Cohere Medicare Advantage Policy - Kyphectomy

Clinical Policy for Medical Necessity Review

Version: 3
Revision Date: May 22, 2025

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Policy Information:

Specialty Area: Disorders of the Musculoskeletal System
Policy Name: Cohere Medicare Advantage Policy - Kyphectomy
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Table of Contents

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Medical Necessity Criteria

Service: Kyphectomy

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.

- There are no applicable NCDs and/or LCDs for kyphectomy.

Description

A kyphectomy is a surgical procedure used to correct kyphosis, a curvature of the spine that causes a "hunchback" appearance.[1] The procedure involves removing parts of the vertebrae, such as bones, discs, transverse processes, or pedicles, at the apex of the kyphosis to straighten the spinal column and stabilize it.[2] Rods, hooks, screws, or fusions may be used to stabilize the corrected spine.[2,3] Kyphectomy is effective for correcting kyphosis to improve ambulatory function and relieve pain.[1] It is used for pediatric spinal deformity correction or adult congenital kyphosis, and it may involve myelomeningocele congenital deformities (where the spinal cord and spinal canal do not close completely during fetal development) or post-tuberculosis kyphosis.[4,5] The three types of kyphosis include postural, Scheuermann's, and congenital.[4,5]

Medical Necessity Criteria

Indications

Kyphectomy is considered appropriate if **ALL** of the following are **TRUE**:

- **ANY** of the following:
  - Current nicotine user with no product use for 6 weeks; and **ANY** of the following[6]:
    - Negative urine (cotinine) lab test within 30 days; **OR**
    - Surgery is urgently required due to documented reason; **OR**

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    - No history of nicotine product use within the last 12 months; **OR**
    - No lifetime history of nicotine product use, **AND**
- The patient has **ANY** of the following conditions:
    - Cervical spine deformity (e.g., kyphosis, head-drop syndrome, post-laminectomy deformity) and **ANY** of the following[7,8,9]:
        - The patient has a clinically significant deformity that makes the patient unable to maintain a forward gaze; **OR**
        - Progression of cervical deformity is documented; **OR**
        - The patient has **ALL** of the following substantial functional limitations:
            - Severe neck pain; **AND**
            - Difficulty ambulating; **AND**
            - Decreased ability to perform activities of daily living (ADLs); **OR**
    - Lumbar spine deformity (e.g., myelomeningocele, scoliosis restricted to the lumbar spine, or a thoracolumbar deformity that ends in the lumbar spine) and **ALL** of the following[10,11]:
        - Failure of conservative management for greater than 6 weeks, including **ALL** of the following:
            - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
            - Physical therapy, including a physician-directed home exercise program; **AND**
            - **ANY** of the following:
                - Corticosteroid injection if medically appropriate; **OR**
                - Documentation that corticosteroid injection is contraindicated; **AND**
        - The patient has **ALL** of the following substantial functional limitations:
            - Severe back pain; **AND**
            - Difficulty ambulating; **AND**
            - Decreased ability to perform ADLs; **AND**
        - The patient has **ANY** of the following deformity attributes:
            - Progression of lumbar deformity is at least 10° (as measured on consecutive radiographs over one year); **OR**
            - Fixed curve greater than 30° in the coronal plane; **OR**
            - Lateral listhesis of at least 10%; **OR**

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        - Proximal junctional kyphosis is defined as a segmental Cobb angle of at least 10° or 10° of progression from the immediate postoperative images[12]; **OR**
        - Sagittal or coronal imbalance of at least 5 cm is present (as measured on long-plate, standing radiographs of the entire spine); **OR**
        - Sitting imbalance[13]; **OR**
        - Impending skin breakdown from the deformity[13]; **OR**
    - Scheuermann's kyphosis and **ANY** of the following[2,14–16]:
        - Thoracic kyphosis greater than 75° causing unacceptable deformity; **OR**
        - Thoracic kyphosis greater than 75° associated with pain; **OR**
        - Functionally progressive curve; **OR**
        - Neurologic deficit/spinal cord compression; **OR**
        - Failure of conservative management for greater than 6 weeks, including **ALL** of the following:
            - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
            - Physical therapy, including a physician-directed home exercise program; **AND**
            - **ANY** of the following:
                - Corticosteroid injection if medically appropriate; **OR**
                - Documentation that corticosteroid injection is contraindicated.

Non-Indications

Kyphectomy is not considered appropriate if **ANY** of the following are **TRUE**:

- Burst fractures (fractures of the posterior vertebral body wall)[17]; **OR**
- Active infection at the surgical site.[18]

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Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
22818	Kyphectomy, circumferential exposure of spine and resection of vertebral segment(s) (including body and posterior elements); single or 2 segments
22819	Kyphectomy, circumferential exposure of spine and resection of vertebral segment(s) (including body and posterior elements); 3 or more segments
22899	Unlisted procedure, spine

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established," Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria for kyphectomy may include:

- Adverse effects from delayed or denied treatment, such as neurologic deficits if surgery is not considered when the kyphotic deformity is severe

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or nonresponsive to conservative management.[9] Appropriately timed surgery can also improve pulmonary function and leg and back pain.[19]

The clinical benefits of using these criteria for kyphectomy may include:

- Improved patient selection resulting in better long-term outcomes. Ideal candidates should have severe deformity and/or older age and skeletal maturity.[2] Huq et al. (2020) report that older patients are more likely to have severe and less flexible curvature, and patients with skeletal immaturity may be more suited for bracing and other conservative management techniques.[2]
- Maintenance of rigorous patient safety standards aligned to the best available evidence.
- Appropriate allocation of healthcare resources at the individual beneficiary and population level.

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Medical Evidence

Bradko et al. (2022) performed a systematic literature review to assess surgical management and functional outcomes and quality of life in adolescents and adults with myelomeningocele (i.e., a severe type of spina bifida). A total of 13 studies included 556 individuals with both myelomeningocele and scoliosis. Those with both were more likely to have secondary impairments or comorbidities (e.g., bladder/bowel incontinence, decreased ambulation, and pressure injuries) than were patients with no myelomeningocele and no scoliosis. This review found no strong functional or quality of life improvements after surgery in adolescents or adults with both myelomeningocele and scoliosis. The level of neurologic dysfunction and hydrocephalus should be considered when determining potential improvements in quality of life. The authors advise caution for surgical interventions in these populations, as there are higher risks of complications and possibly few benefits.[20]

Huq et al. (2020) systematically reviewed treatment approaches for Scheuermann kyphosis (defined here as "anterior wedging of 5° or more in at least three contiguous vertebrae"). A total of 45 studies were included, totalling 1829 patients with Scheuermann kyphosis-related pain, deformity, neural impairment, or failure of nonoperative treatment. Surgery was found to be superior to bracing for correction and maintenance of correction. Loss of correction was similar across posterior and anterior-posterior approaches, while a posterior-only approach provided superior correction. This review also suggests that surgeons have shifted toward posterior-only approaches in the twenty-first century.[2]

Garg et al. (2011) performed a retrospective review of 23 pediatric patients with myelomeningocele who underwent kyphectomy and spinal fusion. The review assessed the efficacy of kyphectomy in repairing an intact skin envelope and allowing more comfort when sitting in a wheelchair. Complications of surgery for patients with myelomeningocele were analyzed, as well as whether patients who required an unplanned reoperation experienced additional complications compared to patients with a single procedure. Overall, 17 patients achieved seating balance and resolution of

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skin problems. Seven patients required reoperations and operations to treat late infection, pseudarthrosis, implant-related sacral pressure sore, and future extension of proximal fusion after growth.[13]

Samagh et al. (2011) retrospectively reviewed kyphectomy surgical outcomes in patients with myelomeningocele or lumbar kyphosis. These included surgical results, complications, and short-term and midterm outcomes. Preoperatively, the mean extent of kyphosis among patients was 115.6° (range, 77-176°); correction was 13.0° (range, 0-32°) postoperatively, a reduction of 88.7%. Preoperatively, patients could not lie supine; postoperatively, all patients could lie in this position.[8]

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Clinical Guideline Revision History/Information

Original Date: May 27, 2024		
Review History		
Version 2	06/10/2024	422.101 Disclaimer added
Version 3	05/22/2025	Annual review. No changes to procedure codes. Updated conservative care indications to the new standard language. Restructured lumbar indications to match cervical indications and in alignment with NASS policy recommendations (i.e., severe back pain, difficulty ambulating, decreased ability to perform ADLs). Changed lumbar indications to include ALL sub-indications instead of ANY. Added “Sitting imbalance” and “Impending skin breakdown from the deformity” to the list of possible lumbar deformity attributes. Removed cervical radiculopathy from non-indications; added surgical site infection and burst fracture. Literature review - Description, Harms & Benefits, and Medical Evidence sections updated (including references).

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