UnitedHealthcare® Oxford
Clinical Policy

Facet Joint and Medial Branch Block Injections for Spinal Pain

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Instructions for Use

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Related Policies

- Ablative Treatment for Spinal Pain
- Epidural Steroid Injections for Spinal Pain
- Occipital Nerve Injections and Ablation (Including Occipital Neuralgia and Headache)
- Office Based Procedures – Site of Service
- Outpatient Surgical Procedures – Site of Service

Coverage Rationale

The following are proven and medically necessary:

- An initial diagnostic Facet Joint Injection/Medial Branch Block to determine facet joint origin when **all** of the following criteria are met:
  - Pain is exacerbated by facet loading maneuvers on physical examination (e.g., hyperextension, rotation); and
  - Clinically significant improvement has not occurred (the pain remains at a 3 or more on a 1-10 pain scale) after a minimum of four weeks of conservative care (including but not limited to pharmacotherapy, exercise, or physical therapy); and
  - Clinical findings and imaging studies suggest no other cause of the pain (e.g., spinal stenosis with neurogenic claudication, disc herniation with radicular pain, infection, tumor, fracture, pain related to prior surgery); and
  - The spinal motion segment is not fused; and
  - A radiofrequency joint denervation/ablation procedure is being considered
- A second Facet Joint Injection/Medial Branch Block performed to confirm the validity of the clinical response to the initial Facet Joint Injection, when **all** of the following criteria are met:
  - Administered at the same level and side as the initial block; and
  - The initial diagnostic Facet Joint Injection produced a positive response as demonstrated when **all** the following criteria are met:
    - For at least the expected minimum duration of the effect of the local anesthetic; and
    - Functional improvement that is specific to the individual with demonstrable improvement in the physical functions previously limited by the facetogenic pain

    and
  - A radiofrequency joint denervation/ablation procedure is being considered

Facet Joint Injections/Medial Branch Blocks are unproven and not medically necessary due to insufficient evidence of efficacy:

- If radiofrequency ablation procedure not considered as treatment option at the requested level(s)

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- For treating spinal pain, after diagnostic injections have been completed
- After two Facet Injections/Medial Branch Blocks at the same level and same side (this is considered therapeutic rather than diagnostic)
- Therapeutic Facet Joint Injections and/or Facet Nerve Block (i.e., Medial Branch Block) for treating chronic spinal pain
- For a second Facet Joint Injection/Medial Branch Block if the initial injection did not confirm the joint as the source of pain
- In the presence of untreated Radiculopathy at the same level as the intended diagnostic injection (with the exception of Radiculopathy caused by a facet joint synovial cyst)
- If injection of volume of local anesthetics exceeds 0.5ml for Medial Branch Blocks
- When performed under ultrasound guidance

Therapeutic Facet Joint/Medial Branch Block Injections at the cervical, thoracic and lumbar levels of the spine are unproven and not medically necessary due to insufficient evidence of efficacy and safety.

Documentation Requirements

Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The documentation requirements outlined below are used to assess whether the member meets the clinical criteria for coverage but do not guarantee coverage of the service requested.

CPT Codes*	Required Clinical Information
Facet Joint and Medial Branch Block Injections for Spinal Pain	

64490
64493
	For **initial injection**, medical notes documenting the following, when applicable:
	• Diagnosis
	• Documentation of history of the medical condition(s), signs and symptoms; include onset, duration, and frequency, finding suggesting facet joint origin, severity of pain on a 1-10 scale after conservative treatment (e.g., pharmacotherapy, exercises)
	• Physical exam, including presence of findings on facet loading maneuvers
	• Relevant medical and surgical history; including history of previous spinal procedures/interventions, including but not limited to previous facet injection and previous surgery(ies)
	• Treatments tried, failed, or contraindicated; include the dates, duration of treatment, and reason for discontinuation
	• Reports of all recent imaging studies and applicable diagnostics
	• Physician treatment plan, including:
	  ○ Location of proposed injection (side and level)
	  ○ Plan for radiofrequency joint denervation/ablation procedure
	
	For **second injection**, in addition to the above, also include the response to initial facet injection, including:
	• Level, side, and date of initial and second injection
	• Duration of the effect
	• Description of functional improvement of the physical functions
	
	In addition to the above, additional documentation requirements may apply for CPT codes **64490 and 64493**; refer to the Clinical Policy titled Outpatient Surgical Procedures – Site of Service in conjunction with the guidelines in this document.

*For code descriptions, refer to the Applicable Codes section.

Definitions

Acute Low Back Pain: Low back pain present for up to six weeks. The early acute phase is defined as less than two weeks and the late acute phase is defined as two to six weeks, secondary to the potential for delayed-recovery or risk phases for the

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development of chronic low back pain. Low back pain can occur on a recurring basis. If there has been complete recovery between episodes, it is considered acute recurrent. (Goertz et al. 2012)

Conservative Therapy: Consists of an appropriate combination of medication (for example, NSAIDs, analgesics, etc.) in addition to physical therapy, spinal manipulation therapy, cognitive behavioral therapy (CBT) or other interventions based on the individual's specific presentation, physical findings and imaging results. (AHRQ, 2013; Qassem, 2017; Summers, 2013)

Facet Joint Injections (FJIs): The injection of a local anesthetic and/or corticosteroid into the facet joint capsule. The injection/block applies directly to the facet joint(s) blocked and not to the number of nerves blocked that innervate the facet joint(s). Even though Facet Joint injections can be used to diagnose facet joint pain, a Medial Branch Block is generally considered more appropriate. A diagnostic facet joint injection/Medial Branch Block is considered positive when there is at least 50% relief of pain for at least the expected minimum duration of the effect of the local anesthetic used.

Facet Joint Syndrome: A condition that leads to chronic spinal pain due to unclear etiology. The classic findings of Facet Joint Syndrome are pain in the cervical or thoracic spine or low back radiating to the buttock and posterior thigh, pain due to hyperextension, pain on palpation of joint, and absence of both Radiculopathy below the knee and neurologic deficits.

Facet Nerve Block: The injection of a local anesthetic and/or corticosteroid along the nerves supplying the facet joints. A diagnostic Medial Branch Block is considered positive when there is at least 50% relief of pain for at least the expected minimum duration of the effect of the local anesthetic used.

Medial Branch Block: *See Facet Nerve Block*.

Non-Radicular Back Pain: Pain which does not radiate along a dermatome (sensory distribution of a single root). Appropriate imaging does not reveal signs of spinal nerve root compression and there is no evidence of spinal nerve root compression seen on clinical exam. (Lenahan, 2018)

Radicular Back Pain: Pain which radiates from the spine into the extremity along the course of the spinal nerve root. The pain should follow the pattern of a dermatome associated with the irritated nerve root identified. (Lenahan, 2018)

Radiculopathy: Radiculopathy is characterized by pain which radiates from the spine to extend outward to cause symptoms away from the source of the spinal nerve root irritation. (Lenahan, 2018)

Sub-Acute Low Back Pain: Low back pain with duration of greater than six weeks after injury but no longer than 12 weeks after onset of symptoms. (Goertz et al., 2012)

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CPT Code	Description
0213T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, cervical or thoracic; single level
0214T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, cervical or thoracic; second level (List separately in addition to code for primary procedure)
0215T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, cervical or thoracic; third and any additional level(s) (List separately in addition to code for primary procedure)

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CPT Code	Description
0216T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, lumbar or sacral; single level
0217T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, lumbar or sacral; second level (List separately in addition to code for primary procedure)
0218T	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with ultrasound guidance, lumbar or sacral; third and any additional level(s) (List separately in addition to code for primary procedure)
64490	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), cervical or thoracic; single level
64491	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), cervical or thoracic; second level (List separately in addition to code for primary procedure)
64492	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), cervical or thoracic; third and any additional level(s) (List separately in addition to code for primary procedure)
64493	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), lumbar or sacral; single level
64494	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), lumbar or sacral; second level (List separately in addition to code for primary procedure)
64495	Injection(s), diagnostic or therapeutic agent, paravertebral facet (zygapophyseal) joint (or nerves innervating that joint) with image guidance (fluoroscopy or CT), lumbar or sacral; third and any additional level(s) (List separately in addition to code for primary procedure)

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Diagnosis Code	Description
M47.812	Spondylosis without myelopathy or radiculopathy, cervical region
M47.813	Spondylosis without myelopathy or radiculopathy, cervicothoracic region
M47.814	Spondylosis without myelopathy or radiculopathy, thoracic region
M47.815	Spondylosis without myelopathy or radiculopathy, thoracolumbar region
M47.816	Spondylosis without myelopathy or radiculopathy, lumbar region
M47.817	Spondylosis without myelopathy or radiculopathy, lumbosacral region
M47.819	Spondylosis without myelopathy or radiculopathy, site unspecified
M47.892	Other spondylosis, cervical region
M47.893	Other spondylosis, cervicothoracic region
M47.894	Other spondylosis, thoracic region
M47.895	Other spondylosis, thoracolumbar region
M47.896	Other spondylosis, lumbar region
M47.897	Other spondylosis, lumbosacral region
M47.899	Other spondylosis, site unspecified
M47.9	Spondylosis, unspecified

Description of Services

Facet Joint Injections and Medial Nerve Branch Blocks have been used to diagnose and treat pain that arises from facet joints. Imaging guidance, and local anesthetic of the skin over the injection site are used and the physician injects local anesthetic with

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or without corticosteroid into the facet joint that is identified as the probable source of pain. A medial nerve branch block (MBNB) utilizes the same techniques of imaging guidance and local anesthetic, to target the injection to the medial branch of the peripheral nerve dorsal ramus, which innervate the facet joints of the spine. (Funicello, 2019)

These injections generally require local anesthetic only. However, for some patients, Moderate/Conscious Sedation, non-intravenous sedation, and Monitored Anesthesia Care (MAC) may be necessary. These sedation procedures are generally safe when administered by trained, certified providers with appropriate monitoring, but are not without risk. Examples of procedures that typically do not require moderate sedation or an anesthesia care team include but are not limited to epidural steroid injections; epidural blood patch; trigger point injections; shoulder, hip, sacroiliac, facet, and knee joint injections; medial branch nerve blocks; and peripheral nerve blocks. (American Society of Anesthesiologists, 2021)

Clinical Evidence

Facet Joint/Medial Branch Block Injections

Diagnostic Facet Joint/Medial Branch Block Injections

There is limited published high-quality evidence regarding the efficacy and safety of Facet Joint / Medial Branch Block injections of the thoracic spine.

Cohen et al (2018) conducted a multi-center randomized controlled trial to evaluate the effectiveness of diagnostic lumbar facet joint or nerve blocks and their predictive value before radiofrequency denervation. A total of 229 participants were randomized in a 2:2:1 ratio to receive intraarticular facet injections with bupivacaine and steroid, medial branch blocks, or saline. Then, participants who had a positive facet joint injection test (a positive test was defined as 50% or more pain relief sustained for at least three hours, to control for concomitant pain generators) and remained symptomatic went on to receive a therapeutic radiofrequency denervation, while all participants in the saline group who remained symptomatic received therapeutic radiofrequency denervation. This complex study design allowed the authors to test the usefulness of facet joint injection as a guide to decide the indication to a therapeutic radiofrequency denervation. Inclusion criteria were 18 yrs. of age or older, predominantly axial low back pain for 3 months or more, average back pain score more than 3 out of 10 over the last week on a numerical rating scale, failure to respond to more conservative therapy (e.g., physical therapy, integrative therapy, and pharmacotherapy) and paraspinal tenderness. Excluded from participation were patients with a known, specific etiology for low back pain (e.g., significant spinal stenosis or grade II or III spondylolisthesis), focal neurologic signs or symptoms, a positive response to previous spine interventions such as epidural steroids or sacroiliac joint blocks for the current pain episode, previous facet interventions, lumbar spine fusion, untreated coagulopathy, and concomitant medical condition likely to undermine the diagnostic work-up or treatment response. The proportions of positive blocks were higher in the intraarticular (54%) and medial branch (55%) groups than in the placebo group (30%), suggesting that the response to the test injection went above and beyond a placebo effect. At one month, results showed a mean reduction in average numerical rating scale pain score of 0.7 ±1.6 in the intraarticular group, 0.7 ±1.8 in the medial branch block group, and 0.7 ±1.5 in the placebo group, suggesting a lack of therapeutic benefit for facet injections at one month, results showed a mean reduction in average numerical rating scale pain score at 1 month was 0.7 ±1.6 in the intraarticular group, 0.7 ±1.8 in the medial branch block group, and 0.7 ±1.5 in the placebo group, suggesting a lack of therapeutic benefit for facet injections at one month. Radiofrequency ablation was performed on 135 patients (45, 48, and 42 patients from the intraarticular, medial branch, and saline groups, respectively). At 3 months, the proportions of positive responders in the intraarticular, medial branch block, and placebo groups were 51%, 56%, and 24%, respectively. This finding suggests that the use of diagnostic facet joint injection improves patient's outcomes when used to direct the selection of patients who should receive radiofrequency ablation. Limitations included fact that study was designed primarily as a comparative-effectiveness study and therefore utilized liberal selection criteria to enhance generalization, unlike studies designed to show efficacy, which ideally employ rigorous criteria. The authors concluded that the study establishes that facet joint or nerve blocks are not therapeutic and that the higher responder rates in the two facet injection groups suggest that diagnostic facet blocks might provide prognostic value before radiofrequency ablation.

Manchikanti et al (2016) conducted a systematic evidence-based assessment methodology of controlled trials of diagnostic validity and randomized controlled trials to investigate the diagnostic validity and therapeutic value of lumbar facet joint interventions in managing chronic low back pain. The literature search was extensive utilizing various types of electronic search media, and inclusion criteria encompassed all facet joint interventions performed in a controlled fashion. Across all databases, 16 high quality diagnostic accuracy studies were identified, and multiple studies assessed the influence of multiple factors on

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diagnostic validity. In contrast to diagnostic validity studies, therapeutic efficacy trials were limited to a total of 14 randomized controlled trials, assessing the efficacy of intraarticular injections, facet or zygapophysial joint nerve blocks, and radiofrequency neurotomy of the innervation of the facet joints. The pain relief of greater than 50% was the outcome measure for diagnostic accuracy assessment of the controlled studies with ability to perform previously painful movements, whereas, for randomized controlled therapeutic efficacy studies, the primary outcome was significant pain relief, and the secondary outcome was a positive change in functional status. For the inclusion of the diagnostic controlled studies, all studies must have utilized either placebo-controlled facet joint blocks or comparative local anesthetic blocks. In assessing therapeutic interventions, short-term and long-term relief was defined as either up to 6 months or greater than 6 months of relief. The evidence for the diagnostic validity of lumbar facet joint nerve blocks with at least 75% pain relief with ability to perform previously painful movements was level I, based on a range of level I to V derived from a best evidence synthesis. For therapeutic interventions, the evidence was variable from level II to III, with level II evidence for lumbar facet joint nerve blocks and radiofrequency neurotomy for long-term improvement (greater than 6 mo.), and level III evidence for lumbosacral zygapophysial joint injections for short-term improvement only. The authors concluded that this review provides significant evidence for the diagnostic validity of facet joint nerve blocks, and moderate evidence for therapeutic radiofrequency neurotomy and therapeutic facet joint nerve blocks in managing chronic low back pain.

Boswell et al. (2015) conducted a systematic review of the diagnostic accuracy of spinal facet joint nerve blocks in chronic spinal pain. The evidence for the diagnostic accuracy of thoracic facet joint nerve blocks is based on three high quality studies (2 prospective, and one retrospective) with ≥ 80% pain relief as the standard and showed a prevalence ranging from 34% to 48%, and false-positive rates ranging from 42% to 48%. There were no randomized studies, and no studies evaluated single blocks. The authors concluded that there is a paucity of evidence related to these diagnostic injections and the thoracic spine, and more high-quality research is needed.

Therapeutic Facet Joint/Medial Branch Block Injections

There is insufficient evidence to demonstrate that therapeutic facet joint injections are effective in the treatment of back pain as evidence of the safety and efficacy is lacking and of low quality.

A 2018 Hayes technology assessment, updated in 2022 stated that low-quality body of evidence from RCTs of lumbar facet joint injections (FJIs) shows that this technique may provide a significant degree of pain relief and improve function/disability (ODI) compared with baseline levels in patients with chronic nonresponsive spinal pain in that region. However, the duration of pain relief is variable, with follow-up of 3 to 6 months. The lack of appropriate placebo control groups in the RCTs precluded an accurate assessment of the treatment effect of the intervention; thus, there is considerable uncertainty regarding the magnitude and durability of benefit. The use of FJIs in the lumbar spine region appears to be generally safe, with relatively few minor side effects. Evidence is insufficient to assess the efficacy and safety of FJIs in treating chronic, nonresponsive spinal pain of facet joint origin in the thoracic or cervical spine. Additional studies are needed to evaluate the long-term efficacy and safety of FJIs versus placebo for treatment of chronic lumbar, thoracic, or cervical spinal pain, and to assess the comparative effectiveness of this treatment versus definitive alternatives such as RFD and PRF.

Vekaria et al. (2016). The authors conducted a systematic review, including a narrative synthesis to determine if intra-articular facet joint injections with active drug are more effective in reducing back pain and back pain-related disability than a sham procedure or a placebo/inactive injection. The authors also evaluated if intra-articular facet joint injections with active drug or placebo/inactive injection are more effective in reducing back pain and back pain-related disability than conservative treatment. Electronic databases were searched through April 2015. Data were screened and single extraction with independent verification and risk of bias assessment was performed. A total of 391 records were screened, and six trials were included. The trials included were small (range 18-109 participants) and overall, in terms of pain and disability outcomes most were inconclusive. Only two of the trials report any significant between-group differences in pain or disability outcomes. The authors addressed limitations and flaws in these trials that were clinically diverse and precluded any meta-analysis. A number of methodological issues were identified. The positive results are interpreted with caution and suggest that there is a need for further high-quality work in this area. Further randomized controlled trials of higher methodological standard comparing facet joint injection with a sham/placebo control or conservative treatment are needed from which to base any conclusion on the effectiveness of facet joints in improving pain and disability outcomes.

Manchikanti et al. (2010) conducted a double-blind randomized controlled trial of facet joint nerve blocks to manage chronic low back pain. One hundred twenty patients were equally randomized to receive either a local anesthetic only (group I) or a local anesthetic mixed with a steroid (group II). Outcomes were measured at baseline, 3, 6-, 12-, 18- and 24-months post-

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treatment with the Numeric Rating Scale (NRS), the Oswestry Disability Index 2.0 (ODI), work status, and opioid intake. Significant pain relief (≥ 50%) and functional improvement of ≥ 40% were observed in 85% in Group 1, and 90% in Group II, at 2-year follow-up. The authors found that both groups had similar relief with or without the addition of steroids to the treatment, and experienced significant pain relief for 82 to 84 weeks of 104 weeks. Treatment required approximately 5 to 6 injections, with an average relief of 19 weeks per episode of treatment. The authors concluded that therapeutic lumbar facet joint nerve blocks, with or without steroids, may provide a management option for chronic function-limiting low back pain of facet joint origin, and additional research is needed.

In a prospective, randomized, double-blind trial by Manchikanti et al. (2007), data from a total of 60 patients were included, with 15 patients in each of 4 groups. Thirty patients were in a non-steroid group consisting of Groups I (control, with lumbar facet joint nerve blocks using bupivacaine) and II (with lumbar facet joint nerve blocks using bupivacaine and Sarapin); another 30 patients were in a steroid group consisting of Groups III (with lumbar facet joint nerve blocks using bupivacaine and steroids) and IV (with lumbar facet joint nerve blocks using bupivacaine, Sarapin, and steroids). Significant improvement in pain and functional status were observed at 3 months, 6 months, and 12 months, compared to baseline measurements. The average number of treatments for 1 year was 3.7 with no significant differences among the groups. Duration of average pain relief with each procedure was 14.8 ±7.9 weeks in the non-steroid group and 12.5 ±3.3 weeks in the steroid group, with no significant differences among the groups. The authors concluded that the therapeutic lumbar facet joint nerve blocks with local anesthetic, with or without Sarapin or steroids, may be effective in the treatment of chronic low back pain of facet joint origin. The findings are limited by lack of placebo comparison group.

Ultrasound Guidance

There is no evidence in the peer-reviewed literature demonstrating the overall health benefit of the use of ultrasonic guidance during spinal injections over the use of fluoroscopy or CT-guidance. Furthermore, clinical guidelines do not recommend the use of ultrasound-guided facet joint injections. Well-designed randomized controlled trials (RCTs) that compare ultrasound guidance to fluoroscopy or computed tomography guided facet joint injections are needed to demonstrate improved net health outcomes with ultrasound guided injections.

Ashmore et al. (2022) conducted a systematic review and meta-analysis to determine the risk of incorrect needle placement when using US to perform lumbar MBB and FJI as confirmed by fluoroscopy or CT. The authors noted an 11% risk difference (RD) of incorrect needle placement for US-guided MBB confirmed using fluoroscopy with and without contrast that was based on pooled analysis of 7 studies. There was a 13% RD of incorrect need placement for US-guided FJI confirmed using CT based on pooled analysis of 3 studies. The authors note that there was low to very low certainty in the evidence based on risk of bias, inconsistency, and imprecision. Limitations included variance of the details of how the procedures were performed and training differences between US and fluoroscopically guided spine procedures which may affect generalizability as skill level amongst pain specialty physicians may vary. The authors concluded that the risk of incorrect needle placement associated with US-guided MBB and FJI is high when needle position is confirmed using fluoroscopy or CT.

Ultrasound-guided spine injection therapy is a comparatively new technique in the management of axial and radicular pain from degenerative lumbar spinal conditions and may be a reasonable alternative to conventional methods of injection guidance. In 2020, Tay et al. completed a retrospective clinical audit of 42 patients who underwent ultrasound-guided lumbar spinal injection at a single institution for chronic axial and radicular pain in an acute public hospital sports medicine center between June 1, 2018 and June 1, 2019. 27 patients (64.3%) receiving facet joint injections and 18 patients (42.9%) receiving nerve root injections. The majority (90.5%) of patients experienced an improvement of > 30% in pain intensity at 3 months post-injection, using the Numerical Rating Scale pain score ($p < 0.001$); with 40 patients (95.2%) reporting a reduction in Oswestry Disability Index score ($p < 0.001$). No complications were reported. It was concluded that the experience of this institution confirms the safety, feasibility, and effectiveness of ultrasound-guided lumbar spinal injection for the treatment of axial and radicular pain. The authors also note that ultrasound-guided spinal injection remains technically challenging and requires a steep learning phase, as well as careful patient selection, and that the study was not designed to directly compare outcomes for ultrasound-guided injection against the conventional standard of care. A larger dataset is required to confirm the efficacy of ultrasound-guided spine injection and the rate of adverse events, and a prospective study would be useful to determine clinical factors predicting success. This study is also limited by lack of comparison group and a small number of participants standard of care. A larger dataset is required to confirm the efficacy of ultrasound-guided spine injection and the rate of adverse events, and a prospective study would be useful to determine clinical factors predicting success. This study is also limited by lack of comparison group and a small number of participants.

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Wu et al (2016) conducted a meta-analysis of controlled trials(randomized and non-randomized) to assess the comparative effectiveness of ultrasound-guided (USG) versus computed tomography (CT)/fluoroscopy-guided lumbar facet joint injections in adults. Of 103 records screened, 3 studies were included, with a total of 202 adults with facet joint pain. The overall quality of these studies was not rated, though the authors noted that the lack of blinding may have resulted in bias. The outcomes assessed included change in pain scores (visual analog scale [VAS]), change in Modified Oswestry Disability scores, and mean duration of the procedure. No statistically significant differences between groups were found for these outcomes. The authors concluded that while USG injection is feasible and minimizes exposure of radiation to patients and practitioners in the lumbar facet joint injection process. This review suggested no significant differences in pain and functional improvement were noted between the USG and CT-/fluoroscopy-guided techniques in facet joint injection. This meta-analysis was limited by the relatively small sample size and the small number of studies included.

Clinical Practice Guidelines

American Association of Neurological Surgeons (AANS) and Congress of Neurological Surgeons (CNS)

In 2014, the AANS and CNS published updated guidelines on the treatment of degenerative disease of the lumbar spine. AANS/CNS recommended to use a double-injection technique with an improvement threshold of 80% or greater to establish a diagnosis of lumbar facet-mediated pain and noted that there is no evidence to support the use of diagnostic facet blocks as a predictor of lumbar fusion outcome in patients with chronic low-back pain from degenerative lumbar disease.

American College of Occupational and Environmental Medicine (ACOEM)

In the 2021 guidelines for invasive treatments for low back disorders, the ACOEM states the following for therapeutic facet joint injections:

- Not Recommended (I), Moderate Confidence for treatment of acute, subacute low back pain (LBP) or for any radicular pain syndrome.
- Not Recommended (I), Moderate Confidence for treatment of acute, subacute LBP or for any radicular pain syndrome.
- Moderately Not Recommended (B), Moderate Confidence for routine treatment of chronic non-specific axial pain.
- Repeat use of intra-articular therapeutic facet joint injections are Moderately Not Recommended (B), Moderate Confidence for patients who have failed to achieve lasting functional improvements with a prior injection.

American Society of Interventional Pain Physicians (ASIPP)

In 2020, the American Society of Interventional Pain Physicians updated the evidence-based guidelines on use of facet joint interventions for management of chronic spinal pain, and made the following recommendations:

- The use of facet joint nerve blocks for the **diagnosis** of facet joint pain is recommended for:
  - Lumbar spine (moderate to strong) - Based on the results of ten relevant diagnostic accuracy studies with 4 of 10 studies utilizing controlled comparative local anesthetics with concordant pain relief. The prevalence rates ranged from 27% to 40% with false-positive rates of 27% to 47%, with ≥ 80% pain relief.
  - Cervical spine (moderate) - Based on the results of ten relevant diagnostic accuracy studies, 9 of the 10 studies with either controlled comparative local anesthetic blocks or placebo controls with concordant pain relief with a criterion standard of ≥ 80% were included. The prevalence and false-positive rates ranged from 29% to 60% and of 27% to 63%, with high variability.
  - Thoracic spine (moderate) - Based on the results of three relevant diagnostic accuracy studies, with controlled comparative local anesthetic blocks, with concordant pain relief, with a criterion standard of ≥ 80% were included. The prevalence varied from 34% to 48%, whereas false-positive rates varied from 42% to 58%.
- The use of facet joint nerve blocks for the **treatment of facet joint pain is recommended for:**
  - Lumbar spine (moderate) - Based on the results of 3 relevant randomized controlled trials with long-term improvement.
  - Cervical spine (moderate) - Based on the results of one relevant randomized controlled trial and 3 observational studies with long-term improvement.
  - Thoracic spine:
    - Therapeutic facet joint nerve blocks (moderate) - Based on the results of 2 randomized controlled trials and 2 observational studies with long-term improvement.
    - Therapeutic intraarticular facet joint injections (weak) - Based on one randomized controlled trial with 6-month follow-up and emerging evidence.

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American Society of Regional Anesthesia and Pain Medicine

Consensus practice guidelines on interventions for lumbar facet joint pain from a multispecialty, international working group (Cohen et al., 2020) makes the following recommendations and observations:

- A 3-month trial of different conservative treatments before facet joint interventions. Conservative therapies may include medications (e.g., non-steroidal anti-inflammatory drugs, antidepressants), physical treatments (exercise, heat or cold therapy, massage), integrative treatments (acupuncture, spinal manipulation if indicated) and others (nutrition, weight loss, sleep hygiene).
- Lumbar [median branch blocks (MBBs)] should be performed with < 0.5 mL (total volume) to reduce spread to adjacent structures.
- Lumbar [interarticular (IA)] facet joint injections should be performed with a volume of < 1.5 mL to prevent capsular rupture and reduce spread to adjacent structures.
- Recommend against the routine use of therapeutic facet injections, but acknowledge that in patients who may be at risk of adverse consequences from [radiofrequency ablation (RFA)] (e.g., young athletes, older individuals on anticoagulation therapy or with implantable cardiac devices) or in whom there is a strong likelihood of success (e.g., individuals who obtained prolonged relief from previous diagnostic injections with or without steroids), it may reasonable to add steroids to a block in the hope of deriving intermediate-term relief.
- A > 50% reduction in pain be considered a positive block but recognize that studies should be performed to determine whether lower cut-offs may prove to be optimal.
- A single block is recommended. There is moderate evidence that dual blocks result in a higher subsequent success rate for medial branch [radiofrequency (RF)], but that the use of a zero-block paradigm results in the highest overall number of patients with a positive response to the RFA.
- Facet joint injections meet criteria for diagnostic interventions for facet-mediated pain but are less predictive than medical branch blocks.
- As diagnostic tools, medical branch blocks suffer from limitations related to aberrant lumbar facet joint innervation.
- Compared with saline controls, both facet and medial branch injections with local anesthetic provide better predictive information for medial branch radiofrequency ablation.

Consensus practice guidelines on interventions for cervical spine facet joint pain from a multispecialty, international working group (Hurley et al., 2021) makes the following recommendations and observations:

- History and physical examination cannot reliably identify painful atlanto–occipital (C0–C1) (AO) or atlanto–axial (C1–C2) (AA) joints, but can guide injection decisions which could confirm the joints as pain generators.
- When selecting targets for blocks, levels should be determined based on clinical presentation (tenderness on palpation (preferably performed under fluoroscopy), pain referral patterns).
- Conservative management before prognostic blocks in patients with at least 3 months of neck pain.
  - At least a 6-week trial of conservative therapy, which may vary based on a personalized medicine paradigm.
  - Concomitant use of conservative measures to accompany prognostic blocks.
- Pre-procedural advanced imaging of the cervical spine with either CT or MRI should be obtained prior to performing AO and AA joint injections to ascertain pathology and help guide needle trajectory.
- ≥ 50% reduction in pain should be considered a positive prognostic block.
  - Non-pain measures such as activity level should not be used as the sole criterion to determine the success or failure of a prognostic block, but may be used in conjunction with pain assessment.
- Fluoroscopy or US should be used for cervical MBB.
- For cervical MBB volumes be ≤ 0.3mL (slightly higher volumes may be considered if contrast spread fails to capture the most frequent patterns of medial branch innervation).
- For cervical IA facet joint injection, a total volume not to exceed 1mL including contrast injection (to prevent capsular rupture and/or aberrant injectate spread and enhance the specificity of the block).
- Recommend against the routine use of IA injections, while acknowledging that for patients at risk of adverse events such as young athletes, individuals on anticoagulants, or who have an implantable cardiac device, and/or those with limited access to cervical medial branch RFA it may be reasonable to consider these injections with non-particulate steroid at C2-3.
- The routine use of steroids with cervical MBB should be avoided.

North American Spine Society (NASS)

A 2016 NASS coverage policy makes the following recommendations for facet joint interventions:

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Diagnostic Medial Branch Blocks

- Dual blocks, performed in the same location(s) on two separate occasions, are necessary to confirm the diagnosis due to the unacceptably high false positive rate of single diagnostic anesthetic injections in the spine.
- A second confirmatory injection is indicated only if the first injection produces ≥ 80% relief of the primary (index) pain and the onset and minimum duration of relief is consistent with the agent employed. This confirmatory block confirms the tested joint as the source if the index pain is reduced by > 80%.
- A second injection may also be performed at a different or additional level if the pain is believed to be arising from a different joint (and the pain relief from the initial block was < 80%).

Therapeutic Medial Branch Blocks

Therapeutic MBBs are performed in the same manner as diagnostic MBBs, and are intended to achieve long term pain management. Current evidence does not support their use as a therapeutic intervention.

The NASS also states that there is no published literature addressing the use of intra-articular injections for thoracic pain and the studies regarding medial branch blocks are limited to retrospective studies and case series. They recommend clinicians weigh the risks and benefits of these interventions compared to other palliative care for patients with thoracic spine pain who appear to have limited remaining treatment outcomes.

In the 2020 Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care: Diagnosis & Treatment of Low Back Pain, the NASS states there is there is insufficient evidence to make a recommendation for or against the use of the following for facet joint and medial branch block injections:

- Patient-reported reproduction of pain during a zygapophyseal joint injection as a predictor of response to dual diagnostic blocks. Grade of Recommendation: I
- In patients selected for facet joint procedures using diagnostic criteria of physical exam and a response to a single diagnostic intra-articular injection with 50% relief, it is suggested that intra-articular injection of steroids provides no clinically meaningful improvement at 6 months. Grade of Recommendation: B
- In patients selected for facet joint procedures using diagnostic criteria of physical exam and a response to a single diagnostic intra-articular injection with 50% relief, there is insufficient evidence to make a recommendation for or against the use of radiofrequency neurotomy or periarticular phenol injections. Grade of Recommendation: I
- The use of steroid injections into the zygapophyseal joint in patients with chronic back pain and a physical exam suggestive of facet-mediated pain. Grade of Recommendation: I
- The use of uncontrolled medial branch blocks vs. pericapsular blocks for the diagnosis of zygapophyseal joint pain based on the outcomes of medial branch nerves cryoablation. Grade of Recommendation: I
- The use of a 50% reduction in pain following medial branch blockade for the diagnosis of zygapophyseal joint pain. Grade of Recommendation: I

World Federation of Neurosurgical Societies (WFNS)

In 2020, the WFNS published the Spine Committee Recommendations on Conservative Treatment and Percutaneous Pain Relief in Patients with Lumbar Spinal Stenosis (Fornari et al. 2020). They state that facet joint injections provide a useful diagnostic tool for low back pain.

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

Facet joint and medial branch block injections are procedures and therefore not subject to FDA regulation. However, devices, drugs, and tests used as part of this procedure may be regulated. Additional information may be obtained from the U.S. Food and Drug Administration - Center for Drug Evaluation and Research (CDER) at: https://www.fda.gov/about-fda/fda-organization/center-drug-evaluation-and-research-cder. (Accessed January 18, 2023)

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The foregoing Oxford policy has been adapted from an existing UnitedHealthcare national policy that was researched, developed and approved by UnitedHealthcare Medical Technology Assessment Committee. [*2023T0004PP*]

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Policy History/Revision Information

Date	Summary of Changes
09/01/2023	**Documentation Requirements** ● Updated list of *Required Clinical Information* for **initial injection**: ○ Replaced "history of the medical condition(s) *requiring treatment* (including duration of pain and findings suggesting facet joint origin), *documentation of* signs and symptoms (including onset, duration, and frequency), and severity of pain on a 1-10 scale after conservative treatment (e.g., pharmacotherapy, exercises)" with "history of the medical condition(s), signs, and symptoms; include onset, duration, frequency, finding suggesting facet joint origin, and severity of pain on a 1-10 scale after conservative treatment (e.g., pharmacotherapy, exercises)" ○ Removed: ▪ Injected anesthetic volume plan ▪ Plan for use of ultrasound guidance **Supporting Information** ● Updated *Clinical Evidence* and *References* sections to reflect the most current information ● Archived previous policy version PAIN 024.5

Instructions for Use

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