

Subject: Interspinous Process Fixation Devices for Spinal Fusion		Original Effective Date: 3/11/2019
Policy Number: MCP-339	Revision Date(s):	
Review Date: 4/23/2020, 2/8/2021		
MCPC Approval Date: 3/11/2019, 4/23/2020, 2/8/2021		

Contents

DISCLAIMER	1
Description of Procedure/Service/Pharmaceutical.....	1
Position Statement	2
Summary of Medical Evidence.....	2
Coding Information.....	4
References.....	4
REVIEW/REVISION HISTORY	5

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (i.e., will be paid for by Molina) for a particular member. The member's benefit plan determines coverage. Each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their providers will need to consult the member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this Molina Clinical Policy (MCP) document and provide the directive for all Medicare members.¹

DESCRIPTION OF PROCEDURE/SERVICE/PHARMACEUTICAL ^{2 16 17 18}

This MCP addresses interspinous, non-pedicle fixation devices attached to the spinous process to achieve rigid spinal fixation and accommodate bone graft material for spinal fusion.

The most common surgery for chronic nonspecific low back pain with lumbar disc degenerative changes is spinal fusion, a procedure that fuses two or more vertebral bodies together. The goal is to restrict spinal motion and remove the degenerated disc (the presumed cause of pain) in order to relieve symptoms. A variety of fusion

techniques are used. All involve the placement of a bone graft between the vertebrae. Fusion can be performed with or without supplemental hardware (instrumentation), such as pedicle rods, plates, screws, or cages that function as an internal splint while the bone graft heals. Fusion alters the normal mechanics of the spine and is associated with an increase in long-term degenerative changes in adjacent spine segments. The standard spinal fusion procedure for rigid spinal fixation involves the use of pedicle screws, rods, cages and plates. Non-pedicle interspinous process fixation devices were developed as a minimally invasive rigid fixation alternative to standard rigid fixation instrumentation to aid in the stabilization of the spine. It is proposed that interspinous fixation systems are less invasive and present fewer risks than standard instrumentation and are being evaluated as alternatives to pedicle screw, rod, cages, and plates in combination with interbody fusion. Interspinous fixation devices are also being evaluated for stand-alone use in patients with spinal stenosis.

A number of interspinous process fixation devices have been approved by the U.S. Food and Drug Administration (FDA) 510(k) clearance process and are used as an adjunct to interbody fusion. The use of one of these devices for a stand-alone procedure would be considered an off-label use. Examples of devices include but are not limited to the following:

- Affix™ II and Affix II Mini Spinous Process Plate System (Nuvasive®), Aileron® Posterior Fusion System (Life Spine®) Surgery M-SUR172 3, Aspen® Spinous Process Fixation System (BioMet) , Axle™ Interspinous Fusion System (X-Spine), BacFus® Spinous Process Fusion Plate (RTI Surgical™, BridgePoint™ Spinous Process Fixation System (Alphatec Spine®), coflex-F® Implant Systems (Paradigm Spine), Inspan™ Spinous Process Plate System (SpineFrontier®), InterBRIDGE Interspinous Posterior Fixation System (LDR Spine), Minuteman® Interspinous Interlaminar Fusion Device (percutaneous spinal fusion) (Spinal Simplicity), Octave™ Posterior Fusion System (Life Spine®), PrimaLOK™ SP Interspinous Fusion System (OsteoMed Spine), SP-Fix™ Spinous Process Fixation System (Globus Medical), Spire™ Stabilization System (Medtronic Sofamor Danek), ZIP™ MIS Interspinous Fusion System (Aurora Spine) ²

Note: Interspinous process fixation devices for spinal fusion in this MCP differ from interspinous decompression devices for Spinal Stenosis. Please see the following related MCP for additional information concerning these devices: Interspinous Decompression Devices for Spinal Stenosis (X Stop, non-fusion Coflex) MCP-222.

POSITION STATEMENT

Interspinous Process Fixation Devices for Spinal Fusion are considered experimental, investigational and/or unproven for any indication, due to insufficient clinical evidence of safety and efficacy in published peer-reviewed medical literature.

SUMMARY OF MEDICAL EVIDENCE ³⁻¹⁵

Overall, there is a paucity of evidence in the peer-reviewed published medical literature to support the long-term safety and effectiveness of interspinous process fixation devices when used in combination with interbody fusion or as a stand-alone procedure. Large well designed randomized controlled trials are needed to demonstrate the clinical utility of interspinous process fixation devices compared with established standard surgical approaches involving pedicle screw-rod-cage-plate fixation with lumbar fusion procedures.

A recent systematic review and meta-analysis (Poetscher et al, 2018) was conducted to provide complete and reliable information regarding benefits and harms of interspinous process devices (IPDs) when compared to conservative treatment or decompression surgery and suggest directions for forthcoming RCTs. Overall quality of evidence was low. One trial compared IPDs to conservative treatment: IPDs presented better pain, functional status, quality of life outcomes, and higher complication risk. Five trials compared IPDs to decompressive surgery: pain, functional status, and quality of life had similar outcomes. IPD implant presented a significantly higher risk of reoperation. We found low-quality evidence that IPDs resulted in similar outcomes when compared to standard decompression surgery. Primary and secondary outcomes were not measured in all studies and were often published in incomplete form. Subgroup analysis was not feasible. Difficulty in contacting authors may have prevented us from including data in quantitative analysis. The review concluded that patients submitted to IPD implants had significantly higher rates of reoperation, with lower cost-effectiveness. Future trials should improve in design quality and data reporting, with longer follow-up periods.

11

The results of a Cochrane review (Machado et al, 2016) show a paucity of evidence on the efficacy of surgery for lumbar spinal stenosis. Twenty four randomised controlled trials included 2352 participants with lumbar spinal stenosis with symptoms of neurogenic claudication. Three trials investigated the effects of interspinous process spacer devices compared with conventional bony decompression. These spacer devices resulted in similar reductions in pain and disability but the spacer devices required longer operation time and were associated with higher risk of reoperation. Two trials compared interspinous spacer devices with decompression plus fusion. The data found no difference in pain relief the spacer devices revealed a small but significant effect in disability reduction and were also superior to decompression plus fusion in terms of operation time and perioperative blood loss however, there was no difference in rate of reoperation. Overall there were no differences for the primary or secondary outcomes when different types of surgical decompression techniques were compared among each other. The quality of evidence varied from 'very low quality' to 'high quality'. Placebo-controlled trials in surgery are feasible and needed in the field of lumbar spinal stenosis. The results demonstrate that at present, decompression plus fusion and interspinous process spacers have not been shown to be superior to conventional decompression alone. More methodologically rigorous studies are needed in this field to confirm our results. ⁹

Another systematic review (Lopez et al, 2017) evaluated the literature on lumbar spinous process fixation and fusion devices (excluding dynamic fixation and spinous process spacer devices). A total of 15 articles met the inclusion and exclusion criteria, two of the nonrandomized studies compared interspinous process fixation devices to pedicle screws in individuals undergoing interbody fusion and two other studies included interspinous process fixation devices alone or pedicle screws plus an interspinous process fixation device in individuals undergoing interbody fusion. Use of an interspinous process fixation device decreased surgical time and blood loss compared to pedicle screw implantation procedures, however, study designs were methodologically flawed and biased when reporting outcomes of reduced spinal instability at 1 year, rates of device failure, bony fracture, and complications. No comparative studies exist that report either complication rates of interspinous process fixation devices to other treatment modalities or length of hospital stay for interspinous process fixation devices compared to pedicle screw implantation procedures. ⁸

CODING INFORMATION THE CODES LISTED IN THIS POLICY ARE FOR REFERENCE PURPOSES ONLY. LISTING OF A SERVICE OR DEVICE CODE IN THIS POLICY DOES NOT IMPLY THAT THE SERVICE DESCRIBED BY THIS CODE IS COVERED OR NON-COVERED. COVERAGE IS DETERMINED BY THE BENEFIT DOCUMENT. THIS LIST OF CODES MAY NOT BE ALL INCLUSIVE.

CPT	Description
22899	Unlisted procedure, spine [when specified as insertion of a non-pedicle interspinous process fixation device]

REFERENCES

Government Agency

- Centers for Medicare & Medicaid Services (CMS). Medicare Coverage Database. Advanced Search: National Coverage Documents [search:]. Available at: <http://www.cms.gov/medicare-coverage-database/>
- Center for Devices and Radiological Health (CDRH). Premarket Approval (PMA) Database. Food and Drug Administration [website]. Product Codes: KWP, KWQ, MNH, MNI, and PEK. Available at: <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMA/pma.cfm>

Peer Reviewed Publications

- Hardenbrook M, Henn JS, et al. Spinous process fixation devices for instrumented spinal fusion. Surg Technol Int. 2013 Sep;23:273-82.
- Kaibara T, Karahalios DG, Porter RW, et al. Biomechanics of a lumbar interspinous anchor with transforaminal lumbar interbody fixation. World Neurosurg. 2010; 73(5):572-577.
- Karahalios DG, Kaibara T, Porter RW, et al. Biomechanics of a lumbar interspinous anchor with anterior lumbar interbody fusion. J Neurosurg Spine. 2010; 12(4):372-380.
- Kim DH, Shanti N, Tantorski ME, et al. Association between degenerative spondylolisthesis and spinous process fracture after interspinous process spacer surgery. Spine J. 2012a; 12(6):466-472.
- Kim HJ, Bak KH, Chun HJ, et al. Posterior interspinous fusion device for one-level fusion in degenerative lumbar spine disease: comparison with pedicle screw fixation - preliminary report of at least one year follow up. J Korean Neurosurg Soc. 2012b; 52(4):359-364.
- Lopez AJ, Scheer JK, Dahdaleh NS, et al. Lumbar spinous process fixation and fusion: a systematic review and critical analysis of an emerging spinal technology. Clin Spine Surg. 2017; 30(9):E1279-E1288.
- Machado GC, Ferreira PH, Yoo RI, Harris IA, Pinheiro MB, Koes BW, et al. Surgical options for lumbar spinal stenosis. Cochrane Database Syst Rev. 2016 Nov 1;11:CD012421.
- Musacchio MJ, Lauryssen C, Davis RJ, et al. Evaluation of decompression and interlaminar stabilization compared with decompression and fusion for the treatment of lumbar spinal stenosis: 5-year follow-up of a prospective, randomized, controlled trial. Int J Spine Surg. 2016;10:6. PMID 26913226
- Poetscher AW, Gentil AF et al. Interspinous process devices for treatment of degenerative lumbar spine stenosis: A systematic review and meta-analysis. PLoS One. 2018 Jul 6;13(7):e0199623. doi: 10.1371/journal.pone.0199623. eCollection 2018.

12. Ramesh A, Lyons F, et al. Aperius interspinous device for degenerative lumbar spinal stenosis: a review. *Neurosurg Rev.* 2016 Apr;39(2):197-205; discussion 205. doi: 10.1007/s10143-015-0664-9. Epub 2015 Sep 2.
13. Roberto Gazzeri, Marcelo Galarza, and Alex Alfieri, “Controversies about Interspinous Process Devices in the Treatment of Degenerative Lumbar Spine Diseases: Past, Present, and Future,” *BioMed Research International*, vol. 2014, Article ID 975052, 15 pages, 2014. doi:10.1155/2014/975052
14. Sclafani JA, Liang K, Ohnmeiss DD, Gordon C. Clinical outcomes of a polyaxial interspinous fusion system. *Int J Spine Surg.* 2014; 8.
15. Vokshoor A, Khurana S, Wilson D, et al. Clinical and radiographic outcomes after spinous process fixation and posterior fusion in an elderly cohort. *Surg Technol Int.* Nov 2014; 25:271-276. PMID 25433267

Professional Society Guidelines

16. North American Spine Society (NASS). NASS Coverage Policy Recommendations. Interspinous fixation with fusion May 2014.
17. The American Association of Neurological Surgeons (AANS) Guideline update for the performance of fusion procedure for degenerative disease of the lumbar spine. Part 7: Lumbar fusion for intractable low-back pain without stenosis or spondylolisthesis. *J Neurosurg Spine* 21:42–47, 2014.

Other Resources

18. UpToDate: [website]. Waltham, MA: Walters Kluwer Health; 2021.
 - Chou R. Subacute and chronic low back pain: Surgical treatment.
 - Levin K. Lumbar spinal stenosis: Treatment and prognosis.
19. Advanced Medical Review (AMR): Policy reviewed by practicing MD board certified in Orthopaedic Surgery. 1/14/19

REVIEW/REVISION HISTORY

3/19: Policy created

4/23/20 & 2/8/21: Policy reviewed, no changes.