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**DATE OF REVIEW:** 09/26/2008

**IRO CASE #:**

**DESCRIPTION OF THE SERVICE OR SERVICES IN DISPUTE:**

C 5/6 C5/7 ACDF CPT: 63075, 63076, 20931,22554,22585,22845 \* with assistant surgeon

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

This case was reviewed by a Texas licensed MD, specializing in Orthopedic Trauma, Orthopedic Surgery. The physician advisor has the following additional qualifications, if applicable:

ABMS Orthopaedic Surgery

**REVIEW OUTCOME:**

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

Upheld

Health Care Service(s) in Dispute	CPT Codes	Date of Service(s)	Outcome of Independent Review
C 5/6 C5/7 ACDF CPT 63076,63075, 20931,22554,22585,22845 * with assistant surgeon	63075, 63076, 20931, 22554, 22585, 22845	-	Upheld

**INFORMATION PROVIDED TO THE IRO FOR REVIEW:**

No	Document Type	Provider or Sender	Page Count	Service Start Date	Service End Date
1	Office Visit Report		3	07/17/2008	07/17/2008
2	Office Visit Report	Medicine Centre	13	02/18/2008	07/21/2008
3	Diagnostic Test		1	01/28/2008	01/28/2008
4	IRO Request	Texas Department of Insurance	13	09/04/2008	09/10/2008
5	Initial Approval Letter		2	08/14/2008	08/14/2008
6	Appeal Denial Letter		3	09/03/2008	09/03/2008

**PATIENT CLINICAL HISTORY [SUMMARY]:**

This male fell down some stairs suffering injury to his left knee and cervical spine. His initial evaluation and treatment records are not available. The first record from Dr. is an initial evaluation on xx/xx/xx. A left knee arthroscopy was performed at another facility and by another physician/surgeon prior to the patient's evaluation by Dr. The history included some pain radiating to the right shoulder without specific objection physical findings suggestive of radiculopathy. An MRI scan revealed foraminal stenosis left C5-C6 and right C6-C7. Physical therapy and epidural steroid injections have not provided lasting relief of pain. Activity modification has included prolonged work relief with only recent authorization to return to "light duty". The patient has been unable to obtain work with limited physical exertion. A pre authorization request for the performance of an anterior cervical discectomy and fusion has been subjected and rejected twice. IRO appeal has been submitted.

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

The clinical information submitted does not include physical findings suggestive of radiculopathy. There is no indication that instability at any specific motion segment is present. The criteria for anterior discectomy require the presence of radiculopathy and in the absence of objective findings, discectomy should not be authorized. Furthermore, in the absence of instability, and in the absence of indication for discectomy, cervical fusion is not indicated. Criteria as published in the ODG are not met. Denial of pre authorization for ACDF is appropriate and should be upheld.

Discectomy-laminectomy-laminoplasty	<p>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 <a href="#">Fusion, anterior cervical.</a>)</p> <p>Surgery is not recommended for disc herniation in a patient with non-specific symptoms and no physical signs. 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. (<a href="#">Albert, 1999</a>)</p> <p>The overall goals of cervical surgery should be decompression, restoration of alignment, and stability. (<a href="#">Jacobs-Cochrane, 2004</a>) (<a href="#">Dowd, 1999</a>) (<a href="#">Colorado, 2001</a>) 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). (<a href="#">Hosono, 1996</a>) (<a href="#">Heller, 2001</a>) 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. (<a href="#">Sakaura, 2005</a>) 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. (<a href="#">Haldeman, 2008</a>)</p> <p><i>Late deterioration:</i> Has been found with both anterior and posterior approaches. (<a href="#">Rao, 2006</a>) 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</p>
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	<p>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. (<a href="#">Wang, 2007</a>)</p> <p><i>Pre-operative evaluation:</i></p> <p><i>MRI:</i> 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. (<a href="#">Boden, 1990</a>)</p> <p><i>EMG:</i> Optional for cervical surgery. See <a href="#">Electromyography</a>.</p> <p><b><u>ODG Indications for Surgery™ -- Discectomy/laminectomy (excluding fractures):</u></b></p> <p>Washington State has published guidelines for cervical surgery for the entrapment of a single nerve root and/or multiple nerve roots. (<a href="#">Washington, 2004</a>) 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):</p> <p>A. There must be evidence that the patient has received and failed at least a 6-8 week trial of conservative care.</p> <p>B. 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.</p> <p>C. There must be evidence of sensory symptoms in a cervical distribution that correlate with the involved cervical level or presence of a positive Spurling test.</p> <p>D. There should be evidence of motor deficit or reflex changes or positive EMG findings that correlate with the cervical level. <i>Note:</i> 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 <a href="#">EMG</a>.</p> <p>E. 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.</p> <p>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.</p>
Fusion, anterior cervical	<p>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 <a href="#">Discectomy/laminectomy/laminoplasty</a>.) Evidence is also conflicting as to whether autograft or allograft is preferable and/or what specific</p>

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. ([Trojanovich, 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](#))

*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, and normal ratings on biopsychosocial 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. ([Poelsson, 2006](#)) ([Poelsson, 2003](#)) See [Plate fixation, cervical spine surgery](#). See also [Adjacent segment disease/degeneration \(fusion\)](#) & [Iliac crest donor-site pain treatment](#).

Note: 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](#))

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

ODG: Neck and back chapter, discectomy passage and fusion passage.