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May 3, 2018
IRO CASE #: XXXXXX

DESCRIPTION OF THE SERVICE OR SERVICES IN DISPUTE:
L4-L5, L5-S1 combined posterolateral plus posterior lumbar interbody fusion (PLIF)

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

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

X Upheld (Agree)

Provide a description of the review outcome that clearly states whether medical necessity exists for each of the health care services in dispute.

PATIENT CLINICAL HISTORY [SUMMARY]:
The patient is a XX who was injured on XXXX. The patient was attempting to XX. XX into hyperextension of the lumbar back striking XX mid-thoracic back against a wall. The patient had immediate pain in these areas.

On XXXX, the patient was evaluated by XX, at XX in an initial office visit. The patient presented with the complaints of pain in the thigh, low back and mid thoracic region. The patient had difficulty walking, squatting, bending and turning. The pain was constant and sharp. The pain level was 5-8/10. The patient stated the low back pain was branching upward toward the top of the shoulders. The past surgical history included a hysterectomy. On exam, there was tenderness in the gluteus maximus, proximal hamstring, sciatic notch and sacroiliac joint (SI). There was a limited range of motion (ROM) in all planes with pain. The FABER test was positive. There was tenderness over the anterior aspect of the right thigh. The left thigh had tenderness over medial and posterior aspect and hamstring. The ROM was restricted with pain. The thoracic spine had tenderness over the T7 through the T12 levels and T7 through T12 left paraspinals. There were left-sided muscle spasms on palpation at T7, T8, T9, T10, T11, T12, L1 and L2. The lumbosacral spine had tenderness from level L1 through L5 left paraspinal and left sciatic notch. The active flexion was 45

and painful, extension was 5 degrees and painful. The straight leg raise (SLR) test was normal bilaterally. X-rays of the pelvis revealed more stress on the left SI as characterized by heavy calcium delineation of the SI joint. X-rays of the lumbar spine revealed sacralization of the L5. X-rays of the thoracic spine revealed scoliosis and spondylosis. The diagnoses were back strain and strain of the hip and left thigh. XX injection was administered. XX, XX, XX were prescribed. Physical therapy (PT) referral was provided. The patient was placed on light duty.

On XXXX, the patient was seen by XX in a follow-up evaluation. The patient complained of pain from the shoulder blades back and the knees. The pain level was 5/10. XX reported improvement in ROM. XX reported if XX sits for any time XX has pain on standing and requires several minutes before XX is able to walk normally. The examination remained essentially unchanged. XX injection was administered. XX, XX and XX were prescribed. Referral for PT was provided. Light duty continued.

From XXXX, through XXXX, the patient was evaluated by XX, for persistent low back pain. XX could not sleep due to pain. The examination remained essentially unchanged. XX, XX and XX were prescribed. XX referred to PT.

On XXXX, XX evaluated the patient for persistent low back pain. The patient had PT but not the McKenzie protocol. The pain level was 7/10. XX, XX and XX were prescribed. For therapy McKenzie protocol was recommended.

On XXXX, the patient was evaluated by XX for a follow-up evaluation. The patient stated XX had pain only after sitting down and getting up. The pain level was 3/10. The ROM was normal. On exam, the lumbosacral spine had tenderness at the bilateral paraspinals. There were full ROM and no bilateral muscle spasms. Light duty continued.

On XXXX, the patient was evaluated by XX for persistent low back pain rated at 4/10. The examination remained essentially unchanged. XX was prescribed. Impairment rating (IR) referral was provided.

Per XX dated XXXX, XX, opined that the patient had not reached maximum medical improvement (MMI) but was expected to reach MMI on XXXX.

On XXXX, the patient was seen by XX because of persistent low back pain rated at 4/10. A magnetic resonance imaging (MRI) of the lumbar spine was ordered.

On XXXX, an **MRI of the lumbar spine** was performed at XX. The study was interpreted by XX. The study revealed mild degenerative disc disease and mild bulging of the annulus fibrosus at L4-L5 and L5-S1. There was no acquired spinal stenosis. There was mild right neural foraminal stenosis which appeared to be secondary to right posterolateral disc/osteophyte protrusion at L5-S1.

On XXXX, XX saw the patient in a follow-up evaluation. The patient continued to have pain in the lower and middle back. The MRI of the lumbar spine was reviewed. Impairment rating referral was provided. Light duty continued.

On XXXX, the patient underwent functional capacity evaluation (FCE). (Incomplete Report)

Per a correspondence from XX dated XXXX, the patient had reached MMI on XXXX, with 0% whole person impairment (WPI) rating.

On XXXX, an **MRI of the left shoulder** joint was performed at XX, interpreted by XX. The study showed moderate to severe supraspinatus tendinopathy. There was mild to moderate acromioclavicular arthropathy.

On XXXX, an **MRI of the lumbar spine** was performed at XX. The study showed at L4-L5 there was decreased disc height and signal. There was diffuse 3 mm disc bulge, ligamentous hypertrophy and facet joint arthropathy causing mild central canal and mild bilateral neural foraminal stenosis. At L5-S1, there was decreased disc height and signal. There was diffuse 3 mm disc bulge, ligamentous hypertrophy and facet joint arthropathy. There was a superimposed left lateral 4 mm disc protrusion. There was mild central canal, mild right neural foraminal and moderate left neural foraminal stenosis identified. There was mild dextroscoliosis.

Over xx after being placed at mmi, on XXXX, the patient was seen by XX, for low back pain. The patient had transferred XX care. The patient stated XX would wake up in the night due to low back pain. XX stated the second doctor in XX stated XX was at MMI, and so XX did not return for any further visits. XX continued to have constant pain in the low back. On exam, there was decreased ROM with flexion and extension with pain. The FABER test was positive. There was tenderness in the left SI joint. The diagnoses were lumbar region pain, chronic low back pain and SI joint inflammation. Mobic and gabapentin were prescribed. Referral to XX was provided. NO RADICULAR SYMPTOMS WERE IDENTIFIED.

On XXXX, the patient underwent an initial PT evaluation at an unknown facility. PT XX was recommended.

On XXXX and XXXX, the patient was seen by XX for persistent low back pain. On exam, the gait was affected by left leg limp. There was decreased ROM in all planes with pain. There was a pain with FABER and with SLR but to back only. NO RADICULAR PAIN was identified. Current medications were continued. The patient was advised to start PT.

On XXXX, the patient underwent PT reevaluation. PT recommendation for XX was continued.

On XXXX, the patient was seen by XX, in an initial office visit. The patient complained of severe back pain that radiated down the legs. The pain was worse at night. Over the course of XX, XX

had two injections which gave only moderate relief, activity modification and pain management. XX had been off work for XX and had tried to do light work. XX had been debilitated with back and radicular pain that radiated into the anterior and anterolateral distribution, L4-L5 distribution as well as S1 distribution into the posterior buttock and the thigh region [FIRST DOCUMENTATION IN THE MEDICAL RECORDS OF RADICULAR SYMPTOMS by the surgeon who wanted to perform surgery]. XX had difficulty with extension and difficulty with walking. XX was using a cane [MANIFESTATION OF SYMPTOM MAGNIFICATION] for ambulation and had difficulty with standing for any period of time. The past medical history was positive for high blood pressure, varicose veins and sexual difficulty. On exam, there was a pain with extension and forward flexion. The pain was located to the L4-L5 and L5-S1 facets. There was pain in the anterior aspect of the L4 and L5 distribution. With the extension, there was positive SLR on the bilateral legs. The strength was 4/5 in the tibialis anterior and plantar flexion. The reflexes were depressed in the patellar tendon and ankle jerks. XX recommended wide facetectomy and instrumented fusion because of root compromise at L4-L5 and L5-S1 area. An MRI of the lumbar spine was ordered.

On XXXX, x-rays of the lumbar spine revealed narrowing at L5-S1.

On XXXX, the patient was seen by XX for a follow-up evaluation. The patient continued to have back pain. On exam, there was decreased ROM in all planes with pain. The SLR was positive on the left. There was hypoesthesia in the L5 and left S1, S2 distribution. The diagnosis was chronic low back pain. The treatment recommendations included completing PT program, continuing follow-up with XX and continuing the medications.

On XXXX, an **MRI of the lumbar spine** was performed at XX, interpreted by XX. The study showed at the L4-L5 level, posterior disc bulge together with facet hypertrophy caused narrowing of both neural foramina. At L5-S1 level, posterior and left posterior lateral disc bulge together with facet hypertrophy caused narrowing of the left neural foramen and reduction of the right neural foramen.

On XXXX, the patient was seen by XX in a follow-up evaluation. The patient had low back pain with radicular pain and paresthesias off and on down the left leg. The pain was controlled with the pain medications. On exam, the patient continued to have decreased back flexion and extension. There was pain with ROM in all planes. The muscle strength was 1/5 on the left and 3/5 on the right quadriceps. The diagnoses were SI joint inflammation, chronic low back pain and other disc disorder. XX was refilled.

On XXXX, the patient was seen by XX, for behavioral medicine evaluation. XX opined the patient had significant psychological issues which likely impacted the outcome of the surgery. The issues included reactive depression and demoralization, tension and irritability and sleep disturbance. The patient was recommended antidepressant medication, as well as psychotherapy prior to surgery. XX stated that mental health issues were directly caused by the injury.

On XXXX, the patient was seen by XX, for worsening back pain and leg pain. On exam, the gait

was very slow. The patient was unable to perform ROM of the lumbar spine secondary to pain. There were no motor or sensory deficits in the lower extremities. The reflexes were symmetric. Discogram at L4-L5 and L5-S1 was recommended. Follow-up with XX was recommended.

On XXXX, the patient was evaluated by XX in follow-up evaluation. The patient continued to have pain in the back radiating down both legs with numbness and tingling. XX stated the medications controlled the pain. On exam, the gait was slowed. There was decreased ROM in all planes with pain. The SLR was positive on the left down to the side of left foot. XX and XX were continued.

Per utilization review dated XXXX, a request for L4-L5, L5-S1 combined posterolateral and PLIF was denied. Rationale: *"The request for L4-L5, L5-S1 combined posterolateral and posterior lumbar interbody fusion (PLIF) was not medically necessary. The claimant is not a surgical candidate. There is no evidence of any motion segment instability or significant spondylolisthesis. The claimant also did not present with any current objective findings consistent with radiculopathy. The records also did not include documentation regarding the failure of reasonable nonoperative measures to include medications or physical therapy. The claimant's recent psychological evaluation also did not recommend proceeding with surgery and instead, recommended antidepressants and individual psychotherapy. Given these issues which do not meet guideline recommendations, this reviewer cannot recommend certification for the request. Therefore, the request for L4-L5, L5-S1 combined posterolateral and posterior lumbar interbody fusion (PLIF) is not medically necessary."*

Per a correspondence dated XXXX, XX stated the following. "*We had requested for surgical intervention for someone who had a work-related injury and had unsustained relief with significant back and radicular complaints with objective evidence of neural compression. The patient had failed physical therapy. The patient did have medications that XX managed. XX did not recommend surgical intervention with XX psychological profile, and we would defer to XX judgment on this matter."*

Per a reconsideration dated XXXX, a request for L4-L5, L5-S1 combined posterolateral and PLIF was denied. Rationale: "*The submitted clinical records indicate the claimant has low back pain with subjective reports of radiation into the lower extremities. The records allude to prior physical therapy with benefit, and the claimant has undergone injections without benefit. Imaging studies indicate the requested operative levels are stable. It is alluded that the claimant will require extra wide decompression. However, the MRI does not suggest this and simple decompression would appear to be adequate. Further, the psychiatric evaluation does not clear the claimant and recommends antidepressants and individual psychotherapy. Until the claimant completes these treatments, XX would not be a candidate for fusion per the guidelines. Therefore, L4-L5, L5-S1 combined posterolateral and PLIF is not medically necessary*."

On XXXX, the patient was notified about the denial.

ANALYSIS AND EXPLANATION OF THE DECISION INCLUDE CLINICAL BASIS,

FINDINGS, AND CONCLUSIONS USED TO SUPPORT THE DECISION:

This claimant presented late in the XX of life with nonspecific low back and hip complaints due to the reported Producing Cause MOI. Specific radicular complaints were not identified. The first MRI did not reveal any objective evidence of an acute, traumatic process; nor did the MRI reveal any objective evidence of a substantial abnormality that were medically probably responsible for causing XX subjective symptoms. The MRI findings were typical of degenerative processes, common to individuals in the late XX of life. XX received appropriate treatment, per ODG, and was placed at MMI. Over XX after being placed at MMI, the claimant re-initiated evaluation for low back pain, again without specific radicular complaints or exam findings. It was not until XX evaluation with the spine surgeon that barely more specific radicular complaints and now-positive exam findings were documented in the records. Signs of symptom magnification have been documented. Psychological problems have been documented. Despite this, the spine surgeon immediately recommended multilevel fusion surgery. The spine surgeon did not discuss ODG criteria for such, nor did XX provide any medical rationale based on objective evidence and evidence-based guidelines.

Two preauthorization requests were submitted by the spine surgeon for L4-5 and L5-S1 PLIF, three-day hospital stay, and co-surgeon. The two preauthorization requests were denied through the typical preauthorization review process, applying ODG criteria (and common sense). The two preauthorization denials appear to have been formulated appropriately, and the denials are upheld.

☐ Medically Necessary

☒ Not Medically Necessary

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

X ODG- OFFICIAL DISABILITY GUIDELINES & TREATMENT GUIDELINES

X PEER REVIEWED NATIONALLY ACCEPTED MEDICAL LITERATURE (PROVIDE A DESCRIPTION)

Carragee EJ, Hannibal M: **Diagnostic evaluation of low back pain.** *Orthop Clin North Am* 2004 Jan; 35(1): 7-16. CONCLUSION: In the end, the discogram and other diagnostic tests are tools that have clear limitations. In this field, clinical judgment begins and ends with an understanding of a patient's life and circumstances as much as with their specific spinal pathology.

Carragee E, Alamin T, Cheng I, Franklin T, van den Haak E, Hurwitz E. **Are first-time episodes of serious LBP associated with new MRI findings?** *Spine J* 2006 Nov-Dec; 6(6): 624-35. CONCLUSION: Findings on MR imaging within 12 weeks of serious LBP inception are highly unlikely to represent any new structural change. Most new changes (loss of disc signal, facet arthrosis, and end plate signal changes) represent progressive age changes not associated with acute events.

Carragee E, Alamin T, Cheng I, Franklin T, Hurwitz E: **Does Minor Trauma Cause Serious Low Back Illness?** Spine 2006: 31(25); 2942 – 2949. CONCLUSIONS: There was no association of minor trauma to adverse LBP events. For each 6-month study interval, the risk of developing a serious LBP episode was 2.1% unassociated with minor trauma and 2.4% following minor trauma (P = 0.59). Neither the frequency

of minor trauma events nor the reported severity of the event correlated with adverse outcomes. Subjects with advanced structural findings were not more likely to become symptomatic with minor trauma events than with spontaneously evolving LBP episodes. Follow-up magnetic resonance imaging evaluating new serious LBP illness rarely revealed new clinically significant findings. Age and sex-adjusted prediction models, including abnormal psychometric testing, smoking, and compensation issues, accurately identified 80% of serious LBP events and 93% of LBP disability events. Thus, in this study cohort, minor trauma does not appear to increase the risk of serious LBP episodes or disability. The vast majority of incident-adverse LBP events may be predicted not by structural findings or minor trauma but by a small set of demographic and behavioral variables.

Videman T, Battie MC, Gibbons LE, Maravilla K, Manninen H, Kaprio J: **Associations between back pain history and lumbar MRI findings.** *Spine* 2003 Mar 15; 28(6): 582-8. CONCLUSION: These findings raise new questions about the underlying mechanisms of LBP. The sensitivities of the only significant MRI parameters--disc height narrowing and annular tears--are poor, and these findings alone are of limited clinical importance.

Pradeep Suri, MD, David J Hunter, MBBS, PhD, Cristin Jouve, MD, Carol Hartigan, MD, Janet Limke, MD, Enrique Pena, MD, Bryan Swaim, MS,1 Ling Li, MPH, and James Rainville, MD. **Inciting Events Associated with Lumbar Disk Herniation.** *Spine Journal 2010 May; 10(5): 388-395.* ABSTRACT: Our findings suggest that a history of physical activities or other inciting events is not necessary to trigger the onset of symptoms secondary to LDH. These observations may be consistent with either a cumulative injury model or a genetic model of disk degeneration. From the perspective of the cumulative injury model, progressive injury may cause damage of disk structures to such an extent that even a small, transient increase in forces across the spine-insufficient to register as an inciting event by the patient- may lead to the final occurrence of herniation. From the competing perspective of the genetic model, a low frequency of inciting events is expected due to the fact that genetically encoded processes dependent on time and aging are the primary determinants of herniation. However, in the context of the onset of symptoms in acute LDH, neither model of degeneration strongly supports the notion that vigilant avoidance of activity may have staved off the final occurrence of herniation. It should be noted that the prevalence of spontaneous symptom onset in 62% of patients with radicular pain due to LDH in our study is strikingly similar to the results of the few prior studies of inciting events in low back pain. A prospective study of patients presenting to rehabilitation clinics found a spontaneous onset without identifiable cause in 67% of back pain episodes [25]. This work cited unpublished data by McKenzie, which noted a **spontaneous** onset without identifiable cause in 67% of back pain patients prior to the enactment of compensation legislation mandating the identification of a specific precipitating event [25]. Taken together, the existing literature on inciting events in spinal disorders therefore does not portray a strong link between the presence of specific inciting events and the onset of symptoms. Despite these limitations, our study is the first to evaluate the presence or absence of inciting events in acute lumbar disk herniation. We found that the majority of LDH occurred without specific inciting events. A history of an inciting event was not significantly associated with a more severe clinical presentation in crude analyses. Rather, spontaneous LDH demonstrated an independent association with greater disability in multivariate analysis that was statistically significant, though likely not clinically meaningful. There was no significant association between the occurrence of a lifting-related event and the severity of the clinical presentation. Although these findings do not refute either the cumulative injury model or genetic model of disk degeneration, neither do they suggest that physical activity is associated with the occurrence or severity of disk herniation. This information may be helpful in the education of patients recovering from lumbar disk herniation.

Boden SD, Davis CO, Dina TS, Patronas NJ, Wiesel SW: **Abnormal magnetic resonance scans of the lumbar spine in asymptomatic subjects: A Prospective Investigation**. *J Bone Joint Surg Am* 1990; 72:403-408. ABSTRACT: We performed magnetic resonance imaging on sixty-seven individuals who had never had low-back pain, sciatica, or neurogenic claudication. The scans were interpreted independently by three neuro-radiologists who had no knowledge about the presence or absence of clinical symptoms in the subjects. About one-third of the subjects were found to have a substantial abnormality. Of those who were less than sixty years old, 20 per cent had a herniated nucleus pulposus and one had spinal stenosis. In the group that was sixty years old or older, the findings were abnormal on about 57 per cent of the scans: 36 per cent of the subjects had a herniated nucleus pulposus and 21 per cent had spinal stenosis. There was degeneration or bulging of a disc at least one lumbar level in 35 per cent of the subjects between twenty and thirty-nine years old and in all but one of the sixty to eighty-year-old subjects. In view of these findings in asymptomatic subjects, we concluded that abnormalities on magnetic resonance images must be strictly correlated with age and any clinical signs and symptoms before operative treatment is contemplated.

Stadnick TW, Lee RR, Coen HL, Neirynck EC, Buisseret TS, Osteaux MJ: **Annular tears and disc herniation: Prevalence and contrast-enhancement on MR images in the absence of low back pain or sciatica**. *Radiology* 1998; 206:49-55. CONCLUSION: Annular tears and focal disk protrusions on MR images, with or without contrast enhancement, are frequently found in an asymptomatic population. Extruded disk herniation, displacement of nerve root, and interruption of annuloligamentous complex are unusual findings in an asymptomatic population and can be more closely related to patients with LBP or sciatica.

Jensen M, Brant-Zawadzki M, Obuchowski N, Modic M, Malkasian D, Ross J: **Magnetic Resonance Imaging of the Lumbar Spine in People Without Back Pain**. *The New England Journal of Medicine* 1994; 331(2): 69-73. ABSTRACT: Thirty-six percent of the 98 asymptomatic subjects had normal disks at all levels. With the results of the two readings averaged, 52 percent of the subjects had a bulge at least one level, 27 percent had a protrusion, and 1 percent had an extrusion. Thirty-eight (38%) percent had an abnormality of more than one intervertebral disk. The

prevalence of bulges, but not of protrusions, increased with age. The most common nonintervertebral disk abnormalities were Schmorl's nodes (herniation of the disk into the vertebral-body end plate), found in 19 percent of the subjects; annular defects (disruption of the outer fibrous ring of the disk), in 14 percent; and facet arthropathy (degenerative disease of the posterior articular processes of the vertebrae), in 8 percent. The findings were similar in men and women. Thus, on MRI examination of the lumbar spine, many people without back pain have disk bulges or protrusions but not extrusions. Given the high prevalence of these findings and of back pain, the discovery by MRI of bulges or protrusions in people with low back pain may frequently be coincidental.

Carragee EJ, Paragioudakis SJ, Khurana S. **2000 Volvo Award winner in clinical studies: Lumbar high-intensity zone and discography in subjects without low back problems.** *Spine* 2000 Dec 1;25(23):2987-92 CONCLUSIONS: The presence of a high-intensity zone does not reliably indicate the presence of symptomatic internal disc disruption. Although higher in symptomatic patients, the prevalence of a high-intensity zone in asymptomatic individuals with degenerative disc disease (25%) is too high for meaningful clinical use. When injected during discography, the same percentage of asymptomatic and symptomatic discs with a high-intensity zone was shown to be painful.

el Barzouhi A, Vleggeert-Lankam C, et. al. for the Leiden–The Hague Spine Intervention Prognostic Study Group: **Magnetic Resonance Imaging in Follow-up Assessment of Sciatica**. BACKGROUND: Sciatica is a relatively common condition, with a lifetime incidence of 13 to 40%. The most common cause of sciatica is a herniated disk. The natural history of sciatica is favorable, with spontaneous resolution of leg pain within 8 weeks in the majority of patients. Surgery should be offered only if symptoms persist after a period of conservative treatment. However, contrary to what one might expect, given the advancements in diagnostic imaging and surgical techniques, the results after lumbar-disk surgery do not seem to have improved during recent decades. Both classic studies and randomized, controlled trials have shown that during longer follow-up at least 15 to 20% of patients report recurring or persistent symptoms after a first episode of sciatica, regardless of whether they underwent surgery. Persistent or recurrent sciatica despite treatment leads to physical and emotional suffering for the patient and substantial costs in terms of treatment, sick leave, and pensions for society. Magnetic resonance imaging (MRI), which is considered the imaging procedure of choice for patients in whom lumbar-disk herniation is suspected, is frequently performed in patients with persistent or recurrent symptoms of sciatica.11 However, the association between findings on MRI and symptoms is controversial, with several studies showing a high prevalence of disk herniation, ranging from 20 to 76%, in persons without any symptoms. Even after disk surgery, MRI studies have shown disk herniation in up to 53% of asymptomatic persons. Therefore, one could question the value of repeating MRI in clinical practice, given the high percentage of MRI abnormalities in persons with no clinical history of sciatica or physical findings of nerve-root pain. Despite the scientific debate, physicians often order repeat MRI studies (usually with gadolinium) for patients with persistent or recurrent symptoms of sciatica. Moreover, abnormal MRI findings frequently result in surgical treatment or other invasive procedures, such as epidural injections. We previously reported the clinical outcome results of a randomized, controlled trial, which was designed to define the effect of timing of surgery for patients with sciatica. The trial showed that recovery after early surgery was faster than a strategy of prolonged conservative care with surgery if needed, but there were no significant differences in clinical outcomes after 1 year. We now report on the radiologic findings at 1 year, changes in these findings over time, and their correlation with clinical outcome. METHODS: Patients in this study were participants in the Sciatica Trial, a multicenter, randomized trial among patients with a history of 6 to 12 weeks of sciatica and disk herniation, as seen on MRI. Patients were included only if they had a dermatomal pattern of pain distribution with concomitant neurologic disturbances that correlated with the same nerve root being affected on MRI. An early-surgery strategy was compared with prolonged conservative care for an additional 6 months followed by surgery for patients whose symptoms did not improve or who requested surgery earlier because of aggravating symptoms. The medical ethics committee at each of the nine participating hospitals approved the protocol, which is available with the full text of this article at NEJM.org. Written informed consent was obtained from all patients. DISCUSSION: In this study of patients with symptomatic lumbar-disk herniation at baseline who were treated with either surgery or conservative treatment and followed for 1 year, the presence of disk herniation on MRI at 1-year follow-up did not distinguish patients with a favorable clinical outcome from those with an unfavorable outcome. Therefore, patients asking for reimaging because of persistent or recurrent symptoms should be informed about the difficulty in MRI interpretation after a first episode of acute sciatica. A recent systematic review concluded that even in the acute setting of sciatica, evidence for the diagnostic accuracy of MRI is not conclusive. Other studies have reported results similar to our findings. In a report on 154 conservatively treated patients, Jensen et al. did not observe any correlation between improvement in symptoms and improvement of disk herniation and nerve-root compression on MRI at 14 months. Barth et al. observed a high incidence (approximately 67%) of extrusions and protrusions 2 years postoperatively, although these findings did not correlate with clinical outcome. In a retrospective evaluation of morphologic changes on MRI in 77 patients who had received conservative treatment for sciatica, Komori et al. found that such changes did correspond with clinical results. However, the investigators found that morphologic changes tended to lag behind actual improvement in leg pain. In a landmark study, Jensen et al. suggested that by considering protrusions and extrusions as two different types of herniation, MRI interpretations could gain specificity for clinically important disk lesions. The authors reached this hypothesis because of the high prevalence (approximately 30%) of disk protrusions among their asymptomatic volunteers, whereas only 1% had an extrusion. However, in our study, distinguishing between protrusions and extrusions did not have diagnostic value. A limitation of the study by Jensen et al. was that it involved only asymptomatic volunteers. The postoperative formation of epidural scars is a common phenomenon and is hypothesized to cause mechanical traction on the dura or nerve roots, resulting in persistent back and leg pain after spinal surgery. Some studies have supported this hypothesis, whereas other studies have not shown a correlation between epidural-scar formation and clinical outcome. We did not find a positive correlation between the presence of scar tissue and symptoms. One of the strengths of our study is that the presence of scar tissue was examined by three observers. Our results show that clinicians

should not automatically ascribe recurrent or persistent symptoms to visible scar formation on MRI. An important limitation of our study is that the reported MRI findings and their relation with clinical outcome was only once, at 1 year after randomization. It is uncertain whether we would have found similar results at other time points. In addition, some observers might view the agreement among MRI readers as suboptimal. However, the kappa values are similar to those in previous studies, and therefore one might consider them to reflect existing agreement among expert readers in clinical practice. SUMMARY: In patients who had undergone repeated MRI 1 year after treatment for symptomatic lumbar-disk herniation, anatomical abnormalities that were visible on MRI did not distinguish patients with persistent or recurrent symptoms of sciatica from asymptomatic patients. Further research is needed to assess the value of MRI in clinical decision making for patients with persistent or recurrent sciatica.

Carroll LJ, Cassidy JD, Côté P: **Depression as a risk factor for onset of an episode of troublesome neck and low back pain.** *Pain* 2004 Jan; 107(1-2): 134-9. ABSTRACT: The objective of this study is to determine whether depression is an independent risk factor for onset of an episode of troublesome neck and low back pain. There is growing evidence that pain problems increase the risk of depression. However, the evidence about the role of depression as a risk factor for onset of pain problems is contradictory. This lack of consistency in research findings may be due in part to methodological weaknesses in existing studies, for example, use of an inappropriate study design and inadequate consideration of confounding. A population-based random sample of adults was surveyed and followed at 6 and 12 months. Individuals at risk of troublesome (intense and/or disabling) neck or low back pain are the subjects of this report (n=790). We used Cox proportional hazards models to measure the time-varying effect of depressive symptoms on the onset of troublesome neck and low back pain. Our multivariable analysis considered the possible confounding effects of demographic and socio-economic factors, health status, co-morbid medical conditions and injuries to the neck or low back. We found an independent and robust relationship between depressive symptoms and onset of an episode of pain. In comparison with the lowest quartile of scores (the least depressed), those in the highest quartile of depression scores had a four-fold increased risk of troublesome neck and low back pain (adjusted HRR 3.97; 95% CI 1.81-8.72). Depression is a strong and independent predictor for the onset of an episode of intense and/or disabling neck and low back pain.