MEDICAL POLICY

Medical Policy Title	**Radiofrequency Facet and Sacroiliac Joint Ablation/ Denervation**
Policy Number	**7.01.42**
Current Effective Date	October 15, 2025
Next Review Date	June 2026

Our medical policies are based on the assessment of evidence based, peer-reviewed literature, and professional guidelines. Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract. (Link to Product Disclaimer)

POLICY STATEMENT(S)

I. An initial radiofrequency joint denervation/ablation is considered **medically appropriate** for facet-mediated cervical, thoracic, or lumbar axial pain resulting from disease, injury, or surgery, when **ALL** the following criteria have been met:

   A. Clinical findings and imaging studies suggest no other obvious cause of the cervical, thoracic, or lumbar axial pain (e.g., central spinal stenosis with neurogenic claudication/myelopathy, foraminal stenosis or disc herniation with concordant radicular pain/radiculopathy that has been treated, infection, tumor, fracture, pseudoarthrosis, pain related to spinal instrumentation);

   B. Pain has persisted for at least three (3) months;

   C. In the past three (3) months, pain has persisted despite at least four (4) weeks of conservative treatment (e.g., exercise, physical therapy, chiropractic care, or nonsteroidal anti-inflammatory drugs [NSAIDs] or analgesics). Note: If conservative therapy is contraindicated, the reason(s) for the contraindication(s) is/are required to be documented in the medical record;

   D. Documented positive response with two (2) sequential diagnostic facet joint injections/medial branch blocks at the same level(s). Positive response is evidenced by at least 80% relief of the facet-mediated pain for at least the expected minimum duration of effect (relief) of the local anesthetic used;

   E. The spinal motion segment(s) is not posteriorly fused (unfused) at the requested level(s). Criteria exception: An exception is allowed for individuals with clinically suspected pseudoarthrosis at the posteriorly fused spinal motion segment(s).

II. For an individual patient with a prior spinal fusion, radiofrequency joint denervation/ablation performed at an unfused spinal segment (located above or below the posteriorly fused spinal segment) is considered **medically appropriate**, when **ALL** the criteria set forth in Policy Statement I.A., I.B., I.C., and I.D. above criteria have been met.

III. A repeat radiofrequency joint denervation/ablation has been medically proven to be effective and, therefore, is considered **medically appropriate**, when **ALL** of the following criteria have been met: (see Policy Guideline VI-VII.)

A. There is documented pain relief of at least 50% that has lasted for a minimum of 12 weeks;

B. The procedure is performed at a minimum of (6) months following the prior denervation/ablation procedure.

C. Clinical findings and imaging studies suggest no other obvious cause of the cervical, thoracic, or lumbar axial pain (e.g., central spinal stenosis with neurogenic claudication/myelopathy, foraminal stenosis or disc herniation with concordant radicular pain/radiculopathy that has been treated, infection, tumor, fracture, pseudoarthrosis, pain related to spinal instrumentation).

IV. Radiofrequency joint denervation/ablation is considered **not medically necessary** when performed under **ANY** of the following circumstances:

A. Without the use of computed tomography (CT) or fluoroscopic guidance;

B. More than two (2) radiofrequency joint denervation/ablation procedures at the same level(s) during a rolling 12-month period of time. Note: At least six (6) months is required between radiofrequency joint denervation/ablation procedures;

C. For cervical, thoracic, or lumbar axial pain, in the presence of an untreated radicular pain/radiculopathy;

D. On more than three (3) contiguous facet joint levels (whether unilateral or bilateral) during the same session (See Policy Guidelines V.);

E. To treat pain arising from above C2-C3 and below L5-S1 spinal levels, including ablation of the atlanto-occipital articulation and/or atlanto-axial articulation;

F. On the same day of service as another invasive modality or procedure (e.g., facet joint injection, medial branch block, epidural steroid injection, and sacroiliac joint injection);

V. Denervation/ablation of facet and sacroiliac joints using **ANY** of the following techniques are considered **investigational**:

A. Pulsed radiofrequency ablation.

B. Endoscopic radiofrequency denervation/endoscopic dorsal ramus rhizotomy.

C. Cryoablation/cryoneurolysis/cryodenervation.

D. Chemical ablation (e.g., alcohol, phenol, glycerol).

E. Laser ablation.

F. Cooled radiofrequency ablation.

G. Radiofrequency ablation of the nerves innervating the sacroiliac joint for the treatment of sacroiliac (SI) joint pain.

H. L5 medial nerve branch and sacral lateral nerve branch blocks or ablations/neurotomies for the diagnosis or treatment of sacroiliac (SI) joint pain.

I. Radiofrequency ablation of the intraosseous basivertebral nerve for the treatment of

vertebrogenic back pain.

RELATED POLICIES

Corporate Medical Policy

11.01.03 Experimental or Investigational Services

POLICY GUIDELINE(S)

I. This policy criteria applies to radiofrequency joint denervation/ablation for facet mediated pain. Requests for these CPT codes used for any other indication or condition (i.e., third occipital nerve [TON] ablation for cervicogenic headaches) are not in the scope of management for this policy. The radiofrequency joint denervation/ablation applies directly to the facet joint(s) denervated/ablated and not to the number of nerves that innervate the facet joint(s).

II. Only one (1) invasive modality or procedure will be performed on the same date of service (e.g., facet joint block, epidural steroid injection, or lumbar sympathetic chain block).

III. The following are not facet joints: Atlanto-occipital articulation (located between occiput - atlas [C1]), the atlanto-axial articulation (located between atlas [C1] and the axis [C2], and below L5-S1 (sacrum).

IV. Radiofrequency joint denervation/ablation of are permitted on no more than three (3) contiguous facet levels (whether unilateral or bilateral) during the same session. If performed bilaterally during the same session, a total of up to a total of six (6) radiofrequency joint denervations/ablations at contiguous facet levels may be performed during that session.

V. When performing a repeat radiofrequency joint denervation/ablation at the same spinal level(s) as a prior successful denervation/ablation procedure, further diagnostic facet joint injections/medial branch blocks at that spinal level(s) are not required.

VI. When performing a repeat radiofrequency joint denervation/ablation, repeat imaging is not required unless newer symptoms are reported and need evaluation.

DESCRIPTION

Definitions

Axial: relating to or situated in the central part of the body, in the head and trunk as distinguished from the limbs, e.g., axial skeleton.

Cervical Facet Pain: pain located in the cervical spine, which may be characterized by chronic headaches, restricted motion, and axial neck pain, which may radiate sub-occipitally to the shoulders or mid-back.

Facet Joint Pain: a set of concurrent signs or symptoms to describe the facet joint as the pain generator. The typical clinical signs or symptoms may include local paraspinal tenderness; pain that is brought about or increased on hyperextension, rotation, and lateral bending; low back stiffness; absence of neurologic deficit; absence of root tension signs (non- radiating below the knee, absence

of paresthesia).

Facet (Zygapophyseal) Joints: paired, diarthrodial synovial joints located between the superior and inferior articular pillars in the posterior spinal column, innervated medial branch nerves, from C2-3 to L5-S1. Note: The following articulations are not facet joints:

- Atlanto-occipital articulation (located between occiput - atlas [C1])
- Atlanto-axial articulation (located between atlas [C1] and the axis [C2])
- Below L5-S1 (sacrum)

Facet Level: the zygapophyseal joint or the two medial branch (MB) nerves that innervate that zygapophyseal joint. Each level has a pair of facet joints: one on the right side and one on the left side of the spine.

Positive Response (to a diagnostic facet joint injection/medial branch block): at least 80% relief of facet mediated pain for at least the expected minimum duration of the effect of the local anesthetic used.

Radiofrequency Joint Denervation/Ablation (RFA) (i.e., facet neurotomy, facet rhizotomy): Traditional or standard RFA involves the insertion of a radiofrequency probe (under fluoroscopic guidance) towards the medial branch of the posterior primary rami, which supplies the innervation to the facet joints. The radiofrequency electrode is then utilized to create a "continuous" heat lesion by coagulating the nerve supplying the joint with the intention of providing pain relief by denervating the painful facet joint. Note: The radiofrequency joint denervation/ablation applies directly to the facet joint(s) denervated ablated and not to the number of nerves denervated/ablated that innervate the facet joint(s).

Region: describes the segments of the spine as follows:

- Cervical/Thoracic region= C1-C7 / T1-T12
- Lumbar/Sacral region= L1-L5 / S1-S5

Sacral Lateral Nerve Block: an injection of corticosteroid and/or local anesthetic adjacent to the sacral lateral nerve resulting in the temporary interruption of conduction of impulses for analgesia. Sacral lateral nerve blocks attempt to block pain signals and theoretically provide relief from pain. The duration of the block depends on the dose, concentration, and type of pharmacological agent injected.

Sacroiliac Joint (SIJ): the synovial joint formed at the junction ilium.

Sacroiliac Joint (SIJ) Pain: pain originating from the s injury, disease, or surgery. sacroiliac joint as a result of injury, disease, or surgery. Note: The presence of pain over the sacroiliac joint in the absence of radicular findings in and of itself does not substantiate the diagnosis of sacroiliac joint pain.

Session: a time period, which includes all procedures (i.e., medial branch block [MBB], intra-articular [IA] facet joint injection, and radiofrequency ablation [RFA]) performed on a single date of service.

The facet joints (zygapophyseal joints) are located at the posterior aspect of the spine and are

designed to provide stability and control motion between the vertebrae. These small joints are prone to injury, deterioration, and inflammation. There are a number of proposed causes of facet joint syndrome. The facet joints may be irritated from trauma, repetitive movements, or arthritic changes. It is very common to develop degenerative changes in facet joints after trauma to the spine, as a result of an injury to the intervertebral disc, or secondary to degenerative disc disease. If the intervertebral disc is damaged, and the cushioning effect of the disc is lost, the facet joint at that level will undergo more stress, which may result in degeneration of the facet joint. Diagnosis of facet joint pain is confirmed by response (pain alleviation) to nerve blocks, with a least a 50% improvement after the required two positive blocks.

Percutaneous radiofrequency facet denervation is a low risk means of treating "mechanical" pain syndromes in previously unoperated patients with back and/or leg pain. Under local anesthesia, needle placement, under fluoroscopy, is made to the facet (zygapophyseal) joint. The cannula is then redirected until contact with the bone is lost. Following the removal of the guide needle stylet, a thermal monitoring electrode with an exposed tip is passed, and the guide needle is pulled back on the electrode beyond the skin. Electrostimulation is then performed, and a lesion is made using a radiofrequency lesion generator. Control of the temperature over the nerve roots permits selective denervation of the pain conduction fibers. The nerves regenerate, and repeat procedures are effective, though it is not known how many times the procedure can be repeated or if the duration of relief will change.

Pulsed radiofrequency consists of short bursts of electrical current of high voltage in the radio frequency range, but without heating the tissue enough to cause coagulation. It is suggested as a possibly safer alternative to thermal radio frequency facet denervation. Temperatures do not exceed 42°C at the probe tip, as opposed to the temperatures in the 60°s C. reached in thermal radiofrequency denervation, and tissues may cool between pulses. It is postulated that transmission across small, unmyelinated nerve fibers is disrupted but not permanently damaged, while large myelinated fibers are not affected.

Intraosseous basivertebral nerve (BVN) ablation is a minimally invasive spinal procedure intended for the treatment of chronic low back pain (CLBP).

SUPPORTIVE LITERATURE

Radiofrequency Ablation Facet Joint Denervation

For individuals who have facet joint pain who receive RFA, the evidence includes systematic reviews (Manchikanti 2015; Janapala 2021; Li 2022) and randomized controlled trials (RCTs) (Nath 2008; Civeliket 2012; van Eerd 2021). While the evidence is limited to RCTs with small sample sizes (N≤251 participants), RF facet denervation appears to provide at least 50% pain relief in carefully selected patients. Diagnosis of facet joint pain is difficult; however, response to controlled medial branch blocks and the presence of tenderness over the facet joint appear to be reliable predictors of success.

When RF facet denervation is successful, repeat treatments appear to have similar success rates and duration of pain relief. Thus, the data indicate that, in carefully selected individuals with lumbar or cervical facet joint pain, RF treatments can improve outcomes (Schofferman 2004; Husted 2008;

Smuck 2012; Rambaransingh 2010).

Therapeutic Medial Branch Blocks

Manchikanti and colleagues (2015) conducted a systematic review of three double-blind RCTs (n=340 total patients) that compared the therapeutic effect of medial branch blocks plus bupivacaine alone with bupivacaine and a steroid (betamethasone). Patients had a diagnosis of facet joint pain (cervical, thoracic, lumbar) with an 80% reduction in pain following two diagnostic anesthetic blocks of the medial branches. Patient outcomes were measured at 3, 6, 12, 18, and 24 months with a numeric rating scale for pain and the Oswestry Disability Index (ODI). Significant pain relief, with at least 50% improvement in disability scores, was maintained in all studies for at least 24-months.

Radiofrequency Ablation of the SI Joint

Meta-analysis of available sham-controlled RCTs suggests that there may be a small effect of RFA on SIJ pain at short-term (1 to 3 months) follow-up (Chen 2019; Chappel 2020; Janapala 2024). However, the randomized trials of RFA have methodologic limitations, with limited data on the duration of treatment effect (up to 3 months) (Zheng 2014; Van Tilburg 2016; Mehta 2018; Cohen 2023). The single RCT with 6 and 12-month follow-up showed no significant benefit of RFA compared to an exercise control group at these time points (Juch 2017). In addition, heterogeneity of RFA treatment techniques precludes generalizing results across different studies. The evidence is insufficient to determine the effects of the technology on health outcomes.

Cooled Radiofrequency Ablation

Chou et al (2021) conducted a systematic review and meta-analysis on interventional treatments for acute and chronic pain for the Agency for Healthcare Research and Quality for use by the Centers for Medicare and Medicaid Services. The systematic review identified 2 trials (N=79) on cooled RFA versus sham for SIJ pain with results at 3 months, and 1 trial (N=28) on cooled RFA versus sham with results at 1 month. Meta-analysis indicated that cooled RFA is probably more effective for pain and function compared to sham at 1 and 3 months with moderate to large benefits. The strength of evidence was rated moderate for pain and function at 3 months and low for function at 1 month. When comparing cooled RFA to conventional RFA, 1 trial (N=43) showed no differences at 1 or 3-month follow-up and a small, non-statistically significant reduction in pain at 6 months. The strength of evidence was rated as low.

Cohen and colleagues (2023) conducted the first large (n=210), prospective, randomized, multicenter study to compare cooled radiofrequency ablation to standard medical management for subjects with chronic sacroiliac joint (SIJ) pain. Adult subjects over 21 years old diagnosed with chronic SIJ pain lasting at least 3 months were eligible, and participants were randomized 1:1 to receive either cooled radiofrequency ablation (CRFA) (treatment group) or physician-prescribed standard medical management (SMM) (control group). The primary endpoint was 3 months, with optional crossover-to-treatment after 3 months, and planned follow up through 12 months. Study retention post-treatment at 3 months was 89.5%, with similar proportions between groups. The principal finding in this study is that CRFA resulted in statistically and clinically superior improvements across multiple domains compared with SMM. Fifty-two percent of subjects achieved a positive outcome based on prespecified criteria and 41.9% obtained substantial benefit (≥50% reduction in pain score), which the authors

state corroborates previously published literature. Limitations of the study include industry sponsorship, unblinded study design, lack of specific requirements for the control group, and only short follow-up timeframe.

Cohen and colleagues (2025) reported the 12-month follow-up results to the prospective, randomized, multicenter study to compare cooled radiofrequency ablation to standard medical management for subjects with chronic SIJ pain. At 12-months, 67% (124/185) of treated patients reported data. The mean numeric rating pain score declined from a baseline of 6.4±1.4 to 3.5±2.6, with 57.4% (35/61) of participants in the randomized CRFA cohort experiencing a ≥2-point or 30% decrease in average LBP from baseline. In the crossover cohort, 35/63 (55.6%) subjects had the same experience 12-months after the crossover procedure. Patients also experienced clinically meaningful improvements in quality of life via EuroQoL-5D-5L at 12-months. Oswestry Disability Index (ODI) scores also improved by 12.4%±14.7 (CRFA) and 13.7%±17.1 (cross over) from baseline at study-end. The difference between groups was not significant for average pain (p=0.15) but was for worst pain (p=0.01), suggesting a possible modest benefit from standard medical management.

Pulsed Radiofrequency Facet Denervation

There is limited literature on pulsed radiofrequency denervation. The mechanism of its action is not completely understood, and published data are insufficient to draw conclusions about its efficacy (Van Zundert 2007; Kroll 2008, Hashemi 2014). Moussa and colleagues (2020) evaluated pulsed RF in patients diagnosed with chronic lower back pain of facet origin. Patients were randomized into 3 groups: percutaneous pulsed RF treatment of the dorsal root ganglia (n=50), percutaneous RF denervation of the medial dorsal branch (n=50), and a control group that didn't receive any RF treatment (n=50). By 3 months post procedure, the pulsed RF group had better incidence of VAS improvement when compared to the other 2 groups (p=.014). At 2-year follow-up, the pulsed RF group maintained significant VAS improvement (p=.041), and this continued to the end of the study duration at 3 years (p=.044). An important limitation of this study is the lack of a sham control group.

Basivertebral Nerve (BVN) Ablation

Becker and colleagues (2017) conducted a prospective, single-arm, multicenter, pilot clinical study to evaluate the preliminary safety and effectiveness of the Intracept System for the ablation of BVNs within the vertebral body for the treatment of low back pain (n=17). This industry sponsored study, as a proof of concept, shows that the basivertebral nerve does play a role in the development of certain types of axial back pain. As a pilot study, the effort was not designed to be conclusive and the selection criteria should be considered by physicians looking to apply these results in a clinical context. There was also no viable control for the patients treated in this study.

Fischgrund and colleagues (2018) conducted a randomized, double-blind, sham controlled study (SMART trial) of basivertebral nerve ablation using the Intracept system in 225 participants from the U.S. and Europe. Patients had chronic isolated lumbar pain that had not responded to at least 6 months of nonoperative management. Additional study inclusion criteria were a minimum Oswestry Disability Index (ODI) of 30 points (on a 100-point scale), a minimum Visual Analog Scale (VAS) of 4,

and Modic type 1 or 2 changes at the vertebral endplates of the levels targeted for treatment. Treatment was limited to a minimum of 2 and a maximum of 3 consecutive vertebral levels from L3 to S1. The active treatment group (n=147) received radiofrequency, and the sham group (n=78) underwent the same protocol for the same overall duration as the treatment group; however, the radiofrequency treatment was simulated. Patients were blinded to the group assignment for 1 year, at which time those in the sham arm were allowed to cross over, 57 (73%) of whom elected to do so, and receive the Intracept treatment. The primary endpoint of the original study was comparative change in Oswestry Disability Index from baseline to 3 months, and in the intent-to-treat analysis there was no statistically significant difference in this outcome between groups at this time point. There was a difference between groups in the 3-month per protocol analysis (mean Oswestry Disability Index improved 20.5 and 15.2 points in the treatment and sham arms, respectively; p=.019). However, at the 12 month per protocol analysis, the difference in mean Oswestry Disability Index between groups was no longer statistically significant. Pain severity, measured by VAS, was not significantly different between groups at 3 months (p=.083) but there was significantly greater improvement in the treatment group at 6 and 12 months.

The 24-month follow-up results were reported for the active treatment group from the SMART trial (Fischgrund 2019). Of the per protocol population treated with ablation (treatment arm), 106 (83%) completed a 24-month follow-up visit. A durable Oswestry Disability Index mean improvement was observed (23.4 points). Data for Oswestry Disability Index outcomes were not available for the sham group because of the high crossover rate. Therefore, long-term comparative outcomes are not available.

Five-year results were reported for the 100 U.S. patients from the treatment arm from the original SMART trial who were available for follow-up (Fischgrund 2020). Mean Oswestry Disability Index scores improved from 42.8 to 16.9 at 5 years, a reduction of 25.9 points. Mean reduction in VAS score was 4.4 points (baseline 6.7, p<.001).

Khalil and colleagues (2019) published findings from the INTRACEPT trial, an open-label RCT conducted at 20 U.S. sites. A total of 140 patients with lower back pain of at least 6 months duration, with Modic Type 1 or 2 vertebral endplate changes between L3 and S1, were randomized to undergo radiofrequency ablation of the basivertebral nerve or continue standard care. Standard care consisted of pain medications, physical therapy, exercise, chiropractic treatment, acupuncture, and spinal injections; the specific treatment(s) administered were determined by the treating investigator in conjunction with the patient. Treatment of up to 4 vertebrae in non-consecutive levels from L3 to S1 was allowed. The primary study endpoint was change in Oswestry Disability Index at 3 months. A pre-planned interim analysis was undertaken when 60% of participants reached the 3-month follow-up (n=51 in the treatment group and n=53 in the standard care group) and reported statistically significant differences between groups on all patient-reported outcome measures, favoring the treatment group. The study was halted, and the individuals were allowed to cross over to the treatment arm. Study limitations include short term follow-up, lack of a sham group, and allowance of crossover at 3 months.

Twelve-month follow-up results were reported from the INTRACEPT trial (Smuck 2021). After a median of 175 days post randomization, 92% of patients initially randomized to the standard care

arm elected to receive early treatment with basivertebral nerve ablation. Six-month results for the Oswestry Disability Index were significantly improved with basivertebral nerve ablation (n=66) compared to standard care (n=74) (p=.0001). Improvements in the Oswestry Disability index and mean VAS that were reported among patients initially treated with basivertebral nerve ablation were maintained throughout the 12-month study period, with reported reductions of -25.7±18.5 points, and -3.8±2.6 cm, respectively (p<.001 for both comparisons to baseline). Improvements in pain, function, and quality of life were reported at 24 months; however, these results were also not comparative (Koreckij 2021). The lack of comparative data beyond 6 months due to the high rate of crossover is a limitation of this trial.

Mekhail and colleagues (2023) conducted a systematic review and meta-analysis of the existing literature to identify the intervention providing the greatest pain relief and improved disability with the least adverse events (AEs) and to understand the role of treatments (e.g.a, BVN ablation, multifidus muscle stimulation, and biological implantations) that have the potential for sustained improvements in pain and disability over the shorter-lived interventions of radiofrequency (RF) nerve ablation and corticosteroid injections. Both the meta-analysis and the qualitative responder rate presentation show that BVN ablation, biological therapy, and multifidus muscle stimulation are the only therapies to offer significant, durable improvements in both pain and disability. While RF ablation of the medial branch and steroid injections of either the intraarticular facet joint or medial branch offer pain relief that is not significantly different than that of BVN ablation through 1 year, studies on both treatments report significantly less improvement in ODI scores through the longest reported follow-up at 6 months. Of these 3 unique treatments, only studies on BVN ablation reported no serious AEs. Each treatment represents different, yet effective, approaches to relief of CLBP, which suggests that they may be addressing different sources of pain.

Schnapp and colleagues (2023) conducted the first independently funded US study (n=16) on basivertebral nerve ablation, reporting 1-, 3-, and 6-month follow-up findings. Eighty-one percent (n = 13) of the patients were male, with an average age of 73.3 (SD = 6.32). Chronic low back pain duration was greater than 12 months for all patients. No adverse effects were observed in any of the 16 patients studied. ODI results revealed a significant reduction from baseline not only in the subject's pain impact but also a reduction in the number of crippled/bed-bound individuals (p <0.05). Change in ODI pain impact declined 13.1 points [95% CI: 0.01,27.2] at one month from baseline, 16.5 points [95% CI: 2.5,30.6] at three months from baseline, and 21.1 points [95% CI: 7.0,35.2] at six months from baseline. About 25% of the patients, with low baseline ODI, did not show ODI improvements at 6 months. These results emphasize that more research to define the right inclusion and exclusion criteria is critical to patient outcomes. A significant difference between VAS scores was reported at one-month, three months, and six months follow-up visits (p<0.05). Study limitations include small-scale study with no controls. The authors concluded that the study demonstrates the feasibility and benefits of the BVNA procedure when performed in a community practice setting and emphasizes the need to further study the best inclusion and exclusion criteria.

PROFESSIONAL GUIDELINE(S)

Facet Joint Interventions for Management of Chronic Spinal Pain

In 2020, the American Society of Interventional Pain Physicians (ASIPP) published guidelines on use of facet joint interventions for management of chronic spinal pain (Manchikanti 2020).

- Use of facet joint nerve blocks for diagnosis of facet joint pain is recommended with a moderate to strong strength of recommendation for the lumbar spine (evidence level I to II), moderate strength for the cervical spine (evidence level II), and moderate strength for the thoracic spine (evidence level II); a criterion standard of ≥80% pain relief was included for these recommendations.
- Radiofrequency ablation (RFA) is recommended for treatment of pain in the lumbar spine (moderate strength recommendation; evidence level II), cervical spine (moderate strength recommendation; evidence level II), and thoracic spine (weak to moderate strength recommendation; evidence level III).
- Facet joint nerve blocks are recommended for treatment of pain in the lumbar spine (moderate strength recommendation; evidence level II), cervical spine (moderate strength recommendation; evidence level II), and thoracic spine (weak to moderate strength recommendation; evidence level III).
- Treatment of facet joint pain with intraarticular injections is a weak strength recommendation with lower levels of evidence (level III, IV, and V evidence for the thoracic, lumbar, and cervical spine respectively).

Radiofrequency Ablation of the SI Joint

The North American Spine Society Coverage Recommendations (NASS 2020) acknowledges the limited available data, and that the optimal procedural technique has not been established for the procedure. However, based on this limited data, NASS indicates it is reasonable to offer coverage for thermal radiofrequency neurotomy at the L5 dorsal ramus and S2-S3 sacral dorsal rami lateral branches for SIJ posterior ligament complex pain. NASS does not include recommendation details for other ablative techniques (e.g., pulsed RF, laser, cooled RF, cryoablation).

Basivertebral Nerve Ablation (BVNA)

In 2022, the International Society for the Advancement of Spine Surgery (ISASS) published an updated policy guideline for interosseous basivertebral nerve ablation, issuing coverage indications and limitations (Lorio 2022). The ISASS finds that the utilization of intraosseous BVNA to address vertebrogenic LBP has become a recognized safe, predictable, and durable surgical method for the management of chronic axial LBP identified using well-established clinical and magnetic resonance imaging findings, Modic type 1 and/or type 2 changes. The procedure is supported by level I evidence including a systematic review and 2 RCTs demonstrating a statistically significant decrease in pain and an improvement in function with outcomes sustained >5 years after a single treatment.

In 2022, the American Society of Pain and Neuroscience (ASPN) identified the need for formal evidence-based guidelines for the proper identification and selection of patients for BVN ablation in patients with vertebrogenic low back pain (VLBP) (Sayed et al., 2022). A multidisciplinary work group examined the available literature and formed best practice guidelines. The authors concluded that the cumulative data has established that there is moderate-to-high quality evidence supporting BVNA to

improve pain, function, quality of life, opioid utilization reduction, and has demonstrated high patient satisfaction and statistical significance and clinically meaningful superiority of BVNA in contrast to standard of care for the management of vertebrogenic pain in strictly selected patients.

The North American Spine Society 2023 Basivertebral Nerve (BVN) Ablation Coverage Recommendations support the use of percutaneous interosseous radiofrequency ablation of the BVN, for the following indications:

- Patients are skeletally mature and have CLBP for at least 6 months, and lower back pain is their main symptom.
- Patients have failed to adequately improve despite attempts at nonsurgical management.
- Patients have Type 1 or Type 2 Modic changes on MRI — endplate hypointensity (Type 1) or hyperintensity (Type 2) on T1 images plus hyperintensity on T2 images (Type 1) involving in the endplates between L3 and S1.

The NASS (2023) also supports that there is a growing body of published evidence that damage to the innervated vertebral endplates can result in vertebrogenic back pain (VBP) transmitted through branches of the BVN, with radiofrequency ablation of the BVN, via a percutaneous interosseous approach, emerging as a possible interventional therapy for this condition. The NASS does not support transforaminal epiduroscopic BVN laser ablation, stating that although the results from a single-arm case series were promising the procedure remains to be further investigated.

REGULATORY STATUS

Radiofrequency facet denervation as a procedure does not require approval of the United States Food and Drug Administration (FDA); however, several radiofrequency generators and probes have been cleared for marketing through the FDA's Section 510(k) process. FDA product code: GXD.

The Intracept Intraosseous Nerve Ablation System (Relievant MedSystems, Inc, Redwood City, CA) received initial FDA approval in 2016 for use as a minimally invasive radiofrequency system for treatment of chronic lumbar back pain at one or more levels (i.e., L3 to S1), when back pain is present despite at least six months of conservative care. In March of 2022, the FDA added a new indication description of accompanying use case features, "is also accompanied by features consistent with Type 1 or Type 2 Modic changes on an MRI such as inflammation, edema, vertebral endplate changes, disruption and fissuring of the endplate, vascularized fibrous tissues within the adjacent marrow, hypointensive signals (Type 1 Modic change), and changes to the vertebral body marrow including replacement of normal bone marrow by fat, and hyperintensive signals (Type 2 Modic change)". FDA product code: GXI.

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational

- (NMN)=Not medically necessary/appropriate

CPT Codes

Code	Description
64451 (E/I)	Injection(s), anesthetic agent(s) and/or steroid; nerves innervating the sacroiliac joint, with image guidance (i.e., fluoroscopy or computed tomography)
64625 (E/I)	Radiofrequency ablation, nerve innervating the sacroiliac joint, with image guidance (i.e., fluoroscopy or computed tomography)
64628 (E/I)	Thermal destruction of intraosseous basivertebral nerve, including all imaging guidance; first 2 vertebral bodies, lumbar or sacral
64629 (E/I)	Thermal destruction of intraosseous basivertebral nerve, including all imaging guidance; each additional vertebral body, lumbar or sacral (List separately in addition to code for primary procedure)
64633	Destruction by neurolytic agent, paravertebral facet joint nerves(s) with imaging guidance (fluoroscopy or CT); cervical or thoracic, single facet joint
64634	cervical or thoracic each additional facet joint
64635	lumbar or sacral, single facet joint
64636	lumbar or sacral, each additional facet joint

HCPCS Codes

Code	Description
Not Applicable	

ICD10 Codes

Code	Description
M47.011-M47.9	Spondylosis (code range)
M54.10-M54.9	Dorsalgia (code range)

REFERENCES

Becker S, et al. Ablation of the basivertebral nerve for treatment of back pain: a clinical study. Spine J. 2017;17(2):218-23.

Chappell ME, et al. Radiofrequency denervation for chronic back pain: a systematic review and meta-

analysis. BMJ Open. 2020 Jul 21;10(7):e035540.

Chen CH, et al. Radiofrequency neurotomy in chronic lumbar and sacroiliac joint pain: A meta-analysis. Medicine (Baltimore). 2019 Jun;98(26):e16230.

Chou R, et al. Interventional treatments for acute and chronic pain: systematic review [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2021 Sep. Report No.: 21-EHC030. PMID: 34524764.

Civelek E, et al. Comparison of effectiveness of facet joint injection and radiofrequency denervation in chronic low back pain. Turk Neurosurg. 2012; 22(2): 200-206.

Cohen SP, et al. Randomized placebo-controlled study evaluating lateral branch radiofrequency denervation for sacroiliac joint pain. Anesthesiology. 2008 Aug;109(2):279-88.

Cohen SP, et al. Lumbar zygapophysial (facet) joint radiofrequency denervation success as a function of pain relief during diagnostic medial branch blocks: a multicenter analysis. Spine J. 2008 May-Jun;8(3):498-504.

Cohen SP, et al. Factors predicting success and failure for cervical facet radiofrequency denervation: a multi-center analysis. Reg Anesth Pain Med. 2007 Nov-Dec;32(6):495-503.

Cohen SP, et al. Multicenter, randomized, comparative cost-effectiveness study comparing 0, 1, and 2 diagnostic branch (facet joint nerve) block treatment paradigms before lumbar facet radiofrequency denervation. Anesthesiol. 2010 Aug;113(2)395-405.

Cohen SP, et al. Consensus practice guidelines on interventions for lumbar facet joint pain from a multispecialty, international working group. Reg Anesth Pain Med. 2020;45(6):424-467.

Cohen SP, et al. Cooled radiofrequency ablation versus standard medical management for chronic sacroiliac joint pain: a multicenter, randomized comparative effectiveness study. Reg Anesth Pain Med. 2024 Mar 4;49(3):184-191.

Cohen SP, et al. Cooled radiofrequency ablation provides extended clinical utility in the management of chronic sacroiliac joint pain: 12-month follow-up results from the observational phase of a randomized, multicenter, comparative-effectiveness crossover study. Reg Anesth Pain Med. 2025 Mar 15:rapm-2024-106315. Epub ahead of print.

Conger A, et al. The effectiveness of radiofrequency ablation of medial branch nerves for chronic lumbar facet joint syndrome in patients selected by guideline-concordant dual comparative medial branch blocks. Pain Med. 2020 May 1;21(5):902-909.

Contreras Lopez WO, et al. Pulsed radiofrequency versus continuous radiofrequency for facet joint low back pain: a systematic review. World Neurosurg. 2019 Feb;122:390-396.

Domingues L, et al. Is a combined programme of manual therapy and exercise more effective than usual care in patients with non-specific chronic neck pain? A randomized controlled trial. Clin Rehabil. 2019 Dec;33(12):1908-1918.

Fischgrund JS, et al. Intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: A prospective randomized double-blind sham-controlled multi-center study. European Spine

Journal. 2018 January 24(27):1146-1156

Fischgrund JS et al. Intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: two-year results from a prospective randomized double-blind sham controlled multi-center study. Int J Spine Surg. 2019;13(2).

Fischgrund JS, et al. Long-term outcomes following intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: 5-year treatment arm results from a prospective randomized double-blind sham-controlled multi-center study. European Spine Journal. 2020 May 25(29):1925-1934.

Guzmán Pavón MJ, et al. Comparative effectiveness of manual therapy interventions on pain and pressure pain threshold in patients with myofascial trigger points. Clin J Pain. 2022 Dec 1;38(12):749-760.

Hashemi M, et al. Effect of pulsed radiofrequency in treatment of facet-joint origin back pain in patients with degenerative spondylolisthesis. Eur Spine J. Sep 2014; 23(9): 1927-32.

Haspeslagh SR, et al. Randomised controlled trial of cervical radiofrequency lesions as a treatment for cervicogenic headache. BMC Anesth. 2006 Feb 16;6:1.

Hidalgo B, et al. The efficacy of manual therapy and exercise for treating non-specific neck pain: A systematic review. J Back Musculoskelet Rehabil. 2017 Nov 6;30(6):1149 - 1169.

Husted DS, et al. Effectiveness of repeated radiofrequency neurotomy for cervical facet joint pain. J Spinal Disord Tech. 2008 Aug;21(6):406-8.

Janapala RN, et al. Efficacy of Radiofrequency Neurotomy in Chronic Low Back Pain: A Systematic Review and Meta-Analysis. J Pain Res. 2021;14:2859-2891.

Juch JNS, et al. Effect of radiofrequency denervation on pain intensity among patients with chronic low back pain: the mint randomized clinical trials. JAMA. 2017 Jul 4;318(1):68-81.

Lin I, et al. What does best practice care for musculoskeletal pain look like? Eleven consistent recommendations from high-quality clinical practice guidelines: systematic review. Br J Sports Med. 2020 Jan:54(2):79-86. Epub 2019 Mar 2.

Lorio M, et al. ISASS Policy Statement 2022: Literature Review of Intraosseous Basivertebral Nerve Ablation. Int J Spine Surg. 2022 Dec;16(6):1084-1094.

Khalil JG, et al. A prospective, randomized, multicenter study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain. The Spine Journal. 2019 Oct;19(10):1620-1632.

Koreckij T, et al. Prospective, randomized, multicenter study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: 24-month treatment arm results. N Am Spine Soc J. 2021 Oct 26:8:100089. eCollection 2021 Dec.

Kroll HR, et al. A randomized, double-blind, prospective study comparing the efficacy of continuous versus pulsed radiofrequency in the treatment of lumbar facet syndrome. J Clin Anesth. 2008 Nov;20(7):534-7.

Lakemeier S, et al. A comparison of intraarticular lumbar facet joint steroid injections and lumbar facet joint radiofrequency denervation in the treatment of low back pain: a randomized, controlled, double-blind trial. Anesth Analg. 2013;117(1):228-35.

Levin JH. Prospective, double-blind, randomized placebo-controlled trials in interventional spine: what the highest quality literature tells us. Spine J. 2009 Aug;9(8):690-703.

Li H, et al. Comparative efficacy of radiofrequency denervation in chronic low back pain: A systematic review and network meta-analysis. Front Surg. 2022;9:899538.

Macadaeg K, et al. A prospective, single arm study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain: 12-month results. N Am Spine Soc J. 2020 Sep 18;(3):100039.

MacVicar J, et al. Appropriate use criteria for fluoroscopically guided diagnostic and therapeutic sacroiliac interventions: results from the spine intervention society convened multispecialty collaborative. Pain Med. 2017;18(11):2081-2095.

Manchikanti L, et al. Making sense of the accuracy of diagnostic lumbar facet joint nerve blocks: an assessment of the implications of 50% relief, 80% relief, single block, or controlled diagnostic blocks. Pain Physician. 2010;13(2):133-43. PMID 20309379

Manchikanti L, et al. A systematic review and best evidence synthesis of the effectiveness of therapeutic facet joint interventions in managing chronic spinal pain. Pain Physician. 2015 Jul-Aug;18(4):E535-82.

Manchikanti L, et al. Cervical zygapophysial (facet) joint pain: effectiveness of interventional management strategies. Postgrad Med. 2016 Jan;128(1):54-68.

Manchikanti L, et al. Comprehensive evidence-based guidelines for facet joint interventions in the management of chronic spinal pain: American Society of Interventional Pain Physicians (ASIPP) guidelines facet joint interventions 2020 Guidelines. Pain Physician. May 2020; 23(3S): S1-S127.

McCormick ZL, et al. Randomized prospective trial of cooled versus traditional radiofrequency ablation of the medial branch nerves for the treatment of lumbar facet joint pain. Reg Anesth Pain Med. 2019 Mar;44(3):389-397.

McCormick ZL, et al. A pragmatic randomized prospective trial of cooled radiofrequency ablation of the medial branch nerves versus facet joint injection of corticosteroid for the treatment of lumbar facet syndrome: 12 month outcomes. Pain Med. 2023 Dec 1;24(12):1318-1331.

McCormick ZL, et al. Low back pain-related healthcare utilization following intraosseous basivertebral nerve radiofrequency ablation: a pooled analysis from three prospective clinical trials. Pain Med. 2024 Jan 4;25(1):20-32.

Mekahil NA, et al. Pain management interventions for the treatment of chronic low back pain: a systematic review and meta-analysis. Clin J Pain. 2023 Jul1;39(7):349-364.

Mehta V, et al. The Effects of radiofrequency neurotomy using a strip-lesioning device on patients with sacroiliac joint pain: results from a single-center, randomized, sham-controlled trial. Pain

Physician. 2018 Nov;21(6):607-618.

Michalik A, et al. Intraosseous basivertebral nerve radiofrequency ablation for the treatment of vertebral body endplate low back pain: current evidence and future directions. Pain Med. 2021;22(Supplement_1):S24-S30.

Moussa WM, et al. Percutaneous pulsed radiofrequency treatment of dorsal root ganglion for treatment of lumbar facet syndrome. Clin Neurol Neurosurg. Dec 2020; 199: 106253.

Nath S. et al. Percutaneous lumbar zygapophysial (facet) joint neurotomy using radiofrequency current, in the management of low back pain: a randomized double-blind trial. Spine. 2008 May 20;33(12):1291-7.

North American Spine Society (NASS) [Internet]. Coverage policy recommendations. Basivertebral Nerve Ablation. 2023 Feb [accessed 2025 Apr 15]. Available from: https://www.spine.org/coverage

North American Spine Society (NASS) [Internet]. Coverage policy recommendations. Facet joint interventions. 2016 Oct [accessed 2025 Apr 15]. https://www.spine.org/coverage

North American Spine Society (NASS) [Internet]. Coverage policy recommendations. Sacroiliac joint injections & radiofrequency ablation. 2020 Oct [accessed 2025 Apr 15]. https://www.spine.org/coverage

Patel N, et al. A randomized, placebo-controlled study to assess the efficacy of lateral branch neurotomy for chronic sacroiliac joint pain. Pain Medicine. 2012;13:383-398.

Rambaransingh B, et al. The effect of repeated zygapophysial joint radiofrequency neurotomy on pain, disability, and improvement duration. Pain Med. 2010 Sep;11(9):1343-7. PMID 20667024

Riberio DC, et al. Mediators of the effects of exercise and manual therapy for people with knee and hip osteoarthritis: A secondary, exploratory analysis of the MOA trial. Osteoarthr Cartil Open. 2024 Jan 9;6(1):1-6. eCollection 2024 Mar.

Schneider BJ, et al. Systematic review of the effectiveness of lumbar medial branch thermal radiofrequency neurotomy, stratified for diagnostic methods and procedural technique. Pain Med. 2020 Jun 1;21(6):1122-1141.

Sayed D, et al. Best practice guidelines on the diagnosis and treatment of vertebrogenic pain with basivertebral nerve ablation from the American Society of Pain and Neuroscience. J Pain Res. 2022 Sept 14;15:2801-2819. eCollection 2022.

Schnapp W, et al. Basivertebral nerve ablation for the treatment of chronic low back pain in a community practice setting: 6 months follow-up. N Am Spine Soc J. 2023 Jun;14:100201. Published online 2023 Jan 29.

Schofferman J, et al. Effectiveness of repeated radiofrequency neurotomy for lumbar facet pain. Spine (Phila Pa 1976). 2004 Nov 01;29(21):2471-3.

Smuck M, et al. Success of initial and repeated medial branch neurotomy for zygapophysial joint pain: a systematic review. PM R. 2012 Sep;4(9):686-92. PMID 22980421

Smuck M, et al. A prospective, randomized, multi-center study of intraosseous basivertebral nerve

ablation for the treatment of chronic low back pain: 12-month results. Reg Anesth Pain Med. 2021 Aug;46(8):683-693.

Truumees E, et al. A prospective, open-label, single-arm, multi-center study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain. Eur Spine J. 2019 Jul;28(7):1594-1602.

Tsertsvadze A, et al. Cost-effectiveness of manual therapy for the management of musculoskeletal conditions: a systematic review and narrative synthesis of evidence from randomized controlled trials. J Manipulative Physiol Ther. 2014; 37(6): 343-62.

Urits I, et al. A comprehensive review of alternative therapies for the management of chronic pain patients: acupuncture, tai chi, osteopathic manipulative medicine, and chiropractic care. Adv Ther. 2020;38(1):76 - 89. Epub 2020 Nov 12.

U.S. Food & Drug Administration [Internet]. 510(k) Premarket notification. Last updated 2025 Apr 14 [accessed 2025 Apr 15]. Available from: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm

Truumees E, et al. A prospective, open-label, single-arm, multi-center study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain. European Spine Journal. 2019 May(1)12:1594-1602.

van Eerd M, et al. Efficacy and long-term effect of radiofrequency denervation in patients with clinically diagnosed cervical facet joint pain: a double-blind randomized controlled trial. Spine (Phila Pa 1976). 2021 Mar;46(5):285-293.

Van Wyjk RMAW, et al. Radiofrequency denervation of lumbar facets joints in the treatment of chronic low back pain. A randomized, double-blind, sham lesion-controlled trial. Clin J Pain. 2005 Jul/Aug;21(4)335-44.

Van Zundert J, et al. Pulsed radiofrequency adjacent to the cervical dorsal root ganglion in chronic cervical radicular pain: a double-blind sham controlled randomized clinical trial. Pain. 2007 Jan;127(1-2):173-82.

Xue Y, et al. Endoscopic rhizotomy for chronic lumbar zygapophysial joint pain. J Orthop Surg Res. 2020 Jan 3;15(1):4.

Yang AJ, et al. McCormick ZL, et al. Radiofrequency ablation for the posterior sacroiliac joint complex pain: a narrative review. PMR. 2019;1 (Suppl 1): S105-S113.

Yang A, et al. Radiofrequency ablation for chronic posterior sacroiliac joint complex pain: a comprehensive review. Pain Medicine. 2021;22(Supplement_1):S9-S13.

Zheng Y, et al. Tomography-guided palisade sacroiliac joint radiofrequency neurotomy versus celecoxib for ankylosing spondylitis: a open-label, randomized, and controlled trial. Rheumatol Int. 2014 Sep;34(9):1195-202.

SEARCH TERMS

Not Applicable

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Based on our review, intraosseous basivertebral nerve (BVN) ablation is not addressed in National or Local Medicare coverage determinations or policies.

Facet Joint Intervention for Pain Management (LCD L35936) [accessed 2025 Apr 15]

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

10/18/01, 07/18/02, 06/19/03, 03/18/04, 02/15/07, 01/17/08, 01/15/09, 01/21/10, 01/20/11, 01/19/12, 01/17/13, 01/16/14, 12/18/14, 12/17/15, 11/17/16, 11/16/17, 06/21/18, 12/20/18, 06/20/19, 08/20/20, 04/15/21, 05/19/22, 05/18/23, 10/17/24, 06/26/25

Date	Summary of Changes
06/26/25	• Annual review, policy intent unchanged. Revised conservative treatment criteria.
01/01/25	• Summary of changes tracking implemented.
10/18/01	• Original effective date