BlueCross BlueShield of Alabama

Name of Policy:

Sacroiliac Joint (SI) Injections, Facet Joint Injections, Trigger Point Injections, and Epidural Injections of Corticosteroids and/or Local Anesthetics

Policy #: 303
Category: Surgical
Latest Review Date: June 2011
Policy Grade: B

Background/Definitions:

As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. *The technology must have final approval from the appropriate government regulatory bodies;*
2. *The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;*
3. *The technology must improve the net health outcome;*
4. *The technology must be as beneficial as any established alternatives;*
5. *The improvement must be attainable outside the investigational setting.*

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. *In accordance with generally accepted standards of medical practice; and*
2. *Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient's illness, injury or disease; and*
3. *Not primarily for the convenience of the patient, physician or other health care provider; and*
4. *Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.*

Description of Procedure or Service:

Sacroiliac (SI) joint blocks are injections that are primarily used for diagnosing and treating the low back pain associated with sacroiliac joint dysfunction. The SI joint lies next to the spine and connects the sacrum, the triangular bone at the base of the spine, with the pelvis. The sacroiliac facet joints are a small joint in the region of the low back and buttocks where the pelvis actually joins with the spine. If the joints become painful they may cause pain in the low back, buttocks, abdomen, groin or legs.

A sacroiliac joint injection serves several purposes. First, by placing a local anesthetic into the joint, the amount of immediate pain relief experienced will help confirm or rule out the joint as a source of pain. Also, time release corticosteroids will help to reduce any inflammation that may exist within the joint(s).

During SI joint injection the patient is placed in the prone position. The injection site is prepped in a sterile manner. Radiographic guidance with CT or fluoroscopy is used. If fluoroscopy is used the C-arm is rotated until the medial (posterior) joint line is seen. The skin of the patient's buttock is injected with a local anesthetic agent 1 to 3 cm inferior to the lowest aspect of the joint. Using radiographic guidance, a spinal needle is inserted until the needle rests 1 cm above the most posteroinferior aspect of the joint. The spinal needle is advanced into the sacroiliac joint until capsular penetration occurs. Intraarticular placement is confirmed radiographically. A mixture of anesthetic agent with corticosteroids is injected into the joint. A set of SI joint injections i.e., up to two joints may be injected depending on location of the patient's pain to diagnose and achieve a therapeutic effect.

Facet joints, located on either side of the vertebrae, give the spine its flexibility. They are paired (right and left) and are surrounded by a joint capsule. Like other joints, the facet joints can be a source of pain when they become irritated or inflamed. Facet joints may also be referred to as zygapophysial joints.

A facet joint injection serves as both a diagnostic tool and a type of treatment. A set of facet joint injections means injections in up to 4 levels performed in one sitting. Up to four sets of facet injections may be performed to diagnose the origin of a patient's pain and achieve a therapeutic effect.

Either intraarticular or medial branch blocks can be used for diagnostic and/or therapeutic purposes. With intraarticular facet joint injections, the physician will place a needle into the joint capsule. Needle placement is guided by placement of a needle into the "ear of the Scottie dog" (i.e., superior articulating process of the vertebrae) on oblique fluoroscopic imaging in the lumbar and thoracic spine. Then, a local anesthetic agent with or without corticosteroids is injected through the needle.

Because there is dual innervation of each lumbar facet joint, two medial branch blocks are required. Using anteroposterior fluoroscopic imaging, the target transverse process is identified. To ensure optimal spinal needle placement, the C-arm is positioned so that the fluoroscopy beam is ipsilateral oblique and the "Scotty dog" is seen. The spinal needle is similarly positioned in the middle of the "eye of the Scotty dog" (i.e., the pedicle of the vertebrae). Then, a local anesthetic agent with or without corticosteroids is injected.

If the patient feels pain relief immediately after intraarticular or medial branch blocks, this confirms that the facet joint was the source of pain. Pain may return after local anesthetic effect ends. Usually it takes about a week to reduce inflammation and pain. Pain relief can last up to several months.

Trigger point injections (TPIs) are used to treat extremely painful areas of muscle. Normal muscle contracts and relaxes when it is active. A trigger point is a knot or tight, ropy palpable band of muscle that forms when muscle fails to relax. The knot often can be felt under the skin and may twitch involuntarily when touched (called a jump sign or local twitch response).

The trigger point can trap or irritate surrounding nerves and cause referred pain. Scar tissue, loss of range of motion, and weakness may develop over time.

TPIs are used to alleviate myofascial pain syndrome (chronic pain involving tissue that surrounds muscle) that does not respond to other treatment, although there is some debate over its effectiveness. Many muscle groups, especially those in the arms, legs, lower back, and neck, are treated by this method. TPIs also can be used to treat fibromyalgia and tension headaches.

During trigger point injections, the patient may be positioned in a recumbent position for the prevention of syncope, assistance in patient relaxation, and decreased muscle tension. The trigger point must then be identified correctly. The palpable band is considered critical in the identification of the trigger point. The physician may mark the trigger point depending on his or her preference. Then, the skin is prepared in a sterile fashion. One common skin preparation technique is to cleanse the skin with a topical alcohol solution followed by a preparation with povidone-iodine.

Once the skin is prepared and the trigger point is identified, the overlying skin is grasped between the thumb and index finger or between the index and middle finger. The needle is inserted approximately 1 to 1.5 cm away from the trigger point to facilitate the advancement of the needle into the trigger point at a 30° angle. A "fast-in, fast-out" technique should be used to elicit a local twitch response (LTR). After entering the trigger point, the needle should be aspirated to ensure that a local blood vessel has not been violated. If the physician chooses to inject an agent, a small volume should be injected at this time. Injection of medication inactivates the trigger point and thus alleviates pain. Dry-needling, not to be confused with acupuncture, without anesthetic or saline can also be effective. The therapeutic effect of dry needle stimulations relies on mechanical disruption or direct stimulation of trigger points. Trigger point injections may be given in sets (i.e., several injections in one setting).

Sustained relief usually is achieved with a brief course of treatment. The injection may cause a twitch or pain that lasts a few seconds to a few minutes.

Epidural steroid injections (ESIs) with or without local anesthetics have been endorsed by the North American Spine Society and the Agency for Health Care Policy and Research as a part of nonsurgical management of radicular pain from lumbar spine disorders. Radicular pain is described as a sharp, lancinating, and radiating pain, often shooting from the low back down into

the lower extremity in a radicular distribution. Radicular pain is the result of a nerve root lesion or inflammation. ESIs have been recommended to deliver steroids in a more localized fashion to the area of affected nerve roots, thereby decreasing the systemic effect of the administered steroid. Studies have indicated that ESIs are most effective in the presence of acute nerve root inflammation. Clinical manifestations of nerve root inflammation include some or all of the following: radicular pain, dermatomal hypesthesia or hyperesthesia, weakness of muscle groups innervated by the involved nerve roots, diminished deep tendon reflexes, and positive straight leg-raising tests.

ESIs can provide both diagnostic and therapeutic benefits. Diagnostically, ESIs may help identify the region and spinal column of potential pain generation through pain relief after local anesthetic injection to the site of presumed anatomic pathology. In addition, if the patient receives several weeks or more of pain relief, then it may be reasonable to assume that an element of inflammation was involved in his or her pathophysiology. This last element of diagnostic information is also the therapeutic element. Since prolonged pain relief is presumed to be due to a reduction in an inflammatory process, it is also reasonable to assume that during the prolonged pain relief, the affected nerve roots are also relatively protected from the deleterious effects of inflammation.

Cervical, thoracic, and lumbar epidural injections can be approached through interlaminar and transforaminal injections. Lumbar epidural injection can be performed using three approaches. Translaminar epidural injection refers to injection into the interlaminar space of the spine. The interlaminar epidural injection can be performed through paramedian or midline approaches. The epidural needle penetrates skin, subcutaneous tissue, paraspinal muscles (paramedian approach) or interspinous ligament (midline approach), and ligamentum flavum. Transforaminal approach is performed by placing the needle in the neural foramen lateral to the nerve. The needle is directed in an oblique approach until the tip of the needle touches the posterior lateral portion of the vertebral body, located superior to the intervertebral foramen just under the pedicle. Caudal lumbar epidural injections may be performed by inserting a needle through the sacral hiatus into the epidural space at the sacral canal.

Policy:

Effective for dates of service on or after January 1, 2010:

Facet/Zygapophysial Joint Injections

Facet joint injections meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when:

- Performed under radiographic guidance (i.e., fluoroscopy or CT); **and**
- Patient has a history of back pain which has not responded to conservative therapy; **and**
- Used as a diagnostic trial to help determine the origin of the patient's pain, establish effectiveness of facet injections in relieving pain, and to achieve a therapeutic effect.

Subsequent facet injections do not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage **when the patient does not experience any symptom relief or functional improvement**.

Up to **4 facet joint injections per affected level** within a **12 month** period **meet** Blue Cross and Blue Shield of Alabama's medical criteria for **once a diagnosis is established and the patient experiences symptom relief or functional improvement**.

Additional injections will be covered on an **individual case basis** if the patient sustains an **additional acute injury**. Medical records must clearly document date, type, and location of injury.

Facet joint injections using ultrasound guidance **does not** meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Trigger Point Injections

Trigger point injections (i.e., injections in several trigger points in one sitting) meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage for chronic neck or back pain or myofascial pain syndrome when:

- Trigger points have been identified by palpation on physical examination; **and**
- Symptoms have persisted despite failure of conservative therapies (i.e., heating or cooling modalities, NSAIDS, analgesics); **and**
- In the treatment or therapeutic phase, further injections are covered only if the previous diagnostic injections provided at least **50% relief of pain**.

Use of **corticosteroids** in **more than four injections** during a set of trigger point injections **does not meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Additional trigger point injections do not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when the **patient does not experience symptom relief.**

Ultrasound guidance and/or diagnostic ultrasound of trigger points prior to or **concurrent with trigger point injections does not meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Epidural Injections of Corticosteroids

Epidural injections of corticosteroids with or without an anesthetic agent performed with imaging guidance meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when:

- Pain symptoms have been evaluated by physical examination, EMG, or radiographic imaging; **and**
- Except in cases of acute disc injury documented on imaging studies, patient's pain symptoms have failed to improve after **at least two weeks of conservative therapy,** (e.g., rest, systemic analgesics, systemic steroids, physical/chiropractic therapy, etc.);.

Up to 4-6 epidural injections (per region i.e. cervical, thoracic, lumbar, or sacral) within a **12 month** period **meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage. **Epidural injections of corticosteroids with or without an anesthetic agent performed without imaging guidance do not meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Additional injections will be covered on an **individual case basis** if the patient sustains an **additional acute injury**. Medical records must clearly document date, type, and location of injury.

Above coverage requirements do not apply to epidural injections performed for pain management during labor/delivery or surgical procedures or for post-operative pain.

Effective for dates of services on or after February 15, 2011:
Injection into the sacroiliac joint for diagnostic or therapeutic purposes meets Blue Cross and Blue Shield of Alabama's medical criteria for coverage when **all** the following indications are met:

- Performed under imaging guidance; **and**
- Somatic or nonradicular low back and lower extremity pain below the level of L5 vertebra; **and**
- Duration of pain of at least 3 months; **and**
- Average pain levels of > 6 on a scale of 0 to 10; **and**
- Intermittent or continuous pain causing functional disability; **and**
- Failure to respond to more conservative management, including physical therapy modalities with exercises, chiropractic management, and non-steroidal anti-inflammatory agents; **and**
- Lack of obvious evidence for disc-related or facet joint pain; **and**
- No contraindications with understanding of consent, nature of the procedure, needle placement, or sedation; **and**
- No history of allergy to contrast administration, local anesthetics, steroids, or other drugs potentially utilized; **and**
- Contraindications or inability to undergo physical therapy, chiropractic management, or inability to tolerate non-steroidal anti-inflammatory drugs; **and**
- For therapeutic sacroiliac joint interventions with intra-articular injections or radiofrequency neurotomy, the joint should have been positive utilizing controlled diagnostic blocks.

Arthrography of the sacroiliac joint does not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage and is considered **investigational.**

Effective for dates of service September 4, 2007 through February 14, 2011:
Sacroiliac (SI) Joint Injections
Sacroiliac (SI) joint injections meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when:

- Performed under radiographic guidance (i.e., fluoroscopy or CT); **and**
- Patient has a history of back pain which has not improved with conservative treatment.

For patients with unilateral pain, up to **4 SI joint injections** within a **12 month** period meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage **once a diagnosis is established.**

For patients with bilateral pain, up to **4 sets of SI joint injections** within a **12 month** period **meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage **once a diagnosis is established**.

Additional sacroiliac (SI) joint injections do not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when the **patient does not experience any symptom relief or functional improvement after two diagnostic sacroiliac joint injections.**

Additional injections will be covered on an **individual case basis** if the patient sustains an **additional acute injury**. Medical records must clearly document date, type, and location of injury.

Facet/Zygapophysial Joint Injections

Facet joint injections meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when:

- Performed under radiographic guidance (i.e., fluoroscopy or CT); **and**
- Patient has a history of back pain which has not responded to conservative therapy; **and**
- Used as a diagnostic trial to help determine the origin of the patient's pain, establish effectiveness of facet injections in relieving pain, and to achieve a therapeutic effect.

Subsequent ~~additional~~ facet injections do not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage **when the patient does not experience any symptom relief or functional improvement**.

Up to **4 facet joint injections per affected level** within a **12 month** period **meet** Blue Cross and Blue Shield of Alabama's medical criteria for **once a diagnosis is established and the patient experiences symptom relief or functional improvement**.

Additional injections will be covered on an **individual case basis** if the patient sustains an **additional acute injury**. Medical records must clearly document date, type, and location of injury.

Facet joint injections using ultrasound guidance **does not** meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Trigger Point Injections

Trigger point injections (i.e., injections in several trigger points in one sitting) meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage for chronic neck or back pain or myofascial pain syndrome when:

- Trigger points have been identified by palpation on physical examination; **and**
- Symptoms have persisted despite failure of conservative therapies (i.e., heating or cooling modalities, NSAIDS, analgesics); **and**
- In the treatment or therapeutic phase, further injections are covered only if the previous diagnostic injections provided at least **50% relief of pain**.

Use of **corticosteroids** in **more than four injections** during a set of trigger point injections **does not meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Additional trigger point injections do not meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when the **patient does not experience symptom relief.**

Ultrasound guidance and/or diagnostic ultrasound of trigger points prior to or **concurrent with trigger point injections does not meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Epidural Injections of Corticosteroids

Epidural injections of corticosteroids with or without an anesthetic agent meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage when:

- Pain symptoms have been evaluated by physical examination, EMG, or radiographic imaging; **and**
- Except in cases of acute disc injury documented on imaging studies, patient's pain symptoms have failed to improve after **at least two weeks of conservative therapy,** (e.g., rest, systemic analgesics, systemic steroids, physical/chiropractic therapy, etc.); **and**
- *****Except in cases of previous back surgery, initial epidural injections are covered when performed without radiographic guidance (i.e., fluoroscopy or CT). If initial epidural without radiographic guidance does not relieve patient's pain symptoms subsequent epidural injections are covered only when performed with radiographic guidance.

Up to 4-6 epidural injections (per region i.e. cervical, thoracic, lumbar, or sacral) within a **12 month** period **meet** Blue Cross and Blue Shield of Alabama's medical criteria for coverage.

Additional injections will be covered on an **individual case basis** if the patient sustains an **additional acute injury**. Medical records must clearly document date, type, and location of injury.

Above coverage requirements do not apply to epidural injections performed for pain management during labor/delivery or surgical procedures or for post-operative pain.

Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administer benefits based on the members' contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

Epidural Injections of Corticosteroids and/or Local Anesthetic Agents

Epidural injections in the cervical, thoracic, and lumbosacral spine were developed to diagnose and treat spinal pain. Information obtained from epidural injections can be helpful in confirming pain generators that are responsible for a patient's discomfort. Structural abnormalities do not always cause pain and diagnostic injections can help to correlate abnormalities seen on imaging studies with associated pain complaints. In addition, epidural injections can provide pain relief during the recovery of disc or nerve root injuries and allow patients to increase their level of physical activity. Because severe pain from an acute disc injury with or without radiculopathy often is time-limited, therapeutic injections help to manage pain and may alleviate or decrease the need for oral analgesics.

The efficacy of epidural injections is not reliably known because of the lack of well-controlled studies. Inconsistencies in indications and protocols are striking among reports, and many epidural steroid injection studies were done without fluoroscopic-guided needle placement to confirm correct positioning, adding another variable to the interpretation of the results.

The use of fluoroscopy for diagnostic and therapeutic epidural injections is commonly recommended for several reasons. As early as 1980, studies were published showing that needle placement without fluoroscopy during epidural injections was incorrect 25% of the time in experienced hands.

In their 1991 article in the American Journal of Neuroradiology, Renfrew et al. stated, "*Even when the sacral hiatus was easily palpated and a staff physician was confident that he or she was within the epidural space, fluoroscopy revealed incorrect placement 14.2% of the time…The presence of blood on the needle stylus was not a reliable indicator of venous placement of the needle. Our findings indicate that fluoroscopy is essential for correct placement of epidural steroid injection."*

In 1999, Fredman et al. published a study in *Anesthesia and Analgesia* asking "Is Fluoroscopy Really Necessary". Fifty patients were included in the prospective study. The authors found that, "*fluoroscopy revealed that needle placement at a predetermined intervertebral space is unreliable when based on surface anatomy alone. Of the 47 patients in whom the epidural space was located, fluoroscopy revealed that blinded needle placement at the predetermined intervertebral space was successful in only 22 (47%) patients. This study did suggest that air loss of resistance technique is a reliable indication of successful epidural space penetration in most cases of failed back surgery syndrome."*

Manchikanti et al. noted, *"…when using a blind interlaminar technique, one may erroneously miss the targeted interspace by one or two levels…Other potential difficulties encountered with lumbar epidural injections include congenital abnormalities, postsurgical spine and target specific placement of injectate at L5/S1. Hence, transforaminal epidural injections have been considered the most advantageous in reaching the cardinal site of the pathology* ***under direct fluoroscopic visualization*** *with an extremely low dose of steroids…without the use of fluoroscopy and epidurography, additional risks can be foreseen with epidural steroid injections because of the increased potential for dural puncture, subarachnoid injection, and intravascular*

injections with associated complications…In fact, there will be tremendous cost savings by insuring that the epidural space has in fact been reached, thereby reducing failures by as much as 50% to 60% by avoiding misinjection."

White et al. reported that when experienced physicians performed blinded needle placement for lumbar epidural steroid injection, they were successful in only 25% of cases. In addition, El-Khoury et al. reported a 97.5% success rate when caudal epidural steroid administration was routinely performed under fluoroscopic control.

In their peer reviewed web article, *Epidural Steroid Injections*, Chen and Foye recommended that epidural steroid injections (ESIs) be performed under fluoroscopic guidance and with radiographic contrast documenting appropriate placement in order to improve safety, accuracy, and potential efficacy of ESIs.

In their 2005 meta-analysis Bartynski, et al. concluded that accuracy of steroid placement is crucial in establishing treatment efficacy of the lumbar epidural steroid injection. Simple loss of air pressure resistance is an inadequate method of establishing needle-tip positioning in the posterior epidural space. Fluoroscopy or CT guidance is essential to establish correct needle-tip location.

In his 2004 American Society of Anesthesiologists (ASA) Refresher Courses in Anesthesiology, Deer states, *"In experienced hands, the ability to enter the epidural space by the translaminar or caudal route without fluoroscopic imaging is unexpectedly poor. In 25% to 35% of the patients, the doctor did not reach the correct location when using the blind technique. This success of blind techniques decreases to around 50% in the cervical spine. Based on this information, the author recommends using fluoroscopic imagery whenever possible for performing any spinal injection technique. This becomes the standard of care when performing facet joint, and transforaminal injections, discography, and implantable therapies."*

Canale: Campbell's Operative Orthopaedics recommends, "*The use of fluoroscopy for diagnostic and therapeutic epidural injections for several reasons. Epidural injections performed without fluoroscopic guidance are not always made into the epidural space or the intended interspace.* ***Even in experienced hands, needle misplacement occurs in up to 40% of caudal and 30% of lumbar epidural injections when done without fluoroscopic guidance.*** *Accidental intravascular injections also can occur, and the absence of blood return with needle aspiration before injection is not a reliable indicator of this complication. In the presence of anatomical anomalies, such as a midline epidural septum or multiple separate epidural compartments, the desired flow of epidural injectants to the presumed pain generator will be restricted and remain undetected without fluoroscopy. In addition, if an injection fails to relieve pain, it would be impossible without fluoroscopy to determine whether the failure was caused by a genuine poor response or by improper needle placement.*

When identifying the epidural space prior to a steroid injection, the use of fluoroscopy improves the accuracy of needle placement and the subsequent delivery of steroid medication directly to the identified pathological area. ***With fluoroscopic guidance, fewer attempts will be needed to find the epidural space, which means less discomfort for patients, and a finally accurate***

placement in virtually 100% of cases. *The need to sedate patients because of anxiety is also reduced with the use of fluoroscopy, and patients who are conscious are better able to report on the process they are undergoing. This reduces the level of risk to the patient during injection. Use of fluoroscopy during epidural steroid injection procedures allows for more accurate injections and reduces the amount of pain experienced by patients. Without fluoroscopic guidance, practitioners have reduced awareness of false positive LORs, of unilateral distribution of contrast (and subsequent spread of steroid solution), of inaccurate needle placement, and of inaccurate medication placement. Fluoroscopic guidance enables accurate placement of steroid medication and the potential for more effective pain management."*

Few serious complications occur in patients receiving epidural corticosteroid injections; however, epidural abscess, epidural hematoma, durocutaneous fistula, and Cushing syndrome have been reported as individual case reports. The most adverse immediate reaction during an epidural injection is a vasovagal reaction. Dural puncture has been estimated to occur in 0.5% to 5% of patients having cervical or lumbar epidural steroid injections. Headache without dural puncture has been estimated to occur in 2% of patients and is attributed to air injected into the epidural space, increased intrathecal pressure from fluid around the dural sac, and possibly an undetected dural puncture. Some of the minor, more common complaints caused by corticosteroid injected into the epidural space include non-positional headaches, fascial flushing, insomnia, low-grade fever, and transient increased back or lower extremity pain. Epidural corticosteroid injections are contraindicated in the presence of infection at the injection site, systemic infection, bleeding diathesis, uncontrolled diabetes mellitus, and congestive heart failure. It is generally accepted among pain medicine practitioners that epidural steroid injections should be limited to four to six injections per year, except in cases of additional acute injury, to avoid long-term side effects of corticosteroids.

2010 Update:
The 2011 edition of Current Procedural Terminology (CPT®) includes the following regarding epidural injections:
"Imaging guidance (fluoroscopy or CT) and any injection of contrast are inclusive components of 64479-64484. Imaging guidance and localization are required for the performance of 64479-64484).

<u>Sacroiliac (SI) Joint Injections</u>
The most common presenting symptom in patients with sacroiliac dysfunction is pain or tenderness over the sacroiliac joint posteriorly. Radiation may occur into the buttock, groin, posterior proximal thigh, and occasionally, lower leg. Pain is often worse with long periods of sitting or standing, turning in bed, or stepping up on the affected leg. This makes it difficult to differentiate from other causes of low back pain, such as a lumbar herniated disc or facet syndrome. Pain may be noted in the buttock, thigh, calf, and foot in patients with sacroiliac dysfunction. Nonpharmacologic therapies, including reduced activity, weight loss, supports and braces, and physiotherapy are important initial steps in managing patients who have joint disease. Joint injections should be considered after other therapeutic interventions such as nonsteroidal anti-inflammatory (NSAID) drugs have been tried

Fluoroscopically controlled sacroiliac joint injections with anesthetic or steroid are considered by some to be the "gold standard" in both diagnosing and treating sacroiliac joint dysfunction. There is still debate as to the long-term pain relief from epidural and intra-articular facet joint injections, and no controlled studies have examined the long-term effects of SI joint injections. Additional investigation is certainly warranted to evaluate further the long-term benefits and determine which patients would benefit the most from these injections. Current evidence validates that these injections provide temporary relief of low back and radicular leg pain up to several months, if not longer. This duration of pain relief creates an opportunity to maximize rehabilitation efforts while symptoms are minimal. Complications from steroid injections include skin depigmentation, fatty atrophy, and/or infection. Additionally, repetitive use of steroids around the SI joint may cause cartilage breakdown within this mobile joint, further restricting motion.

2010 Update:
There is minimal literature regarding sacroiliac joint blocks. Schwarzer et al reported on a case series of 43 patients with unexplained low back pain below L5-S1. These 43 patients were chosen opportunistically from a larger group of patients referred for discography or zygahypophyseal joint blocks. Thus all patients underwent multiple procedures. A total of 13 of the 43 patients (30%) reported relief of their pain with sacroiliac joint blocks. There were no blinded controls, although the authors felt that the use of pain blocks at the zygahypophyseal joints functioned as internal controls. The authors concluded that these results refuted the null hypothesis that sacroiliac joint pain does not exist and that sacroiliac joint blocks should be further investigated as a criterion standard for the diagnosis of sacroiliac joint pain. Maigne et al reported on a series of 54 patients with low back pain who received double sacroiliac joint block. The first block used lidocaine, a short-acting anesthetic. If the patient reported pain relief, a second, confirmatory block was performed one week later using a long-acting anesthetic. If similar relief was obtained with the second block, it was concluded that the sacroiliac joint was the source of the pain. A total of 18% of patients met these criteria. Similar to the Schwarzer study, this study was designed primarily to demonstrate that sacroiliac pain exists and to assess its prevalence.

Searches of the literature were performed on the MEDLINE database through October 2009. One publication focused on the technique of sacroiliac joint injection. Several other retrospective case series have been reported. One case series reported results of diagnostic/therapeutic blocks in patients who were referred for low back pain and disc herniation without claudication or neurological abnormalities. Fifty patients who had at least three positive pain provocation tests for sacroiliac joint dysfunction received sacroiliac injection of bupivacaine and betamethasone. Pain, assessed by visual analogue scores (VAS), improved from 7.8 to 1.3 at 30 minutes after the injection. At a 12-week follow-up, 46 patients (92%) reported VAS scores of 3 or less. Four patients required hospitalization for an unanticipated motor block. A placebo-controlled randomized trial examined the effect of lateral branch radiofrequency denervation in 28 patients with injection-diagnosed sacroiliac joint pain. Two of 14 patients (14%) in the placebo-control group reported pain relief at 1-month follow-up. None reported benefit at 3-month follow-up. Of the 14 patients treated with radiofrequency denervation, 11 (79%) reported pain relief at one month, 9 (64%) at three months, and eight (57%) at six months. Questions remain about intra-articular versus peri-articular sources of

sacroiliac pain. One prospective comparison found that periarticular lidocaine injections (25 of 25 patients) were more effective than intra-articular injection (9 of 25 patients).

There is limited prospective or controlled evidence for sacroiliac joint arthrography or injection therapy. It should be noted that, in general, the literature regarding injection therapy on other joints in the back is of poor quality. Overall, sacroiliac arthrography and injection have not been adequately evaluated. Evidence is insufficient to permit conclusions regarding the effect of this procedure on health outcomes.

The American Society of Interventional Pain Physicians (ASIPP) derived their updated guideline on a systematic review of sacroiliac injections by Manchikanti et al and Rupert et al. This systematic review included 13 studies utilizing fluoroscopically guided controlled diagnostic blocks (i.e., placebo-controlled or comparative local anesthetic) in patients with chronic low back and/or lower extremity pain for greater than 3 months in duration. Five studies, considered level II-2 evidence (well-designed cohort or case-control studies), were reviewed on the topic of diagnosis of sacroiliac joint pain using a double-block paradigm (comparative controlled local anesthetic blocks). The false positive rate for use of a single, uncontrolled, sacroiliac joint injection was 20% to 54%. With a double-block paradigm, the prevalence of sacroiliac joint pain was estimated to range between 10% and 38% in patients with a high likelihood of sacroiliac joint pain. Interpretation of these results is limited by the lack of a "gold" standard for reference comparison. ASIPP concluded that sacroiliac joint blocks appear to be the evaluation of choice to provide appropriate diagnosis, due to the inability to make the diagnosis of sacroiliac joint-mediated pain with noninvasive tests.

For therapeutic intra-articular sacroiliac joint interventions, four randomized trials were excluded from review due to a lack of a valid diagnosis prior to therapeutic interventions. None of the 14 observational reports met the inclusion criteria, due to lack of controlled diagnostic blocks to establish diagnosis, evaluating only patients with spondyloarthropathy, or not following patients for six months. Limitations were noted as a paucity of literature evaluating the role of both diagnostic and therapeutic interventions and widespread methodological flaws.

Practice guidelines from the American Pain Society (APS) were based on a systematic review that was commissioned by the APS and conducted at the Oregon Evidence-Based Practice Center. The systematic review concluded that no reliable evidence existed to evaluate validity or utility of diagnostic sacroiliac joint block as a diagnostic procedure for low back pain with or without radiculopathy, but guideline indications were recommended.

Clinical Input Received through Physician Specialty Societies and Academic Medical Centers

In response to requests by the Blue Cross and Blue Shield Association, input was received from four physician specialty societies and three academic medical centers while this policy was under review in 2010. Clinical input was mixed. There was general agreement that the evidence for sacroiliac joint injections is limited, although a majority of reviewers considered sacroiliac injections to be the best available approach for diagnosis and treatment in defined situations.

Technology Assessments, Guidelines and Position Statements

In 2007, ASIPP published Systematic Review and Practice Guidelines, including sacroiliac joint interventions. Evidence was determined to be moderate (level III, non-randomized comparative trials) for the accuracy of sacroiliac joint diagnostic injections for the diagnosis of sacroiliac joint pain. The authors report that "even though short-term relief from sacroiliac joint

injection is considered as a gold standard for the diagnosis of sacroiliac joint pain, there was no blinded comparison of the test or reference standard in evaluation of these investigations." The evidence for intra-articular sacroiliac joint injections for short- and long-term relief was found to be limited (level IV, case series).

The ASIPP Interventional Pain Management guidelines were updated in 2009. The guidelines for diagnostic and therapeutic sacroiliac joint injections were based on the systematic review by Manchikanti et al and Rupert et al described above Evidence for sacroiliac joint injections was considered to be level II-2 (evidence obtained from at least one properly designed small diagnostic accuracy study). The guidelines indicate that sacroiliac joint blocks appear to be the evaluation of choice to provide appropriate diagnosis, due to the inability to make the diagnosis of sacroiliac joint-mediated pain with non-invasive tests. Evidence was determined to be unavailable to establish efficacy of intra-articular sacroiliac joint injections for therapeutic purposes.

2009 practice guidelines from the APS were based on a systematic review that was commissioned by the APS and conducted at the Oregon Evidence-Based Practice Center. The APS guideline states that there is insufficient evidence to evaluate validity or utility of diagnostic sacroiliac joint block as a diagnostic procedure for low back pain with or without radiculopathy, and that there is insufficient evidence to adequately evaluate benefits of sacroiliac joint steroid injection for nonradicular low back pain.

Based on these reviews, SI joint injections should only be used in limited circumstances.

Facet Joint Injections

Although the history and physical examination may suggest that the facet joint is the cause of spine pain, no noninvasive pathognomonic findings distinguish facet joint-mediated pain from other sources of spine pain. Fluoroscopically guided facet joint injections are commonly considered the gold standard for isolating or excluding the facet joint as a source of spine or extremity pain. Intra-articular, fluoroscopic-guided, contrast-enhanced facet injections are considered critical for proper diagnosis and can be instrumental in the treatment of facet joint arthropathies. A patient can be examined both preinjection and postinjection to determine what portion of his or her pain can be attributed to the joints injected.

Typically, small amounts of anesthetic and or corticosteroid are injected directly into the joint. The rationale is that the anesthetic will supply short-acting pain relief, and the steroid will decrease local inflammation and result in sustained pain relief. Fluoroscopic guidance with confirmation of needle placement via injection of radiopaque contrast is mandatory as a significantly improved outcome results in intraarticular placement of corticosteroid as opposed to local extraarticular injection. Efficacy of injections has been shown in uncontrolled trials to range from 18 to 63%. In addition, there have been reports of sustained relief after injection of anesthetic and saline alone. Nevertheless, because of the suspicion of local inflammation and the low side-effects profile, the practice of instilling corticosteroid is widely practiced. In the only randomized placebo-controlled trial that utilized diagnostic injection as inclusion criteria, results showed a trend to improvement at one month with corticosteroid compared to placebo. However, this difference was not statistically significant.

Because most acute low back pain improves in several weeks, injection should be reserved for patients who have had persistent symptoms despite conservative therapy for four to six weeks. Injections should not be used in patients with neurologic impairment as this suggests additional pathology. Other contraindications include bleeding diathesis, local infection, spinal malignancy, pregnancy (because of the teratogenic effects of radiation), or severe allergy to any of the medications. Potential complications include bleeding, infection, thecal sac puncture with headache, postprocedure radicular or back pain, and allergic and vasovagal reactions. Injections should be used in conjunction with a physical therapy program as the main goal of the injection is to afford the patient enough pain relief to allow participation in a strengthening program. Repeat injections should be reserved for patients who had significant symptom improvement.

Trigger Point Injections
Trigger points are discrete, focal, hyperirritable spots located in a taut band of skeletal muscle. They produce pain locally and in a referred pattern and often accompany chronic musculoskeletal disorders. Acute trauma or repetitive microtrauma may lead to the development of stress on muscle fibers and the formation of trigger points. Patients may have regional, persistent pain resulting in a decreased range of motion in the affected muscles. These include muscles used to maintain body posture, such as those in the neck, shoulders, and pelvic girdle. Trigger points may also manifest as tension headache, tinnitus, temporomandibular joint pain, decreased range of motion in the legs, and low back pain. Although the pain is usually related to muscle activity, it may be constant. It is reproducible and does not follow a dermatomal or nerve root distribution. Patients report few systemic symptoms, and associated signs such as joint swelling and neurologic deficits are generally absent on physical examination. Palpation of a hypersensitive bundle or nodule of muscle fiber of harder than normal consistency is the physical finding typically associated with a trigger point. Palpation of the trigger point will elicit pain directly over the affected area and/or cause radiation of pain toward a zone of reference and a local twitch response.

Trigger-point injection has been shown to be one of the most effective treatment modalities to inactivate trigger points and provide prompt relief of symptoms. In comparative studies, dry needling was found to be as effective as injecting an anesthetic solution such as procaine (Novocain) or lidocaine (Xylocaine). However, postinjection soreness resulting from dry needling was found to be more intense and of longer duration than the soreness experienced by patients injected with lidocaine.

Repeated injections in a particular muscle are not recommended if two or three previous attempts have been unsuccessful. Patients are encouraged to remain active, putting muscles through their full range of motion in the week following trigger-point injections, but are advised to avoid strenuous activity, especially in the first three to four days after injection

Key Words:
Sacroiliac joint (SI) injections, facet joint injections, trigger joint injections, epidural injections of corticosteroids, zygapophysial joint injection, epidural steroid injections, ESIs, SJIs

Approved by Governing Bodies:
Not applicable

Benefit Application:
Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
FEP contracts: Special benefit consideration may apply. Refer to member's benefit plan.
Wal-Mart: Special benefit consideration may apply. Refer to member's benefit plan.
Pre-certification requirements: Not applicable
Pre-determination requirements: Pre-determinations will be performed as a courtesy review at the request of the physician and/or subscriber.

Coding:
CPT Codes:

20552 Injection(s); single or multiple trigger point(s), one or two muscles

20553 ;single or multiple trigger points(s), three or more muscles

27096 Injection procedure for sacroiliac joint, anesthetic/steroid, with image guidance (fluoroscopy or CT) including arthrography when performed. ~~and/or anesthetic/steroid~~ **(Verbiage update effective for dates of service on or after January 1, 2012)**

62310 Injection(s), ~~single (not via indwelling catheter), not including neurolytic substances, with or without contrast (for either localization or epidurography),~~ of diagnostic or therapeutic substances(s) (including anesthetic, antispasmodic, opioid, steroid, other solution,), not including neurolytic substances, including needle or catheter placement, includes contrast for localization when performed, epidural or subarachnoid; cervical or thoracic **(Verbiage update effective for dates of service on or after January 1, 2012)**

62311 ;lumbar~~,~~ or sacral (caudal) **(Verbiage update effective for dates of service on or after January 1, 2012)**

64470 ~~Injection, anesthetic agent and/or steroid, paravertebral facet joint or facet joint nerve; cervical or thoracic, single level~~ **(Code deleted effective January 1, 2010)**

64472 ~~;cervical or thoracic, each additional level (List separately in addition to code for primary procedure)~~ **(Code deleted effective January 1, 2010)**

64475 ~~;lumbar or sacral, single level~~ **(Code deleted effective January 1, 2010)**

64476 ~~;lumbar or sacral, each additional level (List separately in addition to code for primary procedure)~~ **(Code deleted effective January 1, 2010)**

64479 Injection(s), anesthetic agent and/or steroid, transforaminal epidural with imaging guidance (fluoroscopy or CT); cervical or thoracic, single level

(Verbiage update effective for dates of service on or after January 1, 2011)

64480 ;cervical or thoracic, each additional level (List separately in addition to code for primary procedure) (Verbiage update effective for dates of service on or after January 1, 2011)

64483 ;lumbar or sacral, single level (Verbiage update effective for dates of service on or after January 1, 2011)

64484 ;lumbar or sacral, each additional level (List separately in addition to code for primary procedure) (Verbiage update effective for dates of service on or after January 1, 2011)

Effective for dates of service on or after January 1, 2012:

77003 Fluoroscopic guidance and localization of needle or catheter tip for spine or paraspinous diagnostic or therapeutic injection procedures (epidural or subarachnoid)

Effective for dates of service on or after January 1, 2011 and prior to January 1, 2012:

77003 Fluoroscopic guidance and localization of needle or catheter tip for spine or paraspinous diagnostic or therapeutic injection procedures (epidural, ~~transforaminal epidural~~, subarachnoid, ~~paravertebral facet joint, paravertebral facet joint nerve,~~ or sacroiliac joint), including neurolytic agent destruction

Effective for dates of service prior to January 1, 2011:

77003 Fluoroscopic guidance and localization of needle or catheter tip for spine or paraspinous diagnostic or therapeutic injection procedures (epidural, transforaminal epidural, subarachnoid, paravertebral facet joint, paravertebral facet joint nerve, or sacroiliac joint), including neurolytic agent destruction

Effective for dates of service on or after January 1, 2010:

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) withy 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)

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)

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, cervical or thoracic; second level(s) (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; additional level(s) (List separately in addition to code for primary procedure)

References:

1. Abdi S, Datta S, Lucas LF. *Role of epidural steroids in the management of chronic spinal pain: a systematic review of effectiveness and complications*. Pain Physician 2005;8:127-143.
2. Alvarex JD, Rockwell PG. *Trigger points: diagnosis and management*. Am Fam Physician 2002;65:653-60.
3. American Medical Association. *2011 CPT® Current procedural Terminology Professional Edition.* Chicago, IL. 2010:328.
4. Armon C, Argoff CE, Samuels J, Backonja MM. *Assessment: use of epidural steroid injections to treat radicular lumbosacral pain: report of the therapeutics and technology*

assessment subcommittee of the American Academy of Neurology. Neurology 2007;68:723-9.
5. Baker RJ, Patel D. *Lower back pain in the athlete: common conditions and treatment.* Prim Car Clin Office Pract 2005;32:201-29.
6. Barclay Laurie and Vega Charles. *ACOG issues new guidelines for chronic pelvic pain*. Obstet Gynecol 2004; 103: 589-605. http://www.medscape.com/viewarticle/471545_print.
7. Bartleson JD. *Spine disorder case studies*. Neurol Clin 2006;24:309-30.
8. Bartynski WS, Grahovac SZ and Rothfus WE. *Incorrect needle position during lumbar epidural steroid administration: Inaccuracy of loss of air pressure resistance and requirement of fluoroscopy and epidurography during needle insertion*. Am J Neuroradiol, March 2005; 26: 502-505.
9. Boswell MV, Everett, CR, Sehgal N, et al. *Interventional techniques in the management of chronic spinal pain: evidence-based practice guidelines.* Pain Physician 2005;8:1-47.
10. Boswell MV, Trescot AM, Datta S, et al. *Interventional techniques: Evidence-based practice guidelines in the management of chronic spinal pain*. Pain Physician 2007; 10: 7-111.
11. Botwin KP, Natalicchina J, Hanna A. *Fluoroscopic guided lumbar interlaminar epidural injections: a prospective evaluation of epidurography contrast patterns and anatomical review of the epidural space.* Pain Physician 2004;7:77-80.
12. Boyajian SS. *Interventional pain management: an overview for primary care physicians.* JAOA 2005;105(9):S1-S6.
13. Canale: Campbell's Operative Orthopaedics, 10th ed., 2003 Mosby.
14. Cardone DA and Tallia AF. *Joint and soft tissue injection*. American family Physician, July 2002; 66(2): 283-288.
15. Carek PJ, Hunter MH. *Joint and soft tissue injections in primary care*. Clin in Fam Pract 2005;7(2):359-78.
16. Carragee EJ, Hannibal M. *Diagnostic evaluation of low back pain*. Orthop Clin N Am 2004;35:7-16.
17. Chen B and Foye PM. *Epidural steroid injections.* http://www.emedicine.com/pmr/topic223.htm. Accessed June 2007.
18. Cohen SP. *Sacroiliac joint pain: A comprehensive review of anatomy, diagnosis, and treatment*. Anesth Analg 2005; 101: 1440-1453.
19. Cohen SP and Raja SN. *Pathogenesis, diagnosis, and treatment of lumbar zygapophysial facet) joint pain*. Anesthesiology 2007; 106: 591-614.
20. Cohen SP, Hurley RW, Buckenmaier CC 3rd et al. *Randomized placebo-controlled study evaluating lateral branch radiofrequency denervation for sacroiliac joint pain.* Anesthesiology 2008; 109(2):279-88.
21. Chou R, Loeser JD, Owens DK et al; *American Pain Society Low Back Pain Guideline Panel. Interventional therapies, surgery, and interdisciplinary rehabilitation for low back pain: an evidence-based clinical practice guideline from the American Pain Society*. Spine 2009; 34(10):1066-77.
22. Chou R, Atlas SJ, Stanos SP et al. *Nonsurgical interventional therapies for low back pain: a review of the evidence for an American Pain Society clinical practice guideline*. Spine 2009; 34(10):1078-93.
23. Deer Timothy. *Injections for the diagnosis and treatment of spinal pain*. American Society of Anesthesiologists, Inc. 2004, Vol. 32, Chapter 6.

24. Devereaux MW. *Neck Pain.* Prim Care Clin Office Pract 2004;31:19-31.
25. Dreyfuss, P, Dreyer SJ, cole A, Mayo K. *Sacroiliac joint pain*. J Am Acad Orthop Surg 2004;12:255-65.
26. Dreyfuss P, Halbrook B, Pauza K, et al. *Efficacy and validity of radiofrequency neurotomy for chronic lumbar zygapophysial joint pain.* Spine 2000;251:1270-77.
27. Dreyfuss PH. *Lumbar zygapophysial (facet) joint injections*. Spine, September 1995; 20(18): 2040-2047.
28. Dussault RG, Kaplan PA and Anderson MW. *Fluoroscopy-guided sacroiliac joint injections*. Radiology 2000; 214: 273-277.
29. Elgafy H, Semaan HB, Ebraheim NA et al. *Computed tomography findings in patients with sacroiliac pain.* Clin Orthop Relat Res 2001; 382:112-8.
30. El-Khoury G, Ehara S, Weinstein JN, et al. *Epidural steroid injection: A procedure ideally performed with fluoroscopic control*. Radiology 1988; 168: 554-557.
31. Falco FJ, Irwin L, Zhu J. *Lumbar spine injection interventional procedures in the management of low back pain.* Clin Occup Environ Med 2006;5(3):655-02.
32. Fredman B, Nun MB, Zohar E, et al. *Epidural steroids for treating "failed back surgery syndrome": Is fluoroscopy really necessary?* Anesth Anal 1999; 88: 367-372.
33. Furman MB, Sthalekar ND. *Minimizing complications in epidural steroid injections.* Anesth Analg 2006;102:1585-98.
34. Hanly JG, Mitchell M, MacMillan L et al. *Efficacy of sacroiliac corticosteroid injections in patients with inflammatory spondyloarthropathy: results of a 6 month controlled study*. J Rheumatol 2000; 27(3):719-22.
35. Hansen HC. *Fluoroscopy is necessary [sic] for accurate sacroiliac joint injection*. Anesthesiology 2001; 95: A841.
36. Hansen HC, McKenzie-Brown AM, Cohen SP et al. *Sacroiliac joint interventions: a systematic review.* Pain Physician 2007; 10(1):165-84
37. Harwood MI, Smith BJ. *Low back pain: a primary care approach*. Clin in Fam Pract 2005;7(2):279-303.
38. Hong CZ. *Lidocaine injection versus dry needling to myofascial trigger point. The importance of the local twitch response*. Am J Phys Med Rehabil, July 1994; 73(4): 256-263.
39. Johnson BA, Schellhas KP, Pollei SR. *Epidurography and therapeutic epidural injections: technical considerations and experience with 5334 cases.* Am J Neuroradiol 1999;20:697-705.
40. Lavelle William and Smith Howard S. *Myofascial trigger points*. Med Clin N Am 2007; 91: 229-239.
41. Maigne JY, Aivaliklis A and Pfefer F. *Results of sacroiliac joint double block and value of sacroiliac pain provocation tests in 54 patients with low back pain*. Spine, August 1996; 21(16): 1889-1892.
42. Manchikanti L, Cash KA, Pampati V, et al. *Evaluation of fluoroscopically guided caudal epidural injections.* Pain Physician 2004:81-92.
43. Manchikanti L, Stata PS, Singh V, et al. *Evidence-based practice guidelines for interventional techniques in the management of chronic spinal pain.* Pain physician 2003;6:3-81.

44. Manchikanti L, Bakhit CE, Pakanatie RR, et al. *Letters to the editor: Fluoroscopy is medically necessary for the performance of epidural steroids*. Anesth Analg 1999; 89: 1330.
45. Manchikanti L, Boswell MV, Singh V et al. *Comprehensive evidence-based guidelines for interventional techniques in the management of chronic spinal pain*. Pain Physician 2009; 12(4):699-802
46. Meleger AL and Krivickas LS. *Neck and back pain: Musculoskeletal disorders*. Neurol Clin 2007; 25: 419-438.
47. Merryman JM, Pridgen HA and Rosenquist RW. *Diagnostic blocks of the lower back—A clinical interpretation*. Techniques in Regional Anesthesia and Pain Management, July 2000; 4(3): 109-119.
48. Miller: Miller's Anesthesia, 6th ed., 2005 Churchill Livingstone.
49. Murakami E, Tanaka Y, Aizawa T et al. *Effect of periarticular and intraarticular lidocaine injections for sacroiliac joint pain: prospective comparative study*. J Orthop Sci 2007; 12(3):274-80.
50. Narouze SN. *Is it time to perform all thoracic epidural placements under fluoroscopy?* Anesth Analg 2006;102:1585-98.
51. Prather Heidi and Hunt Devyani. *Sacroiliac joint pain*. Dis Mon, December 2004; 50: 670-683.
52. Renfrew DL, Moore TE, et al. *Correct placement of epidural steroid injections: Fluoroscopic guidance and contrast administration*. AJNR 1991; 12(5): 1003-1007.
53. Rosenberg JN. *Corticosteroid injections of joints and soft tissues*. September 2001. http://www.emedicine.com/pmr/topic211.htm.
54. Rupert MP, Lee M, Manchikanti L et al. *Evaluation of sacroiliac joint interventions: a systematic appraisal of the literature.* Pain Physician 2009; 12(2):399-418.
55. Saal JA. *Spinal injections: past, present, and future.* North American Spine Society. www.spin.org Accessed February 2007.
56. Silbergleit R, Mehta BA, et al. *Imaging-guided injections techniques with fluoroscopy and CT for spinal pain management.* RadioGraphics 2001;21:927-42.
57. Slipman CW, Lipetz JS, Plastaras CT et al. *Fluoroscopically guided therapeutic sacroiliac joint injections for sacroiliac joint syndrome.* Am J Phys Med Rehabil 2001; 80(6):425-32.
58. Sowa G. *Facet-mediated pain*. Dis Mon 2005;51:18-33.
59. Stanos SP, McLean J and Rader L. *Physical medicine rehabilitation approach to pain*. Med Clin N Am 2007; 91: 57-95.
60. Schwarzer AC, Aprill CN, Bogduk N. *The sacroiliac joint in chronic low back pain*. Spine 1995; 20(1):31-7.
61. Tehranzadeh J, Mossop EP Golshan-Momeni M. *Therapeutic arthrography and bursography.* Orthop Clin N Am 2006;37:393-408.
62. Tripathi M, Nath SS, Gupta RK. *Paraplegia after intracord injection during attempted epidural steroid injection in an awake-patient*. Anesth Analg 2005;101:1209-11.
63. Weksler N, Velan GJ, Semionov M et al. *The role of sacroiliac joint dysfunction in the genesis of low back pain: the obvious is not always right.* Arch Orthop Trauma Surg 2007; 127(10):885-8.
64. White AG, Derby R and Wynn G. *Epidural injections for the diagnosis and treatment of low-back pain*. Spine 1980; 5(1): 78-86.

~~*Evidence Level D based on consensuses of expert opinion. This policy is subject to change in the future based on additional publications in the medical literature.~~

Policy History:

Medical Policy Group, September 2006 **(2)**
Medical Policy Group, February 2007
Medical Policy Administration Committee, February 2007
Medical Policy Group, March 2007 **(2)**
Medical Policy Administration Committee, April 2007
Available for comment May 8-June 21, 2007
Medical Policy Group, June 2007 **(2)**
Medical Policy Group, July 2007 **(2)**
Medical Policy Administration Committee, July 2007
Available for comment July 16-September 3, 2007
Medical Policy Group, April 2009 **(2)**
Medical Policy Administration Committee, May 2009
Available for comment April 14-May 28, 2009
Medical Policy Panel, February 2010
Medical Policy Group, November 2010 Code update only
Coding update, December 2010 **(1),** Verbiage update to 77003, 64479, 64480, 64483, 64484
Medical Policy Group, December 2010 **(2)**
Medical Policy Administration Committee, January 2011
Available for comment, January 11 through February 21, 2011
Medical Policy Group, June 2011 **(2)** Clarification of use of ultrasounds with trigger points
Medical Policy Administration Committee, July 2011
Available for comment July 6 through August 22, 2011
Medical Policy Group, December 2011; 2012 Coding Updates: Updated codes 27096, 62310, 62311, and 77003