

<b>Medical Policy: Facet Injections</b>			
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**POLICY**

- Recommend no more than one therapeutic intra-articular lumbar block when facet joint pain is suspected, but not cervical intra-articular blocks.
- Recommend no more than one set of medial branch diagnostic blocks prior to facet neurotomy.
- Medial branch blocks not recommended except as a diagnostic tool.
- Multiple series of facet joint injections not recommended.
- Thoracic facet joint injections not recommended.
- ESI and facet injections must not be performed simultaneously.

**Criteria for use of therapeutic intra-articular and medial branch blocks, are as follows:**

1. No more than one therapeutic intra-articular lumbar block is recommended.
2. There should be no evidence of radicular pain, spinal stenosis, or previous fusion at the levels requested. The presence of prior fusion alone would not exclude facet targeted injections or medial branch blocks. Prior fusion may develop into adjacent level disease, which directly effects the facet joints above and below the level of fusion. This may have been the case with select posterior fusions with hardware fixation at the levels of fusion, but does not hold true for anterior fusions or the levels above and below fusion. Furthermore, intraarticular facet injections at the level of posterior fusion can be beneficial.
3. If successful (initial pain relief of 70%, plus pain relief of at least 50% for a duration of at least 6 weeks), the recommendation is to proceed to a medial branch diagnostic block and subsequent neurotomy (if the medial branch block is positive).
4. No more than 2 joint levels may be blocked at any one time.
5. There should be evidence of a formal plan of additional evidence-based activity and exercise in addition to facet joint injection therapy.

## **SUPPORTING DOCUMENTATION**

ODG Low Back (updated 05/12/17) - Online Version

Facet joint diagnostic blocks (injections)

Recommend no more than one set of medial branch diagnostic blocks prior to facet neurotomy, if neurotomy is chosen as an option for treatment (a procedure that is still considered "under study"). Diagnostic blocks may be performed with the anticipation that if successful, treatment may proceed to facet neurotomy at the diagnosed levels.

See Facet joint pain, signs & symptoms; Facet joint radiofrequency neurotomy; Facet joint medial branch blocks (therapeutic injections); and Facet joint intra-articular injections (therapeutic blocks). See also Neck Chapter and Pain Chapter.

Criteria for the use of diagnostic blocks for facet "mediated" pain:

Clinical presentation should be consistent with facet joint pain, signs & symptoms.

1. One set of diagnostic medial branch blocks is required with a response of 70%. The pain response should last at least 2 hours for Lidocaine.
2. Limited to patients with low-back pain that is non-radicular and at no more than two levels bilaterally.
3. There is documentation of failure of conservative treatment (including home exercise, PT and NSAIDs) prior to the procedure for at least 4-6 weeks.
4. No more than 2 facet joint levels are injected in one session (see above for medial branch block levels).
5. Recommended volume of no more than 0.5 cc of injectate is given to each joint.
6. No pain medication from home should be taken for at least 4 hours prior to the diagnostic block and for 4 to 6 hours afterward.
7. Opioids should not be given as a "sedative" during the procedure.
8. The use of IV sedation (including other agents such as midazolam) may be grounds to negate the results of a diagnostic block, and should only be given in cases of extreme anxiety.
9. The patient should document pain relief with an instrument such as a VAS scale, emphasizing the importance of recording the maximum pain relief and maximum duration of pain. The patient should also keep medication use and activity logs to support subjective reports of better pain control.
10. Diagnostic facet blocks should not be performed in patients in whom a surgical procedure is anticipated. (Resnick, 2005)
11. Diagnostic facet blocks should not be performed in patients who have had a previous fusion procedure at the planned injection level. [Exclusion Criteria that would require UR physician review: Previous fusion at the targeted level. (Franklin, 2008)]

Current research indicates that a minimum of one diagnostic block be performed prior to a neurotomy, and that this be a medial branch block (MBB). Although it is suggested that MBBs and intra-articular blocks appear to provide comparable diagnostic information, the results of placebo-controlled trials of neurotomy found better predictive effect with diagnostic MBBs. In addition, the same nerves are tested with the MBB as are treated with the neurotomy. The use of a confirmatory block has been strongly suggested due to the high rate of false positives with single blocks (range of 25% to 40%) but this does not appear to be cost effective or to prevent the incidence of false positive response to the neurotomy procedure itself. (Cohen, 2007) (Bogduk, 2000) (Cohen2, 2007) (Manchukonda, 2007) (Dreyfuss, 2000) (Manchikanti2, 2003) (Datta, 2009)

Etiology of false positive blocks: Placebo response (18-32%), use of sedation, liberal use of local anesthetic, and spread of injectate to other pain generators. The concomitant use of sedative during the block can also interfere with

an accurate diagnosis. (Cohen, 2007) The use of sedation during diagnostic injections may increase the rate of false-positive blocks and lead to misdiagnoses and unnecessary procedures, but has no effect on satisfaction or outcomes at 1-month. (Cohen, 2014)

MBB procedure: The technique for medial branch blocks in the lumbar region requires a block of 2 medial branch nerves (MBN). The recommendation is the following: (1) L1-L2 (T12 and L1 MBN); (2) L2-L3 (L1 and L2 MBN); (3) L3-L4 (L2 and L3 MBN); (4) L4-L5 (L3 and L4 MBN); (5) L5-S1: the L4 and L5 MBN are blocked, and it is recommended that S1 nerve be blocked at the superior articular process. Blocking two joints such as L3-4 and L4-5 will require blocks of three nerves (L2, L3 and L4). Blocking L4-5 and L5-S1 will require blocks of L3, L4, L5 with the option of blocking S1. (Clemans, 2005) The volume of injectate for diagnostic medial branch blocks must be kept to a minimum (a trace amount of contrast with no more than 0.5 cc of injectate), as increased volume may anesthetize other potential areas of pain generation and confound the ability of the block to accurately diagnose facet pathology. Specifically, the concern is that the lateral and intermediate branches will be blocked; nerves that innervate the paraspinal muscles and fascia, ligaments, sacroiliac joints and skin. (Cohen, 2007) Intraarticular blocks also have limitations due to the fact that they can be technically challenging, and if the joint capsule ruptures, injectate may diffuse to the epidural space, intervertebral foramen, ligamentum flavum and paraspinal musculature. (Cohen, 2007) (Washington, 2005) (Manchikanti, 2003) (Dreyfuss, 2003) (BlueCross BlueShield, 2004) (Pneumatics, 2006) (Boswell, 2007) (Boswell2, 2007) A recent meta-analysis concluded that there is insufficient evidence to evaluate validity or utility of diagnostic selective nerve root block, intra-articular facet joint block, medial branch block, or sacroiliac joint block as diagnostic procedures for low back pain with or without radiculopathy. (Chou2, 2009) This study suggests that proceeding to radiofrequency denervation without a diagnostic block is the most cost-effective treatment paradigm, but does not result in the best pain outcomes. (Cohen, 2010)

#### ODG Low Back (updated 05/12/17) - Online Version

##### Facet joint intra-articular injections (therapeutic blocks)

Under study. Current evidence supporting this procedure is conflicting, and at this time, no more than one therapeutic intra-articular block is suggested. If this treatment is successful (pain relief of at least 50% for a duration of at least 6 weeks), the recommendation is to proceed to a medial branch diagnostic block and subsequent neurotomy (if the medial branch block is positive). If a therapeutic facet joint block is undertaken, it is suggested that it be used in concert with other evidence-based conservative care (activity, exercise, etc.) to facilitate functional improvement. (Dreyfuss, 2003) (Colorado, 2001) (Manchikanti, 2003) (Boswell, 2005)

See Facet joint diagnostic blocks (injections); Facet joint pain, signs & symptoms; Facet joint radiofrequency neurotomy; Facet joint medial branch blocks (therapeutic injections); and Segmental rigidity (diagnosis). See also the Neck Chapter and Pain Chapter.

Criteria for use of therapeutic intra-articular and medial branch blocks, are as follows:

1. No more than one therapeutic intra-articular block is recommended.
2. There should be no evidence of radicular pain, spinal stenosis, or previous fusion.
3. If successful (initial pain relief of 70%, plus pain relief of at least 50% for a duration of at least 6 weeks), the recommendation is to proceed to a medial branch diagnostic block and subsequent neurotomy (if the medial branch block is positive).
4. No more than 2 joint levels may be blocked at any one time.
5. There should be evidence of a formal plan of additional evidence-based activity and exercise in addition to facet joint injection therapy.

In spite of the overwhelming lack of evidence for the long-term effectiveness of intra-articular steroid facet joint injections, they remain a popular treatment modality. Intra-articular facet joint injections have been popularly

utilized as a therapeutic procedure, but are not currently recommended as a treatment modality in most evidence-based reviews, as their benefit remains controversial. The therapeutic facet joint injections described here are injections of a steroid (combined with an anesthetic agent) into the facet joint under fluoroscopic guidance to provide temporary pain relief. (Dreyfuss, 2003) (Nelemans-Cochrane, 2000) (Carette, 1991) (Nelemans, 2001) (Slipman, 2003) (van Tulder, 2006) (Colorado, 2001) (ICSI, 2004) (Bogduk, 2005) (Resnick, 2005) (Airaksinen, 2006) An updated Cochrane review of injection therapies (ESIs, facets, trigger points) for low back pain concluded that there is no strong evidence for or against the use of any type of injection therapy, but it cannot be ruled out that specific subgroups of patients may respond to a specific type of injection therapy. (Staal-Cochrane, 2009)

Systematic reviews endorsing therapeutic intra-articular facet blocks:

Pain Physician, 2005: In 2005, there were two positive systematic reviews published in Pain Physician that stated that the evidence was moderate for short-term and limited for long-term improvement using this intervention. (Boswell, 2005) (Boswell, 2005) These results were based, in part, on five observational studies. These non-controlled studies were confounded by variables such as lack of confirmation of diagnosis by dual blocks and recording of subjective pain relief, or with measures that fell under verbal rating and/or pain relief labels (measures that have been reported to have problems with validity). (Edwards, 2005)

Pain Physician, 2007: Pain Physician again published a systematic review on this subject in 2007 and added one additional randomized trial comparing intra-articular injections with sodium hyaluronate to blocks with triamcinolone acetone. The diagnosis of facet osteoarthritis was made radiographically. (Fuchs, 2005) Two randomized trials were not included, in part because they failed to include controlled diagnostic blocks. These latter articles were negative toward the use of therapeutic facet blocks. (Lilius, 1989) (Marks, 1992) An observational non-controlled study with positive results was included that made the diagnosis of lumbar facet syndrome based on clinical assessment of "pseudoradicular" lumbar pain, including evidence of an increase of pain in the morning and with excessive stress and exercise (no diagnostic blocks were performed). (Schulte, 2006) With the inclusion of these two articles, the conclusion was changed so that the evidence for lumbar intra-articular injections was "moderate" for both short-and long-term improvement of low back pain. (Boswell2, 2007)

Complications: These included suppression of the hypothalamic-pituitary-adrenal axis for up to 4 weeks due to steroids with resultant elevated glucose levels for less than a week. (Ward, 2002) There have been rare cases of infection (septic arthritis, epidural abscess and meningitis). (Cohen, 2007) Complications from needle placement include dural puncture, spinal cord trauma, intra-arterial and intravenous injection, spinal anesthesia, neural trauma, pneumothorax, and hematoma formation. (Boswell2, 2007)

Single photon emission computed tomography: (bone scintigraphy, SPECT scan): Not recommended, although recent research is promising. This technique is recommended based on the ability of radionuclide bone scintigraphy to detect areas of increased function, depicting synovial areas of inflammation as well as degenerative changes. Thirteen of 15 patients had a > 1 standard deviation pain score improvement at 1 month versus 7 of 32 patients with a negative or no scan. The benefit of the injection lasted for approximately 3 months and did not persist to 6 months. (Pneumaticos2, 2006)

ODG Neck and Upper Back (updated 01/30/17) - Online Version

Facet joint diagnostic blocks

Recommended prior to facet neurotomy (a procedure that is considered "under study").

Criteria for the use of diagnostic blocks for facet nerve pain:

Clinical presentation should be consistent with facet joint pain, signs & symptoms.

1. One set of diagnostic medial branch blocks is required with a response of 70%. The pain response should be approximately 2 hours for Lidocaine.
2. Limited to patients with cervical pain that is non-radicular and at no more than two levels bilaterally.

3. There is documentation of failure of conservative treatment (including home exercise, PT and NSAIDs) prior to the procedure for at least 4-6 weeks.
4. No more than 2 joint levels are injected in one session (see above for medial branch block levels).
5. Recommended volume of no more than 0.5 cc of injectate is given to each joint, with recent literature suggesting a volume of 0.25 cc to improve diagnostic accuracy.
6. No pain medication from home should be taken for at least 4 hours prior to the diagnostic block and for 4 to 6 hours afterward.
7. Opioids should not be given as a "sedative" during the procedure.
8. The use of IV sedation may be grounds to negate the results of a diagnostic block, and should only be given in cases of extreme anxiety.
9. The patient should document pain relief with an instrument such as a VAS scale, emphasizing the importance of recording the maximum pain relief and maximum duration of pain. The patient should also keep medication use and activity logs to support subjective reports of better pain control.
10. Diagnostic facet blocks should not be performed in patients in whom a surgical procedure is anticipated.
11. Diagnostic facet blocks should not be performed in patients who have had a previous fusion procedure at the planned injection level.
12. It is currently not recommended to perform facet blocks on the same day of treatment as epidural steroid injections or stellate ganglion blocks or sympathetic blocks or trigger point injections as this may lead to improper diagnosis or unnecessary treatment.

Diagnostic blocks are performed with the anticipation that if successful, treatment may proceed to facet neurotomy at the diagnosed levels. Current research indicates that a minimum of one diagnostic block be performed prior to a neurotomy, and that this be a medial branch block (MBB). Although it is suggested that MBBs and intra-articular blocks appear to provide comparable diagnostic information, the results of placebo-controlled trials of neurotomy found better predictive effect with diagnostic MBB. In addition, the same nerves are tested with the MBB as are treated with the neurotomy. The use of a confirmatory block has been strongly suggested due to the high rate of false positives with single blocks (range of 27% to 63%) but this does not appear to be cost effective or to prevent the incidence of false positive response to the neurotomy procedure itself.

Technique: The described technique of blocking the medial branch nerves in the C3-C7 region (C3-4, C4-5, C5-6, and C6-7) is to block the named medial branch nerves (two injections). Authors have described blocking C2-3 by blocking the 3rd occipital nerve. Another technique of blocking C2-3 is to block at three injection points (vertically over the joint line, immediately above the inferior articular facet at C2 and immediately below the superior articular facet at C3). (Barnsley, 1993) The medial branch nerve innervates the facet joint, facet capsular ligaments, the interspinous and supraspinous ligaments, spinous processes and paraspinal muscles. Relief of pain could be due to blockade of nociceptive input from any combination of these. It is suggested that the volume of injectate for diagnostic medial branch blocks be kept to a minimum (a trace amount of contrast with no more than 0.5 cc of injectate) as increased volume may anesthetize these other potential areas of pain generation and confound the ability of the block to accurately diagnose facet pathology. A recent study has recommended that the volume be limited to 0.25 cc.

Epidemiology of involved levels: Using cadaver evidence facet arthrosis most commonly affects the upper cervical levels, and increased with age, and was very rare in patients less than 40 years of age. C4-5 is the most common level followed by C3-4 and C2-3. This study did not attempt to identify number of levels of involvement.

(Lee, 2009)

Number of levels of involvement: In a randomized controlled trial of therapeutic cervical medial branch blocks it was stated that 48% of patients had 2 joints involved and 52% had three joints involved. (Manchikanti, 2008) These levels were identified by the pain pattern, local or paramedian tenderness over the area of the facet joint, and

reproduction of pain to deep pressure. (Manchikanti, 2004) Other prevalence studies from this group also indicated that the majority of patients with cervical involvement were treated at three joints. Target joints were identified as noted above. (Manchikanti, 2004). There are no studies that have actually tested levels of involvement using individual injections for diagnostic verification.

(Lord, 1996) (Washington, 2005) (Manchikanti, 2003) (Dreyfuss, 2003) (Falco, 2009) (Nordin, 2009) (Cohen, 2010) See the Low Back Chapter for further references.

Complications: See Facet joint therapeutic steroid injections.

ODG Neck and Upper Back (updated 01/30/17) - Online Version

Facet joint therapeutic steroid injections

Not recommended.

Therapeutic intra-articular and medial branch blocks are Not Recommended by ODG. However, if the provider and payer agree to perform anyway, the following criteria should be met:

Clinical presentation should be consistent with facet joint pain, signs & symptoms.

1. There should be no evidence of radicular pain, spinal stenosis, or previous fusion.
2. If successful (initial pain relief of 70%, plus pain relief of at least 50% for a duration of at least 6 weeks), the recommendation is to proceed to a medial branch diagnostic block and subsequent neurotomy (if the medial branch block is positive).
3. When performing therapeutic blocks, no more than 2 levels may be blocked at any one time.
4. If prolonged evidence of effectiveness is obtained after at least one therapeutic block, there should be consideration of performing a radiofrequency neurotomy.
5. There should be evidence of a formal plan of rehabilitation in addition to facet joint injection therapy.
6. No more than one therapeutic intra-articular block is recommended.

Intra-articular blocks: No reports from quality studies regarding the effect of intra-articular steroid injections are currently known. There are also no comparative studies between intra-articular blocks and rhizotomy. (Falco, 2009) (van Eerd, 2010) There is one randomized controlled study evaluating the use of therapeutic intra-articular corticosteroid injections. The results showed that there was no significant difference between groups of patients (with a diagnosis of facet pain secondary to whiplash) that received corticosteroid vs. local anesthetic intra-articular blocks (median time to return of pain to 50%, 3 days and 3.5 days, respectively). (Barnsley, 1994)

Medial branch blocks: This procedure is generally considered a diagnostic block. There is one randomized controlled trial (RCT) comparing the effect of medial branch blocks with bupivacaine alone to blocks with the same local anesthetic plus steroid (60 patients in each group). No placebo arm was provided. Patients with radicular symptoms were excluded. Patients with uncontrolled major depression or psychiatric disorders and those with heavy opioid use were also excluded. Pain reduction per each individual block in both groups ranged from 14 to 16 weeks. It was opined that there was no role for steroid in the blocks, and the mechanism for the effect of local anesthetic only could only be speculated on. It was also noted that blocks were required 3 to 4 times a year for continued pain relief. (Manchikanti, 2008)

Complications: Low rates of infection, dural puncture, spinal cord trauma, spinal anesthesia, chemical meningitis, neural trauma, pneumothorax, radiation exposure, facet capsule rupture, hematoma formation and side effects of steroids. Fluoroscopy is recommended to avoid arterial, intrathecal, or spinal injection. (van Eerd, 2010) (Nelemans-Cochrane, 2000) (Manchikanti, 2004) (Manchikanti, 2003) (Boswell, 2007) (Falco, 2009) (Manchikanti, 2008) (Manchikanti, 2009a) (Carragee, 2009)

## **REFERENCE(S)**

1. ODG Low Back (updated 05/12/17) - Online Version
2. ODG Neck and Upper Back (updated 01/30/17) - Online Version