



Cervical Spinal Fusion – Single Service

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: September 20, 2024

Important Notices

Notices & Disclaimers:

GUIDELINES SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION MAKING OF END USERS.

Cohere Health, Inc. ("**Cohere**") has published these clinical guidelines to determine medical necessity of services (the "**Guidelines**") for informational purposes only, and solely for use by Cohere's authorized "**End Users**". These Guidelines (and any attachments or linked third party content) are not intended to be a substitute for medical advice, diagnosis, or treatment directed by an appropriately licensed healthcare professional. These Guidelines are not in any way intended to support clinical decision making of any kind; their sole purpose and intended use is to summarize certain criteria Cohere may use when reviewing the medical necessity of any service requests submitted to Cohere by End Users. Always seek the advice of a qualified healthcare professional regarding any medical questions, treatment decisions, or other clinical guidance. The Guidelines, including any attachments or linked content, are subject to change at any time without notice.

©2023 Cohere Health, Inc. All Rights Reserved.

Other Notices:

HCPCS® and CPT® copyright 2022 American Medical Association. All rights reserved.

Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

HCPCS and CPT are registered trademarks of the American Medical Association.

Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System (M00-M99)

Guideline Name: Cervical Spinal Fusion - Single Service

Literature review current through: 9/20/2024

Document last updated: 9/20/2024

Type: Adult (18+ yo) | Pediatric (0-17 yo)

Table of Contents

Important Notices	2
Table of Contents	3
Medical Necessity Criteria	4
Service: Cervical Spinal Fusion	4
General Guidelines	4
Medical Necessity Criteria	4
Indications	4
Non-Indications	7
Level of Care Criteria	7
Procedure Codes (CPT/HCPCS)	7
Medical Evidence	11
References	13
Clinical Guideline Revision History/Information	15

Medical Necessity Criteria

Service: Cervical Spinal Fusion

General Guidelines

- **Units, Frequency, & Duration:** No clearly established consensus or criteria regarding the timing of surgical intervention.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Surgery provides more rapid relief than non-surgical treatment options. Surgery can also prevent further spinal cord dysfunction and neurological deficits, particularly in moderate or severe cases.¹ Advanced imaging is recommended prior to surgical intervention.²⁻⁴
- **Exclusions:** None.

Medical Necessity Criteria

Indications

→ **Cervical spinal fusion (anterior or posterior)** is considered appropriate if **ALL** of the following are **TRUE**⁵⁻⁶:

◆ No nicotine product use for 6 weeks with a negative lab test; **AND**

◆ **ANY** of the following is **TRUE**:

- The patient has myelopathy, and **ALL** of the following are **TRUE**:

- **ANY** of the following myelopathy symptoms:

- ◆ Gait disturbance or abnormality; **OR**

- ◆ Frequent falls; **OR**

- ◆ Neck, subscapular, shoulder, or upper extremity pain; **OR**

- ◆ Lower or upper extremity weakness; **OR**

- ◆ Paresthasias or numbness in the upper extremities; **OR**

- ◆ Loss of dexterity/coordination; **OR**

- ◆ Bowel or bladder dysfunction; **AND**

- **ANY** of the following myelopathy findings⁷:

- ◆ Lhermitte’s sign (an electric shock-like sensation down the spine or into the upper extremities with forward flexion of the cervical spine); **OR**
- ◆ Hoffman’s sign; **OR**
- ◆ **ANY** of the following lower motor neuron (LMN) findings in the upper extremities:
 - Weakness; **OR**
 - Atrophy; **OR**
- ◆ **ANY** of the following upper motor neuron (UMN) findings in the lower extremities:
 - Hypertonicity; **OR**
 - Hyperreflexia; **OR**
 - Positive Babinski (extension of toes with distal to proximal plantar stimulation of foot); **OR**
 - Multiple beats or sustained clonus; **OR**
- ◆ Decreased sensation, proprioception, or vibratory sense; **OR**
- ◆ Loss of sphincter tone; **AND**
- Diagnostic finding of spinal cord compressive pathology consistent with the presentation utilizing the following⁸⁻¹¹:
 - ◆ MRI scans are the preferred advanced imaging diagnostic method; **OR**
 - ◆ CT myelography is recommended in the event of MRI contraindication; **OR**
- The patient has radiculopathy, and **ALL** of the following are **TRUE**:
 - **ANY** of the following radiculopathy symptoms:
 - ◆ Neck pain; **OR**
 - ◆ Arm pain; **OR**
 - ◆ Scapular pain; **OR**
 - ◆ Periscapular pain; **OR**
 - ◆ Anterior chest pain; **OR**
 - ◆ Weakness, numbness, or paresthesia in the upper extremity; **OR**
 - ◆ Headache; **AND**
 - **ANY** of the following radiculopathy findings:

- ◆ Upper extremity motor strength deficit; **OR**
- ◆ Upper extremity sensory deficit; **OR**
- ◆ Absent or decreased deep tendon reflexes; **OR**
- ◆ Scapular winging; **OR**
- ◆ **ANY** of the following positive specialty tests:
 - Spurling’s test or maneuver or compression test (reproduction of symptoms with neck extension, lateral flexion, and downward compression or loading); **OR**
 - Shoulder abduction test (symptoms are relieved with shoulder abduction); **AND**
- Diagnostic finding of spinal cord compressive pathology consistent with the presentation utilizing the following⁸⁻¹¹:
 - MRI scans are the preferred advanced imaging diagnostic method; **OR**
 - CT myelography is recommended in the event of MRI contraindication; **AND**
- Failure of conservative management for greater than 6 weeks, including **ALL** of the following:
 - ◆ Oral steroids, anti-inflammatory medications, or analgesics; **AND**
 - ◆ Physical therapy; **AND**
 - ◆ Facet injections/medial branch blocks (MB) or epidural steroid injections (ESI); **AND**
 - ◆ **ANY** of the following:
 - Corticosteroid injection if medically appropriate; **OR**
 - Corticosteroid injection is contraindicated; **AND**
- **ANY** of the following is **TRUE**:
 - ◆ The patient’s severe pain or disability is affecting their quality of life and limiting their daily life (including working and ability to provide self-care); **OR**
 - ◆ Fracture or instability on radiographic films measuring **ANY** of the following:

- Sagittal plane angulation greater than 11° at a single level; **OR**
- Greater than 3.5 mm of anterior subluxation in association with radicular/cord dysfunction; **OR**
- Subluxation at the (C1) level at the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.¹²

Non-Indications

→ **Cervical spinal fusion** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ In anterior cervical discectomy and fusion (ACDF), when there is ossification of the posterior longitudinal ligament.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
20999	Unlisted procedure, musculoskeletal system, general
22532	Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression); 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, osteophylectomy and decompression of spinal cord and/or nerve roots; cervical below C2
22552	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophylectomy and decompression of spinal cord and/or nerve roots; cervical below C2, each additional interspace (List separately in addition to code for primary procedure)

22554	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); cervical below C2
22556	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); thoracic
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
22610	Arthrodesis, posterior or posterolateral technique, single interspace; thoracic (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)
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, lumbar; each additional interspace (List separately in addition to code for primary procedure)
22800	Arthrodesis, posterior, for spinal deformity, with or without cast; up to 6 vertebral segments
22802	Arthrodesis, posterior, for spinal deformity, with or without cast; 7 to 12 vertebral segments
22804	Arthrodesis, posterior, for spinal deformity, with or

	without cast; 13 or more vertebral segments
22808	Arthrodesis, anterior, for spinal deformity, with or without cast; 2 to 3 vertebral segments
22810	Arthrodesis, anterior, for spinal deformity, with or without cast; 4 to 7 vertebral segments
22812	Arthrodesis, anterior, for spinal deformity, with or without cast; 8 or more vertebral segments
22830	Exploration of spinal fusion
22840	Posterior non-segmental instrumentation (eg, Harrington rod technique, pedicle fixation across 1 interspace, atlantoaxial transarticular screw fixation, sublaminar wiring at C1, facet screw fixation) (List separately in addition to code for primary procedure)
22841	Internal spinal fixation by wiring of spinous processes (List separately in addition to code for primary procedure)
22842	Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 3 to 6 vertebral segments (List separately in addition to code for primary procedure)
22845	Anterior instrumentation; 2 to 3 vertebral segments (List separately in addition to code for primary procedure)
22846	Anterior instrumentation; 4 to 7 vertebral segments (List separately in addition to code for primary procedure)
22847	Anterior instrumentation; 8 or more vertebral segments (List separately in addition to code for primary procedure)
22849	Reinsertion of spinal fixation device
22853	Insertion of interbody biomechanical device(s) (eg, synthetic cage, mesh) with integral anterior instrumentation for device anchoring (eg, screws,

	flanges), when performed, to intervertebral disc space in conjunction with interbody arthrodesis, each interspace (List separately in addition to code for primary procedure)
22854	Insertion of intervertebral biomechanical device(s) (eg, synthetic cage, mesh) with integral anterior instrumentation for device anchoring (eg, screws, flanges), when performed, to vertebral corpectomy(ies) (vertebral body resection, partial or complete) defect, in conjunction with interbody arthrodesis, each contiguous defect (List separately in addition to code for primary procedure)
22859	Insertion of intervertebral biomechanical device(s) (eg, synthetic cage, mesh, methylmethacrylate) to intervertebral disc space or vertebral body defect without interbody arthrodesis, each contiguous defect (List separately in addition to code for primary procedure)
22899	Unlisted procedure, spine

Medical Evidence

The **North American Spine Society (NASS)** recently published the following coverage recommendations:

- *Cervical Fusion (2023)*: Anterior cervical corpectomy is recommended in cervical myelopathy; however, they state that instability frequently results from the procedure.¹³
- *Lumbar Fusion (2021)*: Discusses predominantly lumbar fusion, with mentions of lumbar corpectomy in addition to discectomy as a cause of postoperative spinal instability.¹⁴
- *Low Back Pain (2020)*: Insufficient evidence was found to recommend for or against a particular fusion technique for the treatment of low back pain. No literature evidence was found to adequately address differences in clinical outcomes or functional status for single-level vs multilevel fusions. No studies were found to address the effectiveness of fusion over discectomy, discectomy with rhizotomy or decompression alone.¹⁵

The **American College of Radiology (ACR)** Expert Panel on Neurological Imaging published several guidelines related to myelopathic evaluation:

- Agarwal et al. (2021) updated the previous *Myelopathy Appropriate Use Criteria*, with MRI recommended as initial imaging for acute onset myelopathy as well as chronic or progressive myelopathy due to its superior resolution of soft tissue and ability to evaluate surrounding structures. CT is designated as May Be Appropriate in the ratings, with CT myelography of possible use prior to surgical intervention.²
- McDonald et al. (2019) recommend radiography, MRI or CT for initial imaging in new or increasing nontraumatic neck pain, as well as in cervical radiculopathy. In patients with a history of cervical spine surgery, radiography and non-contrast CT are primary recommendations with a disagreement on the appropriateness of MRI (contrast and non-contrast). CT myelography is rated as May Be Appropriate.¹⁶
- Hutchins et al. (2021), in the *ACR Appropriateness Criteria for Low Back Pain*, recommend non-contrast MRI as Usually Appropriate, and radiography and CT as May Be Appropriate in low back pain with and without radiculopathy. This applies to surgical candidates with

persistence or progression of symptoms having failed six weeks of medical management. MRI, CT, and CT myelography are recommended for suspected cauda equina syndrome. In osteoporosis or chronic steroid use, radiography, non-contrast MRI, or CT is recommended as Usually Appropriate.³

In a systematic review by Lannon et al. (2021), degenerative cervical myelopathy (DCM) is described as a leading cause of spinal cord injury and spinal stenosis with increasing incidence. Early surgical referral is recommended along with conservative management to prevent progressive neurologic compromise.⁶

In a 2020 clinical review, McCormick et al. discuss cervical spondylotic myelopathy including patient presentation of symptoms, preference of MRI as primary imaging, with CT myelography as an alternative in patients with contraindications, and necessity of surgery in moderate to severe cases. Prompt surgical referral is recommended.¹⁷

References

1. Gibson JN, Waddell G. Surgery for degenerative lumbar spondylosis. *Cochrane Database Syst Rev*. 2005 Oct 19;2005(4):CD001352. doi: 10.1002/14651858.CD001352.pub3. PMID: 16235281.
2. Expert Panel on Neurological Imaging, Agarwal V, Shah LM, et al. ACR appropriateness criteria – myelopathy: 2021 update. *J Am Coll Radiol*. 2021;18(5S):S73–S82. doi: 10.1016/j.jacr.2021.01.020. PMID: 33958120.
3. Expert Panel on Neurological Imaging, Hutchins TA, Peckham M, et al. ACR appropriateness criteria – low back pain: 2021 update. *J Am Coll Radiol*. 2021;18(11S):S361–S379. doi: 10.1016/j.jacr.2021.08.002. PMID: 34794594.
4. North American Spine Society (NASS). Clinical guidelines for multidisciplinary spine care: Diagnosis and treatment of adult isthmic spondylolisthesis. Published 2014. Accessed July 1, 2024. <https://www.spine.org/Portals/0/assets/downloads/ResearchClinicalCare/Guidelines/AdultIsthmicSpondylolisthesis.pdf>.
5. Bono CM, Fernand R, Ghiselli G, et al. Diagnosis and treatment of cervical radiculopathy from degenerative disorders. *Spine J*. 2011 Jan;11(1):64–72. doi: 10.1016/j.spinee.2010.10.023. PMID: 21168100.
6. Lannon M, Kachur E. Degenerative cervical myelopathy: Clinical presentation, assessment, and natural history. *J Clin Med*. 2021 Aug 17;10(16):3626. doi: 10.3390/jcm10163626. PMID: 34441921.
7. Theodore N. Degenerative cervical spondylosis. *N Engl J Med*. 2020;383(2):159–168. doi: 10.1056/NEJMra2003558. PMID: 32640134.
8. Bydon M, Mathios D, Macki M, et al. Long-term patient outcomes after posterior cervical foraminotomy: An analysis of 151 cases: Clinical article. *J Neurosurg Spine*. 2014 Nov;21(5):727–31. doi: 10.3171/2014.7.SPINE131110. PMID: 25127430.
9. Young W. Cervical spondylotic myelopathy: A common cause of spinal cord dysfunction in older persons. Published 2020. Accessed July 1, 2024. <https://www.aafp.org/afp/2000/0901/p1064.html#afp20000901p1064-b15>.
10. Rhee JM, Shamji MF, Erwin WM, et al. Nonoperative management of cervical myelopathy: A systematic review. *Spine (Phila Pa 1976)*. 2013;38(22 Suppl 1):S55–S67. doi: 10.1097/BRS.0b013e3182a7f41d. PMID: 23963006.
11. Karadimas SK, Erwin WM, Ely CG, et al. Pathophysiology and natural history of cervical spondylotic myelopathy. *Spine (Phila Pa 1976)*.

2013;38(22 Suppl 1):S21-S36. doi: 10.1097/BRS.0b013e3182a7f2c3. PMID: 23963004.

12. Yang SY, Boniello AJ, Poorman CE, et al. A review of the diagnosis and treatment of atlantoaxial dislocations. *Global Spine J.* 2014;4(3):197-210. doi: 10.1055/s-0034-1376371. PMID: 25083363.
13. North American Spine Society (NASS). NASS coverage policy recommendations: Cervical fusion. Published May 2023. Accessed July 1, 2024. <https://www.spine.org/>.
14. North American Spine Society (NASS). NASS coverage policy recommendations: Lumbar fusion. Published June 2021. Accessed July 1, 2024. <https://www.spine.org/>.
15. North American Spine Society (NASS). Evidence-based clinical guidelines for multidisciplinary spine care: Diagnosis and treatment of low back pain. Published 2020. Accessed July 1, 2024. <https://www.spine.org/Portals/0/assets/downloads/ResearchClinicalCare/Guidelines/LowBackPain.pdf>.
16. Expert Panel on Neurological Imaging, McDonald MA, Kirsch CFE, et al. ACR appropriateness criteria - cervical neck pain or cervical radiculopathy. *J Am Coll Radiol.* 2019 May;16(5S):S57-S76. doi: 10.1016/j.jacr.2019.02.023. PMID: 31054759.
17. McCormick JR, Sama AJ, Schiller NC, et al. Cervical spondylotic myelopathy: A guide to diagnosis and management. *J Am Board Fam Med.* 2020 Mar-Apr;33(2):303-313. doi: 10.3122/jabfm.2020.02.190195. PMID: 32179614.

Clinical Guideline Revision History/Information

Original Date: September 22, 2023

Review History

Version 2	9/20/2024	Updated language regarding conservative treatment and nicotine use.