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Notice of Independent Review Decision

MEDICAL RECORD REVIEW:

DATE OF REVIEW: 11/18/2010

IRO CASE #:

A DESCRIPTION OF THE QUALIFICATIONS FOR EACH PHYSICIAN OR OTHER HEALTH CARE PROVIDER WHO REVIEWED THE DECISION:

This case was reviewed by an Orthopaedic Surgeon, Licensed in Texas and Board Certified. The reviewer has signed a certification statement stating that no known conflicts of interest exist between the reviewer and the injured employee, the injured employee's employer, the injured employee's insurance carrier, the utilization review agent (URA), any of the treating doctors or other health care providers who provided care to the injured employee, or the URA or insurance carrier health care providers who reviewed the case for a decision regarding medical necessity before referral to the IRO. In addition, the reviewer has certified that the review was performed without bias for or against any party to the dispute.

DESCRIPTION OF THE SERVICE OR SERVICES IN DISPUTE

Lateral 360 lumbar fusion L3-4, L4-5, TSLO brace

REVIEW OUTCOME

Upon independent review the reviewer finds that the previous adverse determination/adverse determinations should be:

Overtuned (Disagree)

INFORMATION PROVIDED TO THE IRO FOR REVIEW

- o Submitted medical records were reviewed in their entirety.
- o Treatment guidelines were provided to the IRO.
- o 02-08-00 Lumbar CT read by Dr.
- o 02-11-00 Lumbar x-rays read by Dr.
- o 06-02-00 Lumbar x-rays read by Dr.
- o 12-21-00 Orthopedic progress report from Dr.
- o 05-02-01 Cervical and thoracic x-rays and cervical and thoracic MRI read by Dr.
- o 05-07-01 CT of the lumbar spine read by
- o 06-09-00 and 09-09-00 Physician notes from Dr.
- o 02-25-01 Certificate of Medical Necessity for TENS from Dr.
- o 04-26-01 Pain management report from Dr.
- o 08-21-01 through 03-27-08, 30 pain management reports from Dr.
- o 04-04-05 Flexion/extension x-rays (normal) read by Dr.
- o 07-21-05 EKG study, unsigned
- o 04-12-06 through 08-25-08, lab work results, six reports from Diagnostics
- o 03-27-08 Lumbar x-rays read by Dr.
- o 06-05-08 through 10-20-09, 11 medication management reports, signature illegible
- o 05-18-09 Designated Doctor examination from Dr.
- o 08-05-09 Pain management report from Dr.
- o 08-12-09 Lumbar MRI read by Dr.
- o 11-07-09 Medical report from Dr.

- o 12-09-09 Operative report - CT/myelogram from Dr.
- o 12-17-09 and 03-09-10, 2 Visit notes from, NP
- o 01-07-10 Medical report from Dr. with recommendation for neck surgery
- o 02-04-10 Medical report from Dr. with recommendation for neck surgery
- o 02-11-10 CT cervical spine read by Dr.
- o 02-11-10 CT of the head read by Dr.
- o 02-12-10 MRI brain read by Dr.
- o 02-12-10 Discharge summary following ACDF from Dr.
- o 02-20-10 Cervical x-rays read by Dr.
- o 02-20-10 Medical report from, PA
- o 03-16-10 Follow-up medical report from, PA
- o 03-10-10 Follow-up medical report from PA
- o 03-20-10 Cervical x-ray read by Dr.
- o 03-30-10 and 03-31-10 follow-up medical reports from, PA
- o 03-30-10 Cervical x-ray read by Dr.
- o 05-28-10 Visit notes from, NP
- o 06-08-10 through 10-21-10 four follow-up medical report from , PA
- o 06-08-10 Cervical and lumbar x-rays read by Dr.
- o 06-15-10 Chest films read by Dr.
- o 06-15-10 Lab studies, unsigned
- o 07-06-10 Follow-up medical report from , PA
- o 08-24-10 Visit notes from NP
- o 08-31-10 Follow-up medical report from Dr. with request for L-fusion
- o 09-01-10 Pre-authorization and procedure order request from Dr.
- o 09-10-10 Initial Adverse Determination review from
- o 10-08-10 Appeal letter from the claimant
- o 10-15-10 Adverse Determination review on reconsideration from
- o 10-21-10 Lumbar x-ray read by Dr.
- o 11-05-10 Request for IRO from the Claimant
- o 11-08-10 Confirmation of Receipt of Request for IRO from TDI
- o 11-09-10 Notice to P&S of Case Assignment from TDI
- o 11-10-10 IRO Summary from AR-CMI

PATIENT CLINICAL HISTORY [SUMMARY]:

According to the medical records and prior reviews the patient is a male employee who sustained an industrial injury to the low back on xx/xx/xx when lifting a keg of beer. He has undergone four back surgeries. The initial surgery is not clarified. The second surgery was done posterior with titanium fusion cages at L5-S1. A third was also done posterior with pedicle screws on February 11, 2000. A fourth surgery with repositioning of a left pedicle screw is mentioned but not further clarified. He is followed with pain management about every three months and has serial EKGs as he is using methadone and has cardiac issues as well as yearly imaging to check his fusion and hardware. Co-morbid conditions include, hypertension, history of gastric ulcers, diabetes with peripheral neuropathy and nephrolithiasis. He is allergic to morphine. The patient was 5' 10" and 245 pounds on 03/05/01 and is currently about 218 pounds.

Lumbar CT scan of February 8, 2000 showed pedicle screws placed at the L5 level. The left pedicle screw appears to be extending into the L5 left lateral recess and could cause some L5 nerve root symptoms. A previous fusion was seen at L5-S1 with two fusion cages seen. There was also a previous L5 laminectomy with bone graft seen.

Medical report of September 5, 2000 indicates the patient continues to have burning sensations in the upper and lower extremities and difficulty walking. On December 21, 2000 straight leg raise was negative and no sensory or motor deficits were found on examination. The patient initiated pain management and began using methadone, Elavil, Skelaxin and Effexor. He was also provided epidural injections. On September 4, 2001 a spinal cord stimulator was discussed as an option. He also is struggling with neck and upper extremity pain (not covered by worker's comp per report of October 24, 2001). Pain management report of November 7, 2001 states no relief with caudal ESI of January and March 2001. He states he has had three back surgeries and he is no longer a candidate for any additional surgery.

In May 2003 the patient is using methadone, Flexeril, Neurontin, amitriptyline, Klonopin, Effexor, Glucovance, Lasix and Reglan.

Pain management report of April 27, 2004 indicates the patient was admitted to a medical center for decreased consciousness associated with an overdose of his methadone. He states he did not do this on purpose. A psychiatric evaluation was recommended and he was agreeable to the recommendation. In November 2004 he was started on Zoloft and Robaxin.

On April 4, 2005 the patient reports increased back pain of one-month duration. X-rays showed his fusion and hardware to be intact. Flexion/extension views showed no subluxations. He was recommended facet injections but declined. He is using a single point cane. On January 10, 2006 he is still unwilling to consider facet injections. His cardiac status was checked and he had an acceptable EKG for continued use of methadone.

Pain management notes of November 6, 2006 indicate the patient has low back pain flare-ups about 9 times per months. He feels fairly stable otherwise. In February 2007 a consultation is recommended to assess his memory issues.

X-rays taken March 27, 2008 show pedicle screws and spinal rods from the L4 to L5. Two spacer devices are present in the

L5-S1 disc space. There is a vacuum disc at L4-5 and there is disc space narrowing at L3-4. The alignment of the lumbar spine is normal.

Med-legal opinions (Designated Doctor examination?) were provided on May 18, 2009 notes the patient has been primarily managed pharmacologically with focus on opiates. There was evidence of opiate abuse and he was hospitalized on once occasion for overdosing. The continuation of opioids needs close examination. Klonopin, a benzodiazepine, is not recommended. He is also using Neurontin and Amitriptyline and both may not be needed. He is using a muscle relaxant long-term, which is not recommended. The best option would be for him to attend a multidisciplinary chronic pain management program, which would include weaning of opiates.

Pain management notes of June 23, 2009 note the patient was diagnosed with diverticulitis per colonoscopy and gastric infection. He is started on antibiotics. In August 2009 he was planned to start Ambien for sleep.

Lumbar MRI of August 13, 2009 showed, at L4-5, disc desiccation. Discogenic endplate changes. Diffuse disc bulge with central disc protrusion and moderate to advanced bilateral facet joint disease causing moderate to severe central canal narrowing. There is moderate right and mild left foraminal narrowing. At L5-S1, this is a decompressed level. There is anterior and posterior fusion, with artifact from the metal at this level. There is no significant central canal narrowing. No abnormal contrast enhancement. Impression: Decompression stabilization if L5-S1 with multilevel degenerative changes worse at L4-5, with moderate to severe central canal narrowing.

Pain management notes of October 20, 2009 indicates request for LESI was denied.

The patient underwent cardiac catheterization in October 2009 and was cleared from any cardiac complications.

Medical report of November 7, 2009 indicates the patient has now had a fourth surgery. He developed foot drop or some weakness in the left lower extremity, which resolved after one of the screws was repositioned. He is able to walk 2-4 miles per day. However he has developed progressive back pain over the last month with lower extremity pain and numbness and tingling. He has a foot drop on the left side with strength of 4/5.

Lumbar CT scan of December 9, 2009 was given impression: Degenerative disc disease and lumbar spondylosis most prominent at L3-4 and L4-5. Myelogram shows bilateral pedicle screws and posterior stabilization rods transfixing L5 and S1 with intervertebral body cages. There are disc bulges at L3-4 and L4-5. These do not significantly change with flexion and extension. Otherwise, severe central canal stenosis is identified. There is some mild wasting of the contrast column of L3-4 and L4-5 secondary to disc bulges. The remainder of the levels are patent.

On January 7, 2010 the patient was recommended to undergo ACDF C5-6 and C6-7 for neck and upper extremity pain. He has significant disease at the L4-5 level with vacuum disc phenomena, spinal stenosis, foraminal stenosis and to a lesser extent at the L3-4 level. His options are consideration of dorsal column stimulation for his back or have "corrective" surgery. Even with corrective surgery he would need spinal cord stimulation for residual pain. He wants to do the neck surgery under Medicare.

The patient underwent cervical surgery with a two levels fusion on February 11, 2010.

On March 30, 2010 the patient's surgeon reviewed his CT scan findings and concluded that his best option would be for a 360 lateral fusion at the L3-4 and L4-5 levels. He has had PT and epidurals with little benefit and desires a surgery. On examination, left EHL strength is 4/5 and quadriceps and calf strength is 4.5/5. Straight leg raise is negative bilaterally. There are patchy sensory deficits in the dorsum of the plantar aspect of the left foot and L4 and S1 reflexes are depressed bilaterally (symmetrical reflexes are not an abnormal finding).

Medical report dated July 6, 2010 indicates request for lumbar surgery with fusions has been denied. The patient reports a pain level of 8/10 and desires a surgery. He walks with a cane and a brace. He is using Neurontin, Fentanyl, Soma, Benadryl, Aleve, Ambien and cardiac/diabetic meds. His weight is 217 pounds.

Lumbar x-rays taken June 8, 2010 were given impression: Posterior lumbar instrumentation and fusion L5-S1 without evidence of hardware failure. Moderate disc disease L4-5, mild changes at L3-4.

Medical report dated August 31, 2010 states a lateral lumbar fusion is requested at L3-4 and L4-5 with posterior stabilization 360. "The reason to do an anterior approach opposed to a posterior approach is anteriorly we can maintain the normal lumbar lordosis better by using 12 degree Medtronic lateral cages. The reason a fusion is to be done is because if we did just a decompression at the L3-4 and L4-5 level, this patient already has a solid fusion at L5-S1, he has a vacuum disc phenomenon and he is going to become hypermobile at that level after surgery. We essentially will destabilize his spine to decompress his nerve roots and that is the reason we want to perform a fusion."

Request for lateral 360 lumbar fusion L3-4, L4-5 with TSLO brace was considered in review on September 10, 2010 with recommendation for non-certification. Per the reviewer, the patient injured his low back lifting a keg of beer in xxxx. He is status post three lumbar surgeries, including a fusion. This request has been previously reviewed and denied on two levels. A peer discussion took place. Report of 8/31/10 notes some weakness of the EHL on the left being 4/5 and the quadriceps being 4.5/5.

On the right, the EHL and tibialis anterior strength is 4.5/5. An MRI of August 12, 2009 shows degenerative changes from L2 to L5, bone and facet in nature and a December 2009 CT myelogram shows bulges at L3-4 and L4-5, without any evidence of nerve compression. There is also no change in any compression or vertebral alignment with flexion/extension views. Rationale for denial states, there is still no data to support a two level fusion. ODG criteria are not met.

The claimant submitted a letter of appeal dated October 8, 2010. The claimant has training in kinesiology and has made full efforts over the years in rehabilitation with a number of setbacks. The patient is able to walk with a cane but feels the left foot is now dragging. He has failed many years of conservative treatments and desires the surgery recommended by his provider "to correct problems associated with the injury."

Medical report dated October 21, 2010 notes the request for surgery was denied. The reviewer did not see any reports showing significant neural foraminal impingement of the patient's disc problems at L3-4, vacuum disc phenomena at L4-5 or lumbar stenosis and lateral recess stenosis at those levels. The reviewer recommended flexion/extension x-rays and nerve conduction EMG. Clearly the CT scan of December 2009 showed moderate bilateral foraminal narrowing secondary to broad based disc bulge and osteophytes formation at L3-4. There was also moderate to prominent bilateral neural foraminal narrowing noted at the L4-5 level with vacuum disc phenomenon. The patient continues to complain of low back pain with bilateral lower extremity weakness and numbness, more prominent on the left. He describes continuous pain of 6-9/10 describes as sharp, burning, throbbing, stabbing, dull aching with numbness into the dorsum of the left foot and into the calf and weakness into the left leg and back stiffness and tightness. He has tried PT, chiropractic LESI without significant improvement. He uses a cane and brace. Flexion and extension x-rays will be taken this visit. Nerve studies are not needed and would not be approved as he has clear-cut radiculopathy associated with the L4-5 level.

Flexion/extension radiographs were taken on October 21, 2010 and demonstrated no subluxation. Impression: Postoperative changes L5-S1, degenerative disc disease, atherosclerotic disease.

Request for reconsideration lateral 360 lumbar fusion L3-4, L4-5 with TSLO brace was considered in review on October 15, 2010 with recommendation for non-certification. The treatment history and imaging findings were summarized. A peer discussion was realized. Per the reviewer, no additional imaging studies were available and there was no attempt to assess for instability. No additional information was provided in the discussion. The nurse practitioner agreed that if this were her family member that more definition of the problem would be needed.

Request was made for an IRO.

ANALYSIS AND EXPLANATION OF THE DECISION INCLUDE CLINICAL BASIS, FINDINGS AND CONCLUSIONS USED TO SUPPORT THE DECISION.

The Official Disability Guidelines criteria for lumbar fusion include, neural arch defect - spondylolytic spondylolisthesis, congenital neural arch hypoplasia, segmental instability (objectively demonstrable) - Excessive motion, as in degenerative spondylolisthesis, surgically induced segmental instability and mechanical intervertebral collapse of the motion segment and advanced degenerative changes after surgical disectomy. Fusion procedures are not recommended unless there is objectively demonstrated severe structural instability and/or acute or progressive neurologic dysfunction, but recommended as an option for spinal fracture, dislocation, spondylolisthesis or frank neurogenic compromise, subject to the selection criteria outlined. It is also noted that, fusion can be considered if, revision surgery for failed previous operation(s) if significant functional gains are anticipated, although revision surgery for purposes of pain relief must be approached with extreme caution due to the less than 50% success rate reported in medical literature. After failure of two disectomies on the same disc, fusion may be an option at the time of the third disectomy, which should also meet the ODG criteria.

The patient is significantly disabled after a number of cervical and lumbar surgeries. He uses a brace and a cane and reports a constant high pain level. Medication use is heavy and he had an incident over overdose with methadone. In January 2010 the provider stated, even with corrective surgery he would likely need spinal cord stimulation for residual pain. The provider states, the reason to do an anterior approach opposed to a posterior approach is anteriorly we can maintain the normal lumbar lordosis better by using 12 degree Medtronic lateral cages. The reason a fusion is to be done is because simple decompressions at the L3-4 and L4-5 with a solid fusion at L5-S1 and a vacuum disc phenomenon would lead to hypermobility at that level after surgery. "We essentially will destabilize his spine to decompress his nerve roots and that is the reason we want to perform a fusion." CT scan of December 9, 2010 shows, the prior surgeries/instrumentation plus, disc bulges at L3-4 and L4-5 which do not significantly change with flexion and extension. Otherwise, severe central canal stenosis is identified. There is some mild wasting of the contrast column of L3-4 and L4-5 secondary to disc bulges. The remainder of the levels are patent. Clinically, there is weakness of the left EHL with 4/5 strength and the quadriceps with 4.5/5 strength. On the right, the EHL and tibialis anterior strength is 4.5/5. (report 8/31/10). The patient feels his left foot in now dragging.

This is a complicated case without a simple guideline solution. The patient has a significant pain level and degree of disability and has also developed left foot drop. It is noted that the prior surgeries were focused on L5-S1. The pathology at L3-4 and L4-5 has

not been previously addressed. Given the duration of disability, the imaging and clinical findings it does appear that the patient's best option at this time is to be fused from L3-S1. A standard TSLO brace post fusion would also be supported.

Therefore, my recommendation is to disagree with the previous non-certification for lateral lumbar fusion L3-4, L4-5.

The IRO's decision is consistent with the following guidelines:

A DESCRIPTION AND THE SOURCE OF THE SCREENING CRITERIA OR OTHER CLINICAL BASIS USED TO MAKE THE DECISION:

- ACOEM- AMERICAN COLLEGE OF OCCUPATIONAL & ENVIRONMENTAL MEDICINE UM KNOWLEDGEBASE
- AHCPR- AGENCY FOR HEALTHCARE RESEARCH & QUALITY GUIDELINES
- DWC- DIVISION OF WORKERS COMPENSATION POLICIES OR GUIDELINES
- EUROPEAN GUIDELINES FOR MANAGEMENT OF CHRONIC LOW BACK PAIN
- INTERQUAL CRITERIA
- MEDICAL JUDGEMENT, CLINICAL EXPERIENCE AND EXPERTISE IN ACCORDANCE WITH ACCEPTED MEDICAL STANDARDS
- MERCY CENTER CONSENSUS CONFERENCE GUIDELINES
- MILLIMAN CARE GUIDELINES
- ODG- OFFICIAL DISABILITY GUIDELINES & TREATMENT GUIDELINES
- PRESSLEY REED, THE MEDICAL DISABILITY ADVISOR
- TEXAS GUIDELINES FOR CHIROPRACTIC QUALITY ASSURANCE & PRACTICE PARAMETERS
- TEXAS TACADA GUIDELINES
- TMF SCREENING CRITERIA MANUAL
- PEER REVIEWED NATIONALLY ACCEPTED MEDICAL LITERATURE (PROVIDE A DESCRIPTION)
- OTHER EVIDENCE BASED, SCIENTIFICALLY VALID, OUTCOME

The Official Disability Guidelines 11-12-2010 Lumbar Chapter - Fusion (spinal):

Not recommended for patients who have less than six months of failed recommended conservative care unless there is objectively demonstrated severe structural instability and/or acute or progressive neurologic dysfunction, but recommended as an option for spinal fracture, dislocation, spondylolisthesis or frank neurogenic compromise, subject to the selection criteria outlined in the section below entitled, "Patient Selection Criteria for Lumbar Spinal Fusion," after 6 months of conservative care. For workers' comp populations, see also the heading, "Lumbar fusion in workers' comp patients," After screening for psychosocial variables, outcomes are improved and fusion may be recommended for degenerative disc disease with spinal segment collapse with or without neurologic compromise after 6 months of compliance with recommended conservative therapy. [For spinal instability criteria, see AMA Guides

According to the recently released AANS/NASS Guidelines, lumbar fusion is recommended as a treatment for carefully selected patients with disabling low back pain due to one- or two-level degenerative disc disease after failure of an appropriate period of conservative care. This recommendation was based on one study that contained numerous flaws, including a lack of standardization of conservative care in the control group. At the time of the 2-year follow up it appeared that pain had significantly

increased in the surgical group from year 1 to 2. Follow-up post study is still pending publication. In addition, there remains no direction regarding how to define the "carefully selected patient."

A recently published well respected international guideline, the "European Guidelines," concluded that fusion surgery for nonspecific chronic LBP cannot be recommended unless 2 years of all other recommended conservative treatments - including multidisciplinary approaches with combined programs of cognitive intervention and exercises - have failed, or such combined programs are not available, and only then in carefully selected patients with maximum 2-level degenerative disc disease. (Airaksinen, 2006) For chronic LBP, exercise and cognitive intervention may be equivalent to lumbar fusion without the potentially high surgical complication rates.

In acute spinal cord injury (SCI), if the spine is unstable following injury, surgical fusion and bracing may be necessary. A study on improving quality through identifying inappropriate care found that use of guideline-based Utilization Review (UR) protocols resulted in a denial rate for lumbar fusion 59 times as high as denial rates using non-guideline based UR. The profit motive and market medicine have had a significant impact on clinical practice and research in the field of spine surgery.

A recent randomized controlled trial comparing decompression with decompression and instrumented fusion in patients with foraminal stenosis and single-level degenerative disease found that patients universally improved with surgery, and this improvement was maintained at 5 years. However, no obvious additional benefit was noted by combining decompression with an instrumented fusion.

Discography may be supported if the decision has already been made to do a spinal fusion, and a negative discogram could rule out the need for fusion on that disc (but a positive discogram in itself would not justify fusion). Discography may help distinguish asymptomatic discs among morphologically abnormal discs in patients without psychosocial issues.

This study showed that fusion for chronic lower back pain was the least successful common orthopaedic surgery. The study compared the gains in quality of life achieved by total hip replacement, total knee replacement, surgery for spinal stenosis, disc excision for lumbar disc herniation, and arthrodesis for chronic low back pain. For chronic lower back pain, improvements were statistically significant but clinically negligible. Although pain was reduced and function improved slightly, outcomes remained in the moderately affected range, quality of life was not improved and rendered worse, on average. While surgery for spinal stenosis and for disc herniation compare well with archetypical orthopaedic operations, the outcomes of surgery for chronic lower back pain do not even approach those of other orthopaedic procedures, and the data show that patients with back pain are rendered worse off by surgery.

Recent studies document a 220% increase in lumbar spinal fusion surgery rates, without demonstrated improvements in patient outcomes or disability rates. In a study of 2,378 Washington State workers' compensation claimants who underwent fusion to assess the frequency, timing, and causes of death, the 3-year cumulative mortality rate post-fusion was 1.93% and analgesic-related deaths were responsible for 21% of all deaths and 31.4% of all potential life lost. A study to compare the surgical experience, clinical outcomes, and effect on body weight between obese and morbidly obese patients undergoing lumbar spine fusion surgery concluded that clinical outcomes were independent of the BMI of the patient, but the incidence of postoperative complications was significant in 45% of morbidly obese and 44% of obese patients. The authors proposed that morbidly obese patients should undergo bariatric surgery before spine surgery in nonemergent situations. For nonradicular low back pain with common degenerative changes, there is fair evidence that fusion is no better than intensive rehabilitation with a cognitive-behavioral emphasis for improvement in pain or function, and less than half of patients experience optimal outcomes (defined as no more than sporadic pain, slight restriction of function, and occasional analgesics) following fusion. Posterolateral bone-grafting fusion is not necessary when a Denis type-B thoracolumbar burst fracture associated with a load-sharing score of ≤ 6 is treated with short-segment pedicle screw fixation. (Dai, 2009) Discography (and not merely the fusion) may actually be the cause of adjacent segment disc degeneration. This study suggested that the phenomenon of accelerated adjacent segment degeneration adjacent to fusion levels may be, in part, explained by previous disc puncture if discography was used in segments adjacent to the fusion. Among Medicare recipients, the frequency of complex fusion procedures for spinal stenosis increased 15-fold in just 6 years. The introduction and marketing of new surgical devices and financial incentives may stimulate more invasive surgery. Results of this study suggest that postmenopausal female patients who underwent lumbar spinal instrumentation fusion were susceptible to subsequent vertebral fractures within 2 years after surgery (in 24% of patients). (Toyone, 2010) Lumbar spinal fusion surgeries use bone grafts, and are sometimes combined with metal devices, to produce a rigid connection between two or more adjacent vertebrae. The therapeutic objective of spinal fusion surgery for patients with low back problems is to prevent any movement in the intervertebral spaces between the fused vertebrae, thereby reducing pain and any neurological deficits.

Patient Selection Criteria for Lumbar Spinal Fusion:

For chronic low back problems, fusion should not be considered within the first 6 months of symptoms, except for fracture, dislocation or progressive neurologic loss. Indications for spinal fusion may include: (1) Neural Arch Defect - Spondylolytic spondylolisthesis, congenital neural arch hypoplasia. (2) Segmental Instability (objectively demonstrable) - Excessive motion, as in degenerative spondylolisthesis, surgically induced segmental instability and mechanical intervertebral collapse of the motion segment and advanced degenerative changes after surgical discectomy. [For excessive motion criteria, see AMA Guides, 5th Edition, page 384 (relative angular motion greater than 20 degrees). (Andersson, 2000) (Luers, 2007)] (3) Primary Mechanical

Back Pain (i.e., pain aggravated by physical activity)/Functional Spinal Unit Failure/Instability, including one or two level segmental failure with progressive degenerative changes, loss of height, disc loading capability. In cases of workers' compensation, patient outcomes related to fusion may have other confounding variables that may affect overall success of the procedure, which should be considered. There is a lack of support for fusion for mechanical low back pain for subjects with failure to participate effectively in active rehab pre-op, total disability over 6 months, active psych diagnosis, and narcotic dependence. [For spinal instability criteria, see AMA Guides, 5th Edition, page 379 (lumbar inter-segmental movement of more than 4.5 mm). (Andersson, 2000)] (4) Revision Surgery for failed previous operation(s) if significant functional gains are anticipated. Revision surgery for purposes of pain relief must be approached with extreme caution due to the less than 50% success rate reported in medical literature. (5) Infection, Tumor, or Deformity of the lumbosacral spine that cause intractable pain, neurological deficit and/or functional disability. (6) After failure of two discectomies on the same disc, fusion may be an option at the time of the third discectomy, which should also meet the ODG criteria. (See ODG Indications for Surgery -- Discectomy.)

Pre-Operative Surgical Indications Recommended: Pre-operative clinical surgical indications for spinal fusion should include all of the following: (1) All pain generators are identified and treated; & (2) All physical medicine and manual therapy interventions are completed; & (3) X-rays demonstrating spinal instability and/or myelogram, CT-myelogram, or discography (see discography criteria) & MRI demonstrating disc pathology; & (4) Spine pathology limited to two levels; & (5) Psychosocial screen with confounding issues addressed. (6) For any potential fusion surgery, it is recommended that the injured worker refrain from smoking for at least six weeks prior to surgery and during the period of fusion healing.

According to the Official Disability Guidelines (2010): Low Back Chapter - Back brace, post operative (fusion): Under study, but given the lack of evidence supporting the use of these devices, a standard brace would be preferred over a custom post-op brace, if any, depending on the experience and expertise of the treating physician.