BSC_NIA_CG_307	Cervical Spine Surgery		
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Policy Statement

INDICATIONS FOR CERVICAL SPINE SURGERY

A. Anterior Cervical Decompression with Fusion (ACDF) - Single Level

The following criteria must be met*:

- Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with **spinal cord compression -** immediate surgical evaluation is indicated[1-16] Symptoms may include:
  - Upper extremity weakness
  - Unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - Disturbance with coordination
  - Hyperreflexia
  - Hoffmann sign
  - Positive Babinski sign and/or clonus;

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with evidence of spinal cord or nerve root compression on magnetic resonance imaging (MRI) or computed tomography (CT) imaging - immediate surgical evaluation is indicated (Tetreault, 2013)[2, 6, 10, 14;]

OR

When ALL of the following criteria are met[2, 17]

- Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity
- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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 confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at the level **corresponding with the clinical findings**.[2] Imaging studies may include:
  - MRI (preferred study for assessing cervical spine soft tissue); **OR**
  - CT with or without myelography— indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI).

***Cervical spine decompression with fusion as first-line treatment without conservative care measures in the following clinical cases**[6, 10, 11, 14, 16, 18, 19]

- As outlined above for myelopathy or progressive neurological deficit scenarios
- Significant spinal cord or nerve root compression due to tumor, infection, or trauma
- Fracture or instability on radiographic films measuring:
  - Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; **OR**
  - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child

Not Recommended[17, 20]

- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis
- In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria*

B. <u>Anterior Cervical Decompression with Fusion (ACDF) – Multiple Levels</u>
The following criteria must be met*:

- Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression –** immediate surgical evaluation is indicated.[1-16] Symptoms may include:
  - Upper extremity weakness
  - Unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - Disturbance with coordination
  - Hyperreflexia
  - Hoffmann sign
  - Positive Babinski sign and/or clonus;

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images – immediate surgical evaluation is indicated[2, 6, 10, 14;]

OR
When <u>ALL</u> of the following criteria are met[2, 17]

- Cervical radiculopathy or myelopathy due to ruptured disc, spondylosis, spinal instability, or deformity
- Persistent or recurrent pain/symptoms with functional limitations that are unresponsive to at least **6 weeks of conservative treatment**
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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 confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at multiple levels corresponding with the clinical findings. Imaging studies may include any of the following[2]:

- MRI (preferred study for assessing cervical spine soft tissue); **OR**
- CT with or without myelography - indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI)

Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases[6, 10, 11, 14, 16, 18, 19]

- As outlined above for myelopathy or progressive neurological deficit scenarios
- Significant spinal cord or nerve root compression due to tumor, infection, or trauma
- Fracture or instability on radiographic films measuring:
  - Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; **OR**
  - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child

Not Recommended[17, 20]

- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
- In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria.*

C. <u>Cervical Posterior Decompression with Fusion - Single Level</u>
The following criteria must be met*

- Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression -** immediate surgical evaluation is indicated.[1, 3, 4, 7, 9-16, 21] Symptoms may include:
  - Upper extremity weakness
  - Unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - Disturbance with coordination
  - Hyperreflexia
  - Hoffmann sign
  - Positive Babinski sign and/or clonus;

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated[2, 6, 10, 14;]

OR
When **<u>ALL</u> of the following** criteria are met[2, 17]

- Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity
- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least **6 weeks of conservative treatment**
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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 confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at single level **corresponding with the clinical findings**.[2] Imaging studies may include:
  - MRI (preferred study for assessing cervical spine soft tissue); **OR**
  - CT with or without myelography – indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI);

AND
Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases[10, 11, 14, 16, 18, 19, 21]

- As outlined above for myelopathy or progressive neurological deficit scenarios
- Significant spinal cord or nerve root compression due to tumor, infection, or trauma.
- Fracture or instability on radiographic films measuring:
  - Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior subluxation in association with radicular/cord dysfunction; **OR**
  - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child

Not Recommended[17, 22, 23]:

- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
- In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria.*

D. <u>Cervical Posterior Decompression with Fusion – Multiple Levels</u>
The following criteria must be met*

- Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression –** immediate surgical evaluation is indicated.[1, 3, 4, 7, 9-16, 21] Symptoms may include:
  - Upper extremity weakness
  - Unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - Disturbance with coordination
  - Hyperreflexia
  - Hoffmann sign
  - Positive Babinski sign and/or clonus;

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images – immediate surgical evaluation is indicated[2, 6, 10, 14];

OR
When <u>ALL</u> of the following criteria are met[2, 17]

- Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity

- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at **least 6 weeks of conservative treatment**
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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; **AND**
- Imaging studies indicate significant spinal cord or spinal nerve root compression at multiple levels **corresponding with the clinical findings**. Imaging studies may include[2]:
  - MRI (preferred study for assessing cervical spine soft tissue); **OR**
  - CT with or without myelography - indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI);

AND
***Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases[10, 11, 18 14, 16, 19, 21]**

- As outlined above for myelopathy or progressive neurological deficit scenarios
- Significant spinal cord or nerve root compression due to tumor, infection, or trauma
- Fracture or instability on radiographic films measuring:
  - Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; **OR**
  - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child

Not Recommended[17, 22, 23]

- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
- In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See: Cervical Fusion for Treatment of Axial Neck Pain Criteria.*

E. <u>Cervical Fusion for Treatment of Axial Neck Pain</u>
In individuals with non-radicular cervical pain for whom fusion is being considered, **ALL of the following criteria must be met[24]**

- Improvement of the symptoms has failed or plateaued, and the residual symptoms of pain and functional disability are unacceptable at the **end of 6 to 12 consecutive months of appropriate, active treatment**, or at the end of longer duration of non-operative programs for those debilitated with complex problems [**NOTE:** Mere passage of time with poorly guided treatment is not considered an active treatment program]
- All pain generators are adequately defined and treated
- All physical medicine and manual therapy interventions are completed
- X-ray, MRI, or CT demonstrating disc pathology or spinal instability
- Spine pathology limited to one or two levels unless other complicating factors are involved
- Psychosocial evaluation for confounding issues addressed

NOTE: The effectiveness of three-level or greater cervical fusion for non-radicular pain has not been established.[20]

F. Cervical Posterior Decompression
The following criteria must be met*

- Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression -** immediate surgical evaluation is indicated.[1, 2, 9-11, 13-16, 25-27] Symptoms may include:
  - Upper extremity weakness
  - Unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - Disturbance with coordination
  - Hyperreflexia
  - Hoffmann sign
  - Positive Babinski sign and/or clonus;

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated[10, 14, 26];

OR
When **ALL of the following criteria are met**[2]

- Cervical radiculopathy from ruptured disc, spondylosis, or deformity
- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at **least 6 weeks of appropriate conservative treatment**
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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 confirm the presence of spinal cord or spinal nerve root compression at the level(s) **corresponding with the clinical findings.**[2, 28] Imaging studies may include **any** of the following:
  - MRI (preferred study for assessing cervical spine soft tissue); **OR**
  - CT with or without myelography— indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI)

Cervical decompression performed as first-line treatment without conservative care in the following clinical cases[10, 11, 14, 16, 26, 27]

- As outlined above for myelopathy or progressive neurological deficit scenarios.
- Spinal cord or nerve root compression due to tumor, infection, or trauma.

Not Recommended[17, 22, 23]

- In asymptomatic or mildly symptomatic cases.
- In cases of neck pain alone, without neurological deficits and abnormal imaging findings. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria.*
- In individuals with kyphosis or at risk for development of postoperative kyphosis.

G. <u>Cervical Artificial Disc Replacement (Single or Two Level)</u>
Indications for cervical artificial disc replacement are as follows:[2, 8, 29-31]

- Skeletally mature individual; **AND**
- Intractable radiculopathy caused by one-or-two-level disease (either herniated disc or spondolytic osteophyte) located at C3-C7; **AND**
- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment; **AND**
- Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments:
  - 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; **AND**
- Imaging studies confirm the presence of compression at the level**(s) corresponding with the clinical findings** (MRI or CT); **AND**
- Use of an FDA-approved prosthetic intervertebral discs.

Cervical Artificial Disc Replacement is **NOT** indicated when **any of the following** clinical scenarios exists[31]

- Symptomatic multiple level disease affecting 3 or more levels
- Infection (at site of implantation or systemic)
- Osteoporosis or osteopenia
- Instability
  - Translation greater than 3mm difference between lateral flexion-extension views at the symptomatic levels
  - 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels
- Sensitivity or allergy to implant materials
- Severe spondylosis defined as[31]:
  - > 50% disc-height loss compared to minimally or non-degenerated levels; **OR**
  - Bridging osteophytes; **OR**
  - Absence of motion on lateral flexion-extension views at the symptomatic site
- Severe facet arthropathy
- Ankylosing spondylitis
- Rheumatoid arthritis
- Previous fracture with anatomical deformity
- Ossification of the posterior longitudinal ligament (OPLL)
- Active cervical spine malignancy

H. <u>Cervical Fusion without Decompression</u>
Cervical fusion without decompression will be reviewed on a **case-by-case basis**. Atraumatic instability due to Down Syndrome-related spinal deformity, rheumatoid arthritis, or basilar invagination are uncommon, but may require cervical fusion.[32]

I. <u>Cervical Anterior Decompression (without fusion)</u>
All requests for anterior decompression without fusion will be reviewed on a **case-by-case basis**.[2, 5, 8, 33]

NOTE: Refer to Appendix A to see the policy statement changes (if any) from the previous version.

Policy Guidelines

***Conservative Therapy:** (Musculoskeletal) includes primarily physical therapy and/or injections and a combination of modalities; rest, ice, heat, modified activities, medical devices (e.g., cervical collar), medications, diathermy, chiropractic treatments, or physician supervised home exercise program.

****Home Exercise Program** (HEP) –two elements are required to meet guidelines for completion of conservative therapy:

- Exercise prescription/plan; **AND**
- Follow-up with member providing documentation regarding completion of HEP, (after 4–6-weeks) or inability to complete HEP due to physical reason (i.e., increased pain, inability to physically perform exercises). Inconvenience or noncompliance without explanation does not constitute "inability to complete" HEP.

A comprehensive assimilation of factors should lead to a specific diagnosis with positive identification of the pathologic condition(s).

- Early intervention may be required in acute incapacitating pain or with progressive neurological deficits.
- Operative treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions.
- Individuals may present with pain, numbness, extremity weakness, loss of coordination, gait issues, or bowel and bladder complaints. Non-operative treatment is an important role in the care of individuals with degenerative cervical spine disorders. If these symptoms progress to neurological deficits, from corresponding spinal cord or nerve root compression, surgical intervention may be warranted.
- All individuals being considered for surgical intervention should receive a comprehensive neuromusculoskeletal examination to identify pain generators that may either respond to non-surgical techniques or may be refractory to surgical intervention.
- Obesity is an identified risk factor for surgical site infection. For individuals undergoing posterior cervical decompression with or without fusion for a diagnosis other than myelopathy, BMI should be less than 40. These cases will be reviewed on a case-by-case basis and may be denied given the increased risk of infection.[34]
- If operative intervention is being considered, especially procedures that require a fusion, it is required the person refrain from smoking/nicotine for **at least six weeks** prior to surgery and **during the time of healing**.[35-40]
- Situations requiring possible need for an operation, a second opinion may be necessary. Psychological evaluation is strongly encouraged before surgery is performed for isolated axial pain to determine if the individual will likely benefit from the treatment.
- It is imperative for the clinician to rule out non-physiologic modifiers of pain presentation, or non-operative conditions mimicking radiculopathy, myelopathy or spinal instability (peripheral compressive neuropathy, chronic soft tissue injuries, and psychological conditions), prior to consideration of elective surgical intervention.

CPT Codes:
Anterior Cervical Decompression with Fusion (ACDF) - Single Level:

- 22548, 22551, 22554

Anterior Cervical Decompression with Fusion (ACDF) - Multiple Levels:

- +22552, +22585

Cervical Posterior Decompression with Fusion - Single Level:

- 22590, 22595, 22600

Cervical Posterior Decompression with Fusion - Multiple Levels:

- 22595, +22614

Cervical Artificial Disc Replacement - Single Level:

- 22856, 22861, 22864

Cervical Artificial Disc Replacement - Two Levels:

- +22858, +0095T, +0098T

Cervical Posterior Decompression (without fusion):

- 63001, 63015, 63020, +63035, 63040, +63043, 63045, +63048, 63050, 63051

Cervical Anterior Decompression (without fusion):

- 63075, +63076

GENERAL INFORMATION
It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

Description

This guideline outlines the key surgical treatments and indications for common cervical spinal disorders and is based upon the best available evidence. Spine surgery is a complex area of medicine, and this document breaks out the clinical indications by surgical type. Operative treatment is indicated only when the natural history of an operatively treatable problem is better than the natural history of the problem without operative treatment. Choice of surgical approach is based on anatomy, pathology, and the surgeon's experience and preference. All operative interventions must be based on a positive correlation with clinical findings, the natural history of the disease, the clinical course, and diagnostic tests or imaging results.

Related Policies

- N/A

Benefit Application

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Some state or federal mandates (e.g., Federal Employee Program [FEP]) prohibits plans from denying Food and Drug Administration (FDA)-approved technologies as investigational. In these

instances, plans may have to consider the coverage eligibility of FDA-approved technologies on the basis of medical necessity alone.

Regulatory Status

- N/A

Rationale

<u>Anterior Approaches:</u>
Anterior surgical approaches to cervical spine decompression emerged in the 1950s. The first literature reports describe anterior cervical discectomy combined with a spinal fusion procedure (ACDF). Fusion was added to address concerns about potential for loss of spinal stability and disc space height, leading to late postoperative complications such as kyphosis and radicular pain.[5, 6, 20, 33, 41-43]

Anterior cervical fusion (ACF) accounted for approximately 80% of cervical spine procedures performed in the United States between 2002 and 2009, while posterior cervical fusion (PCF) accounted for 8.5% of these procedures.[44]

Anterior Cervical Discectomy and Fusion (ACDF) – removal of all or part of a herniated or ruptured disc or spondolytic bony spur to alleviate pressure on the nerve roots or on the spinal cord in individuals with symptomatic radiculopathy. Discectomy is most often combined with fusion to stabilize the spine.

Cervical Artificial Disc Replacement - Insertion of a prosthetic device into the cervical intervertebral space with the goal of maintaining physiologic motion at the treated cervical segment. The use of artificial discs is based on the surgeon's preference and training; only FDA- approved artificial discs are appropriate.

<u>Posterior Approaches</u>
Laminectomy – removal of the bone between the spinal process and facet pedicle junction to expose the neural elements of the spine.

Laminoplasty – opening of the lamina to enlarge the spinal canal. There are several laminoplasty techniques to alleviate cord compression by reconstructing the spinal canal. Laminoplasty is performed to decompress the spinal cord in individuals with multilevel degenerative spinal stenosis and neutral or lordotic alignment.

Laminoforaminotomy (also known as posterior discectomy) – the creation of a small window in the lamina to facilitate removal of arthritic bone spurs and herniated disc material pressing on the nerve root as it exits through the foramen.

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Documentation for Clinical Review

Please provide the following documentation:

- History and physical and/or consultation notes including:
  - Activity limitations
  - Clinical findings
  - Comorbidities
  - Conservative treatments and duration
  - Duration of back pain
  - Reason for procedure
- Radiology report(s) (i.e., MRI, CT, discogram)

Post Service (in addition to the above, please include the following):

- Procedure report(s)

Coding

This Policy relates only to the services or supplies described herein. Benefits may vary according to product design; therefore, contract language should be reviewed before applying the terms of the Policy.

The following codes are included below for informational purposes. Inclusion or exclusion of a code(s) does not constitute or imply member coverage or provider reimbursement policy. Policy Statements are intended to provide member coverage information and may include the use of some codes for clarity. The Policy Guidelines section may also provide additional information for how to interpret the Policy Statements and to provide coding guidance in some cases.

Type	Code	Description
CPT®	0095T	Removal of total disc arthroplasty (artificial disc), anterior approach, each additional interspace, cervical (List separately in addition to code for primary procedure)
	0098T	Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, each additional interspace, cervical (List separately in addition to code for primary procedure)

Type	Code	Description
	0274T	Percutaneous laminotomy/laminectomy (interlaminar approach) for decompression of neural elements, (with or without ligamentous resection, discectomy, facetectomy and/or foraminotomy), any method, under indirect image guidance (e.g., fluoroscopic, CT), single or multiple levels, unilateral or bilateral; cervical or thoracic
	22548	Arthrodesis, anterior transoral or extraoral technique, clivus-C1-C2 (atlas-axis), with or without excision of odontoid process
	22551	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2
	22552	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2, each additional interspace (List separately in addition to code for separate procedure)
	22554	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); cervical below C2
	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)
	22590	Arthrodesis, posterior technique, craniocervical (occiput-C2)
	22595	Arthrodesis, posterior technique, atlas-axis (C1-C2)
	22600	Arthrodesis, posterior or posterolateral technique, single interspace; cervical below C2 segment
	22614	Arthrodesis, posterior or posterolateral technique, single interspace; each additional interspace (List separately in addition to code for primary procedure)
	22856	Total disc arthroplasty (artificial disc), anterior approach, including discectomy with end plate preparation (includes osteophytectomy for nerve root or spinal cord decompression and microdissection); single interspace, cervical
	22858	Total disc arthroplasty (artificial disc), anterior approach, including discectomy with end plate preparation (includes osteophytectomy for nerve root or spinal cord decompression and microdissection); second level, cervical (List separately in addition to code for primary procedure)
	22861	Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, single interspace; cervical
	22864	Removal of total disc arthroplasty (artificial disc), anterior approach, single interspace; cervical
	63001	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (e.g., spinal stenosis), 1 or 2 vertebral segments; cervical
	63015	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (e.g., spinal stenosis), more than 2 vertebral segments; cervical
	63020	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; 1 interspace, cervical
	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)

Type	Code	Description
	63040	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; cervical
	63043	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; each additional cervical interspace (List separately in addition to code for primary procedure)
	63045	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [e.g., spinal or lateral recess stenosis]), single vertebral segment; cervical
	63048	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [e.g., 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)
	63050	Laminoplasty, cervical, with decompression of the spinal cord, 2 or more vertebral segments;
	63051	Laminoplasty, cervical, with decompression of the spinal cord, 2 or more vertebral segments; with reconstruction of the posterior bony elements (including the application of bridging bone graft and non-segmental fixation devices [e.g., wire, suture, mini-plates], when performed)
	63052	Laminectomy, facetectomy, or foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s] [e.g., 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] [e.g., spinal or lateral recess stenosis]), during posterior interbody arthrodesis, lumbar; each additional segment (List separately in addition to code for primary procedure)
	63075	Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophytectomy; cervical, single interspace
	63076	Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophytectomy; cervical, each additional interspace (List separately in addition to code for primary procedure)
HCPCS	None	

Policy History

This section provides a chronological history of the activities, updates and changes that have occurred with this Medical Policy.

Effective Date	Action
01/01/2017	Adoption of National Imaging Associates (NIA) Clinical Guidelines
07/01/2018	NIA Clinical Guideline update
07/01/2019	NIA Clinical Guideline update
07/01/2020	Annual NIA clinical guideline update
03/01/2021	Annual NIA clinical guideline update. Policy title changed from Cervical Spinal Surgery to current one.

Effective Date	Action
01/01/2022	Annual NIA clinical guideline update.
01/01/2023	Annual NIA clinical guideline update.
01/01/2024	Annual NIA clinical guideline update. Coding update.

Definitions of Decision Determinations

Medically Necessary: Services that are Medically Necessary include only those which have been established as safe and effective, are furnished under generally accepted professional standards to treat illness, injury or medical condition, and which, as determined by Blue Shield, are: (a) consistent with Blue Shield medical policy; (b) consistent with the symptoms or diagnosis; (c) not furnished primarily for the convenience of the patient, the attending Physician or other provider; (d) furnished at the most appropriate level which can be provided safely and effectively to the patient; and (e) 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 the Member's illness, injury, or disease.

Investigational/Experimental: A treatment, procedure, or drug is investigational when it has not been recognized as safe and effective for use in treating the particular condition in accordance with generally accepted professional medical standards. This includes services where approval by the federal or state governmental is required prior to use, but has not yet been granted.

Split Evaluation: Blue Shield of California/Blue Shield of California Life & Health Insurance Company (Blue Shield) policy review can result in a split evaluation, where a treatment, procedure, or drug will be considered to be investigational for certain indications or conditions, but will be deemed safe and effective for other indications or conditions, and therefore potentially medically necessary in those instances.

Prior Authorization Requirements and Feedback (as applicable to your plan)

Within five days before the actual date of service, the provider must confirm with Blue Shield that the member's health plan coverage is still in effect. Blue Shield reserves the right to revoke an authorization prior to services being rendered based on cancellation of the member's eligibility. Final determination of benefits will be made after review of the claim for limitations or exclusions.

Questions regarding the applicability of this policy should be directed to the Prior Authorization Department at (800) 541-6652, or the Transplant Case Management Department at (800) 637-2066 ext. 3507708 or visit the provider portal at www.blueshieldca.com/provider.

We are interested in receiving feedback relative to developing, adopting, and reviewing criteria for medical policy. Any licensed practitioner who is contracted with Blue Shield of California or Blue Shield of California Promise Health Plan is welcome to provide comments, suggestions, or concerns. Our internal policy committees will receive and take your comments into consideration.

For utilization and medical policy feedback, please send comments to: MedPolicy@blueshieldca.com

Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. Blue Shield of California may consider published peer-reviewed scientific literature, national guidelines, and local standards of practice in developing its medical policy. Federal and state law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over medical policy and must be considered first in determining covered services. Member contracts may differ in their benefits. Blue Shield reserves the right to review and update policies as appropriate.

Appendix A

POLICY STATEMENT	
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Cervical Spine Surgery BSC_NIA_CG_307 **Policy Statement:** **Indications for Cervical Spine Surgery:** A. **Anterior Cervical Decompression with Fusion (ACDF) - Single Level** **The following criteria must be met*:** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with **spinal cord compression** - immediate surgical evaluation is indicated.[1-12] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus *OR* • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with evidence of spinal cord or nerve root compression on Magnetic Resonance Imaging (MRI) or Computed Tomography (CT) imaging - immediate surgical evaluation is indicated.[2,6,10]; *OR* • **When ALL of the following criteria are met**[2,13]: o Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; ***AND***	**Cervical Spine Surgery BSC_NIA_CG_307** **Policy Statement:** **INDICATIONS FOR CERVICAL SPINE SURGERY** A. **Anterior Cervical Decompression with Fusion (ACDF) - Single Level** **The following criteria must be met*:** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with **spinal cord compression** – immediate surgical evaluation is indicated[1-16] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus; **OR** • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with evidence of spinal cord or nerve root compression on magnetic resonance imaging (MRI) or computed tomography (CT) imaging - immediate surgical evaluation is indicated (Tetreault, 2013)[2, 6, 10, 14;] **OR** **When ALL of the following criteria are met**[2, 17] • Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity

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o Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment; ***AND*** o Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: ▪ 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; ***AND*** o Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at the level **corresponding with the clinical findings**[2]. Imaging studies may include: ▪ MRI (preferred study for assessing cervical spine soft tissue); ***OR*** ▪ CT with or without myelography— indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI). ***Cervical spine decompression with fusion as first-line treatment without conservative care measures in the following clinical cases**[6,10,12,14]; • As outlined above for myelopathy or progressive neurological deficit scenarios. • Significant spinal cord or nerve root compression due to tumor, infection, or trauma. • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior	• Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or selective nerve root block • Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at the level **corresponding with the clinical findings**.[2] Imaging studies may include: o MRI (preferred study for assessing cervical spine soft tissue); **OR** o CT with or without myelography— indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI). ***Cervical spine decompression with fusion as first-line treatment without conservative care measures in the following clinical cases**[6, 10, 11, 14, 16, 18, 19] • As outlined above for myelopathy or progressive neurological deficit scenarios • Significant spinal cord or nerve root compression due to tumor, infection, or trauma • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior

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subluxation in association with radicular/cord dysfunction; *OR* o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child. **Not Recommended**[13,15]: • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See: Cervical Fusion for Treatment of Axial Neck Pain Criteria B. Anterior Cervical Decompression with Fusion (ACDF) - Multiple Level **The following criteria must be met***: • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated[1-12]. Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus *OR* • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated[2,6,10]. *OR*	subluxation in association with radicular/cord dysfunction; **OR** o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child **Not Recommended**[17, 20] • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria* B. Anterior Cervical Decompression with Fusion (ACDF) – Multiple Levels **The following criteria must be met*:** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression –** immediate surgical evaluation is indicated.[1-16] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus; **OR** • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images – immediate surgical evaluation is indicated[2, 6, 10, 14;] **OR**

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• **When ALL of the following criteria are met**[2,13]: o Cervical radiculopathy or myelopathy due to ruptured disc, spondylosis, spinal instability, or deformity; ***AND*** o Persistent or recurrent pain/symptoms with functional limitations that are unresponsive to at least **6 weeks of conservative treatment**; ***AND*** o Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments ▪ 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; ***AND*** o Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at multiple levels corresponding with the clinical findings. Imaging studies may include any of the following [2]: ▪ MRI (preferred study for assessing cervical spine soft tissue); ***OR*** ▪ CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI). ***Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[6,10,12,14]: • As outlined above for myelopathy or progressive neurological deficit scenarios. • Significant spinal cord or nerve root compression due to tumor, infection or trauma. • Fracture or instability on radiographic films measuring:	**When ALL of the following criteria are met**[2, 17] • Cervical radiculopathy or myelopathy due to ruptured disc, spondylosis, spinal instability, or deformity • Persistent or recurrent pain/symptoms with functional limitations that are unresponsive to at least **6 weeks of conservative treatment** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or selective nerve root block • Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at multiple levels corresponding with the clinical findings. Imaging studies may include any of the following[2]: o MRI (preferred study for assessing cervical spine soft tissue); **OR** o CT with or without myelography - indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI) **Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[6, 10, 11, 14, 16, 18, 19] • As outlined above for myelopathy or progressive neurological deficit scenarios • Significant spinal cord or nerve root compression due to tumor, infection, or trauma • Fracture or instability on radiographic films measuring:

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o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior subluxation in association with radicular/cord dysfunction; *OR* o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child. **Not Recommended**[13,15]: • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See: Cervical Fusion for Treatment of Axial Neck Pain Criteria. C. <u>Cervical Posterior Decompression with Fusion - Single Level</u> **The following criteria must be met***: • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated.[1,3,4,7,9-12,16] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus *OR* • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated. [2,6,10]	o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; **OR** o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child **Not Recommended**[17, 20] • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See Cervical Fusion for Treatment of Axial Neck Pain Criteria. C. <u>Cervical Posterior Decompression with Fusion - Single Level</u> **The following criteria must be met*** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression -** immediate surgical evaluation is indicated.[1, 3, 4, 7, 9-16, 21] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus; **OR** • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated[2, 6, 10, 14;

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OR • When **ALL of the following** criteria are met[2,13]: o Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; *AND* o Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least **6 weeks of conservative treatment**; *AND* o Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: ▪ 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; *AND* o Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at single level **corresponding with the clinical findings**.[2] Imaging studies may include: ▪ MRI (preferred study for assessing cervical spine soft tissue); *OR* ▪ CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI); *AND* ***Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[10,12,14,16]: • As outlined above for myelopathy or progressive neurological deficit scenarios.	OR When **ALL of the following** criteria are met[2, 17] • Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity • Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least **6 weeks of conservative treatment** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or selective nerve root block • Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at single level **corresponding with the clinical findings**.[2] Imaging studies may include: o MRI (preferred study for assessing cervical spine soft tissue); **OR** o CT with or without myelography – indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI); AND **Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[10, 11, 14, 16, 18, 19, 21] • As outlined above for myelopathy or progressive neurological deficit scenarios

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• Significant spinal cord or nerve root compression due to tumor, infection or trauma. • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior subluxation in association with radicular/cord dysfunction; ***OR*** o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child. **Not Recommended**[13,17]: • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See: Cervical Fusion for Treatment of Axial Neck Pain Criteria. D. <u>Cervical Posterior Decompression with Fusion - Multiple Levels</u> **The following criteria must be met***: • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated.[1,3,4,7,9-12,16] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus ***OR***	• Significant spinal cord or nerve root compression due to tumor, infection, or trauma. • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior subluxation in association with radicular/cord dysfunction; **OR** o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child **Not Recommended**[17, 22, 23]: • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria.* D. <u>Cervical Posterior Decompression with Fusion – Multiple Levels</u> **The following criteria must be met*** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression –** immediate surgical evaluation is indicated.[1, 3, 4, 7, 9-16, 21] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus; **OR**

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• Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.[2,6,10] *OR* • **When ALL of the following criteria are met**[2,13]: o Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; ***AND*** o Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks of conservative treatment**; ***AND*** o Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: ▪ 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; ***AND*** o Imaging studies indicate significant spinal cord or spinal nerve root compression at **multiple levels corresponding with the clinical findings**. Imaging studies may include[2]: ▪ MRI (preferred study for assessing cervical spine soft tissue); ***OR*** ▪ CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI); ***AND*** ***Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[10,12,14,16]:	• Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images – immediate surgical evaluation is indicated[2, 6, 10, 14;] OR **When ALL of the following criteria are met**[2, 17] • Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity • Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at **least 6 weeks of conservative treatment** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or facet injections/selective nerve root block; **AND** • Imaging studies indicate significant spinal cord or spinal nerve root compression at multiple levels **corresponding with the clinical findings**. Imaging studies may include[2]: o MRI (preferred study for assessing cervical spine soft tissue); **OR** o CT with or without myelography - indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI); AND ***Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases**[10, 11, 18 14, 16, 19, 21]

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• As outlined above for myelopathy or progressive neurological deficit scenarios. • Significant spinal cord or nerve root compression due to tumor, infection, or trauma. • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5 mm anterior subluxation in association with radicular/cord dysfunction; *OR* o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child. **Not Recommended**[13,17]: • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See: Cervical Fusion for Treatment of Axial Neck Pain Criteria.	• As outlined above for myelopathy or progressive neurological deficit scenarios • Significant spinal cord or nerve root compression due to tumor, infection, or trauma • Fracture or instability on radiographic films measuring: o Sagittal plane angulation of greater than 11 degrees at a single interspace or greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; **OR** o Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child **Not Recommended**[17, 22, 23] • In asymptomatic or mildly symptomatic cases of cervical spinal stenosis. • In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. *See: Cervical Fusion for Treatment of Axial Neck Pain Criteria.*
E. <u>Cervical Fusion for Treatment of Axial Neck Pain:</u> In patients with non-radicular cervical pain for whom fusion is being considered, **ALL of the following criteria must be met**[18]: • Improvement of the symptoms has failed or plateaued, and the residual symptoms of pain and functional disability are unacceptable at the **end of 6 to 12 consecutive months of appropriate, active treatment**, or at the end of longer duration of non-operative programs for debilitated patients with complex problems [NOTE: Mere passage of time with poorly guided treatment is not considered an active treatment program]; *AND* • All pain generators are adequately defined and treated; *AND* • All physical medicine and manual therapy interventions are completed; *AND*	E. <u>Cervical Fusion for Treatment of Axial Neck Pain</u> In individuals with non-radicular cervical pain for whom fusion is being considered, **ALL of the following criteria must be met**[24] • Improvement of the symptoms has failed or plateaued, and the residual symptoms of pain and functional disability are unacceptable at the **end of 6 to 12 consecutive months of appropriate, active treatment**, or at the end of longer duration of non-operative programs for those debilitated with complex problems [**NOTE:** Mere passage of time with poorly guided treatment is not considered an active treatment program] • All pain generators are adequately defined and treated • All physical medicine and manual therapy interventions are completed

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• X-ray, MRI, or CT demonstrating disc pathology or spinal instability; ***AND*** • Spine pathology limited to one or two levels unless other complicating factors are involved; ***AND*** • Psychosocial evaluation for confounding issues addressed. **NOTE**: The effectiveness of three-level or greater cervical fusion for non-radicular pain has not been established.[15] F. Cervical Posterior Decompression **The following criteria must be met***: • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated.[1,2,9-12,19-21] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus ***OR*** • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.[10,20] ***OR*** • When ALL **of the following criteria are met**[2]: o Cervical radiculopathy from ruptured disc, spondylosis, or deformity; ***AND***	• X-ray, MRI, or CT demonstrating disc pathology or spinal instability • Spine pathology limited to one or two levels unless other complicating factors are involved • Psychosocial evaluation for confounding issues addressed **NOTE**: The effectiveness of three-level or greater cervical fusion for non-radicular pain has not been established.[20] F. Cervical Posterior Decompression **The following criteria must be met*** • Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression -** immediate surgical evaluation is indicated.[1, 2, 9-11, 13-16, 25-27] Symptoms may include: o Upper extremity weakness o Unsteady gait related to myelopathy/balance or generalized lower extremity weakness o Disturbance with coordination o Hyperreflexia o Hoffmann sign o Positive Babinski sign and/or clonus; **OR** • Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated[10, 14, 26;] **OR** When ALL **of the following criteria are met**[2] • Cervical radiculopathy from ruptured disc, spondylosis, or deformity

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o Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks of appropriate conservative treatment**; *AND* o Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: ▪ 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; *AND* o Imaging studies confirm the presence of spinal cord or spinal nerve root compression at the level(s) **corresponding with the clinical findings**.[2,22] Imaging studies may include **any** of the following: ▪ MRI (preferred study for assessing cervical spine soft tissue); *OR* ▪ CT with or without myelography— indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI). ***Cervical decompression performed as first-line treatment without conservative care in the following clinical cases**[10,12,20,21]: • As outlined above for myelopathy or progressive neurological deficit scenarios. • Spinal cord or nerve root compression due to tumor, infection or trauma. **Not Recommended**[13,17]: • In asymptomatic or mildly symptomatic cases.	• Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at **least 6 weeks of appropriate conservative treatment** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or facet injections/selective nerve root block • Imaging studies confirm the presence of spinal cord or spinal nerve root compression at the level(s) **corresponding with the clinical findings.**[2, 28] Imaging studies may include **any** of the following: o MRI (preferred study for assessing cervical spine soft tissue); **OR** o CT with or without myelography— indicated in individuals in whom MRI is contraindicated; preferred for examining bony structures, or in individuals presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI) **Cervical decompression performed as first-line treatment without conservative care in the following clinical cases**[10, 11, 14, 16, 26, 27] • As outlined above for myelopathy or progressive neurological deficit scenarios. • Spinal cord or nerve root compression due to tumor, infection, or trauma. **Not Recommended**[17, 22, 23] • In asymptomatic or mildly symptomatic cases.

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• In cases of neck pain alone, without neurological deficits and abnormal imaging findings. See: Cervical Fusion for Treatment of Axial Neck Pain Criteria. • In patients with kyphosis or at risk for development of postoperative kyphosis. G. Cervical Artificial Disc Replacement (Single or Two Level) Indications for cervical artificial disc replacement are as follows[2,8,23-26]: • Skeletally mature patient; ***AND*** • Patient has intractable radiculopathy caused by one or two level disease (either herniated disc or spondolytic osteophyte) located at C3-C7; ***AND*** • Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment; ***AND*** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or facet injections/selective nerve root block; ***AND*** • Imaging studies confirm the presence of compression at the level(s) corresponding with the clinical findings (MRI or CT); ***AND*** • Use of an FDA-approved prosthetic intervertebral discs. Cervical Artificial Disc Replacement is **NOT** indicated when **any of the following** clinical scenarios exists[24]: • Symptomatic multiple level disease affecting 3 or more levels	• In cases of neck pain alone, without neurological deficits and abnormal imaging findings. *See Cervical Fusion for Treatment of Axial Neck Pain Criteria.* • In individuals with kyphosis or at risk for development of postoperative kyphosis. G. Cervical Artificial Disc Replacement (Single or Two Level) Indications for cervical artificial disc replacement are as follows:[2, 8, 29-31] • Skeletally mature individual; **AND** • Intractable radiculopathy caused by one-or-two-level disease (either herniated disc or spondolytic osteophyte) located at C3-C7; **AND** • Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to **at least 6 weeks** of appropriate conservative treatment; **AND** • Documented failure of at least 6 consecutive weeks in the last 6 months of **any 2** of the following physician-directed conservative treatments: o Analgesics, steroids, and/or NSAIDs o Structured program of physical therapy o Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician o Epidural steroid injections and/or facet injections /selective nerve root block; **AND** • Imaging studies confirm the presence of compression at the level**(s) corresponding with the clinical findings** (MRI or CT); **AND** • Use of an FDA-approved prosthetic intervertebral discs. Cervical Artificial Disc Replacement is **NOT** indicated when **any of the following** clinical scenarios exists[31] • Symptomatic multiple level disease affecting 3 or more levels

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• Infection (at site of implantation or systemic) • Osteoporosis or osteopenia • Instability o Translation greater than 3 mm difference between lateral flexion-extension views at the symptomatic levels; o 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels • Sensitivity or allergy to implant materials • Severe spondylosis defined as[24]: o > 50% disc height loss compared to minimally or non-degenerated levels; ***OR*** o Bridging osteophytes: ***OR*** o Absence of motion on lateral flexion-extension views at the symptomatic site • Severe facet arthropathy • Ankylosing spondylitis • Rheumatoid arthritis • Previous fracture with anatomical deformity • Ossification of the posterior longitudinal ligament (OPLL) • Active cervical spine malignancy H. <u>Cervical Fusion Without Decompression</u> Cervical fusion without decompression will be reviewed on a **case-by-case basis**. Atraumatic instability due to Down Syndrome-related spinal deformity, rheumatoid arthritis, or basilar invagination are uncommon, but may require cervical fusion[27]. I. <u>Cervical Anterior Decompression (without Fusion)</u> All requests for anterior decompression without fusion will be reviewed on a **case-by-case basis**[2,5,8,28,29].	• Infection (at site of implantation or systemic) • Osteoporosis or osteopenia • Instability o Translation greater than 3mm difference between lateral flexion-extension views at the symptomatic levels o 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels • Sensitivity or allergy to implant materials • Severe spondylosis defined as[31]: o > 50% disc-height loss compared to minimally or non-degenerated levels; **OR** o Bridging osteophytes; **OR** o Absence of motion on lateral flexion-extension views at the symptomatic site • Severe facet arthropathy • Ankylosing spondylitis • Rheumatoid arthritis • Previous fracture with anatomical deformity • Ossification of the posterior longitudinal ligament (OPLL) • Active cervical spine malignancy H. <u>Cervical Fusion without Decompression</u> Cervical fusion without decompression will be reviewed on a **case-by-case basis**. Atraumatic instability due to Down Syndrome-related spinal deformity, rheumatoid arthritis, or basilar invagination are uncommon, but may require cervical fusion.[32] I. <u>Cervical Anterior Decompression (without fusion)</u> All requests for anterior decompression without fusion will be reviewed on a **case-by-case basis**.[2, 5, 8, 33]