

## **BACKGROUND AND UNMET NEED**

While ACDF remains the mainstay surgical procedure for treating cervical radiculopathy and myelopathy, accounting for ~85% of the ~180,000 cervical fusion procedures performed annually in the US, for degenerative changes requiring long-segment neural decompression (3+ level), anterior column stabilization alone may be insufficient to handle the increased biomechanical stresses across the fusion construct. This leads to markedly higher rates of non-union, adverse effects, revision surgeries than one- and two- level ACDF procedures [Nichols 2020, Wu 2017].

One clinical challenge of multilevel ACDF is well documented across several publications: fusion success decreases with each additional level. Despite being a common surgical approach, multilevel ACDF alone frequently results in incomplete fusion and leads to unplanned reoperations. In a national database analysis of 28,777 patients, multilevel procedures were associated with a 60% higher likelihood of revision surgery within 30 days and a 30% greater risk of complications compared to single-level ACDF [Veeravagu 2014]. In another study with patients who underwent three- or four-level anterior cervical discectomy with plate fixation, the two-year revision rate was relatively high at 35%, with the majority of these patients returning due to non-union [Laratta 2018]. Fusion failure is further influenced by factors such as low bone mineral density, smoking, diabetes, and chronic steroid use—risk factors commonly seen in patients requiring multilevel fusions [Cheung 2016; Kuo 2022; Verla 2021; Saavedra-Pozo 2014].

To maximize the likelihood of a successful fusion, long-segment ACDF should be augmented with posterior cervical fusion (PCF) to form a circumferential cervical fusion (CCF). [Nichols 2020, Laratta 2020, Lemons 2024, Strenge 2025]. The Appropriate Use Criteria from North American Spine Society (NASS) suggest that circumferential cervical fusion (combined anterior-posterior fusion) is an appropriate option to increase fusion rates for high-risk patients (NASS).

## **PRODUCT INFORMATION**

The CORUS™ Posterior Cervical Stabilization System (PCSS) is an FDA 510(k)-cleared posterior spinal instrumentation system designed for use in combination with anterior cervical discectomy and fusion (ACDF) to achieve circumferential cervical fusion (CCF). It is indicated for skeletally mature patients with multilevel cervical degenerative disc disease (DDD), typically involving spinal levels C3 to C7. These patients often present with radiculopathy, myelopathy, or debilitating axial neck pain associated with segmental instability or deformity [Strenge 2025; Cheung 2016; CORUS™ PCSS IFU 2024]. CORUS™ PCSS is intended to be used with autogenous and/or allogenic bone graft and serves as an adjunct to posterior cervical fusion, in combination with ACDF at the same spinal levels [CORUS™ PCSS IFU 2024].

The system consists of a bilateral titanium alloy stabilizer and two fixation screws per level, engineered to provide three points of rigid posterior fixation. This construct works synergistically with an anterior cervical plate or interbody device to reduce micromotion and enhance the biological environment for bone healing [CORUS™ PCSS IFU 2024].

A key advantage of CORUS™ PCSS is its tissue-sparing posterior approach, which preserves the paraspinal musculature and avoids the morbidity associated with posterior laminectomy and traditional lateral mass screws and rods. This design enables posterior fusion preparation while minimizing tissue disruption, offering a less invasive alternative to conventional posterior techniques [CORUS™ PCSS IFU 2024].

By addressing the mechanical challenges of long-segment ACDF, CORUS™ PCSS improves construct stability and promotes fusion, helping to optimize outcomes in complex multilevel cervical DDD cases. No other system currently combines this level of biomechanical support, posterior fixation, and minimal access approach [Strenge 2025; CORUS™ PCSS IFU 2024].

## COMPETITOR PRODUCTS

CORUS™ PCSS is uniquely cleared for use in conjunction with ACDF. While no equivalent devices exist for use in the US, some competitors that primarily rely on open posterior decompression and rod-based lateral mass/pedicle fixation have been identified as follows:

- Medtronic Infinity™ System
- Globus Medical Reline™ System
- Orthofix NorthStar™ System
- Depuy Synthes SYMPHONY™ System

## KEY FEATURES, DELIVERY MECHANISM, SOLUTION APPROACH, OR THERAPEUTIC ADVANCEMENT

CORUS PCSS provides a posterior stabilization solution designed to complement ACDF and enable circumferential cervical fusion (CCF) without the need for a traditionally more invasive posterior surgical procedure and instrumentation. This approach allows for improved biomechanical stability with minimal disruption to surrounding soft tissue and musculature.

Device configuration and Implantation [Voronov 2016; Joaquim 2021; Lemons 2024; Lorio 2024, Strenge 2025; CORUS PCSS IFU 2024]:

- **Construct:** Titanium alloy stabilizer with bilateral facet fixation screws
- **Fixation Levels:** Targeted stabilization from C3 to C7, adaptable based on surgical indication
- **Delivery:** Tissue-sparing posterior approach using fluoroscopic guidance, surgical navigation, and/or tubular based muscle-sparing dissection techniques
- **Fusion Support:** Provides all the steps of a typical posterior cervical fusion including decortication, joint preparation, and bone grafting to promote bone healing
- **Integration:** Augments anterior interbody fusion devices or plates to form a circumferential construct

The CORUS PCSS unique implant and instrument designs avoid the need for lateral mass screws or rods, which are commonly used in traditional open posterior cervical fusions. As shown by Voronov et al. (2016), facet constructs such as those used in CORUS PCSS substantially reduce motion across spinal segments—by 60% in flexion-extension, 94% in lateral bending, and 91% in axial rotation—when used with ACDF.

In the randomized trial by Strenge (2025), CORUS PCSS, when used in conjunction with ACDF, demonstrated superior clinical outcomes compared to ACDF alone. The CCF group achieved significantly higher fusion rates across all three levels at 1 year follow-up (61% vs. 17%) and dramatically fewer revisions (2% vs. 23%) compared to ACDF-only. Adding supplemental PCF with PCSS did not increase the rates of adverse events (ACDF=65%, CCF=46%, P=0.005). This multi-center, randomized, controlled study is the largest body of level 1 evidence on 3-level cervical fusion to date.

Together, the FDA labeling and rigorous clinical data position CORUS PCSS as the standard for achieving reliable multilevel cervical fusion with reduced surgical burden and enhanced clinical outcomes.

## CODING, COVERAGE, AND PAYMENT

### Coding and Payment (Appendix A):

Anterior cervical fusion procedures are typically coded using CPT 22551 (single level) and 22554 (additional levels), while posterior fusion is billed under CPT 22600 (initial level) and 22614 (each additional level). Posterior fusion implants are typically coded under CPT 22840 Posterior Non-segmental Instrumentation and CPT 22842 Posterior Segmental instrumentation (multiple levels). CORUS PCSS labeling and technique fit well within the description of these codes and have been validated by independent coders, society leaders, and in peer-reviewed publication (Lorio 2024).

### Coverage:

- Payer coverage for CORUS™ PCSS is largely silent as it relates to Medical Policies
- Many payers cover CORUS™ PCSS for use as an adjunct to posterior cervical fusion on a case-by-case basis for patients.

## VALUE PROPOSITION

CORUS™ PCSS offers a value proposition that bridges clinical performance and economic sustainability. It offers a highly targeted and efficient solution for improving outcomes in cervical fusion. In high-risk patients—those with multiple level Degenerative Disc Disease, multiple comorbidities, poor bone quality, or a history of failed fusion—the need for a reliable, minimally invasive adjunct to anterior procedures is especially critical. CORUS™ PCSS addresses this need by providing posterior biomechanical support and bone decortication and grafting that complements anterior constructs, enhancing the likelihood of successful arthrodesis without the surgical morbidity of traditional more invasive posterior approaches. It minimizes the need for costly downstream interventions while enabling durable outcomes for patients undergoing complex cervical spine surgery.

Benefits include:

- **12-month fusion rate improvement-** Fusion success was achieved in 61% of CCF patients compared to 17% with ACDF-only (Streng 2025)
- **Revision surgery reduction-** Revision surgery was required in only 2% of CCF patients versus 23% of ACDF-only patients, with most ACDF revisions addressing symptomatic non-union ( $P < 0.001$ ) (Streng 2025)
- **Improved safety profile-** The treatment-related adverse event rate through 12 months was significantly lower for CCF participants (45/99, 46%) than for ACDF participants (67/103, 65%) ( $P=0.005$ ) (Streng 2025).

## SUPPORTING EVIDENCE

A complete product bibliography can be found in Appendix B.

## HEOR SUPPORT and REQUEST FOR ADDITIONAL INFORMATION

Information is available from Providence Medical Technology upon request.

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**APPENDIX A – Providence Medical Technology Product Clearances and Coding Guide:**



**PRODUCT CLEARANCES  
& CODING GUIDE**

*Questions? Please contact us at [reimbursement@providencemt.com](mailto:reimbursement@providencemt.com)*

**CODING, COVERAGE AND REIMBURSEMENT CONSIDERATIONS**

Providence Medical Technology ("Providence") is a privately held medical device manufacturer that develops clinical solutions for the cervical and lumbar spine markets. Our CORUS™, CAVUX®, and ALLY® products are designed to treat disorders of the cervical and lumbar spine.

Reimbursement information provided by Providence is gathered from third-party sources and is presented for illustrative purposes only. This information does not constitute legal or reimbursement advice. Providence makes no representation or warranty regarding this information or its completeness, accuracy, timeliness, or applicability with regard to any particular patient. Providence specifically disclaims liability or responsibility for the results or consequences of any actions taken in reliance on information in this document. Providence encourages providers to submit accurate and appropriate claims for services. Laws, regulations, and payer policies concerning reimbursement are complex and change frequently. Actual reimbursement rates may vary.

Providers are responsible for making appropriate decisions related to coding and reimbursement submissions. Accordingly, Providence recommends that customers consult with their payers, reimbursement specialists and/or legal counsel regarding coding, coverage, and reimbursement matters. The codes included in this guide are intended to represent typical procedures associated with the treatment of disorders of the cervical spine and are in no way intended to promote the off-label use of devices. CPT five-digit numeric codes, descriptions, and numeric modifiers are © 2019 AMA. All rights reserved.

**CORUS™ PCSS Implant (Posterior Cervical Stabilization System)      Cervical Spine**

Clearance      FDA K241035

<b>Indications</b>	<p>CORUS™ Posterior Cervical Stabilization System (PCSS) is posterior spinal instrumentation with integrated screw fixation intended to provide immobilization and stabilization of spinal segments. CORUS PCSS is placed through a posterior surgical approach in up to 3 consecutive levels of the cervical spine (C3-C7) and achieves bilateral facet fixation by spanning the facet interspace at each level with points of fixation at each end of the construct.</p> <p>CORUS PCSS is intended as an adjunct to posterior cervical fusion (PCF) and is only intended to be used in combination with an anterior cervical discectomy and fusion (ACDF) at the same level(s). CORUS PCSS is indicated for skeletally mature patients with degenerative disc disease (DDD). DDD is defined as radiculopathy and/or myelopathy, neck and/or arm pain of discogenic origin as confirmed by radiographic studies.</p> <p>CORUS PCSS is to be used with autogenous bone and/or allogenic bone graft.</p>
<b>Description</b>	<p>CORUS™ PCSS is posterior spinal instrumentation with integrated screw fixation intended to provide immobilization and stabilization of spinal segments. The device is placed through a posterior surgical approach in up to 3 consecutive levels of the cervical spine (C3-C7) and achieves bilateral facet fixation by spanning the facet interspace at each level with points of fixation at each end of the construct.</p> <p>The device is manufactured from medical grade titanium alloy (6Al4V) and supplied sterile for single use only with pre-attached disposable delivery instruments. The implant is fenestrated and is to be used with autogenous bone and/or allogenic bone graft. The design incorporates "windows" through the implant to permit visualization of the graft material and, over time, formation of new bone.</p> <p>CORUS™ Spinal System is used to access and prepare the site for posterior fusion.</p>

**CORUS™ Spinal System–X**

**Cervical & Lumbar Spine**

Clearance FDA K190201, K212636

**Indications**

FOR CERVICAL FUSION: The CORUS™ Spinal System-X is a set of instruments indicated to be used to perform posterior cervical fusion in patients with cervical degenerative disc disease.

FOR LUMBAR FUSION: The CORUS™ Spinal System-X is a set of instruments indicated to be used to perform posterior lumbar fusion in patients with lumbar degenerative disc disease.

**Description**

CORUS Spinal System instruments are used to access and prepare the posterior cervical spine for joint fusion by decortication of bone surfaces, including the posterior lateral mass and facet joints, combined with application of allograft or autograft in patients with or without anterior or posterior instrumentation. It is recommended that commercially available autograft or allograft be used to aid fusion. Autograft or allograft material is not supplied as part of the system.

**CORUS™ PCSS LevelOne**

**Cervical Spine**

Clearance FDA K241035, K190201, K212636

**A. CORUS Spinal System-X:**

The CORUS™ Spinal System-X is a set of instruments indicated to be used to perform posterior cervical fusion in patients with cervical degenerative disc disease.

**B. CORUS PCSS Implant:**

CORUS™ PCSS is posterior spinal instrumentation with integrated screw fixation intended to provide immobilization and stabilization of spinal segments. CORUS PCSS is placed through a posterior surgical approach in up to 3 consecutive levels of the cervical spine (C3-C7) and achieves bilateral facet fixation by spanning the facet interspace at each level with points of fixation at each end of the construct.

**Indications**

CORUS PCSS is intended as an adjunct to posterior cervical fusion (PCF) and is only intended to be used in combination with an anterior cervical discectomy and fusion (ACDF) at the same level(s). CORUS PCSS is indicated for skeletally mature patients with degenerative disc disease (DDD). DDD is defined as radiculopathy and/or myelopathy, neck and/or arm pain of discogenic origin as confirmed by radiographic studies.

CORUS PCSS is to be used with autogenous bone and/or allogenic bone graft.

**C. DiViNE Portal System:**

DiViNE™ Portal System is a set of instruments indicated to make the interior of a joint visible and/or to perform surgery within a joint.

**Description**

This product configuration contains instruments, implants, and a portal system to directly visualize the surgical site, perform a posterior cervical fusion, and place bilateral (2) CORUS PCSS Implants at one spinal level in a manner consistent with product labeling. Please refer to the IFU or regulatory clearances for full product descriptions.

*SEE IMPORTANT DISCLAIMER ON PAGE 1.*

### PHYSICIAN'S PROFESSIONAL FEE SCHEDULE, CERVICAL FUSION

The CPT codes associated with cervical arthrodesis, instrumentation and grafting may include, but are not limited to:

CPT Code	Procedure	Description/Comments	Total Relative Value Units (RVUs)	2025 Medicare National Physician Fee Schedule
22551	Arthrodesis, anterior interbody	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophyctomy and decompression of spinal cord and/or nerve roots; cervical below C2. First interspace	51.74	\$1,873.81
22600	Arthrodesis, posterior technique	Arthrodesis, posterior technique, single level; cervical below C2 segment. First interspace	39.97	\$1,292.81
22853	Application of biomechanical device	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)	7.74	\$250.38
22854	Application of biomechanical device	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)	10.08	\$326.05
22859	Application of biomechanical device	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)	10.07	\$325.73
22840	Posterior Instrumentation	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 primary CPT code.)	22.64	\$732.32
22845	Anterior Instrumentation	Anterior instrumentation; 2 to 3 vertebral segments (List separately in addition to code for primary procedure)	21.80	\$705.15
20930	Allograft (morselized)	Add-On Code	0.0	\$0.00
20931	Allograft (structural)	Add-On Code	3.33	\$107.71
20936	Autograft (rib/lamina/spinous process, same incision)	Add-On Code	0.0	\$0.00
20937	Autograft (morselized, separate incision)	Add-On Code	5.02	\$162.38
20938	Autograft (structural, separate incision)	Add-On Code	5.49	\$177.58
22899	Unlisted spine procedure	If applicable	0.0	\$0.00

Source: CMS Physician Fee Schedule 2025 Final Rule published in the Federal Register, November 1, 2024.

Please consult product IFUs for safety information, warnings, indications, and contraindications. Rx only. MKT-PMT-376 Rev 13

**INPATIENT HOSPITAL, CERVICAL FUSION**

If deemed medically necessary, cervical fusion inpatient hospital MS-DRGs may include but are not limited to:

MS- DRG	Description	FY 2025 Medicare National Average Payment
429	Combined anterior & posterior cervical spinal fusion w/MCC	\$59,352
430	Combined anterior & posterior cervical spinal fusion w/o MCC	\$38,928
471	Cervical spinal fusion w/MCC	\$34,565
472	Cervical spinal fusion w/CC	\$20,617
473	Cervical Spinal Fusion w/o CC/MCC	\$16,846

MCC: Major Complication/Co-morbidity CC: Complication/Co-morbidity

Source: CMS IPPS 2025 Final Rule, Federal Register, August 2, 2024.

**OUTPATIENT HOSPITAL, CERVICAL FUSION**

If performed in the hospital outpatient setting, possible Ambulatory Payment Classifications (APCs) may include:

CPT Code	APC	Description	CY 2025 Medicare National Average Payment
22551	5115	Level V Musculoskeletal Procedures	\$12,867
22600	N/A	N/A (hospital inpatient only procedure)	N/A

**AMBULATORY SURGERY CENTER (ASC), CERVICAL FUSION**

If performed in the ASC setting, CPT coding may include:

CPT Code	Description	CY 2025 Medicare National Average Payment
22551	Arthrodesis, anterior interbody	\$9,069
22600	Arthrodesis, posterior technique	N/A (hospital only procedure)

Source: CMS 2025 Hospital Outpatient Prospective Payment (HOPPS) and Ambulatory Surgery Center (ASC) Final Rule published in the Federal Register on November 1, 2024.

**PHYSICIAN'S PROFESSIONAL FEE SCHEDULE, LUMBAR FUSION**

The CPT codes associated with lumbar arthrodesis, instrumentation and grafting may include, but are not limited to:

Procedure	CPT Code	Description/Comments	Total Relative Value Units (RVUs)	2025 Medicare National Avg Physician Fee Schedule*
Posterior Fusion	22612	Arthrodesis, posterior or posterolateral technique, single level; lumbar (with lateral transverse technique, when performed)	48.03	\$1,553.60
	+22614	Posterior arthrodesis, each additional vertebral segment	11.76	\$380.39
Posterior (PLIF) or Transforaminal Lumbar Interbody (TLIF)	22630	Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace, lumbar	47.74	\$1,544.22
	+22632	PLIF or TLIF, each additional vertebral segment	9.64	\$311.82
Anterior Fusion	22558	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); lumbar	46.30	\$1,497.64
	+22585	Anterior arthrodesis, each additional vertebral segment	9.72	\$314.41
Combined Anterior/Posterior Fusion	22633	Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace, single interspace, lumbar;	55.06	\$1,781.00
	+22634	Combined arthrodesis, each additional vertebral segment	14.56	\$470.97
Biomechanical Devices	+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	7.74	\$250.36
Posterior Instrumentation	+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)	22.64	\$732.32
	+22842	Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 3 to 6 vertebral segments	22.92	\$741.38
Allograft & Autograft	+20930	Allograft, morselized, or placement of osteopromotive material	0.0	\$0.00
	+20931	Allograft, structural	3.33	\$107.71
	+20936	Allograft, local (includes harvesting) obtained from same incision	0.0	\$0.00
	+20937	Allograft, morselized (through separate skin or fascial incision)	4.98	\$163.09
	+20938	Autograft (includes harvesting graft) structural, bicortical or tricortical	5.49	\$179.78
Navigation	+61783	Stereotactic computer-assisted (navigational) procedure; spinal	6.97	\$225.46

\*Medicare CY 2025 conversion factor: \$32.3485 '+' denotes Add-On CPT code. Must be reported with a primary CPT code.  
 Source: CMS Physician Fee Schedule 2025 Final Rule published in the Federal Register, November 1, 2024.

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**INPATIENT HOSPITAL, LUMBAR FUSION**

If deemed medically necessary, lumbar fusion inpatient hospital MS-DRGs may include but are not limited to:

MS- DRG	Description	FY 2025 Medicare National Average Payment
402	Single Level Combined Anterior & Posterior Spinal Fusion Except Cervical	\$27,839
426	Multiple Level Combined Anterior & Posterior Spinal Fusion Except Cervical w/ MCC or Custom-made anatomically designed interbody fusion device	\$74,543
427	Multiple Level Combined Anterior & Posterior Spinal Fusion Except Cervical w/ CC	\$50,543
428	Multiple Level Combined Anterior and Posterior Spinal Fusion Except Cervical w/O CC/MCC	\$39,167
447	Multiple Level Spinal Fusion Except Cervical w/ MCC or Custom-made anatomically designed interbody fusion device	\$47,711
448	Multiple Level Spinal Fusion Except Cervical w/o MCC	\$29,058
450	Single Level Spinal Fusion Except Cervical w/ MCC of Custom-made anatomically designed interbody fusion device	\$36,648
451	Single Level Spinal Fusion Except Cervical w/o MCC	\$21,960

Source: CMS IPPS 2025 Final Rule, Federal Register, August 1, 2024.

**OUTPATIENT HOSPITAL, LUMBAR FUSION**

If performed in the hospital outpatient setting, possible Ambulatory Payment Classifications (APCs) may include:

CPT Code	APC	Description	CY 2025 Medicare National Average Payment
22612	5116	Level VI Musculoskeletal Procedure	\$18,390
22630	5116	Level VI Musculoskeletal Procedure	\$18,390
22558	N/A (Inpatient Only)		N/A
22633	5116	Level VI Musculoskeletal Procedure	\$18,390

**AMBULATORY SURGERY CENTER (ASC), LUMBAR FUSION**

If performed in the ASC setting, CPT coding may include:

CPT Code	Description	CY 2025 Medicare National Average Payment
22612	Posterior Fusion	\$14,037
22630	Posterior (PLIF) or Transforaminal Lumbar Interbody (TLIF)	N/A (hospital only)
22558	Anterior Fusion	N/A (hospital only)
22633	Combined Anterior/ Posterior Fusion	N/A (hospital only)

2025 Hospital Outpatient Prospective Payment (HOPPS) and Ambulatory Surgery Center (ASC) Final Rule published in the Federal Register on November 1, 2024.

Please consult product IFUs for safety information, warnings, indications, and contraindications. Rx only. MKT-PMT-376 Rev 13

**APPENDIX B – Providence Medical Technology Product Bibliography:**

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