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**Notice of Independent Review Decision**

**Date notice sent to all parties:**

September 16, 2013

**IRO CASE #:**

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

Reconsideration – EMG/NCV RUE, LLE 95886 95909 95911

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

Board Certified Neurosurgeon

**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:**

Clinical notes 06/14/12-08/23/13  
MRI lumbar spine 06/25/13  
MRI cervical spine 08/23/13  
Adverse determination 07/15/13 and 08/01/13  
Therapy note 06/21/12  
Designated doctor evaluation 06/11/13

**PATIENT CLINICAL HISTORY [SUMMARY]:**

The patient is a male who reported injuries regarding his neck and low back from an unknown origin. Clinical note dated 06/14/12 detailed the patient complaining of left

wrist and arm pain. Edema was noted along with tenderness at the ulnar portion of the hand. The patient utilized a splint. On the clinical note dated 06/21/12 the patient reported an increase in tenderness at the left hand. The patient rated his pain as 3-6/10 at that time. Clinical note dated 06/20/12 detailed the patient sustaining left ring and small finger fractures along with metacarpal neck fracture while at work on xx/xx/xx. X-rays demonstrated healing non-displaced ring and small finger metacarpal neck fracture. No interval displacement or interval callus formation was noted. Clinical note dated 07/30/12 detailed the patient continuing to do well with decreasing pain and swelling. The patient had no complaints of numbness or weakness at that time. Tenderness was noted at the fifth metacarpal. Clinical note dated 08/29/12 detailed the patient undergoing home exercise program and working with light duty restrictions. Clinical note dated 10/03/12 detailed the patient stating that he was feeling overall improvement with treatments. The patient noted a constant aching pain in the left hand with associated stiffness rated as 3/10. Strength deficits were noted on the left. Clinical note dated 05/29/13 detailed the patient stating that the initial injury occurred on xx/xx/xx. The patient reported falling backwards on to a concrete floor. The patient continued with complaints of pain that were described as both dull and sharp in the low back with radiation of pain into the left lower extremity. Numbness was noted in the foot and big toe. Muscle spasms were intermittent throughout the low back. Tenderness upon palpation along with spasms were noted in the cervical spine. Limitations were noted with flexion, extension, rotation, and lateral tilting. The patient utilized Norco and Neurontin for ongoing pain relief. The designated doctor evaluation dated 06/11/13 noted the patient complaining of pain at several sites and revealed disc herniation at L3-4 to be pre-existing and unrelated to the incident of xx/xx/xx. The MRI of the lumbar spine dated 06/25/13 revealed moderate compression of the thecal sac and neural foramina. A mild disc bulge was noted at L5-S1 which was mildly compressing the thecal sac and neural foramina. Disc heights were mildly diminished at L2-3 and L3-4. Clinical note dated 06/26/13 detailed the patient complaining of 4/10 pain radiating from the neck into the right shoulder and arm and left lower extremity along with numbness and tingling and weakness. The clinical note dated 07/26/13 detailed the patient complaining of daily headache related to the neck pain. Numbness and weakness continued in the right upper extremity. Weakness was noted throughout the left lower extremity. Clinical note dated 08/01/13 detailed the patient continuing with severe levels of pain along with daily headache. The patient utilized Norco and Neurontin at that time for pain relief. Clinical note dated 08/09/13 detailed the patient being recommended for electrodiagnostic studies. Clinical MRI of the cervical spine dated 08/23/13 revealed abnormalities at C3-4, C5-6, and C6-7 including spondylosis at C4-5 and C6-7. Mild disc bulge was noted at C5-6. Moderate narrowing of the interspace with mild facet arthrosis was noted at C3-4 bilaterally. Clinical note dated 08/23/13 detailed the patient demonstrating full range of motion in all extremities. Range of motion of the cervical spine was limited in all ranges and planes. Tenderness to palpation and spasms were noted throughout the cervical spine. Previous utilization review dated 07/15/13 for EMG/NCV of the right upper extremity and left lower extremity resulted in denial secondary to no information regarding objective findings confirmed by imaging studies of neurocompressive lesion. Previous utilization review dated 08/01/13 resulted in

denial for EMG/NCV of the right upper extremity and left lower extremity as there was a noted lack of serial exams demonstrating radiculopathy or neural compression.

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

Clinical documentation submitted for review notes the patient complaining of neck and low back pain. The electrodiagnostic studies of the upper extremities would be indicated provided that the patient meets specific criteria, including the need to assess a possible double crush phenomena in the upper extremities and identification of neurogenic abnormalities in two or more muscles that share the same nerve root innervation but differ in their peripheral nerve supply are indicated. No information was submitted regarding any symptoms of a double crush phenomena. Additionally, there is mention in the clinical notes regarding complaints of numbness and tingling in the upper extremities; however, no information was submitted regarding the specific location of these findings on serial exams. The Official Disability Guidelines recommends EMG studies of the lower extremities. However, the Official Disability Guidelines does not recommend NCV studies on the basis of radiculopathy. The patient was noted to have complaints of weakness throughout the left lower extremity. Given the specific findings of radiculopathy, this request is not indicated. As such, it is the opinion of this reviewer that the request for EMG/NCV of the right upper extremity and left lower extremity is not recommended as medically necessary.

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

- MEDICAL JUDGEMENT, CLINICAL EXPERIENCE, AND EXPERTISE IN ACCORDANCE WITH ACCEPTED MEDICAL STANDARDS
- ODG- OFFICIAL DISABILITY GUIDELINES & TREATMENT GUIDELINES

Neck and Upper Back Chapter:

Electromyography (EMG)

Recommended (needle, not surface) as an option in selected cases. The American Association of Electrodiagnostic Medicine conducted a review on electrodiagnosis in relation to cervical radiculopathy and concluded that the test was moderately sensitive (50%-71%) and highly specific (65%-85%). (AAEM, 1999) EMG findings may not be predictive of surgical outcome in cervical surgery, and patients may still benefit from surgery even in the absence of EMG findings of nerve root impingement. This is in stark contrast to the lumbar spine where EMG findings have been shown to be highly correlative with symptoms.

Positive diagnosis of radiculopathy: Requires the identification of neurogenic abnormalities in two or more muscles that share the same

nerve root innervation but differ in their peripheral nerve supply.

Timing: Timing is important as nerve root compression will reflect as positive if active changes are occurring. Changes of denervation develop within the first to third week after compression (fibrillations and positive sharp waves develop first in the paraspinals at 7-10 days and in the limb muscles at 2-3 weeks), and reinnervation is found at about 3-6 months

Acute findings: Identification of fibrillation potentials in denervated muscles with normal motor unit action potentials (usually within 6 months of symptoms: may disappear within 6 weeks in the paraspinals and persist for up to 1-2 years in distal limbs).

Chronic findings: Findings of motor unit action potentials with increased duration and phases that represent reinnervation. With time these become broad, large and polyphasic and may persist for years.

Anatomy: The test primarily evaluates ventral (anterior) root function (motor) and may be negative if there is dorsal root compression (sensory) only. Only C4-8 and T1 in the neck region have limb representation that can be tested electrodiagnostically. The anatomic basis for this lies in the fact that the cervical nerve roots have a motor and a sensory component. It is possible to impinge the sensory component with a herniated disc or bone spur and not affect the motor component. As a result, the patient may report radicular pain that correlates to the MRI without having EMG evidence of motor loss.

Paraspinal fibrillation potentials: May be seen in normal individuals and are nonspecific for etiology. The presence of these alone is insufficient to make a diagnosis of radiculopathy and they may be absent when there is a diagnosis of radiculopathy secondary to sampling error, timing, or because they were spared. They may support a diagnosis of radiculopathy when corresponding abnormalities are present in the limb muscles.

Indications when particularly helpful: EMG may be helpful for patients with double crush phenomenon, in particular, when there is evidence of possible metabolic pathology such as neuropathy secondary to diabetes or thyroid disease, or evidence of peripheral compression such as carpal tunnel syndrome.

H-reflex: Technically difficult to perform in the upper extremity but can be derived from the median nerve. The test is not specific for etiology and may be difficult to obtain in obese patients or those older than 60 years of age.

(Negrin, 1991) (Alrawi, 2006) (Ashkan, 2002) (Nardin, 1999) (Tsao, 2007)  
See Discectomy-laminectomy-laminoplasty. (Surface EMG and F-wave tests are not very specific and therefore are not recommended. For more information on surface EMG, see the Low Back Chapter.)

While cervical electrodiagnostic studies are not necessary to demonstrate a cervical radiculopathy, they have been suggested to confirm a brachial plexus abnormality or some problem other than a cervical radiculopathy, but these studies can result in unnecessary over treatment.

Nerve conduction studies (NCS)

Not recommended to demonstrate radiculopathy if radiculopathy has already been clearly identified by EMG and obvious clinical signs, but recommended if the EMG is not clearly radiculopathy or clearly negative, or to differentiate radiculopathy from other neuropathies or non-neuropathic processes if other diagnoses may be likely based on the clinical exam. There is minimal justification for performing nerve conduction studies when a patient is already presumed to have symptoms on the basis of radiculopathy. (Utah, 2006) (Lin, 2013) While cervical electrodiagnostic studies are not necessary to demonstrate a cervical radiculopathy, they have been suggested to confirm a brachial plexus abnormality, diabetic neuropathy, or some problem other than a cervical radiculopathy, with caution that these studies can result in unnecessary over treatment. (Emad, 2010) (Plastaras, 2011) (Lo, 2011) (Fuglsang-Frederiksen, 2011) See also the Shoulder Chapter, where nerve conduction studies are recommended for the diagnosis of TOS (thoracic outlet syndrome). Also see the Carpal Tunnel Syndrome Chapter for more details on NCS. Studies have not shown portable nerve conduction devices to be effective.

#### Low Back Chapter:

##### EMGs (electromyography)

Recommended as an option (needle, not surface). EMGs (electromyography) may be useful to obtain unequivocal evidence of radiculopathy, after 1-month conservative therapy, but EMG's are not necessary if radiculopathy is already clinically obvious. (Bigos, 1999) (Ortiz-Corredor, 2003) (Haig, 2005) No correlation was found between intraoperative EMG findings and immediate postoperative pain, but intraoperative spinal cord monitoring is becoming more common and there may be benefit in surgery with major corrective anatomic intervention like fracture or scoliosis or fusion where there is significant stenosis. (Dimopoulos, 2004) EMG's may be required by the AMA Guides for an impairment rating of radiculopathy. (AMA, 2001) (Note: Needle EMG and H-reflex tests are recommended, but Surface EMG and F-wave tests are not very specific and therefore are not recommended. See Surface electromyography.)

##### Nerve conduction studies (NCS)

Not recommended. There is minimal justification for performing nerve conduction studies when a patient is presumed to have symptoms on the basis of radiculopathy. (Utah, 2006) This systematic review and meta-analysis demonstrate that neurological testing procedures have limited overall diagnostic accuracy in detecting disc herniation with suspected radiculopathy. (Al Nezari, 2013) See also the Carpal Tunnel Syndrome Chapter for more details on NCS. Studies have not shown portable nerve conduction devices to be effective. EMGs (electromyography) are recommended as an option (needle, not surface) to obtain unequivocal evidence of radiculopathy, after 1-month conservative therapy, but EMG's

are not necessary if radiculopathy is already clinically obvious.