AccuReview

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Notice of Independent Review Decision

[Date notice sent to all parties]: April 5, 2013

IRO CASE #:

DESCRIPTION OF THE SERVICE OR SERVICES IN DISPUTE:
Arthrodesis, Anterior interbody, including disc space preparation, Discectomy, Osteophytectomy and Decompression of spinal cord and/or nerve roots; Cervical below C2 (22551, 22851, 22845, 20931 and 95941 and 1 inpatient day)

A DESCRIPTION OF THE QUALIFICATIONS FOR EACH PHYSICIAN OR OTHER HEALTH CARE PROVIDER WHO REVIEWED THE DECISION:
The physician is a board certified Orthopaedic surgeon with over 13 years of experience.

REVIEW OUTCOME:

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

☒ 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.

INFORMATION PROVIDED TO THE IRO FOR REVIEW:
02-20-04: History and Physical
02-20-04: Radiology Report
04-27-04: Letter from
06-01-04: Report of Operation
06-14-04: Follow-up Progress Note
06-26-04: Preoperative Internal Medicine Consultation
06-28-04: Physician Plan of Care Certification
07-12-04: Follow-up Progress Note
07-30-04: Physical Therapy Status Report
08-01-04: Report of Operation
08-02-04: Physician Record: Neck, Upper Back Pain
08-02-04: Worker's compensation Physical Medicine Treatment Plan
08-02-04: Employee's Request to Change Treating Doctors
08-10-04: Functional Capacity Evaluation

08-19-04: Physical Therapy Progress Report
09-23-04: Physical Therapy Review
11-11-08: Consultation
11-11-08: Radiology Report
12-10-08: Initial Interview
01-12-09: Procedure Note
01-12-09: Operative Report
01-30-09: Follow-up
03-06-09: Follow-up
03-06-09: Radiology Report
04-24-09: Follow-up
04-24-09: Radiology Report
07-24-09: Follow-up
07-24-09: Radiology Report
02-17-10: Follow-up
02-17-10: Radiology Report
07-13-10: Follow-up
07-13-10: Radiology Report
07-23-10: Examination Report
08-06-10: Follow-up
09-14-10: Follow-up
11-22-10: Operative Report
12-07-10: Follow-up
12-07-10: Radiology Report
01-04-11: Follow-up
01-04-11: Radiology Report
02-08-11: Physical Therapy Report
03-04-11: Physical Therapy Report
03-10-11: Physical Therapy Report
04-20-11: Follow-up
04-20-11: Radiology Report
07-07-11: Follow-up
07-07-11: Radiology Report
11-17-11: Follow-up
11-17-11: Radiology Report
10-30-12: Progress note
11-01-12: Office Visit: 6 month follow up
11-07-12: Injured Worker Information
12-18-12: Examination Report
01-02-13: Office Visit: MRI review
01-15-13: Office Visit
01-15-13: Hospital
01-31-13: Behavioral Medicine Evaluation
02-14-13: UR performed
03-08-13: Letter of Appeal
03-11-13: UR performed

PATIENT CLINICAL HISTORY [SUMMARY]:
The claimant is a female injured on the job xx/xx/xx when a 25 pound container fell on her while bending over and is now disabled. She complains of ongoing severe back and leg pain since that time, managed conservatively with therapy, injections and chiropractic care and medications.

08-10-04: Functional Capacity Evaluation dictated by, OTR. FCE Results: the claimant is able to work at a sedentary physical demand level (10 pounds) part-time with restrictions.

11-11-08: Consultation. Chief complaint: evaluation of cervical radicular complaints. Current medications: Neurontin, hydrocodone, tizanidine, Celebrex, and citalopram. PE: Claimant has restricted cervical ROM, significant paraspinal muscle spasm with deep stabbing pain down to the inner scapular region particularly with rotation to the right. She has intermittent dysesthesias down both extremities depending upon position and function. She has 5-/5 weakness on the right biceps, 4/5 wrist flexion on the right. Deep tendon reflexes show trace biceps and triceps on the right, 1+ brachioradialis on the left, has 1+ biceps, triceps, and brachioradialis. MRI Review: Severe cervical stenosis with cord deformity and possible early myelomalacia from C5-6 disk herniation. Recommendations: Surgical decompression and stabilization of the C5-6 segment for prevention of spinal cord injury and safety as much as it is for an attempted pain management. Request C5-6 discectomy and fusion with spinal cord monitoring and overnight hospital stay.

12-10-08: Initial Interview. Based on the presurgical psychological screening she is clear for the surgeon, with fair to good prognosis for pain reduction and functional improvement. The claimant may have difficulty pacing activity increases. Clear rehabilitation guidelines should be given.

01-12-09: Procedure Note. There are no significant SSEP changes in the upper or lower extremities, or any sustained nerve root irritation identified throughout this procedure. No alerts had to be given. The claimant was moving all of her extremities well in post-op period.

01-12-09: Operative Report. Preoperative Diagnoses: 1. Cervical stenosis C5-6. 2. Cervical radiculopathy. Procedure: Anterior cervical fusion C5-6. Postoperative Diagnoses: 1. Cervical stenosis C5-6. 2. Cervical radiculopathy.

01-30-09: Follow-up. Claimant reports doing great since procedure. Diagnosis: stable postoperative course following anterior cervical fusion at the C5-6. Plan: 1. Encouraged to start physical therapy; claimant wants to hold off and do some gentle ROM at home. She does not believe that she needs to do therapy. 2. She is going to continue her advanced activities as tolerated. Discontinued cervical collar and should only wear it as needed. 3. Follow up in 4 weeks. 4. Continue taking Celebrex until 3 months out of surgery.

03-06-09: Follow-up. Claimant complains of continued pins and needles in bilateral arms and bilateral shoulder blades with some numbness in her neck. She stated she feels better and her ROM has increased. Diagnosis: Stable postoperative course following anterior cervical fusion at the C5-6. Plan: continue to advance her activities as tolerated; continue seeing treating doctor; follow up in 6-8 weeks.

07-24-09: Follow-up. Claimant presented with complaints of continued neck ache, burning and numbness that radiates to bilateral shoulders, in between the shoulders and also reports she has a stabbing and aches in her low back. Neck pain is 8/10. She continues to take Lortab, Neurontin, ibuprofen and those seem to help but is requesting an injection in her neck and low back since the pain is affecting her daily activities as well as affecting her quality of life. Diagnosis: 1. Continued Cervical pain following anterior cervical fusion at the C5-6. 2. Cervical and disk protrusion at the C3-4 and C6-7. 3. Previous lumbar surgery with continued lumbar pain. 4. Lumbar radiculopathy. Plan: Cervical ESI at C6-7 since it is not the level of operation; follow up in 3 weeks after injection; prescription of Flector patch that she is going to try topically on her area of pain and see if her symptoms are alleviated.

07-13-10: Follow-up. Claimant complained of burning in bilateral shoulder blades in between and stabbing over the last couple of months and getting worse; neck pain is 7/10. Currently taking Lortab, ibuprofen and Zanaflex. Objective: All ROM seemed to aggravate her cervical pain especially with extension. She is hypertonic noted to bilateral paraspinal muscle in the cervical and trapezius muscle bilaterally. Diagnosis: 1. Increasing dysesthesia in between the shoulder blades. 2. Well-healed fusion at the C5-6. 3. Previous lumbar surgery with continued lumbar pain and lumbar radiculopathy. 4. Continued cervical pain with radiculopathy probably related to cervical disk protrusions at C3-4 and 4-5. Plan: Ordered MRI of the cervical spine for worsening symptoms and return for review.

07-23-10: Examination Report MRI C-spine W/O contrast. Impression: 1. Status post anterior interbody fusion at C5-6 with resulting susceptibility artifact. 2. AP canal stenosis secondary to disk bulging, uncovertebrel spurring, and posterior bony hypertrophy at C6-7 level. AP diameter of the canal 7.1 mm. No lateralizing disk protrusion or diffuse posterior central disk bulging at C4-5, protruding mild AP narrowing of the canal and contacting the anterior cord without lateralization. 3. Asymmetric narrowing of the left C2-3 neural foramen secondary to asymmetric disk bulging along with associated marginal uncovertebral spurring. 4. Otherwise negative MRI cervical spine without contrast.

08-06-10: Follow-up. Claimant seen for review of MRI findings. Plan/Recommendations: Claimant's clinical progress has deteriorated now to have balance issues, weakness, and reflex changes, consistent with a C6-7 radiculopathy and stenosis. Recommendations would be for an anterior discectomy, possible hemi-corpectomy and fusion after appropriate decompression. Expected 1-day hospital stay.

11-22-10: Operative Report Preoperative Diagnoses: Cervical stenosis with radiculopathy, C6-7. Postoperative Diagnoses: Cervical stenosis with radiculopathy, C6-7. Procedures: anterior cervical discectomy and fusion, C6-7.

12-07-10: Follow-up. Claimant reported neck pain improved, but feels pretty weak. Diagnosis: Stable postoperative course following anterior cervical fusion at C6-7. Plan: Follow up in 4 weeks; physical therapy ordered; transition out of collar; continue Lyrica; continue Lortab and tizandine as needed for pain and spasms.

02-08-11: Physical Therapy Report. Objective Progress: Claimant currently being seen for neck, upper back pain. Emphasis in therapy on pain management, cervical ROM, cervical stabilization, upper extremity strengthening and client HEP education/instruction. Claimant has been seen for several treatments with good relief noted post treatment. PT plans to continue per POC. Goals: Not met; radiating symptoms into bilateral LE's; requires moderate verbal cues. Extend treatment for one month 2x/week to meet goals.

03-04-11: Physical Therapy Report. Claimant reports minimal relief from treatment and continues to relate pain/numbness into left upper extremity. Plan: Please extend for one month at 2x/week to achieve goals.

07-07-11: Follow-up. Claimant stated she is doing well overall with some increasing burning sensation in the upper trapezial drape after moving into a new apartment and having to carry groceries and belongings up and down stairs. Impression: Stable postoperative course. Consolidating anterior cervical discectomy and fusion, C6-7. Recommendations: Follow-up in 6 months.

11-01-12: Office Visit: 6 month follow up. Chief complaint: neck and low back pain. PE: Cervical spine is tilted to the left. Left pinprick is abnormal at C4, C5, C6, C7 and T1 dermatomes. Left light touch is abnormal at C4, C5, C6, C7 and T1 dermatomes. 3 view of the cervical spine x-ray revealed stable fusion C5-7 with mild spondylosis above and below. Assessment of today's visit: 1. Cervical radiculopathy worsening s/p work injury. 2. Previous fusion ASDF C5-7. Plan: obtain MRI-C; refill neurontin, amrix and Celebrex; RTC 1 month.

12-18-12: Examination Report MRI C-spine W/O contrast. Impression: 1. Status post interval anterior interbody fusion and posterior laminectomy at C6-7 with resolution of stenosis seen on the previous study dated 7/23/10. 2. Interval progression of canal narrowing at C4-5 due to disk bulging and marginal spurring at vertebral margins as well as posterior bony hypertonic changes, AP canal diameter 5 to 6 mm in the midline. This is significantly progressive since the prior study. 3. Asymmetric narrowing of the left neural foramen at the C2-3 level, secondary to uncovertebral spurring and some disk bulging is unchanged. 4. Otherwise negative MRI cervical spine. No other significant changes are apparent.

01-02-13: Office Visit: MRI review. Chief complaint: neck and left shoulder pain. PE: Cervical spine is tilted to the left. Cervical ROM is normal in all directions and painful. Assessment: 1. Cervical radiculopathy worsening s/p work injury. 2. Previous fusion ACDF C5-7. 3. Cervical stenosis 5-6 mm canal C4-5. Plan: follow up due to severity of stenosis; increase her Amrix to 2 PO QHS PRN spasms.

01-15-13: Hospital H&P dictated. Chief complaint: neck and left arm pain. Assessment: 1. Cervical radiculopathy worsening s/p work injury. 2. Previous fusion ACDF C5-7. 3. Adjacent segment degeneration with resultant severe cervical stenosis at C4-5. Plan: surgical decompression and stabilization of C4-5 recommended to prevent myelopathy and/or paralysis.

02-14-13: UR performed. Reason for Denial: The claimant has had two separate cervical fusion procedures at C5-6 and C6-7. The claimant has continued to have chronic neck and upper extremity pain despite both surgical procedures. The most recent MRI studies do reveal some canal narrowing at C4-5 due to facet hypertrophy with cord flattening. There was no evidence of cord compression or myelomalacia and the claimant's physical examinations were unremarkable for cervical myelopathy. She does have sensory changes in the left upper extremity as well as reduced reflexes. It is unclear whether there is any overt weakness in the left upper extremity. The clinical documentation identifies that the claimant has been maintained on medications; however, there is no documentation regarding any recent conservative treatment such as physical therapy or injections. Given the claimant's lack of response overall to 2 prior cervical fusion procedures, it is unclear how the claimant would respond to additional surgeries. Given the absence of any objective evidence regarding cervical myelopathy, an additional cervical fusion would not be supported as medically necessary at this point in time.

03-11-13: UR performed. Reason for denial: The claimant has multiple upper extremity complaints. Past history shows multiple dermatomes, myotomes and reflex changes. One of these correlate with the MRI findings. The discussion with Mary Katherine Nye confirms that there have been no PT or epidural steroid injections (ESIs). ODG guidelines are not met. Therefore, based in the clinical documentation provided for the review, requested services are not medically necessary.

ANALYSIS AND EXPLANATION OF THE DECISION INCLUDE CLINICAL BASIS, FINDINGS, AND CONCLUSIONS USED TO SUPPORT THE DECISION:
Previous adverse determinations are upheld and agreed upon. The claimant is not indicated for surgery at C4-5 at the present time. Although the recent MRI points toward pathology at this level, it is unclear whether the condition of C4-5 is the cause of the patient's current issues. The Official Disability Guidelines (ODG) requires confirmation of the pain generator by a positive EMG finding that correlates with the cervical level prior to consideration for anterior cervical fusion. This criteria is particularly important in the setting of previous surgery on other levels. At the present time, further workup with EMG and nerve block are

required to determine whether surgery will help this patient. The only absolute indication for surgery at the present time is myelopathy. The patient is not myleopathic according to the medical records. The patient is not indicated for surgery based on the criteria of the ODG. Therefore, after reviewing the medical records and documentation provided, the request for Arthrodesis, Anterior interbody, including disc space preparation, Discectomy, Osteophytectomy and Decompression of spinal cord and/or nerve roots; Cervical below C2 (22551, 22851, 22845, 20931 and 95941 and 1 inpatient day) is denied.

Per ODG:

Fusion, anterior cervical	Recommended as an option in combination with anterior cervical discectomy for approved indications, although current evidence is conflicting about the benefit of fusion in general. (See Discectomy/laminectomy/laminoplasty.) Evidence is also conflicting as to whether autograft or allograft is preferable and/or what specific benefits are provided with fixation devices. Many patients have been found to have excellent outcomes while undergoing simple discectomy alone (for one- to two-level procedures), and have also been found to go on to develop spontaneous fusion after an anterior discectomy. (Bertalanffy, 1988) (Savolainen, 1998) (Donaldson, 2002) (Rosenorn, 1983) Cervical fusion for degenerative disease resulting in axial neck pain and no radiculopathy remains controversial and conservative therapy remains the choice if there is no evidence of instability. (Bambakidis, 2005) Conservative anterior cervical fusion techniques appear to be equally effective compared to techniques using allografts, plates or cages. (Savolainen, 1998) (Dowd, 1999) (Colorado, 2001) (Fouyas-Cochrane, 2002) (Goffin, 2003) Cervical fusion may demonstrate good results in appropriately chosen patients with cervical spondylosis and axial neck pain. (Wieser, 2007) This evidence was substantiated in a recent Cochrane review that stated that hard evidence for the need for a fusion procedure after discectomy was lacking, as outlined below: *(1) Anterior cervical discectomy compared to anterior cervical discectomy with interbody fusion with a bone graft or substitute:* Three of the six randomized controlled studies discussed in the 2004 Cochrane review found no difference between the two techniques and/or that fusion was not necessary. The Cochrane review felt there was conflicting evidence of the relative effectiveness of either procedure. Overall it was noted that patients with discectomy only had shorter hospital stays, and shorter length of operation. There was moderate evidence that pain relief after five to six weeks was higher for the patients who had discectomy with fusion. Return to work was higher early on (five weeks) in the patients with discectomy with fusion, but there was no significant difference at ten weeks. (Jacobs-*Cochrane*, 2004) (Abd-Alrahman, 1999) (Dowd, 1999) (Martins, 1976) (van den Bent, 1996) (Savolainen, 1998) One disadvantage of fusion appears to be abnormal kinematic strain on adjacent spinal levels. (Ragab, 2006) (Eck, 2002) (Matsunaga, 1999) (Katsuura, 2001) The advantage of fusion appears to be a decreased rate of kyphosis in the operated segments. (Yamamoto, 1991) (Abd-Alrahman, 1999) *(2) Fusion with autograft versus allograft:* The Cochrane review found limited evidence that the use of autograft provided better pain reduction than animal allograft. It also found that there was no difference between biocompatible osteoconductive polymer or autograft (limited evidence). (Jacobs-*Cochrane*, 2004) (McConnell, 2003) A problem with autograft is morbidity as related to the donor site including infection, prolonged drainage, hematomas, persistent pain and sensory loss. (Younger, 1989) (Sawin, 1998) (Sasso, 2005) Autograft is thought to increase fusion rates with less graft collapse. (Deutsch, 2007). See Decompression, myelopathy. *(3) Fusion with autograft with plate fixation versus allograft with plate fixation, Single level:* A recent retrospective review of patients who received allograft with plate fixation versus autograft with plate fixation at a single level found fusion rates

	in 100% versus 90.3% respectively. This was not statistically significant. Satisfactory outcomes were noted in all non-union patients. (Samartzis, 2005) *(4) Fusion with different types of autograft:* The Cochrane review did not find evidence that a vertebral body graft was superior to an iliac crest graft. (McGuire, 1994) *(5) Fusion with autograft versus fusion with autograft and additional instrumentation:* *Plate Fixation*: In single-level surgery there is limited evidence that there is any difference between the use of plates and fusion with autograft in terms of union rates. For two-level surgery, there was moderate evidence that there was more improvement in arm pain for patients treated with a plate than for those without a plate. Fusion rate is improved with plating in multi-level surgery. (Wright, 2007) See Plate fixation, cervical spine surgery. *Cage*: Donor site pain may be decreased with the use of a cage rather than a plate, but donor site pain was not presented in a standardized manner. At two years pseudoarthrosis rate has been found to be lower in the fusion group (15%) versus the cage group (44%). A six-year follow-up of the same study group revealed no significant difference in outcome variables between the two treatment groups (both groups had pain relief). In the subgroup of patients with the cage who attained fusion, the overall outcome was better than with fusion alone. Patients treated with cage instrumentation have less segmental kyphosis and better-preserved disc height. This only appears to affect outcome in a positive way in cage patients that achieve fusion (versus cage patients with pseudoarthrosis). (Poelsson, 2007) (Varuch, 2002) (Hacker 2000) See also Adjacent segment disease/degeneration (fusion). *(6) Fusion with allograft alone versus with allograft and additional instrumentation:* *Plate Fixation:* Retrospective studies indicate high levels of pseudoarthrosis rates (as high as 20% for one-level and 50% for two-level procedures) using allograft alone. In a recent comparative retrospective study examining fusion rate with plating, successful fusion was achieved in 96% of single-level cases and 91% of two-level procedures. This could be compared to a previous retrospective study by the same authors of non-plated cases that achieved successful fusion in 90% of single-level procedures and 72% of two-level procedures. (Kaiser, 2002) (Martin, 1999) See Plate fixation, cervical spine surgery. *Complications:* *Collapse of the grafted bone and loss of cervical lordosis:* collapse of grafted bone has been found to be less likely in plated groups for patients with multiple-level fusion. Plating has been found to maintain cervical lordosis in both multi-level and one-level procedures. (Troyanovich, 2002) (Herrmann, 2004) (Katsuura, 1996) The significance on outcome of kyphosis or loss of cervical lordosis in terms of prediction of clinical outcome remains under investigation. (Peolsson, 2004) (Haden, 2005) (Poelsson, 2007) (Hwang, 2007) See also Laryngoscopy (screening for recurrent laryngeal nerve injury prior to revision ACDF). *Pseudoarthrosis:* This is recognized as an etiology of continued cervical pain and unsatisfactory outcome. Treatment options include a revision anterior approach vs. a posterior approach. Regardless of approach, there is a high rate of continued moderate to severe pain even after solid fusion is achieved. (Kuhns, 2005) (Mummaneni, 2004) (Coric, 1997) *Anterior versus posterior fusion:* In a study based on 932,009 hospital discharges associated with cervical spine surgery, anterior fusions were shown to have a much lower rate of complications compared to posterior fusions, with the overall percent of cases with complications being 2.40% for anterior decompression, 3.44% for anterior fusion, and 10.49% for posterior fusion. (Wang, 2007) *Predictors of outcome of ACDF:* Predictors of good outcome include non-smoking, a pre-operative lower pain level, soft disc disease, disease in one level, greater segmental kyphosis pre-operatively, radicular pain without additional neck or lumbar pain, short duration of symptoms, younger age, no use of analgesics, gainful employment, higher preoperative NDI and normal ratings on biopsychosoical tests

	such as the Distress and Risk Assessment Method (DRAM). Predictors of poor outcomes include non-specific neck pain, psychological distress, psychosomatic problems and poor general health, litigation and workers' compensation. (Anderson, 2009) (Peolsson, 2006) (Peolsson, 2003) Patients who smoke have compromised fusion outcomes. (Peolsson, 2008) See Plate fixation, cervical spine surgery. See also Adjacent segment disease/degeneration (fusion) & Iliac crest donor-site pain treatment. *Use of Bone-morphogenetic protein (BMP):* FDA informed healthcare professionals of reports of life-threatening complications associated with recombinant human Bone Morphogenetic Protein (rhBMP) when used in the cervical spine for spinal fusion. The safety and effectiveness of rhBMP in the cervical spine have not been demonstrated, and these products are not approved for this use. These complications were associated with swelling of neck and throat tissue, which resulted in compression of the airway and/or neurological structures in the neck. (FDA MedWatch, 2008) Bone-morphogenetic protein was used in approximately 25% of all spinal fusions nationally in 2006, with use associated with more frequent complications for anterior cervical fusions. No differences were seen for lumbar, thoracic, or posterior cervical procedures, but the use of BMP in anterior cervical fusion procedures was associated with a higher rate of complication occurrence (7.09% with BMP vs 4.68% without BMP) with the primary increases seen in wound-related complications (1.22% with vs 0.65% without) and dysphagia or hoarseness (4.35% with vs 2.45% without). (Cahill-*JAMA*, 2009) For hospital LOS after admission criteria are met, see Hospital length of stay (LOS).
Discectomy-laminectomy-laminoplasty	Recommended as an option if there is a radiographically demonstrated abnormality to support clinical findings consistent with one of the following: (1) Progression of myelopathy or focal motor deficit; (2) Intractable radicular pain in the presence of documented clinical and radiographic findings; or (3) Presence of spinal instability when performed in conjunction with stabilization. (See Fusion, anterior cervical.) Surgery is not recommended for disc herniation in a patient with non-specific symptoms and no physical signs. In addition, although surgery for spondylosis and radiculopathy may offer some short term benefit, non-operative treatment with PT can provide similar improvement in pain and function at 12-16 months for patients without progressive neurologic deficits or instability. (Persson, 1997) The American Academy of Orthopaedic Surgeons has recommended that an anterior approach is appropriate when there is evidence of radiculopathy, and/or when there is evidence of central location and there is any degree of segmental kyphosis. A posterior approach has been suggested by the same group when there is evidence of lateral soft disc herniations with predominate arm pain and for caudal lesions in large, short-necked individuals. (Albert, 1999) The overall goals of cervical surgery should be decompression, restoration of alignment, and stability. (Jacobs-Cochrane, 2004) (Dowd, 1999) (Colorado, 2001) In terms of posterior procedures, there does not appear to be sufficient evidence to support the use of laminoplasty versus laminectomy based on outcomes or post-operative morbidity. Research has indicated that as many as 60% of patients who received laminoplasty had posterior neck and shoulder girdle pain post-operatively (versus 25% in the laminectomy group). (Hosono, 1996) (Heller, 2001) Some authors continue to prefer laminoplasty to anterior spinal decompression and fusion (for myelopathy due to disc herniation) as they feel the risk of chronic neck pain is less troublesome than the risk of bone graft complications and/or adjacent spondylosis that can be found with the fusion procedure. (Sakaura, 2005) It is not clear from the evidence that long-term outcomes are improved with the surgical treatment of cervical radiculopathy compared with nonoperative measures. However, relatively rapid and substantial relief of pain and impairment in the short term (6-12 weeks after surgery) after surgical treatment appears to have been reliably achieved. (Haldeman, 2008) Late deterioration: Has been found with both anterior and posterior approaches. (Rao, 2006) With the anterior approach, recurrent symptoms have been found secondary to deterioration of the adjacent segment, inadequate decompression at the time of the initial surgery, pseudoarthrosis, graft or implant failure, and/or continued

	growth of osteophytes. With the posterior approach, recurrent symptoms have been found secondary to development of kyphosis, instability, spread of ossification of the posterior longitudinal ligament, and development of stenosis at new levels. In a study based on 932,009 hospital discharges associated with cervical spine surgery, anterior fusions were shown to have a much lower rate of complications compared to posterior fusions, with the overall percent of cases with complications being 2.40% for anterior decompression, 3.44% for anterior fusion, and 10.49% for posterior fusion. (Wang, 2007) Pre-operative evaluation: MRI: This is a very sensitive test for radicular disorders but has a lower negative predictive value. Disc bulges have been found in one study in 52% of subjects and protrusions in 27% without back pain. At age 60 years, 93% of subjects in one study had disc degeneration/bulges on MRI. (Boden, 1990) EMG: Optional for cervical surgery. See Electromyography. ODG Indications for Surgery™ -- Discectomy/laminectomy (excluding fractures): Washington State has published guidelines for cervical surgery for the entrapment of a single nerve root and/or multiple nerve roots. (Washington, 2004) Their recommendations require the presence of all of the following criteria prior to surgery for each nerve root that has been planned for intervention (but ODG does not agree with the EMG requirement): A. There must be evidence of radicular pain and sensory symptoms in a cervical distribution that correlate with the involved cervical level or presence of a positive Spurling test. B. There should be evidence of motor deficit or reflex changes or positive EMG findings that correlate with the cervical level. Note: Despite what the Washington State guidelines say, ODG recommends that EMG is optional if there is other evidence of motor deficit or reflex changes. EMG is useful in cases where clinical findings are unclear, there is a discrepancy in imaging, or to identify other etiologies of symptoms such as metabolic (diabetes/thyroid) or peripheral pathology (such as carpal tunnel). For more information, see EMG. C. An abnormal imaging (CT/myelogram and/or MRI) study must show positive findings that correlate with nerve root involvement that is found with the previous objective physical and/or diagnostic findings. If there is no evidence of sensory, motor, reflex or EMG changes, confirmatory selective nerve root blocks may be substituted if these blocks correlate with the imaging study. The block should produce pain in the abnormal nerve root and provide at least 75% pain relief for the duration of the local anesthetic. D. Etiologies of pain such as metabolic sources (diabetes/thyroid disease) non-structural radiculopathies (inflammatory, malignant or motor neuron disease), and/or peripheral sources (carpal tunnel syndrome) should be addressed prior to cervical surgical procedures. E. There must be evidence that the patient has received and failed at least a 6-8 week trial of conservative care. For hospital LOS after admission criteria are met, see Hospital length of stay (LOS).
Hospital length of stay (LOS)	**ODG hospital length of stay (LOS) guidelines:** **Discectomy/ Corpectomy** (*icd 80.51 - Excision of intervertebral disc*) Actual data -- median 1 day; mean 2.1 days (± 0.0); discharges 109,057; charges (mean) $26,219 Best practice target (no complications) -- *1 day* **Laminectomy** (*icd 03.09 - Laminectomy/laminotomy for decompression of spinal nerve root*) Actual data -- median 2 days; mean 3.5 days (±0.1); discharges 100,600; charges (mean) $34,978 Best practice target (no complications) -- *1 day* **Cervical Fusion, Anterior** (*81.02 -- Other cervical fusion, anterior technique*) Actual data -- median 1 day; mean 2.2 days (±0.1); discharges 161,761; charges (mean) $50,653 Best practice target (no complications) -- *1 days*

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 FOCUSED GUIDELINES (PROVIDE A DESCRIPTION)**