



CLINICAL GUIDELINES

CMM-604: Posterior Cervical Fusion Guidelines

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EviCore
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EviCore healthcare Clinical Decision Support Tool Diagnostic Strategies: This tool addresses common symptoms and symptom complexes. Requests for individuals with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or individual's Primary Care Physician (PCP) may provide additional insight.

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CMM-604.1: General Guidelines

Application of Guideline

- The determination of medical necessity for the performance of posterior cervical fusion is always made on a case-by-case basis.
- For additional timing and documentation requirements, see **CMM-600.1: Prior Authorization Requirements**.

Urgent/Emergent Indications/Conditions

- The presence of urgent/emergent indications/conditions warrants definitive surgical treatment. **Confirmatory advanced imaging studies are required.**
 - ◆ The following criteria are **NOT** required for confirmed urgent/emergent conditions:
 - Provider-directed non-surgical management
 - Proof of smoking cessation
 - Plain X-rays of the cervical spine
 - Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
 - Timeframe for repeat procedure
- Urgent/emergent conditions for posterior cervical fusion include **ANY** of the following:
 - ◆ Acute/unstable traumatic spinal fractures or dislocations with neural compression
 - ◆ Central cord syndrome
 - ◆ Documentation of progressive neurological deficit on two separate physical exams
 - ◆ **ANY** of the following due to a neurocompressive pathology
 - Motor weakness of grade 3/5 or less of specified muscle(s)
 - Rapidly progressive symptoms of motor loss
 - Bowel incontinence
 - Bladder incontinence/retention
 - ◆ Epidural hematoma
 - ◆ Infection (e.g., discitis, epidural abscess, osteomyelitis)
 - ◆ Myelopathy or Cord signal changes on MRI due to cord compression
 - ◆ Occipitocervical and/or Atlantoaxial (C1-C2) instability (non-traumatic) and/or spinal cord compression due to **ANY** of the following:
 - Rheumatoid arthritis
 - Congenital abnormality of occipitocervical/C1-C2 vertebrae
 - Os odontoideum
 - ◆ Primary or metastatic neoplastic disease causing pathologic fracture, cord compression, or instability
 - ◆ Documentation of severe debilitating pain and/or dysfunction to the point of being incapacitated

- ◆ Plain X-rays show instability and include **EITHER** of the following findings:
 - Subluxation or translation of more than 3.5 mm on static lateral or dynamic flexion/extension views
 - Sagittal plane angulation of more than 11 degrees between adjacent spinal segments on static or dynamic flexion/extension lateral plain X-rays
- ◆ Vascular malformations (e.g., AVM)

CMM-604.2: Osteotomy

Posterior Column Osteotomy (PCO)

Posterior cervical column osteotomy (PCO) (i.e., Smith-Peterson osteotomy [SPO] or Ponte osteotomy) is considered **medically necessary** (in addition to fusion) when **ALL** of the following criteria are met:

- Performed for correction of non-fixed cervical kyphotic deformity requiring 5° to 10° of correction (SPO) per spinal segment
- Correction of cervical kyphotic deformity cannot be attained by cervical fusion (with or without posterior cervical decompression) alone
- **ALL** of the criteria for cervical fusion (with or without posterior cervical decompression) have been met per the applicable procedure-specific section(s) below:
 - ◆ **CMM-604.3: Initial Primary Posterior Cervical Fusion for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.4: Initial Posterior Cervical Fusion with Posterior Cervical Decompression for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.5: Posterior Cervical Fusion (Initial or Repeat) for Symptomatic Pseudoarthrosis**
 - ◆ **CMM-604.6: Repeat Posterior Cervical Fusion (with or without a Decompression) at the Same Level for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.7: Posterior Cervical Fusion (with or without Decompression) Following Failed Cervical Disc Arthroplasty**

Three-Column Osteotomy or Vertebral Column Resection

Cervical three-column osteotomy (i.e., pedicle subtraction osteotomy [PSO] or vertebral column resection [VCR]) is considered **medically necessary** (in addition to fusion) when **ALL** of the following criteria are met:

- Performed for correction of fixed cervical kyphotic deformity
- Correction of cervical kyphotic deformity cannot be attained by posterior cervical fusion (with or without posterior cervical decompression) alone

- **ALL** of the criteria for posterior cervical fusion (with or without posterior cervical decompression) have been met per the applicable procedure-specific section(s) below:
 - ◆ **CMM-604.3: Initial Primary Posterior Cervical Fusion for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.4: Initial Posterior Cervical Fusion with Posterior Cervical Decompression for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.5: Posterior Cervical Fusion (Initial or Repeat) for Symptomatic Pseudoarthrosis**
 - ◆ **CMM-604.6: Repeat Posterior Cervical Fusion (with or without a Decompression) at the Same Level for Conditions other than Pseudoarthrosis**
 - ◆ **CMM-604.7: Posterior Cervical Fusion (with or without Decompression) Following Failed Cervical Disc Arthroplasty**

CMM-604.3: Initial Primary Posterior Cervical Fusion for Conditions other than Pseudoarthrosis

Initial posterior cervical fusion is considered **medically necessary** for **ANY** of the following conditions when **ALL** of the associated criteria are met:

Symptomatic Cervical Spondylosis with Instability

EITHER of the following clinical scenarios:

- Plain X-rays of the cervical spine show instability and include **EITHER** of the following findings (meeting urgent/emergent criteria):
 - ◆ Subluxation or translation of more than 3.5 mm on static lateral views
 - ◆ Sagittal plane angulation of more than 11 degrees between adjacent spinal segments on static or dynamic flexion/extension lateral plain X-rays
- **ALL** of the following criteria are met:
 - ◆ Plain X-rays of the cervical spine including flexion/extension lateral views have been performed
 - ◆ Imaging study shows corresponding pathologic anatomy
 - ◆ Individual is unresponsive to a reasonable and medically appropriate course of conservative treatment (e.g., rest, medication, cervical collar)
 - ◆ Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
 - ◆ Documentation of nicotine-free status with **EITHER** of the following:
 - Individual is a never-smoker
 - Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Clinical Conditions with an Increased Incidence of Congenital and/or Acquired Cervical Spinal Instability

EITHER of the following clinical scenarios:

- Plain X-rays of the cervical spine show instability and include **EITHER** of the following findings (meeting urgent/emergent criteria):
 - ◆ Subluxation or translation of more than 3.5 mm on static lateral views
 - ◆ Sagittal plane angulation of more than 11 degrees between adjacent spinal segments on static or dynamic flexion/extension lateral plain X-rays
- **ALL** of the following criteria are met:
 - ◆ Documentation of rheumatoid arthritis or a clinical condition with an increased incidence of congenital and/or acquired cervical spinal instability (e.g., Down syndrome, mucopolysaccharidoses, spondyloepiphyseal dysplasia, pseudoachondroplasia, etc.)
 - ◆ Imaging evidence of subluxation and/or spinal cord compression
 - ◆ Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
 - ◆ Documentation of nicotine-free status with **EITHER** of the following:
 - Individual is a never-smoker
 - Individual has refrained from smoking, use of tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

CMM-604.4: Initial Primary Posterior Cervical Fusion with Posterior Cervical Decompression for Conditions other than Pseudoarthrosis

Initial posterior cervical fusion with posterior cervical decompression (laminectomy/hemilaminectomy/ laminoplasty) is considered **medically necessary** for **ANY** of the following conditions when **ALL** of the associated criteria are met:

Radiculopathy

- ◆ The individual is a candidate for an initial posterior cervical decompression per **CMM-603.2: Initial Primary Posterior Cervical Decompression (Laminectomy/Hemilaminectomy/Laminoplasty)**
- Plain X-rays of the cervical spine including flexion/extension lateral views have been performed
- Documentation of nicotine-free status with **EITHER** of the following:
 - ◆ Individual is a never-smoker
 - ◆ Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Myelopathy

- ◆ The individual is a candidate for an initial posterior cervical decompression per **CMM-603.2: Initial Primary Posterior Cervical Decompression (Laminectomy/Hemilaminectomy/Laminoplasty)**
- Imaging must show neutral or lordotic alignment (i.e., without kyphosis)

Concurrent Stabilization Procedure

- Posterior cervical fusion is performed concurrently for **EITHER** of the following:
 - ◆ As a concurrent stabilization procedure with corpectomy, laminectomy, or other procedure at the cervicothoracic junction (i.e., C7 and T1)
 - ◆ As a concurrent stabilization procedure with a laminectomy, especially at C2
- Plain X-rays of the cervical spine including flexion/extension lateral views have been performed
- Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
- Documentation of nicotine-free status with **EITHER** of the following:
 - ◆ Individual is a never-smoker
 - ◆ Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Clinical Conditions with an Increased Incidence of Congenital and/or Acquired Cervical Spinal Instability

EITHER of the following clinical scenarios:

- Plain X-rays of the cervical spine show instability and include **EITHER** of the following findings (meeting urgent/emergent criteria):
 - ◆ Subluxation or translation of more than 3.5 mm on static lateral views
 - ◆ Sagittal plane angulation of more than 11 degrees between adjacent spinal segments on static or dynamic flexion/extension lateral plain X-rays
- **ALL** of the following criteria are met:
 - ◆ Documentation of rheumatoid arthritis or clinical conditions with an increased incidence of congenital and/or acquired cervical spinal instability (e.g., Down syndrome, mucopolysaccharidoses, spondyloepiphyseal dysplasia, pseudoachondroplasia, etc.)
 - ◆ Imaging includes **BOTH** of the following:
 - Imaging evidence of subluxation and/or spinal cord compression
 - Plain X-rays of the cervical spine including flexion/extension lateral views have been performed
 - ◆ Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)

- ◆ Documentation of nicotine-free status with **EITHER** of the following:
 - Individual is a never-smoker
 - Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Symptomatic Cervical Instability or Spinal Cord/Root Compression Requiring Posterior Fusion

EITHER of the following clinical scenarios:

- Plain X-rays of the cervical spine show instability and include **EITHER** of the following findings (meeting urgent/emergent criteria):
 - ◆ Subluxation or translation of more than 3.5 mm on static lateral views
 - ◆ Sagittal plane angulation of more than 11 degrees between adjacent spinal segments on static or dynamic flexion/extension lateral plain X-rays
- **ALL** of the following criteria are met:
 - ◆ Plain X-rays of the cervical spine including flexion/extension lateral views have been performed
 - ◆ Imaging study shows corresponding pathologic anatomy
 - ◆ Individual is unresponsive to a reasonable and medically appropriate course of conservative treatment (e.g., rest, medication, cervical collar)
 - ◆ Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
 - ◆ Documentation of nicotine-free status with **EITHER** of the following:
 - Individual is a never-smoker
 - Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

CMM-604.5: Posterior Cervical Fusion (Initial or Repeat) for Symptomatic Pseudoarthrosis

A posterior cervical fusion (initial or repeat) is considered **medically necessary** for symptomatic pseudoarthrosis after a prior cervical fusion at the same level for **ANY** of the following conditions when **ALL** of the associated criteria are met:

Unremitting Neck Pain with Pseudoarthrosis

- Greater than 6 months since the prior cervical fusion surgery at the same level
- Significant level of pain on a daily basis defined as **EITHER** of the following:
 - ◆ Visual Analog Scale (VAS)/Numeric Rating Scale (NRS) as ≥ 4
 - ◆ Severe, disabling, crippling, or incapacitating pain
- Recent (within 6 months) post-operative physical exam findings are concordant with the individual's symptoms

- Less than clinically meaningful improvement with 6 months of non-surgical treatment with **BOTH** of the following (unless contraindicated):
 - ◆ Prescription strength analgesics, steroids, gabapentinoids, and/or NSAIDs
 - ◆ Provider-directed exercise program prescribed by a physical therapist, chiropractic provider, osteopathic or allopathic physician
- Post-operative MRI/CT shows findings that are concordant with the individual's symptoms
- Post-operative imaging (performed at no less than 6 months after the prior cervical fusion) shows pseudoarthrosis at the requested level(s)
- Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
- Documentation of nicotine-free status with **EITHER** of the following:
 - ◆ Individual is a never-smoker
 - ◆ Individual has refrained from smoking, use of tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Radiculopathy with Pseudoarthrosis

- Greater than 6 months since the prior cervical fusion surgery at the same level
- Subjective symptoms include **BOTH** of the following:
 - ◆ Significant level of pain on a daily basis defined as **EITHER** of the following:
 - Visual Analog Scale (VAS)/Numeric Rating Scale (NRS) as ≥ 4
 - Severe, disabling, crippling, or incapacitating pain
 - ◆ Unremitting radicular pain to shoulder girdle and/or upper extremity resulting in disability
- Objective physical exam findings include **ANY** of the following:
 - ◆ Dermatomal sensory deficit
 - ◆ Motor deficit (e.g., biceps, triceps weakness)
 - ◆ Reflex changes
 - ◆ Shoulder abduction relief sign
 - ◆ Nerve root tension sign (e.g., Spurling's maneuver)
 - ◆ Unremitting radicular pain to shoulder girdle and/or upper extremity without concordant objective physical exam findings
- Less than clinically meaningful improvement with at least **TWO** of the following (unless contraindicated):
 - ◆ Prescription strength analgesics, steroids, gabapentinoids, and/or NSAIDs for 6 weeks
 - ◆ Provider-directed exercise program prescribed by a physical therapist, chiropractic provider, osteopathic or allopathic physician for 6 weeks
 - ◆ Epidural steroid injection(s) or selective nerve root block(s) performed at the same level(s) as the requested surgery

- Post-operative imaging (performed at no less than 6 months after the prior cervical fusion) shows pseudoarthrosis at the requested level(s)
- Post-operative MRI/CT shows neural structure compression at the requested level(s) that is concordant with the individual's symptoms **and** physical exam findings and that is caused by **ANY** of the following:
 - ◆ Herniated disc(s) (retained disc material or a recurrent disc herniation)
 - ◆ Synovial cyst or arachnoid cyst
 - ◆ Central/lateral/foraminal stenosis
 - ◆ Osteophytes
- Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)

Myelopathy with Pseudarthrosis

- Greater than 6 months since the prior cervical fusion surgery at the same level
- Subjective symptoms include **ANY** of the following:
 - ◆ Upper/lower extremity weakness, numbness, or pain
 - ◆ Fine motor dysfunction (buttoning, handwriting, clumsiness of hands)
 - ◆ Gait disturbance
 - ◆ New-onset bowel or bladder dysfunction
 - ◆ Frequent falls
- Objective physical exam findings include **ANY** of the following:
 - ◆ Grip and release test
 - ◆ Ataxic gait
 - ◆ Hyperreflexia
 - ◆ Hoffmann sign
 - ◆ Babinski sign
 - ◆ Tandem walking test demonstrating ataxia
 - ◆ Inverted brachial radial reflex
 - ◆ Increased muscle tone or spasticity
 - ◆ Clonus
 - ◆ Myelopathic hand
- Post-operative imaging (performed at no less than 6 months after the prior cervical fusion) shows pseudoarthrosis at the requested level(s)
- Post-operative MRI/CT shows findings that are concordant with the individual's symptoms **and** physical exam findings and that are caused by **EITHER** of the following:
 - ◆ Cervical spinal cord compression
 - ◆ Cervical spinal stenosis

CMM-604.6: Repeat Posterior Cervical Fusion at the Same Level for Conditions other than Pseudoarthrosis

Repeat posterior cervical fusion (with or without posterior cervical decompression) at the same level is considered **medically necessary** for the following condition when the associated criteria is met:

Malposition or Failure of Implant/Instrumentation or Structural Bone Graft

- Post-operative imaging shows evidence of malposition or failure of the implant/instrumentation or structural bone graft (e.g., migration, pedicle screw breakage, pedicle screw loosening, dislodged hooks, rod breakage, rod bending, rod loosening, loss of curve correction, decompensation, etc.)

CMM-604.7: Posterior Cervical Fusion (with or without Decompression) Following Failed Cervical Disc Arthroplasty Surgery

Posterior cervical fusion (with or without posterior cervical decompression) following a failed cervical disc arthroplasty implant is considered **medically necessary** for **ANY** of the following conditions when **ALL** of the associated criteria are met:

Failed Cervical Disc Arthroplasty Implant

- Post-operative imaging shows evidence of cervical disc arthroplasty implant malposition or failure (e.g., subsidence, loosening, infection, dislocation/subluxation, vertebral body fracture, dislodgement)

Unremitting Neck Pain

- Greater than 6 months since the prior cervical disc arthroplasty procedure at the same level
- Significant level of pain on a daily basis defined as **EITHER** of the following:
 - ◆ Visual Analog Scale (VAS)/Numeric Rating Scale (NRS) as ≥ 4
 - ◆ Severe, disabling, crippling, or incapacitating pain
- Recent (within 6 months) post-operative physical exam findings are concordant with the individuals symptoms
- Less than clinically meaningful improvement with **BOTH** of the following for at least 6 weeks (unless contraindicated):
 - ◆ Prescription strength analgesics, steroids, gabapentinoids, and/or NSAIDs
 - ◆ Provider-directed exercise program prescribed by a physical therapist, chiropractic provider, osteopathic or allopathic physician
- Post-operative MRI/CT shows findings that are concordant with the individual's symptoms

- Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
- Documentation of nicotine-free status including **EITHER** of the following:
 - ◆ Individual is a never-smoker
 - ◆ Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Radiculopathy

- Greater than 6 months since the prior cervical disc arthroplasty procedure at the same level
- Subjective symptoms include **BOTH** of the following:
 - ◆ Significant level of pain on a daily basis defined as **EITHER** of the following:
 - Visual Analog Scale (VAS)/Numeric Rating Scale (NRS) as ≥ 4
 - Severe, disabling, crippling, or incapacitating pain
 - ◆ Unrelenting radicular pain to shoulder girdle and/or upper extremity resulting in disability
- Objective physical exam findings include **ANY** of the following:
 - ◆ Dermatomal sensory deficit
 - ◆ Motor deficit (e.g., biceps, triceps weakness)
 - ◆ Reflex changes
 - ◆ Shoulder abduction relief sign
 - ◆ Nerve root tension sign (e.g., Spurling's maneuver)
 - ◆ Unrelenting radicular pain to shoulder girdle and/or upper extremity without concordant objective physical exam findings
- Less than clinically meaningful improvement with at least **TWO** of the following (unless contraindicated):
 - ◆ Prescription strength analgesics, steroids, gabapentinoids, and/or NSAIDs for 6 weeks
 - ◆ Provider-directed exercise program prescribed by a physical therapist, chiropractic provider, osteopathic, or allopathic physician for 6 weeks
 - ◆ Epidural steroid injection(s) or selective nerve root block(s) performed at the same level(s) as the requested surgery
- Post-operative MRI/CT shows neural structure compression at the requested level(s) that is concordant with the individual's symptoms **and** physical exam findings and that is caused by **ANY** of the following:
 - ◆ Herniated disc(s) (retained disc material or a recurrent disc herniation)
 - ◆ Synovial cyst or arachnoid cyst
 - ◆ Central/lateral/foraminal stenosis
 - ◆ Osteophytes

- Absence of unmanaged significant mental and/or behavioral health disorders (e.g., major depressive disorder, chronic pain syndrome, secondary gain, opioid and alcohol use disorders)
- Documentation of nicotine-free status with **EITHER** of the following:
 - ◆ Individual is a never-smoker
 - ◆ Individual has refrained from smoking, use of smokeless tobacco products, and/or nicotine replacement therapy for at least 6 weeks prior to planned surgery as evidenced by blood cotinine lab results of ≤ 10 ng/mL

Myelopathy

- Greater than 6 months since the prior cervical disc arthroplasty procedure at the same level
- Subjective symptoms include **ANY** of the following:
 - ◆ Upper/lower extremity weakness, numbness, or pain
 - ◆ Fine motor dysfunction (buttoning, handwriting, clumsiness of hands)
 - ◆ Gait disturbance
 - ◆ New-onset bowel or bladder dysfunction
 - ◆ Frequent falls
- Objective physical exam findings include **ANY** of the following:
 - ◆ Grip and release test
 - ◆ Ataxic gait
 - ◆ Hyperreflexia
 - ◆ Hoffmann sign
 - ◆ Babinski sign
 - ◆ Tandem walking test demonstrating ataxia
 - ◆ Inverted brachial radial reflex
 - ◆ Increased muscle tone or spasticity
 - ◆ Clonus
 - ◆ Myelopathic hand
- Post-operative MRI/CT shows findings that are concordant with the individual's symptoms **and** physical exam findings and that are caused by **EITHER** of the following:
 - ◆ Cervical spinal cord compression
 - ◆ Cervical spinal stenosis

CMM-604.8: Non-Indications

Not Medically Necessary

Posterior Cervical Fusion (with or without Posterior Cervical Decompression)

- **Posterior cervical fusion** (with or without posterior cervical decompression) performed without meeting the criteria in the **General Guidelines** and the criteria in the applicable procedure-specific section (initial, repeat, or following failed disc arthroplasty) is considered **not medically necessary**.
- **Posterior cervical fusion** (with or without posterior cervical decompression) is considered **not medically necessary** when performed for **ANY** of the following sole indications:
 - ◆ Signs and symptoms with no correlation to imaging studies
 - ◆ Annular tears
 - ◆ Disc bulge with no neural impingement or cord compression on imaging
 - ◆ Concordant Discography
 - ◆ MR Spectroscopy results
 - ◆ Degenerative disc disease
 - ◆ Isolated facet fusion, with or without instrumentation, including allograft bone graft substitutes used exclusively as stand-alone stabilization devices (e.g., DTRAX® [cervical], TruFuse [any level], NuFix® [any level])

Osteotomy

- Posterior cervical column osteotomy performed without meeting the criteria in the **General Guidelines** and the posterior column osteotomy (PCO) criteria in **CMM-604.2 Osteotomy** is considered **not medically necessary**.
- Cervical three-column osteotomy or vertebral column resection (VCR) performed without meeting the criteria in the **General Guidelines** and the cervical three-column osteotomy/VCR criteria in **CMM-604.2 Osteotomy** is considered **not medically necessary**

Procedure (CPT®) Codes (CMM-604)

This guideline relates to the CPT® code set below. Codes are displayed for informational purposes only. Any given code's inclusion on this list does not necessarily indicate prior authorization is required.

CPT®	Code Description/Definition
22210	Osteotomy of spine, posterior or posterolateral approach, 1 vertebral segment; cervical
+22216	Osteotomy of spine, posterior or posterolateral approach, 1 vertebral segment; each additional vertebral segment (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	Each additional vertebral segment (List separately in addition to code for primary procedure)
+22840	Posterior non-segmental instrumentation (e.g., 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 (e.g., pedicle fixation, dual rods with multiple hooks and sublaminar wires); 3 to 6 vertebral segments (List separately in addition to code for primary procedure)
+22843	Posterior segmental instrumentation (e.g., pedicle fixation, dual rods with multiple hooks and sublaminar wires); 7 to 12 vertebral segments (List separately in addition to code for primary procedure)

This list may not be all-inclusive and is not intended to be used for coding/billing purposes. The final determination of reimbursement for services is the decision of the health plan and is based on the individual's policy or benefit entitlement structure as well as claims processing rules.

References (CMM-604)

1. Barton C, Kalakoti P, Bedard NA, Hendrickson NR, Saifi C, Pugely AJ. What Are the Costs of Cervical Radiculopathy Prior to Surgical Treatment? *Spine*. 2019;44(13):937-942. doi: 10.1097/brs.0000000000002983.
2. Bond M, McIntosh G, Fisher C et al. Treatment of Mild Cervical Myelopathy. *Spine (Phila Pa 1976)*. 2019;44(22):1606-1612. doi: 10.1097/brs.0000000000003124.
3. Boonstra AM, Schiphorst Preuper HR, Balk GA, Stewart RE. Cut-off points for mild, moderate, and severe pain on the visual analogue scale for pain in patients with chronic musculoskeletal pain. *Pain*. 2014;155(12):2545-2550. doi: 10.1016/j.pain.2014.09.014.
4. Broekema AEH, Simões de Souza NF, Soer R, et al. Noninferiority of Posterior Cervical Foraminotomy vs Anterior Cervical Discectomy With Fusion for Procedural Success and Reduction in Arm Pain Among Patients With Cervical Radiculopathy at 1 Year. *JAMA Neurol*. 2023;80(1):40-40. doi: 10.1001/jamaneurol.2022.4208.
5. Campbell RM. Spine deformities in rare congenital syndromes: clinical issues. *Spine* 2009;34(17):1815-1827.
6. Carette S, Fehlings MG. Clinical practice. Cervical radiculopathy. *NEJM*. 2005;353(4):392-399.
7. Celestre PC, Pazmiño PR, Mikhael MM, et al. Minimally invasive approaches to the cervical spine. *Orthop Clin North Am*. 2012;43(1):137-147. doi: 10.1016/j.ocl.2011.08.007.
8. Chatley A, Kumar R, Jain V, Behari S, Sahu R. Effect of spinal cord signal intensity changes on clinical outcome after surgery for cervical spondylotic myelopathy. *J Neurosurg Spine*. 2009;11(5):562-567. doi: 10.3171/2009.6.spine091.
9. Cohen SP, Hanling S, Bicket MC, et al. Epidural steroid injections compared with gabapentin for lumbosacral radicular pain: multicenter randomized double blind comparative efficacy study. *BMJ*. 2015;350(apr16 26):h1748-h1748. doi: 10.1136/bmj.h1748.
10. Dorward IG, Lenke LG. Osteotomies in the posterior-only treatment of complex adult spinal deformity: a comparative review. *Neurosurg Focus*. 2010;28(3):E4. doi: 10.3171/2009.12.focus09259.
11. Dru AB, Lockney DT, Vaziri S, et al. Cervical Spine Deformity Correction Techniques. *Neurospine*. 2019;16(3):470-482. doi: 10.14245/ns.1938288.144.
12. Dvorak MF, Fisher CG, Fehlings MG, et al. The surgical approach to subaxial cervical spine injuries: an evidence-based algorithm based on the SLIC classification system. *Spine*. 2007;32(23):2620-2629. doi: 10.1097/BRS.0b013e318158ce16.
13. Raja M, Garg A, Yadav P, et al. Diagnostic Methods for Detection of Cotinine Level in Tobacco Users: A Review. *J Clin Diagn Res*. 2016;10(3):ZE04–ZE06.
14. Farshad M, Burgstaller JM, Held U, et al. Do preoperative corticosteroid injections increase the risk for infections or wound healing problems after spine surgery? *Spine*. 2018;43(15):1089-1094.
15. Fejer R, Jordan A, Hartvigsen J. Categorising the severity of neck pain: Establishment of cut-points for use in clinical and epidemiological research. *Pain*. 2005;119(1-3):176-182. doi: 10.1016/j.pain.2005.09.033.
16. Ghogawala Z, Martin B, Benzel EC, et al. Comparative effectiveness of ventral vs dorsal surgery for cervical spondylotic myelopathy. *Neurosurgery*. 2011;68(3):622-631. doi: 10.1227/NEU.0b013e31820777cf.
17. Grabowski G, Cornett CA, Kang JD. Esophageal and vertebral artery injuries during complex cervical spine surgery--avoidance and management. *Orthop Clin North Am*. 2012;43(1):63-74.
18. Guzman JZ, Feldman ZM, McAnany S, Hecht AC, Qureshi SA, Cho SK. Osteoporosis in Cervical Spine Surgery. *Spine*. 2016;41(8): 662-668.
19. Hankinson TC, Anderson RC. Craniovertebral junction abnormalities in Down syndrome. *Neurosurgery*. 2010;66(3 Suppl):32-38.
20. Hecht AC, Koehler SM, Laudone JC, Jenkins A, Qureshi S. Is intraoperative CT of posterior cervical spine instrumentation cost-effective and does it reduce complications? *Clin Orthop Relat Res*. 2011;469(4):1035-1041.
21. Hills BB, Kasliwal MK. Cervical Radiographic Parameters in the Management of Cervical Spine Disorders: The Minimum that Needs to Be Measured. *SpineLine*. September/October 2019;12-16.
22. Hilton B, Tempest-Mitchell J, Davies B, Kotter M. Assessment of degenerative cervical myelopathy differs between specialists and may influence time to diagnosis and clinical outcomes. *PLoS ONE*. 2018;13(12). doi: 10.1371/journal.pone.0207709.
23. Hsu WK. Advanced techniques in cervical spine surgery. *J Bone Joint Surg Am*. 2011;93(8):780-788.
24. Jayaram RH, Joo P, Gouzoulis MJ, Ratnasamy PP, Caruana D, Moore HE. Single-level Anterior Cervical discEctomy and Fusion has Lower Five-year Revisions than Posterior Cervical Foraminotomy in a Large National Cohort. *Spine*. 2023;48(18):1266-1271. doi: 10.1097/brs.0000000000004754.
25. Komotar RJ, Mocco J, Kaiser MG. Surgical management of cervical myelopathy: indications and techniques for laminectomy and fusion. *Spine J*. 2006;6(6 Suppl):252S-267S.
26. Krauss WE, Bledsoe JM, Clarke MJ, Nottmeier EW, Pichelmann MA. Rheumatoid arthritis of the craniovertebral junction. *Neurosurgery*. 2010;66(3 Suppl):83-95.
27. Kushchayev SV, Glushko T, Jarraya M, et al. ABCs of the degenerative spine. *Insights Imaging*. 2018;9(2):253-274. doi: 10.1007/s13244-017-0584-z.
28. Kwon BK, Vaccaro AR, Grauer JN, Fisher CG, Dvorak MF. Subaxial cervical spine trauma. *JAAOS*. 2006;14(2):78-89.

29. La Marca F, Brumblay H. Smith–Petersen Osteotomy in Thoracolumbar Deformity Surgery. *Neurosurgery*. 2008;63(3):A163-A170. doi: 10.1227/01.neu.0000320428.67620.4f.
30. Lawrence BD, Brodke DS. Posterior surgery for cervical myelopathy: indications, techniques, and outcomes. *Orthopedic Clinics of North America* 2012;43(1):29-40.
31. Lee BS, Nault R, Grabowski M, et al. Utility of repeat magnetic resonance imaging in surgical patients with lumbar stenosis without disc herniation. *Spine J*. 2019;19(2):191-198. doi: 10.1016/j.spinee.2018.06.357.
32. Machino M, Yukawa Y, Ito K, Inoue T, Kobayakawa A, Matsumoto T, Ouchida J, Tomita K, Kato F. Risk Factors for Poor Outcome of Cervical Laminoplasty for Cervical Spondylotic Myelopathy in Patients with Diabetes. *J Bone Joint Surg Am*. 2014;96:2049-2055.
33. Manzano GR, Casella G, Wang MY, D ODCS, Levi AD. A Prospective, Randomized Trial Comparing Expansile Cervical Laminoplasty versus Cervical Laminectomy and Fusion for Multi-level Cervical Myelopathy. *Neurosurgery*. Aug 2011.
34. Matz PG, Anderson PA, Groff MW, et al. Cervical laminoplasty for the treatment of cervical degenerative myelopathy. *J Neurosurg Spine*. 2009;11(2):157-169. doi: 10.3171/2009.1.SPINE08726.
35. McDonald C, Hershman S, Hogan W, et al. Cervical Laminoplasty Versus Posterior Laminectomy and Fusion: Trends in Utilization and Evaluation of Complication and Revision Surgery Rates. *JAAOS*. 2022;30(17):858-866. doi: 10.5435/jaaos-d-22-00106.
36. Molina CA, Gokaslan ZL, Sciubba DM. Diagnosis and management of metastatic cervical spine tumors. *Orthop Clin North Am*. 2012;43(1):75-87.
37. Mummaneni PV, Kaiser MG, Matz PG, et al. Preoperative patient selection with magnetic resonance imaging, computed tomography, and electroencephalography: does the test predict outcome after cervical surgery? *J Neurosurg*. 2009;11(2):119-129. doi: 10.3171/2009.3.SPINE08717.
38. Mummaneni PV, Kaiser MG, Matz PG, et al. Cervical surgical techniques for the treatment of cervical spondylotic myelopathy. *J Neurosurg Spine*. 2009;11(2):130-141. doi: 10.3171/2009.3.SPINE08728.
39. National Hospital Discharge Database Analysis, all payers, all applicable states, 2009-2010. [Context Link 1, 2, 3].
40. North American Spine Society (NASS). *Cervical Fusion- NASS Coverage Policy Recommendations*. NASS Coverage Committee. © 2014-2016 North American Spine Society. 7075 Veterans Blvd., Burr Ridge, IL. www.spine.org; ISBN: 1-929988-48-6.
41. Panagopoulos J, Hush J, Steffens D, Hancock MJ. Do MRI Findings Change Over a Period of Up to 1 Year in Patients With Low Back Pain and/or Sciatica? *Spine*. 2017;42(7):504-512. doi: 10.1097/brs.0000000000001790.
42. Raizman NM, O'Brien JR, Poehling-Monaghan KL, Yu WD. Pseudarthrosis of the spine. *JAAOS*. 2009; 17(8):494-503.
43. Rao RD, Gourab K, David KS. Operative treatment of cervical spondylotic myelopathy. *J Bone Joint Surg Am*. 2006;88(7):1619-40.
44. Ries ZG, Glassman SD, Vasilyev I, Metcalfe L, Carreon LY. Updated imaging does not affect revision rates in adults undergoing spine surgery for lumbar degenerative disease. *J Neurosurg Spine*. Published online Nov 2018. 2019;30(2):228-223. doi: 10.3171/2018.8.spine18586.
45. Sasso RC, Anderson PA, Riew KD, Heller JG. Results of cervical arthroplasty compared with anterior discectomy and fusion: four-year clinical outcomes in a prospective, randomized controlled trial. *Orthopedics*. 2011;34(11):889.
46. Sakaura H, Hosono N, Mukai Y, Ishii T, Iwasaki M, Yoshikawa H. Long-term outcome of laminoplasty for cervical myelopathy due to disc herniation: a comparative study of laminoplasty and anterior spinal fusion. *Spine (Phila Pa 1976)*. Apr 2005;30(7):756-759.
47. Shafshak TS, Elnemr R. The Visual Analogue Scale Versus Numerical Rating Scale in Measuring Pain Severity and Predicting Disability in Low Back Pain. *J Clin Rheumatol*. 2020;27(7):1. doi: 10.1097/rhu.0000000000001320.
48. Shetty GM, Song HR, Unnikrishnan R, Suh SW, Lee SH, Hur CY. Upper cervical spine instability in pseudoachondroplasia. *J Pediatr Orthop*. 2007;27(7):782-787.
49. Shin JH, Steinmetz MP, Benzel EC, Krishnaney AA. Dorsal versus ventral surgery for cervical ossification of the posterior longitudinal ligament: considerations for approach selection and review of surgical outcomes. *Neurosurg Focus*. 2011;30(3):E8.
50. Siemionow K, Janusz P, Phillips FM, et al. Clinical and Radiographic Results of Indirect Decompression and Posterior Cervical Fusion for Single-Level Cervical Radiculopathy Using an Expandable Implant with 2-Year Follow-Up. *J Neurol Surg A Cent Eur Neurosurg*. 2016;77(6):482-488. Epub 2016 Jun 8. doi: 10.1055/s-0036-1584210.
51. Sivaganesan A, Kim HJ. A Review of Indications, Surgical Technique, and Outcomes for the Cervical Pedicle Subtraction Osteotomy. *JAAOS*. 2022;30(3):e295-e300. doi: 10.5435/jaaos-d-21-00177.
52. Sun Q, Hu A, Zhang Y, et al. Do intramedullary spinal cord changes in signal intensity on MRI affect surgical opportunity and approach for cervical myelopathy due to ossification of the posterior longitudinal ligament? *Eur Spine J*. 2011;20(9):1466-1473. doi: 10.1007/s00586-011-1813-7.

53. Thayer L, Tiffany E, Carreira D. Addressing Smoking in Musculoskeletal Specialty Care. *J Bone Joint Surg Am*. 2021;103(22):2145-2152. doi:10.2106/jbjs.21.00108.
54. Tracy JA, Bartleson JD. Cervical spondylotic myelopathy. *Neurologist*. 2010;16(3):176-187.
55. Tretreault L, Tan G, Kopjar B, Cote P, Arnold P, Nugaeva N, Barbagallo G, Fehlings MG. Clinical and surgical predictors of complications following surgery for the treatment of cervical spondylotic myelopathy: results from the multicenter, prospective AOSpine International Study of 479 patients. *Neurosurgery*. 2015 Nov 25.
56. Turgut M. Klippel-Feil syndrome in association with posterior fossa dermoid tumour. *Acta Neurochirurgica*. 2009;151(3):269-276.
57. Wang VY, Chou D. The cervicothoracic junction. *Neurosurg Clin North Am*. 2007;18(2):365-371.
58. Weinberg D, Chugh AJ, Gebhart JJ, et al. Magnetic resonance imaging of the cervical spine under-represents sagittal plane deformity in degenerative myelopathy patients. *Int J Spine Surg*. 2016;10:32. doi: 10.14444/3032.
59. White AA, Johnson RM, Panjabi MM, Southwick WO. Biomechanical analysis of clinical stability in the cervical spine. *Clin Orthop Relat Res*. 1975;(109):85-96. doi: 10.1097/00003086-197506000-00011.
60. Wood GW II. Fractures, dislocations, and fracture-dislocations of the spine. In: Canale ST, Beaty JH, eds. *Campbell's Operative Orthopaedics*. 11th ed. Philadelphia, PA: Mosby Elsevier; 2008:1761-1850.
61. Yaksi A, Özgönenel L, Özgönenel B. The Efficiency of Gabapentin Therapy in Patients With Lumbar Spinal Stenosis. *Spine*. 2007;32(9):939-942. doi: 10.1097/01.brs.0000261029.29170.e6.
62. Yin L, Zhang J, Wu Y, Li J, Yang Q. Increased signal intensity of spinal cord on T2W magnetic resonance imaging for cervical spondylotic myelopathy patients. *Medicine (Baltimore)*. 2020;99(49):e23098. doi: 10.1097/md.00000000000023098.
63. Zechmeister I, Winkler R, Mad P. Artificial total disc replacement versus fusion for the cervical spine: a systematic review. *Eur Spine J* 2011;20(2):177-184.