI’s, CT’s, etc; **and**
- Medical clearance reports (as applicable); **and**
- Documentation of smoking history, and that the patient has received counseling on the effects of smoking on surgical outcomes and treatment for smoking cessation if accepted (if applicable).
Effective for dates of service on or after November 20, 2015 through May 25, 2016:
These criteria only apply to patients aged 18 years and older.
Medical clearance is required for patients with moderate to severe co-morbid conditions (e.g., cardiac disease, pulmonary disease, or diabetes) for assessment of pre-surgical risk and/or patient’s ability for compliance with postoperative rehabilitation activities.

I. **Lumbar spinal fusion surgery meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for ANY of the following indications regardless of smoking status:

(a) **Emergency Situations**
1. Acute spinal fractures of **less than three** months duration with instability resulting in neural compression or spinal dislocation; or
2. Trauma (e.g., motor vehicle collisions, vertical fall).

(b) **Tumors**
1. Primary spinal tumor(s); or
2. Metastasis to the spine; or
3. Abscess or other growth creating a mass affect that damages or displaces the spine/spinal cord /nerves.

(c) **Infections** affecting the spine (e.g., spinal tuberculosis, vertebral osteomyelitis, discitis).

II. **Lumbar spinal fusion surgery meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when a statement is provided from the physician that the individual is a **non-smoker OR** the individual will **refrain from smoking for six weeks** prior to the planned surgery for ANY of the following indications:

(a) **Degenerative disc disease (DDD) of the lumbar spine in the absence of instability** when **ALL** of the following apply:
1. Maximum of two level fusion; **and**
2. The patient presents with discogenic pain for 12 consecutive months; **and**
3. MRI (or other imaging) demonstrates morphological disc degeneration; **and**
4. Patient has previously not shown improvement from a minimum of **six** consecutive months of conservative therapy**; **and**
5. The patient has been screened for possible mental illness and/or substance abuse issues, and if present, has undergone professional treatment for these issues; **and**
6. The patient is age 25-65

(b) **Recurrent Lumbar disc herniation** when **ALL** of the following apply:
1. A single level fusion is requested; **and**
2. The patient has previously been operated on for disc herniation on two separate occasions and experienced relief of pain symptoms for a minimum of **three** consecutive months; **and**
3. The third disc herniation is seen on imaging at the same level of previous disc herniation surgeries; **and**
4. Patient presents with recurrent neurogenic symptoms (e.g., radicular pain) with impairment or loss of function consistent with the level of recurrence; and

5. Patient is at least six months status post previous back surgery and symptoms have been unresponsive to at least three consecutive months of conservative therapy**.

(c) **Spinal Stenosis with lumbar spondylolisthesis** when ALL of the following apply:
1. The spondylolisthesis has been radiographically documented in an anatomic area consistent with the location of these symptoms; AND
2. Any one of the following
   a. Neurogenic claudication or radicular pain that results in significant functional impairment in a patient who has failed at least three consecutive months of conservative therapy**, OR
   b. Severe or rapidly progressive symptoms of motor loss, neurogenic claudication, or cauda equina syndrome.

(d) **Lumbar spondylolysis** when ALL of the following apply:
1. The patient presents with pain in back and/or leg(s); and
2. The spondylolysis has been radiographically documented in an anatomic area consistent with the location of the pain; and
3. The patient has failed to improve from a minimum of six consecutive months of conservative therapy**.

(e) **Severe, progressive idiopathic scoliosis** (i.e., lumbar or thoracolumbar) with radiographically documented Cobb angle of > 35 degrees (this criteria only applies to patients age 18 and older).

(f) **Severe degenerative scoliosis** with EITHER of the following:
1. Documented progression of deformity with persistent axial pain (non-radiating) and impairment or loss of function unresponsive to at least three consecutive months of conservative therapy**, OR
2. Persistent and significant neurological impairment* or loss of function, unresponsive to at least three consecutive months of conservative therapy**.

(g) **Flat-back syndrome** (iatrogenic loss of lumbar lordosis, accompanied by back pain, forward inclination of the trunk, and inability to stand erect) due to a previous spinal surgery, degenerative condition, post-traumatic, post-infectious, or congenital etiologies when the patient presents with clinical symptoms or with sagittal imbalance.

(h) **Pseudoarthrosis** of prior fusion at the same level when ALL of the following apply:
1. The patient is greater than **six months** out from previous spinal fusion; and
2. Radiographic imaging indicates that fusion has not been achieved at attempted fusion level under consideration; and
3. The patient has pain and significant neurological impairment* from the spinal level of the prior fusion; and
4. Persistent pain despite at least **three** consecutive months of conservative therapy**.

(i) **Adjacent Segment Degeneration** when **ALL** of the following apply:
   1. The patient is greater than **six** months out from previous fusion with recurrent neurogenic symptoms; and
   2. Loss of function or impairment; and
   3. Patient experienced significant interval relief of prior symptoms for a minimum of **six** months; and
   4. Imaging demonstrates disc degeneration, instability, and/or stenosis at a level immediately adjacent to the fusion; and
   5. The patient presents with pain or neurological symptoms, which have been unresponsive to a minimum of **three** consecutive months of conservative therapy**.

(j) **Lumbar Fusion Revisions** when **ALL** of the following apply:
   1. Must be at the same level of a previous surgery; and
   2. Must show evidence of complications, either causing significant neurological impairment* or risking harm to the patient (e.g., device failure from a previous lumbar surgery or iatrogenic instability). **This indication does not include cases where there is a mere lack of clinical improvement from an initial surgery.**

(k) **Surgical procedures** that create an unstable spine***:

   Pre-operatively, for anticipated creation of spine instability when performing a decompression surgery for spinal stenosis.

   **OR**

   Intra-operatively, when spinal instability occurs because adequate decompression required creation of a pars defect or removal of either 75% of one facet joint or >50% of both facet joints.

   *****Selection of either of these criteria requires submission of medical records.

III. **Lumbar spinal fusion surgery does not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when **ANY** of the following contraindications apply (this section does not apply to patients with trauma, tumor(s), or infection):
   a) Patient smokes or does not refrain from smoking for six weeks prior to spinal fusion surgery.
b) Chronic low back pain, without a clear cause demonstrated on imaging studies.
c) Treatment of spinal stenosis without instability or spondylolisthesis.
d) BMI greater than or equal to 50.
e) Present alcohol or drug abuse/dependency or history within the past six months.
f) History of noncompliance with conservative therapy**.
g) Severe (T score ≤ -2.5 SD with 1 or more fragility fractures) osteoporosis.
h) Systemic infection.
i) Psychiatric issues (e.g., drug seeking behavior, malingering, body image disorder, concerns regarding cosmetic results, Munchausen syndrome) diagnosed by a qualified provider.

*Significant neurological impairment* or loss of function must include documentation of the inability or decreased ability to perform normal activities of daily living.

**Conservative therapy** is the use of structured physician-directed modalities which may include: prescription strength analgesics/anti-inflammatory medications if not contraindicated; participation in physical therapy modality(ies) when rendered by an eligible provider (including active exercise); evaluation and appropriate management of associated cognitive, behavioral and addiction issues when present.

***Medical record documentation** maintained by the physician must substantiate the medical need for lumbar spinal fusion surgery and must include the following:

- Office notes/hospital record, including history and physical by the attending/treating physician; and
- Documentation of the history and duration of unsuccessful conservative therapy (non-surgical medical management) when applicable. Interpretation and reports for X-rays, MRI’s, CT’s, etc; and
- Medical clearance reports (as applicable); and
- Documentation of smoking history, and that the patient has received counseling on the effects of smoking on surgical outcomes and treatment for smoking cessation if accepted (if applicable).

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**Effective for dates of service November 3, 2013 to November 19, 2015:**

These criteria only apply to patients aged 18 years and older.
Medical clearance is required for patients with moderate to severe co-morbid conditions (e.g., cardiac disease, pulmonary disease, or diabetes) for assessment of pre-surgical risk and/or patient’s ability for compliance with postoperative rehabilitation activities.

I. Lumbar spinal fusion surgery meets Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for ANY of the following indications **regardless of smoking status**:

(a) **Emergency Situations**
1. Clinical signs of cauda equina syndrome; or
2. Significant neurological impairment*; or

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Proprietary Information of Blue Cross and Blue Shield of Alabama
An Independent Licensee of the Blue Cross and Blue Shield Association
Medical Policy #517
3. Acute spinal fractures of less than three months duration with instability resulting in neural compression or spinal dislocation; or
4. Trauma (e.g., motor vehicle collisions, vertical fall).

(b) **Tumors**
1. Primary spinal tumor(s); or
2. Metastasis to the spine; or
3. Abscess or other growth creating a mass affect that damages or displaces the spine/spinal cord/nerves.

(c) **Infections** affecting the spine (e.g., spinal tuberculosis, vertebral osteomyelitis, discitis).

II. **Lumbar spinal fusion surgery meets** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when a statement is provided from the physician that the individual is a non-smoker OR the individual will refrain from smoking for six weeks prior to the planned surgery for ANY of the following indications:

(a) **Degenerative disc disease (DDD) of the lumbar spine in the absence of instability** when ALL of the following apply:
   1. Maximum of two level fusion; and
   2. The patient presents with discogenic pain for 12 consecutive months; and
   3. MRI (or other imaging) demonstrates morphological disc degeneration; and
   4. Patient has previously not shown improvement from a minimum of six consecutive months of conservative therapy**; and
   5. The patient has been screened for possible mental illness and/or substance abuse issues, and if present, has undergone professional treatment for these issues; and
   6. The patient is age 25-65;

(b) **Lumbar disc herniation** when ALL of the following apply:
   1. Maximum of two level fusion; and
   2. The patient has previously been operated on for disc herniation and experienced relief of pain symptoms for a minimum of three consecutive months; and
   3. Recurrent disc herniation is seen on imaging at the same level of previous surgery; and
   4. Patient presents with recurrent neurogenic symptoms (e.g., radicular pain) with impairment or loss of function consistent with the level of recurrence; and
   5. Patient is at least six months status post previous back surgery and symptoms have been unresponsive to at least three consecutive months of conservative therapy**.

(c) **Lumbar spondylolisthesis** when ALL of the following apply:
   1. The patient has clinically significant neurological symptoms* and pain which has caused impairment or loss of function; and
   2. The spondylolisthesis has been radiographically documented in an anatomic area consistent with the location of these symptoms; and
3. The patient has not shown sufficient clinical improvement from at least three consecutive months of conservative therapy**.

(d) Lumbar spondylolysis when ALL of the following apply:
   1. The patient presents with pain in back and/or leg(s); and
   2. The spondylolysis has been radiographically documented in an anatomic area consistent with the location of the pain; and
   3. The patient has failed to improve from a minimum of six consecutive months of conservative therapy**.

(e) Severe, progressive idiopathic scoliosis (i.e., lumbar or thoracolumbar) with radiographically documented Cobb angle of > 35 degrees (this criteria only applies to patients age 18 and older).

(f) Severe degenerative scoliosis with evidence of mechanical instability with EITHER of the following:
   1. Documented progression of deformity with persistent axial pain (non-radiating) and impairment or loss of function unresponsive to at least three consecutive months of conservative therapy**;
      OR
   2. Persistent and significant neurological impairment* or loss of function, unresponsive to at least three consecutive months of conservative therapy**.

(g) Flat-back syndrome (iatrogenic loss of lumbar lordosis, accompanied by back pain, forward inclination of the trunk, and inability to stand erect) due to a previous spinal surgery, degenerative condition, post-traumatic, post-infectious, or congenital etiologies when the patient presents with clinical symptoms or with sagittal imbalance.

(h) Pseudoarthrosis of prior fusion at the same level with evidence of mechanical instability when ALL of the following apply:
   1. The patient is one year out from previous spinal fusion; and
   2. Radiographic imaging indicates that fusion has not been achieved; and
   3. The patient has pain and significant neurological impairment* from the spinal level of the prior fusion; and
   4. Patient had relief of symptoms from prior spinal surgery; and
   5. Persistent pain despite at least three consecutive months of conservative therapy**.

(i) Adjacent Segment Degeneration when ALL of the following apply:
   1. The patient is six months out from previous fusion with recurrent neurogenic symptoms; and
   2. Loss of function or impairment; and
   3. Patient experienced significant interval relief of prior symptoms for a minimum of six months; and
   4. Imaging demonstrates disc degeneration, instability, and/or stenosis at a level immediately adjacent to the fusion; and
   5. The patient presents with pain or neurological symptoms, which have been unresponsive to a minimum of three consecutive months of conservative therapy**.
(j) **Lumbar Fusion Revisions** when **ALL** of the following apply:
   1. Must be at the same level of a previous surgery; **and**
   2. Must show evidence of complications, either causing significant neurological impairment* or risking harm to the patient (e.g., device failure from a previous lumbar surgery or iatrogenic instability). **This indication does not include cases where there is a mere lack of clinical improvement from an initial surgery.**

(k) **Pre-operatively or intra-operatively** when performing a decompression surgery for spinal stenosis when **EITHER** of the following apply:
   1. The patient has pre-operative instability demonstrated on imaging and one of the following apply:
      a) Radicular pain resulting in neurological impairment in a patient who has failed **three** consecutive months of conservative therapy** and has documentation of central/lateral recess/or foraminal stenosis on imaging; **or**
      b) Severe or rapidly progressive symptoms that result in emergency situations [refer to examples on page 3,I.(a)].
   
      **OR**

   2. Spinal instability occurs intraoperatively because adequate decompression required creation of a pars defect or removal of either 75% of one facet joint or >50% of both facet joints.

III. **Lumbar spinal fusion surgery does not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage when **ANY** of the following contraindications apply (this section does not apply to patients with trauma, tumor(s), or infection):
   a) Patient smokes or does not refrain from smoking for six weeks prior to spinal fusion surgery.
   b) Chronic low back pain, without a clear cause demonstrated on imaging studies.
   c) Treatment of spinal stenosis without instability or spondylolisthesis.
   d) BMI greater than or equal to 50.
   e) Present alcohol or drug abuse/dependency or history within the past six months.
   f) History of noncompliance with conservative therapy**.
   g) Severe (T score ≤ - 2.5 SD with 1 or more fragility fractures) osteoporosis.
   h) Systemic infection.
   i) Psychiatric issues (e.g., drug seeking behavior, malingering, body image disorder, concerns regarding cosmetic results, Munchausen syndrome) diagnosed by a qualified provider.

*Significant neurological impairment or loss of function must include documentation of the inability or decreased ability to perform normal activities of daily living.

**Conservative therapy is the use of structured physician-directed modalities which may include: prescription strength analgesics/anti-inflammatory medications if not contraindicated;
participation in physical therapy modality(ies) when rendered by an eligible provider (including active exercise); evaluation and appropriate management of associated cognitive, behavioral and addiction issues when present.

**Medical record documentation** maintained by the physician must substantiate the medical need for lumbar spinal fusion surgery and must include the following:

- Office notes/hospital record, including history and physical by the attending/treating physician; and
- Documentation of the history and duration of unsuccessful conservative therapy (non-surgical medical management) when applicable. Interpretation and reports for X-rays, MRI’s, CT’s, etc; and
- Medical clearance reports (as applicable); and
- Documentation of smoking history, and that the patient has received counseling on the effects of smoking on surgical outcomes and treatment for smoking cessation if accepted (if applicable).

*Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the member’s contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.*

**Key Points:**
Specific patient selection guidelines for lumbar fusion have not been well-defined in the medical literature. Factors to be considered are the patient’s history, physical exam, response to conservative measures, psychosocial profile, diagnostic test results, and physician expertise. Patients should be educated regarding alternative treatments, as well as the potential benefits and associated risks of a surgical intervention in order to allow for realistic expectations after surgery. Procedures that result in minimal disruption of tissue, restore the normal mechanics and physiology of the spine, and are not associated with adverse short- or long-term effects should be considered as treatment options.

**Spinal Stenosis**
The primary surgical intervention for spinal stenosis is decompressive surgery (i.e., laminectomy or related procedures). Spinal fusion is not a primary treatment for spinal stenosis, but rather can be performed in addition to decompressive surgery with the intent of decreasing spinal instability. Therefore, the most relevant comparison for patients with spinal stenosis is decompressive surgery alone compared to decompressive surgery plus fusion.

There are 2 published RCTs that assessed the benefit of adding fusion to laminectomy, i.e. decompressive surgery alone compared to decompressive surgery plus fusion, both of these were
published in 2016. These trials reported somewhat different results concerning benefit for the combined procedure.

In the Swedish Spinal Stenosis Study (SSS), 247 patients between 50 and 80 years of age who had lumbar spinal stenosis at 1 or 2 levels were randomized to undergo decompression plus fusion surgery or decompression surgery alone. The specific surgical method for decompression and fusion was determined by the surgeon. Randomization was stratified by the presence of degenerative spondylolisthesis, which was present in about half of the patients. The addition of fusion to laminectomy resulted in longer operating time, more bleeding, higher surgical costs, and longer hospitalization. The primary outcome measure, the Oswestry Disability Index (ODI) score, did not differ significantly between groups at the 2- or 5-year follow-ups. Mean scores were also analyzed separately for patients with or without spondylolisthesis. In patients with degenerative spondylolisthesis (range, 7.4-14.3 mm), the mean ODI score at 2 years was 25 in the fusion group and 21 in the decompression-alone group. The distance walked in 6 minutes (6-minute walk test) did not differ significantly between groups. Additional lumbar spine surgery during 6.5 years of follow-up was performed in a similar percentage of patients in the fusion group (22%) and the decompression-alone group (21%).

In the Spinal Laminectomy versus Instrumented Pedicle Screw (SLIP) trial, all 66 patients randomized to decompression plus fusion or decompression alone had stable degenerative spondylolisthesis (grade I, 3-14 mm) and symptomatic lumbar spinal stenosis. Decompression was performed by laminectomy with partial removal of the medial facet joint. The fusion group, which underwent posterolateral instrumented fusion (PLF), had more blood loss and longer hospital stays. The primary outcome measure, change in 36-Item Short-Form Health Survey (SF-36) Physical Component Summary score at 2 years, was significantly greater in the fusion group (15.2) than in the decompression-alone group (9.5; p=0.046). The minimally important difference (MID) for SF-36 score was prespecified at 5 points, and was achieved in 86% of the fusion group and 69% of the decompression group. At 2 years, ODI scores had improved by 26.3 points in the fusion group and by 17.9 points in the decompression-alone group (p=0.06). The MID for ODI score was prespecified as a 10-point improvement, but the percentages of patients who achieved the MID were not reported. The rate of reoperation in the fusion group was 14% compared with 34% in the decompression-alone group (p=0.05), although only 68% of patients were available for follow-up at 4 years. All reoperations in the fusion group were for adjacent-level degeneration, while reoperations in the decompression-alone group were performed for instability at the index level. In addition to the low follow-up rate, there are questions about risk of surgeon bias in the recommendation for additional fusion surgery in patients who had undergone decompression alone.

Section Summary
Two RCTs that specifically assessed the benefit of adding fusion to decompression in patients with grade I spondylolisthesis reached different conclusions. Both trials reported more frequent operative and perioperative adverse outcomes with the addition of fusion. The SSS trial found no benefit of surgery on clinical outcomes measured by ODI score, while the SLIP trial reported a small benefit measured by SF-36 score, a difference in the ODI score that was not statistically significant, and a reduction in subsequent surgeries when fusion was added to decompression. In the SPORT trial, 95% of patients in the surgical group underwent decompression with fusion and
had improved outcomes compared to nonoperative therapy. Although this is an important trial of surgical therapy in patients with spinal stenosis, it evaluates whether the combination of decompressive surgery plus fusion is superior to nonsurgical therapy. It does not isolate the effect of fusion, therefore it is not possible to determine whether the benefit of surgery derived from decompression, fusion, or both. An earlier quasi-randomized study (Herkowitz et al) reported that lumbar spinal fusion improved outcomes in patients with spinal stenosis associated with spondylolisthesis. Methodologic limitations of this evidence base include high loss to follow-up in the SLIP and SPORT trials, the lack of information on the surgical procedures in the SSS trial, and the variation in outcome measures used. The current evidence base does not permit conclusions whether the addition of fusion to decompressive surgery for patients with spinal stenosis improves outcomes.

**Spinal Stenosis with Spondylolisthesis**

A consensus statement from the North American Spine Society (NASS) defines degenerative lumbar spinal stenosis as a condition in which there is diminished space available for the neural and vascular elements in the lumbar spine secondary to degenerative changes in the spinal canal. When symptomatic, this causes a variable clinical syndrome of gluteal and/or lower extremity pain and/or muscle fatigue which may occur with or without back pain.

NASS defines lumbar degenerative spondylolisthesis as an acquired anterior displacement of one vertebra over the subjacent vertebra, associated with degenerative changes, but without an associated disruption or defect in the vertebral ring. Most patients with symptomatic degenerative lumbar spondylolisthesis and an absence of neurologic deficits do well with conservative care. Patients who present with sensory changes, muscle weakness, or cauda equina syndrome are more likely to develop progressive functional decline without surgery.

Weinstein et al reported findings from the multicenter controlled trial (Spine Patient Outcomes Research Trial [SPORT]) that compared surgical and nonsurgical treatment for lumbar degenerative spondylolisthesis. The primary comparison in this study was decompressive surgery plus fusion compared to nonsurgical treatment for patients with lumbar spinal stenosis and degenerative spondylolisthesis. All patients had neurogenic claudication or radicular leg pain associated with neurologic signs, spinal stenosis shown on cross-sectional imaging, and degenerative spondylolisthesis shown on lateral radiographs with symptoms persisting for at least 12 weeks. There were 304 patients in a randomized cohort and 303 patients in an observational cohort. About 40% of the randomized cohort crossed over in each direction by two years of follow-up. At the 4-year follow-up time point, 54% of patients randomized to nonoperative care had undergone surgery. Five percent of the surgically-treated patients received decompression only and 95% underwent decompression with fusion. Analysis by treatment received was used due to the high percentage of crossovers. This analysis, controlled for baseline factors, showed a significant advantage for surgery at up to four years of follow-up for all primary and secondary outcome measures.

A 1991 study by Herkowitz et al evaluated decompression, with or without fusion, in 50 patients with spondylolisthesis and spinal stenosis. All patients had failed a trial of nonoperative treatment. This quasi-randomized prospective study used alternating assignment to the two treatment groups. At a mean follow-up of three years (range, 2.4-4.0), the patients who had
posterolateral lumbar fusion (PLF) together with limited decompression had significantly improved outcomes, as measured by overall outcomes and numeric rating scales, compared with the group of patients who underwent decompression alone.

Section Summary
Findings from the SPORT trial, in which 95% of patients in the surgical group underwent decompression with fusion and the smaller study by Herkowitz et al that specifically assessed the addition of fusion to decompression, support that the use of lumbar spinal fusion improves outcomes in patients with spinal stenosis associated with spondylolisthesis.

Adolescent Idiopathic Scoliosis
Scoliosis is an abnormal lateral and rotational curvature of the vertebral column. Treatment of scoliosis currently depends on three factors: the cause of the condition (idiopathic, congenital, secondary), severity of the condition (degrees of curve), and the remaining growth expected for the patient at the time of presentation. Children who have vertebral curves measuring between 25° and 40° with at least two years of growth remaining are considered to be at high risk of curve progression. Because severe deformity may lead to compromised respiratory function and is associated with back pain in adulthood, in the United States, surgical intervention with spinal fusion is typically recommended for curves that progress to 45° or more. For further information see medical policy # 464 on Interventions for Progressive Scoliosis.

In 2001, Danielsson and Nachemson reported long-term follow-up on 283 consecutive patients who had been treated with a brace or with surgical treatment for adolescent idiopathic scoliosis in Sweden. Lumbar curves of less than 60° were treated with a brace worn for an average of 2.7 years. Curves of 60° or more were treated with fusion using bone grafts from the iliac crest. An average of 9.5 vertebrae were fused. Clinical and radiologic follow-up was obtained in 89% of patients at a mean of 22 years (range, 20-28). Curve progression was 3.5° for surgically treated curves and 7.9° for brace-treated curves. Five patients (4%) treated surgically and 39 (36%) treated with bracing had an increase in the Cobb angle of more than 10°.

Section Summary
Long-term follow-up of a large case series supports guidelines from the Scoliosis Research Society that fusion can reduce curve progression in patients with curves greater than 40°. This is likely to result in reduced morbidity for treated patients.

Adult Symptomatic Lumbar Scoliosis
In 2009, Bridwell et al reported a prospective multicenter cohort study that compared operative versus nonoperative treatment of adult symptomatic lumbar scoliosis (defined as a minimum Cobb angle of 30°) in 160 consecutively enrolled patients. Operative versus nonoperative treatment was decided by the patient and medical team. Nonoperative treatment included observation (21%), medications (26%), medications plus physical therapy and/or injections (40%), and other treatment without medications (13%). For analysis, the patients were matched using propensity scores that included baseline Cobb angle, Oswestry Disability Index (ODI), Scoliosis Research Society subscore, and a numerical rating scale for back and leg pain. The percentage of patients who returned for follow-up at two years was higher for operative than nonoperative patients (95% vs 45%), though the baseline measures for patients who were lost to
follow-up was similar to those who were followed for two years. At the two-year follow-up, nonoperative treatment had not improved quality of life or any other outcome measures, while the operative group showed significant improvement in all outcomes.

**Section Summary**
No randomized controlled trials (RCTs) were identified on the treatment of adult symptomatic lumbar scoliosis with fusion. A cohort study, which may be subject to selection bias from the patient choice of treatment, reported superior outcomes in patients treated with fusion compared with nonoperative controls.

**Isthmic Spondylolisthesis**
In 2000, Moller and Hedlund reported a study of 111 patients with adult isthmic spondylolisthesis who were randomly assigned to posterolateral fusion (with or without instrumentation, n=77) or to an exercise program (n=34). Inclusion criteria for the study were lumbar isthmic spondylolisthesis of any grade, at least one year of low back pain or sciatica, and a severely restricted functional ability. The mean age of patients was 39 years, with a mean age at onset of symptoms of 26 years. At one and two year follow-up, functional outcome (assessed by the Disability Rating Index) had improved in the surgery group but not in the exercise group. Pain scores improved in both groups, but were significantly better in the surgically treated group compared with the exercise group.

**Section Summary**
One RCT was identified that compared fusion versus an exercise program for patients with symptomatic isthmic spondylolisthesis. Results of this trial support that the use of fusion for this condition improves functional status compared with conservative treatment.

**Spinal Fracture**
A 2006 qualitative systematic review compared operative and nonoperative treatment for thoracolumbar burst fractures in patients without neurologic deficit. Two RCTs were identified, one by Wood et al in 2003 (described next) and a second small study by Alany et al with 20 patients.

The study by Wood et al randomized 53 consecutive patients with a stable burst fracture and no neurologic deficit or loss of structural integrity to fusion with instrumentation or to nonoperative treatment with application of a body cast or orthosis for approximately 16 weeks. At an average follow-up of 44 months (24-month minimum) the patients completed assessments of pain and function. At follow-up, the two groups were similar in the average fracture kyphosis, canal compromise, and return to work. Patients treated nonoperatively reported less disability on the ODI and 36-Item Short-Form Health Survey physical function, lower pain scores, and had fewer complications.

**Section Summary**
Results of this small randomized trial indicate that spinal fusion may be associated with worse outcomes compared with conservative care in patients with spinal fracture without instability or neural compression.
Lumbar Disc Herniation with Radiculopathy
Weinstein et al also reported on randomized (n=501) and observational (n=743) cohorts of patients from the SPORT trial with lumbar disc herniation and radiculopathy who received either discectomy or nonoperative care. There was no mention of any patient undergoing fusion following discectomy. Specific inclusion criteria at enrollment were radicular pain (below the knee for lower lumbar herniations, into the anterior thigh for upper lumbar herniations) and evidence of nerve-root irritation with a positive nerve-root tension sign (straight leg raise—positive between 30° and 70° or positive femoral tension sign) or a corresponding neurologic deficit (asymmetrical depressed reflex, decreased sensation in a dermatomal distribution, weakness in a myotomal distribution). Additionally, all participants were surgical candidates who had undergone advanced vertebral imaging (97% magnetic resonance imaging [MRI], 3% computed tomography) showing disc herniation (protrusion, extrusion, sequestered fragment) at a level and side corresponding to the clinical symptoms. Patients with multiple herniations were included if only one of the herniations was considered symptomatic (i.e., if only one was planned to be operated on). Exclusion criteria included prior lumbar surgery, cauda equina syndrome, scoliosis greater than 15°, segmental instability (>10° angular motion or >4-mm translation), vertebral fractures, spine infection or tumor, inflammatory spondyloarthropathy, pregnancy, comorbid conditions contraindicating surgery, inability/unwillingness to have surgery within six months. In the randomized cohort, 50% of patients assigned to discectomy and 30% of patients assigned to nonoperative treatment received surgery in the first three months. Intention-to-treat analysis for the randomized cohort found a small advantage for patients assigned to discectomy with no significant differences between the two groups for the primary outcome measures. Analysis by treatment received found significant advantages for discectomy. In the observational cohort, the 528 patients who chose surgery had greater improvement in the primary outcome measures of bodily pain, physical function, and ODI compared with the 191 patients who received usual nonoperative care. All groups improved over time.

Section Summary
Current evidence, which includes a large RCT, supports that surgical treatment with discectomy improves outcomes for lumbar disc herniation with radiculopathy. However, there is no evidence to support that the addition of spinal fusion to discectomy improves outcomes in patients with the sole indication of lumbar disc herniation without instability.

Chronic Low Back Pain without Radiculopathy
Nonspecific chronic low back pain (CLBP) is persistent low back pain that is not attributable to a recognizable, known specific pathology such as infection, tumor, osteoporosis, fracture, structural deformity (e.g., spondylolisthesis, scoliosis), inflammatory disorder, radiculitis, or cauda equina syndrome. Surgical interventions, including fusion and disc arthroplasty, have been applied with the belief that abnormal intersegmental movement or degenerative pathology may be the cause of CLBP.

A systematic review from 2013 assessed the number of studies that had been published up until that time on surgical fusion for CLBP. As of September 2012, four RCTs with a total of 981 patients had been published comparing surgical versus nonsurgical approaches to CLBP. In contrast, 33 RCTs with a total of 3790 patients had compared variations of surgical techniques.
Another systematic review from 2013 compared lumbar fusion versus conservative treatment in patients with CLBP. Meta-analysis of four trials (described next) with a total of 666 patients reported a reduction in the ODI that was -2.91 in favor of lumbar fusion. However, this did not attain statistical significance or the minimal clinically significant difference in ODI of 10 points. There was evidence of publication bias that favored placebo. The review concluded that there is strong evidence that lumbar fusion does not lead to a clinically significant reduction in perceived disability compared with conservative treatment in patients with CLBP and degenerative spinal disease. The review also concluded that it is unlikely that further research on the subject would alter this conclusion.

In 2012, the Agency for Healthcare Research and Quality (AHRQ) posted for public comment a draft of an updated technology assessment on spinal fusion for treating painful lumbar degenerated discs or joints. As of September, 2014, AHRQ lists the report as in the final production phase. The draft, which reviewed four of the studies described next, concluded that the evidence was minimally sufficient to conclude that fusion was associated with improved back pain and function at two years compared with physical therapy but that the clinical significance of these findings was uncertain. This technology assessment is being finalized for publication.

One of the studies that compared surgical versus nonsurgical treatment for CLBP was a 2001 multicenter trial by the Swedish Lumbar Spine Study Group. In this study, 294 patients with CLBP for at least two years, sick leave or disability for at least one year (mean, three years), and radiologic evidence of disc degeneration, were randomized into one of three types of spinal fusion or to physical therapy supplemented by other nonsurgical treatment. Patients were excluded if they had specific radiologic findings such as spondylolisthesis, new or old fractures, infection, inflammatory process, or neoplasm. With intention-to-treat analysis, the surgical group showed a greater reduction in back pain (33% vs 7%), disability according to ODI (25% vs 6% reduction), Million visual analog score (VAS; 28% vs 8%), and General Function Score (31% vs 4%). Significantly more surgical patients were back to work (36% vs 13%), and more reported their outcome as better or much better (63% vs 29%).

A 2005 trial from the English Spine Stabilisation Trial Group was a pragmatic multicenter randomized trial that compared spinal fusion with an intensive (≈75 hours) physical and cognitive-behavioral rehabilitation program. Patients (n=349) who had back pain for at least one year and were considered candidates for surgical stabilization of the spine by the treating physician were randomized if the clinician and patient were uncertain which of the study treatment strategies were best. Radiologic findings were not part of the inclusion criteria. By the two year follow-up, 48 (28%) of patients who were randomized to rehabilitation had undergone surgery. Results for one of the two primary outcome measures (ODI) showed a modest but significantly greater improvement (4.1 points) in the surgery group. There were no significant differences between the groups for the walking test or for any of the secondary outcome measures.

In 2010, Brox et al reported four year follow-up from two randomized trials that compared surgery versus cognitive intervention and exercises in 124 patients with disc degeneration. One of the studies enrolled patients with CLBP and radiographic evidence of disc degeneration; the
other enrolled patients with chronic back pain after previous surgery for disc herniation. The criteria for symptomatic degenerative disc disease (DDD) were based on imaging without other diagnostic tests to identify the source of the CLBP. The combined four year follow-up rate was 92% in the surgical group and 86% in the nonsurgical group. In the nonsurgical group, 24% had undergone surgery by four years. In the surgical group, 15 (25%) had reoperation for persistent complaints or deterioration of the condition. In the intention-to-treat analysis, there was no significant difference between the groups in the ODI or in the percentage of patients who were on disability at four years. For the secondary outcomes, the only treatment effect identified was a reduction of fear-avoidance beliefs favoring cognitive intervention and exercises. Interpretation of this study is limited by the high percentage of crossovers from nonsurgical to surgical treatment.

A smaller trial that is frequently cited is a 2011 study by Ohtori et al. In this study, patients with discogenic low back pain for at least two years (without radiculopathy) were selected following demonstration of disc degeneration at one level based on MRI, pain provocation on discography, and pain relief following intradiscal injection of anesthetic. Forty-six patients did not agree to undergo discography or intradiscal anesthetic injection, and 11 patients were excluded because of negative results. Most of the patients (70%) were categorized with a bulging disc and the remaining had evidence of disc degeneration on MRI. The 41 patients included in the study were divided into a walking and stretching group (over a period of 2 years, n=20), or discectomy and fusion (n=21). The approach was anterior lumbar interbody fusion (ALIF; n=15) or alternatively posterolateral fusion (PLF; n=6) if the anterior approach was technically difficult due to blood vessel anatomy. At 2 years of follow-up, there was improvement for all groups on the VAS, Japanese Orthopedic Association Score, and ODI. The two surgical groups scored significantly better compared with the minimal treatment group on all measures, with some advantage of ALIF over PLF. For example, VAS improved from 7.7 to 4.7 in the minimal treatment group, from 7.4 to 1.3 in the ALIF group, and from 6.5 to 3.5 in the PLF group. A limitation of this study is the minimal treatment provided to the control group.

Section Summary
The results of trials comparing fusion with nonsurgical management in this population are mixed. A metaanalysis of results from four RCTs found no clinically significant advantage of lumbar fusion over conservative therapy in patients with CLBP that is not attributable to a recognizable, known specific pathology such as, infection, tumor, osteoporosis, fracture, structural deformity (e.g., spondylolisthesis, scoliosis), inflammatory disorder, radiculitis, or cauda equine syndrome. The strongest benefits of surgery were reported in a study of patients who had been on sick leave or disability for more than one year, while no advantage of surgery was found when the patients or surgeon were unsure of whether surgery or conservative therapy would be the best treatment strategy. Interpretation of these studies is limited by the high percentage of patients who cross over to surgery, variances in the type of spinal fusion (e.g., posterolateral vs interbody), and uncertainty in establishing whether the source of CLBP is from DDD.

Summary
Lumbar spinal fusion (arthrodesis) is a surgical technique that involves fusion of two or more lumbar vertebrae using local bone, autologous bone taken from the iliac crest of the patient, or
allogeneic donor bone. The literature was examined on the use of fusion for the following indications:

- **Spinal Stenosis.** There are 2 RCTs that compared decompressive surgery plus fusion to decompressive surgery alone. These trials reached different conclusions on the benefit of adding fusion to decompression in patients with low-grade (0%-25% slippage) spondylolisthesis. Both trials reported a larger number of operative and perioperative adverse outcomes with the addition of fusion. The SSS trial found no benefit of surgery on clinical outcomes, while the SLIP trial reported a small benefit in clinical outcomes and a reduction in number of subsequent surgeries when fusion was added to decompression. In the SPORT trial, decompressive surgery plus fusion was compared to conservative, nonsurgical treatment. Ninety-five percent of patients in the surgical group underwent decompression with fusion and had better outcomes than patients receiving nonoperative therapy. This trial, however, did not isolate the impact of fusion apart from that of decompressive surgery. The current evidence base does not permit conclusions whether the addition of fusion to decompressive surgery for patients with spinal stenosis improves outcomes.

- **Spinal Stenosis with Spinal Instability.** Findings from the SPORT trial, in which 95% of patients in the surgical group underwent decompression with fusion, and a smaller study that specifically assessed the addition of fusion to decompression, support that fusion in patients with spinal stenosis associated with spondylolisthesis improves outcomes and therefore may be considered medically necessary for this indication.

- **Idiopathic Scoliosis.** Long-term follow-up of a large case series and guidelines from the Scoliosis Research Society provide support that fusion can reduce curve progression in patients with curves greater than 40°. Therefore, lumbar spinal fusion may be considered medically necessary for this population.

- **Degenerative Scoliosis.** No randomized controlled trials (RCTs) were identified on the treatment of adult symptomatic lumbar scoliosis with fusion. A cohort study found superior outcomes in patients treated with fusion compared with nonoperative controls. Based on this evidence, clinical input, and the strong rationale for its efficacy, spinal fusion may be considered medically necessary for adults with degenerative scoliosis.

- **Isthmic Spondylolisthesis.** One RCT was identified that compared fusion versus an exercise program in patients with symptomatic isthmic spondylolisthesis. Results of this trial support that fusion may be considered medically necessary for this condition.

- **Spinal Fracture.** Results of 1 small randomized trial indicate that spinal fusion for patients with spinal fracture without instability or neural compression may result in worse outcomes than nonsurgical management, and therefore spinal fusion is considered not medically necessary for this indication.

- **Herniated Discs.** Current evidence, which includes the large SPORT RCT, supports surgical treatment with discectomy for lumbar disc herniation. Evidence is insufficient to conclude that the addition of fusion to discectomy improves outcomes in patients with lumbar disc herniation without instability. As a result, lumbar spinal fusion is considered investigational for this indication.

- **Nonspecific Chronic Low Back Pain.** Meta-analysis of results from 4 RCTs found no clinically significant advantage of lumbar fusion over conservative therapy in patients with nonspecific chronic low back pain that is unresponsive to conservative management.
While some trials have reported a benefit, others have not. Due to the uncertainty as to whether outcomes are improved, spinal fusion is considered investigational for this population.

**Practice Guidelines and Position Statements**

**North American Spine Society**

In 2014, North American Spine Society (NASS) published coverage policy recommendations for lumbar fusion. Specific criteria were described for infection, tumor, traumatic injuries, deformity (e.g., scoliosis), stenosis, disc herniations, synovial facet cysts, discogenic low back pain, and pseudoarthrosis. NASS describes situations where lumbar fusion would not be indicated as disc herniation in the absence of instability or spondylolisthesis; stenosis in the absence of instability, foraminal stenosis or spondylolisthesis; and discogenic low back pain that does not meet the recommended criteria.

The 2008 guidelines from NASS addressed the diagnosis and treatment of *degenerative lumbar spondylolisthesis*.

- NASS gave a grade B recommendation for surgical decompression with fusion for the treatment of patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis to improve clinical outcomes compared with decompression alone, and a grade C recommendation for decompression and fusion as a means to provide satisfactory long-term results for the treatment of patients with symptomatic spinal stenosis and degenerative lumbar spondylolisthesis.

The 2011 guidelines from NASS the addressed multidisciplinary spine care for adults with a chief complaint of *degenerative lumbar spinal stenosis*.

- The guidelines indicate that the nature of the pain and associated patient characteristics should be more typical of a diagnosis of spinal stenosis than herniated disc. The evidence review addressed whether the addition of lumbar fusion to surgical decompression improves surgical outcomes in the treatment of spinal stenosis compared with treatment by decompression alone. NASS gave a grade B recommendation (fair evidence) for decompression alone for patients with leg predominant symptoms without instability.

The 2012 guidelines from NASS addressed multidisciplinary spine care for the diagnosis and treatment of *lumbar disc herniation with radiculopathy*.

- The guidelines indicate that there is insufficient evidence to make a recommendation for or against fusion for specific patient populations with lumbar disc herniation with radiculopathy whose symptoms warrant surgery. The best evidence available suggests that outcomes are equivalent in patients with radiculopathy due to lumbar disc herniation whether or not a fusion is performed. Grade of Recommendation: I (Insufficient Evidence).

**American Association of Neurological Surgeons**

The 2014 guidelines from American Association of Neurological Surgeons (AANS) and Congress of Neurological Surgeons (CNS) addressed fusion procedures for the lumbar spine.
The 2014 guidelines state that there is no evidence that conflicts with the recommendations formulated in the 2005 guidelines for fusion procedures for the lumbar spine.

- **One- or two-level degenerative disease without stenosis or spondylolisthesis** (part 7): AANS/CNS recommends that lumbar fusion be performed for patients whose low back pain is refractory to conservative treatment (physical therapy or other nonoperative measures) and is due to 1- or 2-level DDD without stenosis or spondylolisthesis (grade B, based on multiple level II studies). A grade C recommendation was given that discoblock “(a procedure that involves injecting the disc with an anesthetic agent instead of a contrast agent in an effort to eliminate as opposed to reproducing a patient’s pain)” be considered as a diagnostic option during the evaluation of a patient presenting with chronic low back pain (single level II study), but that the potential for acceleration of the degenerative process be included in the discussion of potential risks (part 6).

- **Disc herniation and radiculopathy** (part 8): Lumbar spinal fusion is not recommended as routine treatment following primary disc excision in patients with a herniated lumbar disc causing radiculopathy (grade C, level IV evidence). Lumbar spinal fusion is recommended as a potential option in patients with herniated discs who have evidence of significant chronic axial back pain, work as manual laborers, have severe degenerative changes, or have instability associated with radiculopathy caused by herniated lumbar discs (grade C, level IV evidence). Reoperative discectomy combined with fusion is recommended as a treatment option in patients with a recurrent disc herniations associated with lumbar instability, or chronic axial low back pain (grade C, level III evidence).

- **Stenosis and spondylolisthesis** (part 9): Surgical decompression and fusion is recommended as an effective treatment alternative for symptomatic stenosis associated with degenerative spondylolisthesis in patients who desire surgical treatment (grade B, level II evidence). There was insufficient evidence to recommend a standard fusion technique.

- **Stenosis without spondylolisthesis** (part 10): Surgical decompression is recommended for patients with symptomatic neurogenic claudication due to lumbar stenosis without spondylolisthesis who elect to undergo surgical intervention (grade B, level II/III evidence). In the absence of deformity or instability, lumbar fusion is not recommended as it has not been shown to improve outcomes in patients with isolated stenosis (grade C, level IV evidence).

- AANS/CNS also provided recommendations on:
  - Assessment of functional outcome following lumbar fusion (part 2),
  - Assessment of economic outcome (part 3),
  - Radiographic assessment of fusion status (part 4),
  - Correlation between radiographic outcome and function (part 5),
  - Interbody techniques for lumbar fusion (part 11),
  - Pedicle screw fixation as an adjunct to posterolateral fusion (part 12),
  - Injection therapies (part 13),
  - Brace therapy (part 14),
  - Electrophysiological monitoring (part 15),
  - Bone growth extenders and substitutes (part 16), and
Bone growth stimulators (part 17).

American College of Occupational and Environmental Medicine
A 2011 American College of Occupational and Environmental Medicine update of their guidelines on low back disorders state that for third lumbar discectomy on the same disc, spinal fusion at the time of discectomy as an option has a recommendation of inconclusive/insufficient evidence (I).

American Pain Society
A 2009 clinical practice guideline from the American Pain Society describes the following recommendations.

- In patients with nonradicular low back pain who do not respond to usual, non-interdisciplinary interventions, it is recommended that clinicians consider intensive interdisciplinary rehabilitation with a cognitive/behavioral emphasis” (strong recommendation, high-quality evidence).
- In patients with nonradicular low back pain, common degenerative spinal changes, and persistent and disabling symptoms, it is recommended that clinicians discuss risks and benefits of surgery as an option” (weak recommendation, moderate-quality evidence).
- It is recommended that shared decision making regarding surgery for nonspecific low back pain include a specific discussion about intensive interdisciplinary rehabilitation as a similarly effective option, the small to moderate average benefit from surgery versus non-interdisciplinary nonsurgical therapy, and the fact that the majority of such patients who undergo surgery do not experience an optimal outcome. This recommendation is based on evidence that fusion surgery is superior to nonsurgical therapy without interdisciplinary rehabilitation, but no more effective than intensive interdisciplinary rehabilitation.
- There is insufficient evidence to determine if laminectomy with fusion is more effective than laminectomy without fusion.

Scoliosis Research Society
The Scoliosis Research Society states that the treatment of adolescent idiopathic scoliosis falls into 3 main categories (observation, bracing, surgery) and is based on the risk of curve progression. In general, adolescent idiopathic scoliosis curves progress in 2 ways: (1) during the rapid growth period of the patient and (2) into adulthood if the curves are relatively large. Because scoliosis gets larger during rapid growth, the potential for growth is evaluated taking into consideration the patient's age, whether females have had their first menstrual period, as well as radiographic parameters. The Risser grading system rates a child's skeletal maturity on a scale of 0 to 5. Patients who are Risser 0 and 1 are growing rapidly, while patients who are 4 and 5 have stopped growing.

“Observation is generally for patients whose curves are less than 25° who are still growing, or for curves less than 50° in patients who have completed their growth.”
“Bracing is for patients with curves that measure between 25° and 40° during their growth phase. The goal of the brace is to prevent the curve from getting bigger.”
“Surgical treatment is used for patients whose curves are greater than 45° while still growing or greater than 50° when growth has stopped. The goal of surgical treatment is two-fold: First, to prevent curve progression and secondly to obtain some curve correction…. Implants are used to correct the spine and hold it in the corrected position until the spine segments which have been operated on are fused as one bone.”

“Alternative treatments to prevent curve progression or prevent further curve progression such as chiropractic medicine, physical therapy, yoga, etc. have not demonstrated any scientific value in the treatment of scoliosis.”

**American Academy of Orthopaedic Surgeons**  
Information updated in 2010 from the American Academy of Orthopaedic Surgeons indicates that the type of treatment required for idiopathic scoliosis in children and adolescents depends on the kind and degree of the curve, child's age, and number of remaining growth years until the child reaches skeletal maturity.

- Observation is appropriate when the curve is mild (<25°) or if the child is near skeletal maturity.
- The goal of bracing is to prevent scoliotic curves from worsening. Bracing can be effective if the child is still growing and has a spinal curvature between 25° and 45°. There are several types of braces, most being the underarm type.
- Surgery may be recommended if the curve is greater than 45°and the child is still growing. If the patient has reached skeletal maturity, surgery may still be recommended for scoliotic curves that exceed 50° to 55°. An implant made up of rods, hooks, screws, and/or wires is used to straighten the spine. Bone graft from the bone bank, or from the patient's hip region, is also used to help the operated portion of the spine heal solid.
- At present, the main research focus in idiopathic scoliosis is investigation into genetic factors as a cause of scoliosis.

**National Institute of Arthritis and Musculoskeletal and Skin Diseases**  
The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) in 2012 indicated that many children who are sent to a physician by a school scoliosis screening program “have very mild spinal curves that do not need treatment.” When treatment is needed, an orthopedic spine specialist will suggest the best treatment for each patient based on the “patient's age, how much more he or she is likely to grow, degree and pattern of the curve, and the type of scoliosis.”

- Observation may be advised if the patient “is still growing (is skeletally immature) and the curve is mild.”
- Doctors may advise patients “to wear a brace to stop a curve from getting any worse in patients who are still growing with moderate spinal curvature. As a child nears the end of growth, the indications for bracing will depend on how the curve affects the child’s appearance, whether the curve is getting worse, and the size of the curve.”
- Surgery may be advised “to correct a curve or stop it from worsening when the patient is still growing, has a curve that is severe [>45°], and has a curve that is worsening.”
NIAMS also stated that studies of the following treatments have not demonstrated prevention of curve progression or worsening:
- Chiropractic manipulation
- Electrical stimulation
- Dietary supplements
- Exercise.

United Kingdom’s National Institute for Health and Clinical Excellence
In 2009, the United Kingdom’s National Institute for Health and Clinical Excellence (NICE) provided clinical guidelines on early management of persistent nonspecific low back pain.

- NICE recommends that practitioners consider referral for spinal fusion for people who have completed an optimal package of care that includes a combined physical and psychological treatment program and still have severe nonspecific low back pain for which they would consider surgery.

U.S. Preventive Services Task Force Recommendations
Not applicable.

Key Words:
Spinal lumbar fusion, Lumbar fusion, Low back pain (LBP), Spondylolysis, Spondylolisthesis, Degenerative Disc Disease (DDD), Bone graft surgery, Pseudoarthrosis, Flat-back syndrome, Spinal arthrodesis, Vertebral interbody fusion, Spondylosyndesis, lumbar disc herniation, spinal stenosis, scoliosis, lumbar fusion revision

Approved by Governing Bodies:
Lumbar spinal fusion is a surgical procedure and does not require approval by FDA. A variety of instrumentation used in lumbar spinal fusion is cleared for marketing by FDA. Infuse (rhBMP-2) and OP-1(rhBMP-7) are approved by FDA for specified indications.

Benefit Application:
Coverage is subject to member’s specific benefits. Group specific policy will supersede this policy when applicable.
ITS: Home Policy provisions apply.
FEP: Special benefit consideration may apply. Refer to member’s benefit plan. FEP does not consider investigational if FDA approved and will be reviewed for medical necessity.
Coding:
CPT Codes:

20930 Allograft, morselized, or replacement of osteopromotive material, for spine surgery only (list separately in addition to code for primary procedure)
20931 Allograft, structural, for spine surgery only (list separately in addition to primary procedure)
20936 Autograft for spine surgery only (includes harvesting the graft); local (e.g., ribs, spinous process or laminar fragments) obtained from the same incision (list separately in addition to code for primary procedure)
20937 ; morselized (through separate skin or fascial incision) (list separately in addition to code for primary procedure)
20938 ; structural, bicortical, or tricortical (through separate skin or fascial incision) (list separately in addition to code for primary procedure)
22533 Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression); lumbar
22534 Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression; thoracic or lumbar, each additional vertebral segment
22558 Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); lumbar
22585 Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); each additional interspace (List separately in addition to code for primary procedure)
22612 Arthrodesis, posterior or posterolateral technique, single level; lumbar (with or without lateral transverse technique)
22614 Arthrodesis, posterior or posterolateral technique, single level; each additional vertebral segment (List separately in addition to code for primary procedure)
22630 Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace; lumbar
22632 Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace; each additional interspace (List separately in addition to code for primary procedure)
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
22634 Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Additional Interspace and Segment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>22800</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast;</td>
<td>up to 6 vertebral segments</td>
</tr>
<tr>
<td>22802</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast;</td>
<td>7 to 12 vertebral segments</td>
</tr>
<tr>
<td>22804</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast;</td>
<td>13 or more vertebral segments</td>
</tr>
<tr>
<td>22808</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast;</td>
<td>2 to 3 vertebral segments</td>
</tr>
<tr>
<td>22810</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast;</td>
<td>4 to 7 vertebral segments</td>
</tr>
<tr>
<td>22812</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast;</td>
<td>8 or more vertebral segments</td>
</tr>
<tr>
<td>22840</td>
<td>Posterior non-segmental instrumentation (e.g., Harrington rod technique,</td>
<td>pedicle fixation across 1 interspace, atlantoaxial</td>
</tr>
<tr>
<td></td>
<td>pedicle fixation, dual rods with multiple hooks and sublaminar wires);</td>
<td>transarticular screw fixation, sublaminar wiring at C1, facet screw</td>
</tr>
<tr>
<td></td>
<td>up to 6 vertebral segments</td>
<td>fixation) (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22841</td>
<td>Internal spinal fixation by wiring of spinous processes (list separately</td>
<td>in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22842</td>
<td>Posterior segmental instrumentation (e.g., pedicle fixation, dual rods with</td>
<td>3 to 6 vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>multiple hooks and sublaminar wires);</td>
<td>primary procedure)</td>
</tr>
<tr>
<td>22843</td>
<td>Posterior segmental instrumentation (e.g., pedicle fixation, dual rods with</td>
<td>7 to 12 vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>multiple hooks and sublaminar wires);</td>
<td>primary procedure)</td>
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<tr>
<td>22844</td>
<td>Posterior segmental instrumentation (e.g., pedicle fixation, dual rods with</td>
<td>13 or more vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>multiple hooks and sublaminar wires);</td>
<td>primary procedure)</td>
</tr>
<tr>
<td>22845</td>
<td>Anterior instrumentation;</td>
<td>2 to 3 vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>2 to 3 vertebral segments</td>
<td>primary procedure)</td>
</tr>
<tr>
<td>22846</td>
<td>Anterior instrumentation;</td>
<td>4 to 7 vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>4 to 7 vertebral segments</td>
<td>primary procedure)</td>
</tr>
<tr>
<td>22847</td>
<td>Anterior instrumentation;</td>
<td>8 or more vertebral segments (List separately in addition to code for</td>
</tr>
<tr>
<td></td>
<td>8 or more vertebral segments</td>
<td>primary procedure)</td>
</tr>
<tr>
<td>22853</td>
<td>Insertion of interbody biomechanical device(s) (e.g. synthetic cage,</td>
<td>mesh) with integral anterior instrumentation for device anchoring</td>
</tr>
<tr>
<td></td>
<td>mesh) with integral anterior instrumentation for device anchoring</td>
<td>(e.g. screws, flanges), when performed, to intervertebral disc space</td>
</tr>
<tr>
<td></td>
<td>(Effective 01/01/17)</td>
<td>in conjunction with interbody arthrodesis, each interspace</td>
</tr>
</tbody>
</table>

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*Medical Policy #517*
Insertion of interbody biomechanical device(s) (e.g., synthetic cage, mesh) with integral anterior instrumentation for device anchoring (e.g., screws, flanges), when performed, to vertebral corpectomy(ies) (vertebral body resection, partial or complete) defect, in conjunction with interbody arthrodesis, each contiguous defect (Effective 01/01/17)

Insertion of interbody biomechanical device(s) (e.g., synthetic cage, mesh, methylmethacrylate) to intervertebral disc space or vertebral body defect without interbody arthrodesis, each contiguous defect (Effective 01/01/17)

Previous Coding:

Application of intervertebral biomechanical device(s) (e.g., synthetic cage(s), threaded bone dowel(s), ethylmethacrylate) to vertebral defect or interspace (List separately in addition to code for primary procedure) (Deleted 12/31/16)

References:


59. Resnick DK, Choudhri TF, Dailey AT, et al; American Association of Neurological Surgeons/Congress of Neurological Surgeons. Guidelines for the performance of fusion...


Policy History:
Medical Policy Group, June 2013 (4)
Medical Policy Administration Committee, June 2013
Available for comment June 18 through August 1, 2013
Medical Policy Group, August 2013 (2): Policy updated based on Provider comments
Medical Policy Administration, September 2013
Available for comment September 19 through November 2, 2013
Medical Policy Group, September 2014 (3): added word “modality(ies)” to description of physical therapy in conservative therapy definition per Medical Director
Medical Policy Panel, November 2014
Medical Policy Group, October 2015 (2): 2015 Updates to Description, Key Points, Approved by Governing Bodies, References, and policy statement revised with criteria update to recurrent lumbar disc herniation, spinal stenosis with lumbar spondylolisthesis, pseudoarthrosis, adjacent segment degeneration, and surgical procedures that create an unstable spine.
Medical Policy Administration Committee, October 2015
Available for comment October 6 through November 19, 2015
Medical Policy Group, March 2016 (2): updated Degenerative Disc Disease section- changed the 12 months of consecutive pain to greater than 6 months of consecutive pain and removed the age requirement of 25-65.
Medical Policy Group, April 2016 (2)- updates to Key Words and Policy section on Pseudoarthrosis with effective date of May 26, 2016.
Medical Policy Administration Committee, April 2016
Available for comment April 11 through May 25, 2016
Medical Policy Panel, May 2016
Medical Policy Group, May 2016 (7): Updates to Description, Key Points, and References. Policy statement- smoking criteria updated, changed from six weeks to eight weeks.
Medical Policy Group, October 2016 (7): Clarification to Policy Statement- under Degenerative Disc Disease, removed screening requirement for mental illness and/or substance abuse issues; Included verbiage regarding pre-operative mental health screening. Replaced ‘disk’ with ‘disc’.
Medical Policy Administration Committee, October 2016
Available for comment October 13 through November 26, 2016
Medical Policy Group, December 2016: Annual Coding Update. Added CPT codes 22853, 22854, and 22859. Created Previous Coding section and moved deleted code 22851 to this new section.

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member’s plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date
Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield’s administration of plan contracts.