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Subject: Lumbar Spine Surgery

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

Position Statement	Billing/Coding	Reimbursement	Program Exceptions	Definitions	Related Guidelines
Other	References	Updates			

DESCRIPTION:

Lumbar discectomy/microdiscectomy is a surgical procedure to remove part of the damaged spinal disc. The damaged spinal disc herniates into the spinal canal and compresses the nerve roots. Nerve root compression leads to symptoms like low back pain, radicular pain, numbness and tingling, muscular weakness, and paresthesia. Typical disc herniation pain is exacerbated with any movement that causes the disc to increase pressure on the nerve roots.

Lumbar Decompression (Laminectomy, Laminotomy, Facetectomy, and Foraminotomy): Laminectomy is a common decompression surgery. The American Association of Neurological Surgeons defines laminectomy as a surgery to remove the back part of vertebra, lamina, to create more space for the spinal cord and nerves. The most common indication for laminectomy is spinal stenosis. Spondylolisthesis and herniated disk are also frequent indications for laminectomy. Decompression surgery is usually performed as part of lumbar fusion surgery.

Lumbar Fusion Surgery: Lumbar spinal fusion (arthrodesis) is a surgical procedure used to treat conditions of the lumbar spine, e.g., degenerative disc disease, spinal stenosis, injuries/fractures of the spine, spinal instability, and spondylolisthesis. Spinal fusion is a “welding” process that permanently fuses or joins together two or more adjacent bones in the spine, immobilizing the vertebrae and restricting motion at a painful joint. It is usually performed after other surgical procedures of the spine, such as discectomy or laminectomy. The goal of fusion is to increase spinal stability, reduce irritation of the affected nerve roots, compression on the spinal cord, disability, and pain and/or numbness.

Spinal Deformity Surgery: Whenever possible, spinal deformity in adults is treated non-operatively. However, spinal surgery is sometimes necessary to correct spinal deformity. The most common type of surgery in adults is a posterior spinal fusion with instrumentation. Occasionally anterior fusion is performed for severe curves.

Lumbar Artificial Disc Replacement (LADR) is a surgical procedure used to treat low back pain from lumbar degenerative disc disease. The degenerative lumbar disc is replaced with an artificial disc that maintains motion at the surgical level. Studies have shown the results of LADR to be at least equivalent to spinal fusion for the treatment of discogenic low back pain. LADR is a technically challenging operation and proper training should be obtained before performing the procedure.

POSITION STATEMENT:

NOTE: For procedures that include fusion, it is required that the surgical candidate refrain from smoking/nicotine for at least six weeks prior to surgery and during the time of healing.

Lumbar Discectomy/Microdiscectomy

Lumbar discectomy/microdiscectomy **meets the definition of medical necessity** for the following:

- Inter-vertebral disc herniation when **ALL** of the following are met:
 - Primary radicular symptoms noted upon clinical exam that significantly hinder daily activities
 - Failure to improve with at least 6 consecutive weeks in the last 6 months of documented, physician directed appropriate conservative treatment, to include at least 2 of the following:
 - Analgesics, steroids, and/or NSAIDs
 - Structured program of physical therapy
 - Structured home exercise program prescribed by a physical therapist, chiropractic provider, or physician
 - Epidural steroid injections and/or selective nerve root block
 - Imaging studies show evidence of inter-vertebral disc herniation that correlate exactly with symptoms

OR

- As the first line of treatment (no conservative treatment required) in the following clinical cases:
 - Progressive nerve compression resulting in an acute neurologic deficit (motor) due to herniated disc, evidenced by one of the following significant neurological deficits:
 - 0-2/5 on the motor function scale for L5 or S1 roots, **OR**
 - 0-3/5 on the motor function scale for L3 or L4 roots
 - Cauda equina syndrome (loss of bowel or bladder control)

Lumbar Decompression (Laminectomy, Laminotomy, Facetectomy and Foraminotomy)

These procedures allow decompression by partial or total removal of various parts of vertebral bone and ligaments.

Lumbar spinal canal decompression **meets the definition of medical necessity** for the following:

- Lumbar spinal stenosis when **ALL** of the following are met:
 - Neurogenic claudication and/or radicular leg pain that impairs daily activities
 - Failure to improve with at least 6 consecutive weeks in the last 6 months of documented, physician-directed appropriate conservative treatment, to include at least 2 of the following:
 - Analgesics, steroids, and/or NSAIDs
 - Structured program of physical therapy
 - Structured home exercise program prescribed by a physical therapist, chiropractic provider, or physician
 - Epidural steroid injections and/or selective nerve root block
 - Imaging findings demonstrate moderate to severe stenosis consistent with clinical signs/symptoms

OR

- As the first line of treatment (no conservative treatment required) in the following clinical cases:
 - Progressive nerve compression resulting in an acute neurologic (motor) deficit, evidenced by one of the following significant neurological deficits:
 - 0-2/5 on the motor function scale for L5 or S1 roots, **OR**
 - 0-3/5 on the motor function scale for L3 or L4 roots
 - Cauda equina syndrome (loss of bowel or bladder control)
 - Spinal stenosis due to tumor, infection, or trauma

Lumbar Spine Fusion (single level with or without decompression)

Because of variable outcomes with fusion surgery, candidates should be actively involved in the decision-making process when considering this intervention. The following documentation in the medical record is required: the physician has thoroughly explained the potential risks and benefits of surgery, as well as treatment alternatives to surgery.

Lumbar spine fusion at a single level, with or without decompression, **meets the definition of medical necessity** when **ALL** of the following are met:

- Lumbar back pain, neurogenic claudication, and/or radicular leg pain without sensory or motor deficit that impairs daily activities for at least 6 months

- Failure to improve with at least 6 consecutive weeks in the last 6 months of documented, physician-directed appropriate conservative treatment (6 months for isolated low back pain), to include at least 2 of the following:
 - Analgesics, steroids, and/or NSAIDs
 - Structured program of physical therapy
 - Structured home exercise program prescribed by a physical therapist, chiropractic provider, or physician
 - Epidural steroid injections and/or facet injections/selective nerve root block
- Imaging studies correspond to the clinical findings
- At least one of the following **clinical conditions*** is present:
 - Spondylolisthesis (neural arch defect: spondylolytic spondylolisthesis, degenerative spondylolisthesis, or congenital unilateral neural arch hypoplasia), **OR**
 - Evidence of segmental instability (excessive motion, as in degenerative spondylolisthesis, segmental instability, or surgically induced segmental instability). [Surgically induced segmental instability is instability that **will be or is** produced during a surgical procedure. Removal of greater than 50% of the bilateral facets or complete unilateral facetectomy is required. Documentation of moderate to severe foraminal stenosis by radiological exam/report is required. The operating surgeon must document in the medical record that the instability is anticipated], **OR**
 - Revision of previous failed surgery for pseudoarthrosis at the same level, at least 6-12 months from prior surgery, if significant functional gains are anticipated, **OR**
 - Revision of previous failed surgery for repeat disc herniations if significant functional gains are anticipated (Note: Many recurrent disc herniations can be treated with discectomy alone, so specific indications for the addition of fusion will be required), **OR**
 - Fusion for the treatment of spinal tumor, cancer, or infection, **OR**
 - Chronic low back pain or degenerative disc disease (disc degeneration without significant neurological compression presenting with low back pain), with failure of at least 6 months of appropriate active non-operative treatment (completion of a comprehensive cognitive –behavioral rehabilitation program is mandatory)

OR

- As the first line of treatment (no conservative treatment required) in the following clinical cases:
 - Progressive nerve compression resulting in an acute neurologic deficit (motor) when both of the following are present:
 - One of the **clinical conditions*** listed above (except chronic low back pain or degenerative disc disease)
 - Significant neurological deficit, defined as one of the following:
 - There is 0-2/5 on the motor function scale for L5 or S1 roots, **OR**

- There is 0-3/5 on the motor function scale for L3 or L4 roots
- Cauda equina syndrome (loss of bowel or bladder control) with one of the **clinical conditions*** listed above (except chronic low back pain or degenerative disc disease)

Repeat Lumbar Spine Fusion

Repeat lumbar fusion surgeries are reviewed on a case-by-case basis upon submission of medical records and imaging studies that demonstrate remediable pathology. The items below must be documented and available for review:

- Rationale as to why surgery is preferred over other non-invasive or less invasive treatment procedures
- Signed documentation that the member has participated in the decision-making process and understands the high rate of failure and complications

Lumbar Spine Fusion (multi-level with or without decompression)

Because of variable outcomes with fusion surgery, candidates should be actively involved in the decision-making process when considering this intervention. The following documentation in the medical record is required: the physician has thoroughly explained the potential risks and benefits of surgery, as well as treatment alternatives to surgery.

Lumbar spine fusion at multiple levels, with or without decompression, **meets the definition of medical necessity** when **ALL** of the following are met:

- Lumbar back pain, neurogenic claudication, and/or radicular leg pain (without sensory or motor deficit) that impairs daily activities for at least 6 months
- Failure to improve with at least 6 consecutive weeks in the last 6 months of documented, physician-directed appropriate conservative treatment, to include at least 2 of the following:
 - Analgesics, steroids, and/or NSAIDs
 - Structured program of physical therapy
 - Structured home exercise program prescribed by a physical therapist, chiropractic provider, or physician
 - Epidural steroid injections and/or selective nerve root block
- Imaging studies correspond to the clinical findings
- There is at least one of the following clinical conditions:
 - Multiple level spondylolisthesis (Note: Fusions in cases with single level spondylolisthesis should be limited to the unstable level), **OR**
 - Fusion for the treatment of spinal tumor, trauma, cancer, or infection affecting multiple levels, **OR**

- Intra-operative or surgically induced segmental instability. [Surgically induced segmental instability is instability that **will be or is** produced during a surgical procedure. Removal of greater than 50% of the bilateral facets or complete unilateral facetectomy is required. Documentation of moderate to severe foraminal stenosis by radiological exam/report is required. The operating surgeon must document in the medical record that the instability is anticipated.]

OR

- As the first line of treatment (no conservative treatment required) when there is progressive nerve compression resulting in an acute neurologic deficit (motor), evidenced by one of the following significant neurological deficits:
 - 0-2/5 on the motor function scale for L5 or S1 roots, **OR**
 - 0-3/5 on the motor function scale for L3 or L4 roots, **AND**
- One of the **clinical conditions*** listed above (except chronic low back pain or degenerative disc disease)

OR

- As the first line of treatment (no conservative treatment required) in the presence of cauda equina syndrome (loss of bowel or bladder control), **AND** one of the **clinical conditions*** listed above (except chronic low back pain or degenerative disc disease)

Surgery for Spinal Deformity

Thoracic deformity (minimal / secondary / flexible lumbar involvement) in adults

Posterior or anterior spinal fusion with instrumentation **meets the definition of medical necessity** for the following indications:

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) or lower extremity weakness (0-3/5 on the strength scale) or paralysis with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images: immediate surgical evaluation is indicated, **OR**
- When **ALL** of the following criteria are met:
 - Significant pain or symptoms that impair daily activities for > 6 months, **AND**
 - Failure of symptom or pain improvement upon completion of at least 12 weeks of focused non-operative care* in the past year, **AND**
 - Imaging studies confirm spinal curvature and demonstrate at least one of the following:
 - Spinal curvature > 50 degrees (scoliosis), **OR**
 - Spinal curvature > 75 degrees (kyphosis), **OR**
 - Severe kyphosis (chin-brow vertical angle greater than 35 degrees)

Lumbar deformity (with or without secondary thoracic involvement) in adults

Posterior or anterior spinal fusion with instrumentation **meets the definition of medical necessity** for the following indications:

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) or lower extremity weakness (0-3/5 on the strength scale) or paralysis with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images: immediate surgical evaluation is indicated, **OR**
- When **ALL** of the following criteria are met:
 - Lumbar back pain, neurogenic claudication, and/or radicular leg pain without significant motor deficit (0-3/5) that impairs daily activities for at least 6 months, **AND**
 - Failure of symptom or pain improvement upon completion of at least 12 weeks of focused non-operative care* in the past year, **AND**
 - Imaging studies that correspond to clinical findings and show at least one of the following:
 - Sagittal or coronal imbalance of at least 5 cm measured on long plate standing x-rays of the entire spine, **OR**
 - Documented progression of 10 degrees in one year in the coronal plane on x-ray (scoliosis), **OR**
 - A fixed scoliosis of at least 40 degrees

***Non-operative care for spinal deformity surgery:**

- Documented failure of at least twelve (12) consecutive weeks in the past year of any 2 of the following physician-directed conservative treatments:
 - Analgesics, steroids, and/or NSAIDs
 - Structured program of physical therapy aimed at increasing core muscle strength
 - Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
 - Epidural steroid injections and or facet injections /selective nerve root block

Lumbar Artificial Disc Replacement

Because of variable outcomes with lumbar artificial disc replacement surgery, candidates should be actively involved in the decision-making process when considering this intervention. The following documentation in the medical record is required: the physician has thoroughly explained the surgery, possible risks and complications, alternate non-surgical treatments, and less invasive surgical procedures that might offer relief.

Lumbar total disc arthroplasty (artificial disc replacement) **meets the definition of medical necessity** when **ALL** of the following are met:

- The individual is between the ages of 18 to 60

- Degenerative disc disease or significant discogenic back pain with disc degeneration is confirmed by documented history, physical examination, and key radiographic studies, with no more than Grade 1 (low level) spondylolisthesis demonstrated on x-ray at the operative levels
- Imaging confirms absence of significant facet arthropathy at operative levels
- At least six months of non-operative (conservative) treatment have failed to resolve symptoms (See *Note)
- Disc reconstruction with the device is performed at one or two consecutive levels in the lumbar spine from L3-S1 using an anterior retroperitoneal approach
- The device used as the disc replacement device is FDA-approved for lumbar disc replacement and is used in accordance with FDA labeling
- There are no contraindications to lumbar artificial disc replacement, including but not limited to (see **Note):
 - Disease above L3-4
 - Active systemic or local infection
 - Osteoporosis or osteopenia (DEXA bone mineral density T-score less than or equal to -1.0), or vertebral bodies compromised by disease or prior trauma
 - Allergy or sensitivity to implant materials
 - Isolated lumbar radiculopathy (especially due to herniated disc), or chronic radiculopathy (unrelenting, especially leg symptoms lasting over 1 year)
 - Spinal stenosis, or spinal deformity (scoliosis)
 - Spondylolisthesis greater than Grade 1
 - Disc degeneration requiring treatment at more than two levels
 - Severe facet arthrosis or joint degeneration
 - Presence of free disc fragment
 - Poorly managed psychiatric disorder

***NOTE:** Conservative care for lumbar artificial disc replacement is focused multi-modal nonoperative treatment that must include a physical therapy/rehabilitation program with cognitive-behavioral components. Treatment may also include pain management injections and active exercise programs. This must be clearly outlined in the medical record.

****NOTE:** Contraindications are related to the levels being considered for surgery.

Artificial lumbar disc replacement **does not meet the definition of medical necessity** in all other circumstances, including artificial disc arthroplasty done at more than two spinal levels, and hybrid (combination artificial disc and fusion) procedures.

Conservative treatment

Musculoskeletal conservative treatment includes primarily physical therapy and/or injections; and a combination of modalities, such as rest, ice, heat, modified activities, medical devices (such as braces), medications, diathermy, chiropractic treatments, or physician supervised home exercise program.

Home Exercise Program

A home exercise program must include both of the following elements:

- Documentation provided of an exercise prescription/plan
- Follow up with member is conducted regarding completion of HEP (after 4-6 week period), or inability to complete HEP due to a physical reason (e.g., increased pain, inability to physically perform exercises; member inconvenience or noncompliance without explanation does not constitute an inability to complete HEP)

Relative contraindications to spine surgery:

- Medical contraindications (e.g., severe osteoporosis; infection of soft tissue adjacent to the spine and may be at risk of spreading to the spine; severe cardiopulmonary disease; anemia; malnutrition; systemic infection)
- Psychosocial risk factors (e.g., ruling out non-physiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability, such as peripheral neuropathy, piriformis syndrome, myofascial pain, sympathetically mediated pain syndromes, sacroiliac dysfunction, psychological conditions, etc.) prior to consideration of elective surgical intervention. Members with clinically significant depression or other psychiatric disorders being considered for elective spine surgery will be reviewed on a case-by-case basis.
- Morbid obesity (significant risk and concern for improper post-operative healing, post-operative complications related to morbid obesity, and/or an inability to participate in post-operative rehabilitation)

BILLING/CODING INFORMATION:

CPT Coding

0164T	Removal of total disc arthroplasty, (artificial disc), anterior approach, each additional interspace, lumbar (List separately in addition to code for primary procedure)
0165T	Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, each additional interspace, lumbar (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 (List separately in addition to code for primary procedure)
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 interspace; lumbar (with lateral transverse technique, when performed)
22614	Arthrodesis, posterior or posterolateral technique, single interspace; each additional interspace (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; lumbar
22634	Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace; each additional interspace and segment (List separately in addition to code for primary procedure)
22857	Total disc arthroplasty (artificial disc), anterior approach, including discectomy to prepare interspace (other than for decompression); single interspace, lumbar
22860	Total disc arthroplasty (artificial disc), anterior approach, including discectomy to prepare interspace (other than for decompression); second interspace, lumbar (List separately in addition to code for primary procedure)
22862	Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, single interspace; lumbar
22865	Removal of total disc arthroplasty (artificial disc), anterior approach, single interspace; lumbar
63005	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (eg, spinal stenosis), 1 or 2 vertebral segments; lumbar, except for spondylolisthesis
63012	Laminectomy with removal of abnormal facets and/or pars inter-articularis with decompression of cauda equina and nerve roots for spondylolisthesis, lumbar (Gill type procedure)
63017	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (eg, spinal stenosis), more than 2 vertebral segments; lumbar
63030	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; 1 interspace, lumbar
63035	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; each additional interspace, cervical or lumbar (List separately in addition to code for primary procedure)

63042	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; lumbar
63044	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; each additional lumbar interspace (List separately in addition to code for primary procedure)
63047	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [eg, spinal or lateral recess stenosis]), single vertebral segment; lumbar
63048	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [eg, spinal or lateral recess stenosis]), single vertebral segment; each additional vertebral segment, cervical, thoracic, or lumbar (List separately in addition to code for primary procedure)
63052	Laminectomy, facetectomy, or foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s] [eg, spinal or lateral recess stenosis]), during posterior interbody arthrodesis, lumbar; single vertebral segment (List separately in addition to code for primary procedure)
63053	Laminectomy, facetectomy, or foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s] [eg, spinal or lateral recess stenosis]), during posterior interbody arthrodesis, lumbar; each additional segment (List separately in addition to code for primary procedure)
63056	Transpedicular approach with decompression of spinal cord, equina and/or nerve root(s) (eg, herniated intervertebral disc), single segment; lumbar (including transfacet, or lateral extraforaminal approach) (eg, far lateral herniated intervertebral disc)
63057	Transpedicular approach with decompression of spinal cord, equina and/or nerve root(s) (eg, herniated intervertebral disc), single segment; each additional segment, thoracic or lumbar (List separately in addition to code for primary procedure)

REIMBURSEMENT INFORMATION:

Refer to section entitled [POSITION STATEMENT](#).

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products:

The following National Coverage Determination (NCD) was reviewed on the last guideline reviewed date: Lumbar ARTIFICIAL DISC Replacement (LADR) (150.10), located at cms.gov.

The following Local Coverage Determinations (LCDs) were reviewed on the last guideline reviewed date: Lumbar Spinal Fusion for Instability and Degenerative Disc Conditions (L33382), located at fcso.com.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

[02-20000-45, Cervical Spine Surgery](#)

OTHER:

None applicable.

REFERENCES:

1. Abi-Hanna D, Kerferd J, Phan K, Rao P, Mobbs R. Lumbar disc arthroplasty for degenerative disc disease: a literature review. *World Neurosurg.* 2017 Oct 4. pii: S1878-8750(17)31669-8. PMID: 28987839 DOI: 10.1016/j.wneu.2017.09.153.
2. Aghayev E, Etter C, Bärlocher C, Sgier F, Otten P, Heini P, Hausmann O, Maestretti G, Baur M, Porchet F, Markwalder TM, Schären S, Neukamp M, Röder C. Five-year results of lumbar disc prostheses in the SWISSspine registry. *Eur Spine J.* 2014 Oct;23(10):2114-26. PMID: 24947182. DOI: 10.1007/s00586-014-3418-4.
3. Arunakul R, Metzger M, Kanim L, Bae H, Kropf M, Delamarter R. Radiographic Analysis of the Lumbosacral Juncture: Is There a Critical Sacral Angle for Total Disc Replacement? *Asian Spine J.* 2017 Apr;11(2):249-255.
4. Atlas, S.J., Keller, R.B., Wu, Y.A., Deyo, R.A., & Singer, D.E. (2005). Long-term outcomes of surgical and nonsurgical management of lumbar spinal stenosis: 8 to 10 year results from the Maine lumbar spine study. *Spine*, 30(8), 936-43.
5. Blue Cross Blue Shield Association Evidence Positioning System®. 2.01.83 Interventions for Progressive Scoliosis, 05/20.
6. Blue Cross Blue Shield Association Evidence Positioning System®. 7.01.87 Artificial Intervertebral Disc: Lumbar Spine, 05/19.
7. Blue Cross Blue Shield Association Evidence Positioning System®. 7.01.141 Lumbar Fusion, 12/14.
8. Blue Cross Blue Shield Association Evidence Positioning System®. 7.01.145 Laminectomy, 01/15.
9. Blue Cross Blue Shield Association Evidence Positioning System®. 7.01.146 Discectomy, 12/14.
10. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Artificial lumbar disc arthroplasty. TEC Assessments. 2013; Volume 28, Tab 7.
11. Centers for Medicare and Medicaid Services (CMS). Local Coverage Article: Billing and Coding: Noncovered Services (A57743) (05/07/20).
12. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD): Noncovered Services (L33777) (Retired 07/01/20).
13. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD): Lumbar Spinal Fusion for Instability and Degenerative Disc Conditions (L33382) (01/08/19).
14. Centers for Medicare and Medicaid Services. NCD for Lumbar ARTIFICIAL DISC Replacement (LADR) (150.10) (08/14/07).
15. Centinel Spine Clinical Compendium: Prodisc® L Lumbar TDR System.
16. Charles YP, Ntilikina Y. Scoliosis surgery in adulthood: what challenges for what outcome? *Ann Transl Med.* 2020 Jan;8(2):34. doi: 10.21037/atm.2019.10.67.

17. Deyo RA, Hickam D, Duckart JP, Piedra M. Complications after surgery for lumbar stenosis in a veteran population. *Spine (Phila Pa 1976)*. 2013 Sep 1;38(19):1695-702.
18. Deyo, R.A., Mirza, S.K., Martin, B.I., Kreuter, W., Goodman, D.C., & Jarvik, J.G. (2010). Trends, major medical complications, and charges associated with surgery for lumbar spinal stenosis in older adults. *JAMA*, 303(13), 1259-1265.
19. First Coast Service Options, Inc. (FCSO). LCD for Noncovered Services (L29288), 04/15. Retired 09/30/15.
20. Furunes H, Storheim K, Brox JI, Johnsen LG, Skouen JS, Franssen E, Solberg TK, Sandvik L, Hellum C. Total disc replacement versus multidisciplinary rehabilitation in patients with chronic low back pain and degenerative discs: 8-year follow-up of a randomized controlled multicenter trial. *Spine J*. 2017 Oct;17(10):1480-1488. PMID: 28583869. DOI: 10.1016/j.spinee.2017.05.011.
21. Gonzalez Alvarez A, Dearn KD, Shepherd DET. Design and material evaluation for a novel lumbar disc replacement implanted via unilateral transforaminal approach. Design and material evaluation for a novel lumbar disc replacement implanted via unilateral transforaminal approach. *J Mech Behav Biomed Mater*. 2019 Mar;91:383-390. doi: 10.1016/j.jmbbm.2018.12.011. Epub 2018 Dec 20. PMID: 30660051 DOI: 10.1016/j.jmbbm.2018.12.011.
22. Kang K, Rodriguez-Olaverri JC, Schwab F, Hashem J, Razi A, Farcy JP. Partial facetectomy for lumbar foraminal stenosis. *Adv Orthop*. 2014;2014:534658.
23. Kelly MP, Lurie JD, Yanik EL, Shaffrey CI, Baldus CR, Boachie-Adjei O, Buchowski JM, Carreon LY, Crawford CH 3rd, Edwards C 2nd, Errico TJ, Glassman SD, Gupta MC, Lenke LG, Lewis SJ, Kim HJ, Koski T, Parent S, Schwab FJ, Smith JS, Zebala LP, Bridwell KH. Operative Versus Nonoperative Treatment for Adult Symptomatic Lumbar Scoliosis. *J Bone Joint Surg Am*. 2019 Feb 20;101(4):338-352. doi: 10.2106/JBJS.18.00483. Erratum in: *J Bone Joint Surg Am*. 2019 Dec 18;101(24):e138.
24. Laugesen LA, Paulsen RT, Carreon L, Ernst C, Andersen MØ. Patient-reported outcomes and revision rates at a mean follow-up of 10 years after lumbar total disc replacement. *Spine (Phila Pa 1976)*. 2017 Nov 1;42(21):1657-1663. PMID: 28368983.
25. Levin DA, Bendo JA, Quirno M, Errico T, Goldstein J, Spivak J. Comparative Charge Analysis of One- and Two-Level Lumbar Total Disc Arthroplasty Versus Circumferential Lumbar Fusion. *Spine (Phila Pa 1976)*. 2007 Dec 1;32(25):2905-9. PMID: 18246016.
26. Liu G, Liu S, Zuo YZ, Li QY, Wu ZH, Wu N, Yu KY, Qiu GX. Recent Advances in Technique and Clinical Outcomes of Minimally Invasive Spine Surgery in Adult Scoliosis. *Chin Med J (Engl)*. 2017 Nov 5;130(21):2608-2615. doi: 10.4103/0366-6999.212688.
27. McClelland S 3rd, Kim SS. Successful operative management of an upper lumbar spinal canal stenosis resulting in multilevel lower nerve root radiculopathy. *J Neurosci Rural Pract*. 2015 Jan;6(1):108-11.
28. Mu X, Wei J, A J, Li Z, Ou Y. The short-term efficacy and safety of artificial total disc replacement for selected patients with lumbar degenerative disc disease compared with anterior lumbar interbody fusion: A systematic review and meta-analysis. *PLoS One*. 2018 Dec 28;13(12):e0209660. doi: 10.1371/journal.pone.0209660. eCollection 2018.
29. National Imaging Associates, Inc. Lumbar Spinal Fusion Surgery Clinical Guideline, 2016.
30. National Imaging Associates, Inc. Lumbar Spinal Fusion Surgery Clinical Guideline, 2017.
31. National Imaging Associates, Inc. Lumbar Decompression Procedures Clinical Guideline, 2016.
32. National Imaging Associates, Inc. Lumbar Decompression Procedures Clinical Guideline, 2017.
33. National Imaging Associates, Inc. Lumbar Microdiscectomy Clinical Guideline, 2016.
34. National Imaging Associates, Inc. Lumbar Microdiscectomy Clinical Guideline, 2017.

35. National Imaging Associates, Inc. Lumbar Spinal Surgery Clinical Guideline, 2018.
36. National Imaging Associates, Inc. Lumbar Spinal Surgery Clinical Guideline, 2019.
37. National Imaging Associates, Inc. Lumbar Spinal Surgery Clinical Guideline, 2020.
38. National Imaging Associates, Inc. Deformity Surgery Clinical Guideline, 2021.
39. National Imaging Associates, Inc. Lumbar Spinal Fusion Surgery Clinical Guideline, 2021.
40. National Imaging Associates, Inc. Lumbar Decompression Procedures Clinical Guideline, 2021.
41. National Imaging Associates, Inc. Lumbar Microdiscectomy Only Procedure Clinical Guideline, 2021.
42. Nerland US, Jakola AS, Solheim O, Weber C, Rao V, Lønne G, Solberg TK, Salvesen Ø, Carlsen SM, Nygaard ØP, Gulati S. Minimally invasive decompression versus open laminectomy for central stenosis of the lumbar spine: pragmatic comparative effectiveness study. *BMJ*. 2015 Apr 1;350:h1603.
43. North American Spine Society (NASS). (2009). Clinical Guidelines for Multidisciplinary Spine Care: Diagnosis and Treatment of Degenerative Lumbar Spondylolisthesis. doi: 10.1016/j.spinee.2009.03.016.
44. North American Spine Society Coverage Policy Recommendations: Lumbar Artificial Disc Replacement. April 30, 2014. Accessed at <https://www.spine.org>.
45. North American Spine Society Coverage Policy Recommendations: Lumbar Artificial Disc Replacement. February 2019. Accessed at <https://www.spine.org>.
46. Park SJ, Lee CS, Chung SS, Lee KH, Kim WS, Lee JY. Long-Term Outcomes Following Lumbar Total Disc Replacement Using ProDisc-II: Average 10-Year Follow-Up at a Single Institute. *Spine (Phila Pa 1976)*. 2016 Jun;41(11):971-7.
47. Radcliff K, Spivak J, Darden B 2nd, Janssen M, Bernard T, Zigler J. Five Year Reoperation Rates of 2-Level Lumbar Total Disk Replacement Versus Fusion: Results of a Prospective, Randomized Clinical Trial. *Clin Spine Surg*. 2018 Feb;31(1):37-42. PMID: 28005616.
48. Salzmann SN, Plais N, Shue J, Girardi FP. Lumbar disc replacement surgery-successes and obstacles to widespread adoption. *Curr Rev Musculoskelet Med*. 2017 Jun;10(2):153-159.
49. Scott-Young M, McEntee L, Schram B, Rathbone E, Hing W, Nielsen D. The Concurrent Use of Lumbar Total Disc Arthroplasty and Anterior Lumbar Interbody Fusion: the Lumbar Hybrid Procedure for the Treatment of Multi-Level Symptomatic Degenerative Disc Disease- A Prospective Study. *Spine (Phila Pa 1976)*. 2018 Jan 15; 43(2): E75–E81.
50. Shein D, Shue J, Girardi F. Evaluation of Aesculap Implant Systems active Artificial Disc for the treatment of degenerative disc disease. *Expert Rev Med Devices*. 2016 Dec;13(12):1069-1072. PMID: 27807981.
51. Shin MH, Ryu KS, Rathi NK, Park CK. Segmental translation after lumbar total disc replacement using ProDisc-L®: associated factors and relation to facet arthrosis. *J Neurosurg Sci*. 2017 Feb;61(1):14-21. PMID: 25649063. DOI: 10.23736/S0390-5616.16.03135-0.
52. Siepe CJ, Heider F, Wiechert K, Hitzl W, Ishak B, Mayer M. Mid to long term results of total lumbar disc replacement: a prospective analysis with 5- to 10-year follow up. *Spine J*. 2014 Aug 1;14(8):1417-31. PMID: 244448028.
53. Tosteson, ANA, et al. (2008). Surgical treatment of spinal stenosis with and without degenerative spondylolisthesis: Cost-effectiveness after 2 years. *Ann Intern Med*, 149(2), 845-853.
54. Tumialan LM, Ponton RP, Garvin A, Gluf W. Arthroplasty in the military; a preliminary experience with ProDisc-C and ProDisc-L. *Neurosurg Focus*. 2010 May;28(5):E18. PMID: 20568934.
55. UpToDate. Scoliosis in the adult. 2018. Accessed at [uptodate.com](https://www.uptodate.com).

56. Weinstein, J.N., Lurie, J.D., Tosteson, T.D., Hanscom, B., Tosteson, A.N.A., Blood E.A., Hu, S.S. (2007). Surgical versus nonsurgical treatment for lumbar degenerative spondylolisthesis. *N Engl J Med.*, 356(22), 2257-2270.
57. Wuertinger C, Annes RD, Hitzl W, Siepe CJ. Motion preservation following total lumbar disc replacement at the lumbosacral junction: a prospective long-term clinical and radiographic investigation. *Spine J.* 2017 Jun 30. pii: S1529-9430(17)30309-1. PMID: 28673830 DOI: 10.1016/j.spinee.2017.06.035.
58. Yue JJ, Garcia R Jr, Miller LE. The activL(®) Artificial Disc: a next-generation motion-preserving implant for chronic lumbar discogenic pain. *Med Devices (Auckl).* 2016 May 10;9:75-84.
59. Zigler, JE, et al. Comparison of therapies in lumbar degenerative disc disease: A network meta-analysis of randomized controlled trials. *J Comp Eff.* 2017 Sep.
60. Zigler J, Gornet MF, Ferko, N. Comparison of Lumbar Total Disc Replacement With Surgical Spinal Fusion for the Treatment of Single-Level Degenerative Disc Disease: A Meta-Analysis of 5-Year Outcomes From Randomized Controlled Trials.
61. Zigler JE, Blumenthal SL, et al. Progression of Adjacent-level Degeneration After Lumbar Total Disc Replacement. Results of a Post-hoc Analysis of Patients With Available Radiographs From a Prospective Study With 5-year Follow-up. *Spine (Phila Pa 1976).* 2018 Oct 15; 43(20): 1395–1400.
62. Zigler JE, Glenn J, Delamarter RB. Five year adjacent-level degenerative changes in patients with single-level disease treated using lumbar total disc replacement with ProDisc-L versus circumferential fusion. *J Neurosurg Spine.* 2012 Dec;17(6):504-11.
63. Zigler JE, Delamarter RB. Five-year results of the ProDisc-L Multicenter, Prospective, Randomized, Controlled Trial Comparing ProDisc-L with Circumferential Spinal Fusion for Single-Level Disabling Degenerative Disk Disease. *J Nuerusurg Spine.* 2012 Dec;17:493-501.
64. Zigler JE, Delamarter RB, Spivak JM et al. Results of the Prospective, Randomized, Multicenter Food and Drug Administration Investigational Device Exemption Study of the ProDisc-L Total Disc Replacement versus Circumferential Fusion for the Treatment of 1-Level Degenerative Disc Disease. *SPINE* 2007 May 15; 32(11); 1155-62. PMID: 17495770.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 04/22/21.

GUIDELINE UPDATE INFORMATION:

07/01/15	New Medical Coverage Guideline.
04/15/17	Revision: clarified requirements for conservative treatment by adding additional detail; revised criteria for lumbar decompression (laminectomy, laminotomy, facetectomy and foraminotomy), single level fusion, and multi-level fusion. Updated references.
10/15/17	Revision: updated position statement section regarding intra-operative/surgically induced segmental instability.
07/15/18	Scheduled review. Revised criteria for lumbar discectomy/microdiscectomy; lumbar decompression (laminectomy, laminotomy, facetectomy and foraminotomy); single level and multiple level lumbar spine fusion. Revised definition of conservative treatment, contraindications to spine surgery, and program exceptions section. Updated references.
03/15/19	Revision: deleted “sensory” from select coverage criteria. Updated references.

07/15/19	Scheduled review. Revised description and definition of conservative treatment. Added nicotine cessation criteria for fusion procedures. Updated references.
10/15/19	Unscheduled review. Maintain position statement and update references.
07/15/20	Scheduled review. Revised description and position statement. Updated references.
09/15/20	Revision. Updated language regarding decision making for fusion and artificial disc replacement.
02/15/21	Revision. Updated description. Added criteria for spinal deformity surgery. Updated references.
05/15/21	Scheduled review. Added coverage for lumbar artificial disc replacement at two levels. Updated references.
01/01/22	Annual CPT/HCPCS coding update. Added 63052, 63053. Revised descriptor 22612, 22614, 22633, 22634 and 63048.
01/01/23	Annual CPT/HCPCS coding update. Added 22860. Revised 22857. Deleted 0163T.