Sacroiliac joint fusion is a surgical procedure which fuses the iliac bone (pelvis) to the spine (sacrum). It is performed for a variety of orthopedic conditions including trauma, infection, cancer, and spinal instability. This document addresses proposed indications for sacroiliac joint fusion procedures.

For additional information, please refer to the following related documents:

- SURG.00066 Percutaneous Neurolysis for Chronic Back Pain
- SURG.00067 Percutaneous Spinal Procedures (Vertebroplasty, Kyphoplasty and Sacroplasty)
- SURG.00071 Percutaneous and Endoscopic Spinal Surgery
- SURG.00111 Axial Lumbar Interbody Fusion

**Position Statement**

**Medically Necessary:**

Sacroiliac joint fusion procedures are considered **medically necessary** for any of the following indications:

- as an adjunct to sacrectomy or partial sacrectomy related to tumors involving the sacrum; or
- as an adjunct to the medical treatment of sacroiliac joint infection/sepsis; or
- severe traumatic injuries associated with pelvic ring fracture; or
- during multisegment spinal constructs (for example, correction of deformity in scoliosis or kyphosis surgery) extending to the ilium.

**Investigational and Not Medically Necessary:**

Sacroiliac joint fusion procedures for conditions not listed above, including but not limited to, mechanical back pain due to sacroiliac joint syndrome and sacral insufficiency fractures, are considered **investigational and not medically necessary**.

Minimally invasive sacroiliac joint fusion and percutaneous sacroiliac joint fusion procedures are considered **investigational and not medically necessary**.

**Rationale**

**Sacroiliac Joint Fusion as an Adjunct to Sacrectomy or Partial Sacrectomy Related to Tumors Involving the Sacrum**

Surgical management of primary sacral tumors is challenging because of their size and location. Reconstruction is often required in individuals who require a radical resection with total sacrectomy for tumors such as chordoma, chondrosarcoma, Ewing sarcoma, and giant cell tumor of the sacrum. Sacroiliac joint fusion has been performed as an adjunct to en bloc sacrectomy or partial sacrectomy in the setting of sacral tumors. The evidence in the peer-reviewed literature to support the use of lumbar pedicle screws in combination with other surgical techniques involving the ilia in spinal pelvic reconstruction surgery (e.g., Galveston rods, transiliac bar placement) consists of articles that review surgical techniques (Zhang, 2003) and small case series (Gallia, 2005; Newman, 2009; Salehi, 2002).

**Sacroiliac Joint Fusion as an Adjunct to the Medical Treatment of Sacroiliac Joint Infection/Sepsis**

Sacroiliac joint infection (e.g., osteomyelitis, pyogenic sacroiliitis, sepsis) is an uncommon condition that generally responds to long-term antibiotics and occasionally requires drainage for abscess. Additional surgical treatment may involve debridement, decompression, and internal screw fixation when symptoms do not resolve with initial intravenous antibiotic therapy. The evidence in the peer-reviewed literature to support the use of sacroiliac joint fusion...
as an adjunct to the medical treatment of sacroiliac joint infection consists of single and small case series (Davidson, 2003; Giannoudis, 2007; Sar, 2003).

**Sacroiliac Joint Fusion for Severe Traumatic Injuries Associated with Pelvic Ring Fracture**

Pelvic ring disruption with sacral fracture is typically a result of a high-energy injury associated with vascular injuries, mechanical instability, neurological impairment and increased morbidity. Unstable pelvic ring fractures can be treated by variety of methods including early operative stabilization with internal iliosacral screw fixation. In vertically unstable injuries, sacroiliac screws may be augmented by anterior fixation (Griffin, 2006). Low rates of infection, wound healing problems and minimal blood loss are advantages of this method.

The evidence in the peer-reviewed literature to support the use of sacroiliac joint fusion procedures for pelvic ring fracture associated with traumatic injury consists of retrospective case series that address advantages and complications of specific surgical approaches (Hsu, 2010; Peng, 2006; Rysavý, 2010; Schweitzer, 2008). A European guideline by Veeming and colleagues (2008) suggests that surgery may be indicated for severe traumatic cases of pelvic girdle pain, but only when other non-operative treatment modalities have failed. The guideline recommends a preoperative assessment and trial with an external fixator for three weeks to evaluate longer lasting effects of fixation.

**Sacroiliac Joint Fusion in Multisegment Spinal Constructs Extending to the Ilium**

Spinal deformity surgery involving long fusions of the spine in adults with spinal diseases such as degenerative scoliosis and spondylolysis may result in a debilitating complication of failure of the lumbosacral (spinal-pelvic) junction resulting from nonunion, implant failure, or sacral fracture. As a result, individuals who experience continued pain, continued curve progression and deformity, and progressive sagittal imbalance, may require reoperation. The addition of spinopelvic fixation at the caudal end of long segment fusions (constructs) has improved sacral fusion rates. Iliac wing screws have been successfully used in nonambulatory individuals for the treatment of neuromuscular scoliosis, but concerns exist over use in ambulatory individuals. Sacroiliac joint fusion has been performed in the setting of long segment fusions of the spine that end at the first sacral vertebra (S1) in adults with spinal deformity and persistent sacroiliac joint-related pain. The evidence in the peer-reviewed literature consists of retrospective case series (Tumialán, 2008; n=20), the largest series involving 78 ambulatory adults with degenerative scoliosis and spondylolysis who underwent bilateral iliac wing fixation in long fusions to the pelvis (Kasten, 2010). The operative indications for posterior spinal fusion in this case series were fixed sagittal imbalance spondylolysis (n=23), idiopathic scoliosis (n=22), degenerative scoliosis (n=15), pseudarthrosis below long fusions (n=13), and traumatic kyphosis (n=5). Postoperatively, 12 of 78 individuals (15.3%) developed pseudarthrosis with broken implants; however, only 5 of 78 (6.4%) nonunions occurred at the lumbosacral junction. Six of 78 individuals (7.7%) required removal of the iliac screws for pain or painful prominence. Forty-two individuals had one or more complications with an overall complication rate of 54%. Based on responses to a satisfaction questionnaire, 78% of individuals reported good or excellent results with the procedure. A significant improvement was achieved in correction of sagittal balance and coronal deformity. On follow-up radiographs, there were no sacral fractures, sacral screw failures, or significant sacroiliac joint degeneration. Nonunions continued to be a problem, with a rate of 15.3%, however only 6.4% of nonunions were at the lumbosacral junction. Complications specific to iliac screw placement were reported as minimal. Despite the complication rates (similar to those reported in other articles) and the known problems that exist with the complexity of long segment spinal fusions, the use of iliac wing fixation appears to improve lumbosacral fusion rates by adding structural support to S1 screws in long-segment spinal fusions.

**Sacroiliac Joint Syndrome and other Pain-related Sacroiliac Conditions**

Sacroiliac joint fusion, whether performed as an open or minimally invasive (percutaneous) surgical procedure, with or without bone grafts and other metal implant devices, has been proposed as a treatment for individuals who are unresponsive to or cannot tolerate other therapy for chronic low back pain due to sacroiliac joint syndrome and other pain-related sacroiliac conditions.

No randomized controlled studies were found regarding sacroiliac joint fusion procedures for the treatment of chronic low back pain due to sacroiliac joint syndrome and other pain-related sacroiliac conditions. The peer-reviewed medical literature consists of small case series, retrospective studies, and review articles reporting limited safety and efficacy data for sacroiliac joint fusion procedures for the treatment of pain-related sacroiliac conditions from all causes (Belanger, 2001; Berthelot, 2011; Buchowski, 2005; Ebraheim, 2010; Rudolf, 2012; Sachs, 2012; Schütz and Grob, 2006; Zelle, 2005).

In a European guideline on the diagnosis and treatment of pelvic girdle pain, Veeming and colleagues (2008) state "there is no evidence to recommend sacroiliac fusion" for the treatment of pelvic girdle pain; the "D" level of evidence to support this recommendation consists of small cohort studies of two to 77 participants with the results assessed...
by the authors as fair to excellent in 50% to 89% of the participants.

A small consecutive case series (Al-Khayer, 2008) and prospective cohort study (Wise and Dall, 2008) reported a reduction in post-operative low back pain and improvement in subjective measures of satisfaction after percutaneous sacroiliac joint arthrodesis utilizing screws or fusion cages filled with bone morphogenic protein for individuals with chronic or intractable sacroiliac joint pain. There are, however, no randomized, controlled trials reporting improved health outcomes, including a paucity of controlled trials evaluating the use of the iFuse SI Fusion System (SI-Bone, Inc., San Jose, CA), the Symmetry™ Sacroiliac Joint Fusion System (Zyga Technology, Inc., Minneapolis, MN), and other minimally invasive and percutaneous sacroiliac joint fusion systems for any condition.

Sacral Insufficiency Fractures

There are currently no randomized, prospective controlled studies that evaluate the safety and efficacy of minimally invasive or percutaneous sacroiliac joint fusion procedures for sacral insufficiency fractures. The available peer-reviewed literature consists of small retrospective case series, including technical reports that describe surgical techniques using screws or other fixation devices (Lin, 2001; Tjardes, 2008; Tsiridis, 2007) and others that address procedures performed on cadavers or involve biomedical modeling and analysis.

Papanastassious and colleagues (2008) reported the preliminary results of a percutaneous modified technique of navigated sacroiliac fixation in a case series of six individuals with oncologic conditions and sacral insufficiency fractures. The surgical technique used multiple long screws per level that crossed both sacroiliac joints and bilateral iliac bones. The authors concluded that further investigation is needed to compare this technique with other treatment modalities in terms of pain control and performance status improvement in individuals with oncologic conditions and sacral insufficiency fractures. In a small case series (n=4) and systematic review, Vavken and Krepler (2008) suggested that sacral insufficiency fractures as a complication after lumbosacral fusions are predominantly a benign condition and, depending on the location, respond well to conservative management in the majority of cases.

Kleinberg and colleagues (2008) retrospectively reviewed nine cases of individuals with osteoporosis who developed sacral insufficiency fractures after segmental posterior lumbosacral fixation procedures. Two subjects underwent immediate fracture stabilization and fusion. The remaining seven subjects were initially treated nonoperatively, four with bracing for an average of 3.3 months after initiation of treatment. The authors suggest that lumbopelvic fixation is a useful salvage treatment modality for individuals who fail nonoperative treatment.

There is insufficient evidence in the peer-reviewed literature in the form of large, prospective studies to establish the safety and efficacy of sacroiliac joint fusion procedures for sacral insufficiency fracture.

Summary

At this time, no evidence-based guideline or position statement regarding sacroiliac spinal fusion procedures from the American Association of Neurological Surgeons (AANS), the American Academy of Orthopaedic Surgeons (AAOS), and the American Pain Society (APS) was found.

There is insufficient evidence in the scientific literature to support the use of sacroiliac joint fusion in treating mechanical low back pain due to sacroiliac joint syndrome and sacral insufficiency fractures. Randomized, controlled trials comparing sacroiliac joint fusion to standard treatments are needed to determine the impact on health outcomes and long-term efficacy.

Background/Overview

The sacroiliac joint is a firm, small joint that lies at the junction of the spine and the pelvis. While most of the bones (vertebrae) of the spine are mobile, the sacrum is made up of five vertebrae that are fused together and do not move. The iliac bones are the two large bones that make up the pelvis. As a result, the sacroiliac joints connect the spine to the pelvis. The sacrum and the iliac bones are held together by a collection of strong ligaments. These joints are important in transferring the load of the upper body to the lower body, supporting the entire weight of the upper body when we are erect, which in turn results in stress to this weight-bearing area of the pelvis and spine.

Sacroiliac Joint Syndrome

Sacroiliac joint problems are referred to by varying terms, including sacroiliac joint dysfunction, sacroiliac joint inflammation, sacroiliac joint strain, and sacroiliac joint syndrome. Each of these terms refers to a condition that causes pain in the sacroiliac joint area from a variety of causes. Individuals often experience pain in the lower back and hips, but pain may also be present in the groin and thighs; this pain is often aggravated by any form of movement including sitting, lifting, running or walking. The cause of sacroiliac joint inflammation and pain can be difficult to diagnose since the sacroiliac joint is not easily palpated or manipulated, radiographs or other imaging studies are often normal, and other conditions (e.g., degenerative arthritis, lower back pain, sciatica) can cause similar
Symptoms.

Sacral Insufficiency Fractures

Sacral insufficiency fractures occur when the quality of the sacral bone has become inadequate to handle the stress of weight bearing. The bone has lost some of its supporting structure and becomes weak and fragile. Sacral insufficiency fractures are usually located parallel to the spine, most often in the ala or "wings" of the sacrum, just beside the sacroiliac joint. A transverse fracture may also be present that connects an insufficiency fracture when it occurs on both sides of the sacrum. Sacral insufficiency fractures are known to develop in older persons, particularly in women, due to the presence of osteoporosis (i.e. a decrease in bone tissue and minerals such as calcium) without definite trauma history. Other risk factors that can weaken the bone include radiation to the pelvis (e.g. oncologic conditions), steroid use, rheumatoid arthritis, hyperparathyroidism, anorexia nervosa, liver transplantation, osteopenia, Paget's disease, hip joint replacement, and prior lumbosacral fusion. Sacral insufficiency fractures can also occur in pregnant or breastfeeding women due to temporary osteoporosis. The exact prevalence of sacral insufficiency fractures is unknown and is often difficult to diagnose at an early stage because the condition presents with signs and symptoms similar to, and is often accompanied by, concurrent lower lumbar degenerative disease.

Sacroiliac Joint Fusion Procedures

Sacroiliac joint fusion, also referred to as arthrodesis, is a surgical technique that involves bony fusion of the sacroiliac joint for stabilization. Sacroiliac joint fusion may be performed as a minimally invasive procedure or as an open surgical procedure requiring a larger incision and subsequent increased recovery time. Percutaneous sacroiliac joint fusion is a minimally invasive approach in which instrumentation involving cages or screws, with or without bone graft, are placed percutaneously in order to achieve a fusion.

Smooth or threaded metallic bone fastener devices used in sacroiliac joint fusion procedures have received 510(k) clearance by the U.S. Food and Drug Administration as Class II devices. These devices include, but are not limited to, the iFuse SI Fusion System (K110838) cleared by the FDA as substantially equivalent to a predicate device called the SI Joint Fusion System (K080398; K092375). The system consists of a series of metallic (titanium), porous plasma spray coated rods, intended for surgical implantation within the bone to create fixation. The system includes 4.0 mm and 7.0 mm diameter fusion rods, which range in length from 30 mm to 70 mm. Another device, the Simmetry Sacroiliac Joint Fusion System (Modification) received special 510(k) clearance on March 23, 2011 (K110512) as substantially equivalent to a predicate device cleared under K10290. The Simmetry Sacroiliac Joint Fusion System consists of cannulated screws available in titanium having diameters ranging from 6.5 mm-12.5 mm, lengths of 30mm-70mm, and titanium washers are available for the 6.5 mm diameter screws. Both systems are intended for sacroiliac joint fusion for conditions including sacroiliac joint disruptions and degenerative sacriilitis.

Definitions

Anterior: The front surface of the body.
Arthrodesis: The surgical fixation of a joint to promote bone fusion; also called artificial ankylosis or syndesis.
Axial skeleton: In the human body, the bones of the body axis, including the skull, vertebral column, ribs, and sternum.
Minimally invasive procedure: A procedure that is carried out by entering the body through the skin or through a body cavity or anatomical opening, but with the smallest damage or disruption possible to these structures.
Percutaneous: Through the skin. A percutaneous surgical procedure is considered minimally invasive when performed with only a small incision (in contrast to an "open" surgical incision).
Posterior: The back or dorsal surface of the body.
Sacroiliac joint: The joint formed by the sacrum and ilium where they meet on either side of the lower back.
Spinal fusion: The surgical immobilization of two or more adjacent bones of the spinal column (vertebra). Multiple bones are fused or made to grow together to become one solid bone; also called spondylodesis.

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. A draft of future ICD-10 Coding (effective 10/01/2014) related to this document, as it might look today, is included below for your reference. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract.
benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services are Medically Necessary:

CPT
27280 Arthrodesis, sacroiliac joint (including obtaining graft)

ICD-9 Diagnosis
170.6 Malignant neoplasm of bone and articular cartilage, pelvic bones, sacrum, and coccyx
198.5 Secondary malignant neoplasm of bone and bone marrow
213.6 Benign neoplasm of bone and articular cartilage, pelvic bones, sacrum, and coccyx
238.0 Neoplasm of uncertain behavior of bone and articular cartilage
239.2 Neoplasm of unspecified nature, bone, soft tissue, and skin
737.0-737.9 Curvature of spine [when treatment involves multisegment instrumentation]
730.05 Acute osteomyelitis, pelvic region and thigh
730.15 Chronic osteomyelitis, pelvic region and thigh
730.25 Unspecified osteomyelitis, pelvic region and thigh
730.35 Periostitis without mention of osteomyelitis, pelvic region and thigh
730.85 Other infections involving bone in disease classified elsewhere, pelvic region and thigh
730.95 Unspecified infection of bone, pelvic region and thigh
808.43 Multiple closed pelvic fractures with disruption of pelvic circle
808.49 Fracture of pelvis, other specified part, closed, other (pelvic rim)
808.53 Multiple open pelvic fractures with disruption of pelvic circle

ICD-10 Procedure  ICD-10-PCS draft codes; effective 10/01/2014:
0SG704Z-0SG70ZZ Fusion of right sacroiliac joint, open approach, [by device; includes codes 0SG704Z, 0SG707Z, 0SG709Z, 0SG70KZ, 0SG70ZZ]
0SG804Z-0SG80ZZ Fusion of left sacroiliac joint, open approach, [by device; includes codes 0SG804Z, 0SG807Z, 0SG809Z, 0SG80KZ, 0SG80ZZ]

ICD-10 Diagnosis  ICD-10-CM draft codes; effective 10/01/2014:
C41.4 Malignant neoplasm of pelvic bones, sacrum, and coccyx
C79.51 Secondary malignant neoplasm of bone
D16.8 Benign neoplasm of pelvic bones, sacrum, and coccyx
D48.0 Neoplasm of uncertain behavior of bone and articular cartilage
D49.2 Neoplasm of unspecified behavior of bone, soft tissue, and skin
M40.00-M40.299 Kyphosis [when treatment involves multisegment instrumentation]
M41.00-M41.9 Scoliosis [when treatment involves multisegment instrumentation]
M46.28 Osteomyelitis of vertebra, sacral and sacrococcygeal region
M46.38 Infection of intervertebral disc (pyogenic), sacral and sacrococcygeal region
M89.751-M89.759 Major osseous defect, pelvic region and thigh [when specified as related to neoplasm or sepsis]
S32.810A-S32.811S Multiple fractures of pelvis with disruption of pelvic ring

When services are Investigational and Not Medically Necessary:
For the procedure and diagnosis codes listed above when criteria are not met or for all other diagnoses, or when the code describes a procedure indicated in the Position Statement section as investigational and not medically necessary.

ICD-9 Diagnosis
All other diagnoses not listed above including, but not limited to, the following:
338.4 Chronic pain syndrome
719.65 Pain in joint, pelvic region and thigh
724.2 Lumbago (low back pain, low back syndrome)
724.6 Disorders of sacrum (instability, lumbosacral or sacroiliac joint)
731.0-731.1 Osteitis deformans (Paget's Disease)
733.00-733.09 Osteoporosis
733.19 Pathologic fracture of other specified site
733.90 Disorder of bone and cartilage, unspecified (osteopenia)
733.98 Stress fracture of pelvis
V58.65 Long-term (current) use of steroids
ICD-10 Diagnosis

**ICD-10-CM draft codes; effective 10/01/2014:**

All other diagnoses not listed above including, but not limited to, the following:

- G89.4 Chronic pain syndrome
- M53.2X8 Spinal instabilities sacral and sacroccygeal region
- M53.3 Sacroccygeal disorders, not elsewhere classified
- M54.40-M54.42 Lumbago with sciatica
- M54.5 Low back pain
- M80.00X-M80.00XS Age-related osteoporosis with current pathological fracture, unspecified site
- M80.80X-M80.80XS Other osteoporosis with current pathological fracture, unspecified site
- M81.0-M81.8 Osteoporosis without current pathological fracture
- M84.350A-M84.350S Stress fracture, pelvis
- M84.454A-M84.454S Pathological fracture, pelvis
- M84.550A-M84.550S Pathological fracture in neoplastic disease, pelvis
- M84.650A-M84.650S Pathological fracture in other disease, pelvis
- M84.851-M84.859 Other disorders of continuity of bone, pelvic region and thigh
- M85.851-M85.859 Other specified disorders of bone density and structure, thigh
- M88.851-M88.859 Osteitis deformans of thigh
- Z79.51-Z79.52 Long-term (current) use of steroids

When services are also Investigational and Not Medically Necessary:

**CPT**

0334T Sacroiliac joint stabilization for arthrodesis, percutaneous or minimally invasive (indirect visualization), includes obtaining and applying autograft or allograft (structural or morselized), when performed, includes image guidance when performed (eg, CT or fluoroscopic)

**ICD-9 Diagnosis**

All diagnoses

**ICD-10 Procedure**

**ICD-10-PCS draft codes; effective 10/01/2014:**

- Fusion of right sacroiliac joint, percutaneous or percutaneous endoscopic approach [by device; includes codes 0SG734Z, 0SG737Z, 0SG73JZ, 0SG73KZ, 0SG73ZZ, 0SG744Z, 0SG747Z, 0SG74JZ, 0SG74KZ, 0SG74ZZ]
- Fusion of left sacroiliac joint, percutaneous or percutaneous endoscopic approach [by device; includes codes 0SG834Z, 0SG837Z, 0SG83JZ, 0SG83KZ, 0SG83ZZ, 0SG844Z, 0SG847Z, 0SG84JZ, 0SG84KZ, 0SG84ZZ]

**ICD-10 Diagnosis**

**ICD-10-CM draft codes; effective 10/01/2014:**

All diagnoses

**References**

**Peer Reviewed Publications:**


Government Agency, Medical Society, and Other Authoritative Publications:


Web Sites for Additional Information


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iFuse SI Fusion System
SI-FIX Sacroiliac Joint Fusion System
SI-LOK™ Sacroiliac Joint Fixation System
Simmetry Sacroiliac Joint Fusion System

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

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<tr>
<th>Status</th>
<th>Date</th>
<th>Action</th>
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<tr>
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<td>07/01/2013</td>
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Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Medical Policy, which addresses medical efficacy, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

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