MedStar Health, Inc.
POLICY AND PROCEDURE MANUAL

Policy Number: MP.043.MH
Last Review Date: 10/16/2018
Effective Date: 11/01/2018

MP.043.MH – Nerve Conduction Velocity Studies/Electrodiagnostic Studies/Neuromuscular Junction Testing

This policy applies to the following lines of business:
- ✓ MedStar Employee (Select)
- ✓ MedStar CareFirst PPO

MedStar Health considers **Nerve Conduction Velocity Studies (NCVs)/ Electrodiagnostic Studies/Neuromuscular Junction Testing** medically necessary for the following indications:

Nerve Conduction Studies (NCS) and NCV studies can be of help in localization of an abnormality, and in distinguishing one variety of neuropathy from another. Such distinction has diagnostic value and has a bearing on prognosis and treatment.

Indications for NCS/NCV studies with EMG include but not limited to any of the following:
- Focal neuropathies or compressive lesions such as: carpal tunnel syndrome, ulnar neuropathies, or root lesions localization
- Traumatic nerve lesions, for diagnosis and prognosis
- Diagnosis or confirmation of suspected generalized neuropathies, such as diabetic, uremic, metabolic, or immune neuropathies
- Repetitive nerve stimulation in the diagnosis of neuromuscular junction disorders such as myasthenia gravis, myasthenic syndrome
- Pain, paresthesia, or weakness in an extremity is the reason for an NCV and/or EMG (These common symptoms result not only from axonal and myelin dysfunction, but also from systemic, non-neurological illnesses. EMG and NCV may help in making this distinction. Therefore, symptom-based diagnoses such as “pain in limb, weakness, disturbance in skin sensation or paresthesia” are acceptable, provided the clinical assessment and documentation unequivocally supports the need for a study.)

All of the following apply in relation to NCS and EMGs**:**
- Must be ordered by a physician.
- NCS should not routinely be conducted without EMGs (see exceptions below in this section).

- Studies must be conducted by an appropriately certified physician or physical therapist as defined by the American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) guidelines.
- Certified physicians using the appropriate equipment are able to make the determination as to what tests are medically necessary. The intensity and extent of testing with EMG and NCS are matters of clinical judgment developed after the initial pre-test evaluation and can later be modified during the testing procedure.
- Results of studies must be reflected in the medical record in order to insure payment.
- Physical therapists shall only be reimbursed for performing the technical component of the study.
- Study results must be reviewed and diagnoses rendered by a board-certified neurologist, physiatrist or hand surgeon or a physician certified by the American Board of Electrodiagnostic Medicine (ABEM) or American Board of Psychiatry and Neurology (ABPN). ABEM- certified physicians are listed in the ABEM directory found on their website

Any of the following are circumstances when NCS may be performed without a Needle EMG:

- Appropriate for acute cases of neuropathy and other nerve disorders including trauma (within 14 days of acute onset).
- Appropriate for the evaluation of a neuromuscular junction disorder if a needle examination was already performed within the past 60 days (allows option of adding on repetitive stimulation in patient previously evaluated without it).

EMGs -Neurogenic disorders are distinguishable from myopathic disorders by a carefully performed EMG. Common disorders where an EMG will be helpful in diagnosis (but are not limited to):

- Nerve compression syndromes, including carpal tunnel syndrome and other focal compressions
- Radiculopathy – cervical, lumbosacral
- Mono/polyneuropathy-metabolic, degenerative, hereditary
- Myopathy – including poly and dermatomyositis, myotonic and congenital myopathies
- Plexopathy - idiopathic, trauma, infiltration
- Neuromuscular junction disorders - myasthenia gravis. Single fiber EMG is of special value here
- At times, immediately prior to botulinum toxin injection, for localization
- At times, immediately prior to injection of phenol or other substances for nerve blocking or chemodenervation

- Can be considered as an option for polyneuropathy and, therefore, may be omitted in acute cases of neuropathy and other nerve disorders including trauma since EMG changes do not occur for 14-21 days

NMJ studies are appropriate to diagnose neuromuscular junction disorders of:

- Myasthenia gravis
- Lambert Eaton myasthenic syndrome (LEMS)
- Botulinum toxicity
- Patients in intensive care unit (ICU) settings who experience continued weakness after a critical illness which has required induced paralysis for mechanical ventilation
- Patients with physical signs/symptoms of diplopia, dysphagia, weakness and/or fatigue may be tested when the above diagnoses are suspected

Note: For "Frequency of Testing Guidelines", please see the American Association of Neuromuscular and Electrodiagnostic Medicine reference (Table 1: Maximum Number of Studies Table).

Limitations

1. Nerve Conduction Velocity Studies (NCVs) are only covered when performed with needle electromyogram except in occasional circumstances as described above
2. A clinical history from the referral source must clearly document the need for each test. Referral data containing pertinent clinical information must be available for review in instances where the need for a test may come under scrutiny.
3. Both NCVs and EMGs are required for a clinical diagnosis of peripheral nervous system disorders.
4. Nerve conduction studies (NCS) must be performed on conventional EMG machines that also have the capability of performing needle EMG's.
5. NCS are not covered in any of the following instances:
    - Examinations using portable hand-held devices, which are incapable of real-time wave-form display and analysis. This type of testing is included in the reimbursement for an Evaluation and Management (E & M) visit. They will not be paid separately except once per upper extremity limb studied per patient per year in patients with a high pre-test probability (80% or more) of carpal tunnel syndrome.
    - Devices that use fixed anatomic templates and computer generated reports used as an adjunct to physical examination routinely.

- Psychophysical measurements (current, vibration, thermal perceptions), even though they may involve delivery of a stimulus.
- Segmental testing of a single nerve will not be covered on a multiple unit basis. For instance, testing the ulnar nerve at wrist, forearm, below elbow, above elbow, axilla and supraclavicular regions will all be considered as a one unit test.
- Different methods of measuring the conduction in the same nerve will not be reimbursed as separate services.
- Narrative reports alluding to “normal” or “abnormal” results without numerical data will not be covered.
- Regular repeated routine testing is often of questionable benefit and viewed as not medically necessary.
- Screen testing for polyneuropathy (not mononeuropathies) of diabetes or endstage renal disease (ESRD) is not covered.
- Psychophysical measurements (current, vibration, thermal perceptions), even though they may involve delivery of a stimulus, are not covered.

6. NMJ studies are not covered for the following:
   - Any diagnosis not listed above in the indications criteria
   - Any diagnostic test or procedure that does not meet the CPT definition of code 95937 such as quantitative sensory testing by any means and sensory nerve conduction threshold testing. Examples of these tests include devices used for Current Perception Threshold/Sensory Nerve Conduction Threshold (CPT/sNCT) testing or the pressure-specified sensory device (PSSD).
   - Tests depending on the patient’s subjective response to single or repetitive stimulation (electrical, vibratory, thermal or tactile), regardless of whether or not these data are analyzed and presented through electronic or computerized systems.

7. NC-Stat (Neurometrix) and Neurostat are considered experimental and investigative due to lack of scientific evidence to support their effectiveness.

Background

Nerve conduction studies (NCS) are used to measure action potentials resulting from peripheral nerve stimulation which are recordable over the nerve or from an innervated muscle. With this technique, responses are measured between two sites of stimulation, or between a stimulus and a recording site. Nerve conduction studies are of two general types: sensory and motor. Either surface or needle electrodes can be used to stimulate the nerve or record the response. Axonal damage or dysfunction generally results in

loss of nerve or muscle potential response amplitude; whereas, demyelination leads to prolongation of conduction time and slowing of conduction velocity.

Electromyography (EMG) is the study and recording of intrinsic electrical properties of skeletal muscles. This is carried out with a needle electrode. Generally, the needles are of two types: monopolar or concentric. EMG is undertaken together with NCS. Unlike NCS, however, EMG testing relies on both auditory and visual feedback to the electromyographer. This testing is also invasive in that it requires needle electrode insertion and adjustment at multiple sites, and at times anatomically critical sites. As in NCS during EMG studies the electromyographer depends on ongoing real-time interpretation based knowledge of clinical diagnosis being evaluated to decide whether to continue, modify, or conclude a test. This process requires knowledge of anatomy, physiology, and neuromuscular diseases.

Neuromuscular junction testing involves the stimulation of an individual motor nerve by means of repetitive electrical impulses with measurement of the resulting electrical activity of a muscle supplied by that nerve. Supramaximal electrical stimuli are delivered to the nerve. A surface electrode over, or a percutaneous electrode placed in a corresponding muscle records the evoked muscle action potentials using standard nerve conduction study techniques. The nerve is then stimulated electrically in a repetitive train at 2-3 Hz, or in special circumstances at higher rates up to 50 Hz. In diseases of the neuromuscular junction, characteristic changes of a progressive decrease (decrement) in the compound action potential amplitude may be seen during the repetitive stimulation.

Codes:

CPT Codes / HCPCS Codes / ICD-10 Codes	
Code	Description
92265	Needle oculoelectromyography, 1 or more extra ocular muscles, 1 or both eyes, with interpretation and report
95860	Needle electromyography, 1 extremity with or without related paraspinal areas
95861	Needle electromyography, 2 extremities with or without related paraspinal areas
95863	Needle electromyography, 3 extremities with or without related paraspinal areas

95864	Needle electromyography, 4 extremities with or without related paraspinal areas
95865	Needle electromyography, larynx
95866	Needle electromyography, hemidiaphragm
95867	Needle electromyography, cranial nerve supplied muscle(s), unilateral
95868	Needle electromyography, cranial nerve supplied muscle(s), bilateral
95869	Needle electromyography, thoracic paraspinal muscles (excluding T1 or T2)
95870	Needle electromyography, limited study of muscles in 1 extremity or non-limb (axial) muscles (unilateral or bilateral), other than thoracic paraspinal, cranial nerve supplied muscles, or sphincters
95872	Needle electromyography using single fiber electrode, with quantitative measurement of jitter, blocking, and/or fiber density, any/all sites of each muscle studied
95873	Electrical stimulation for guidance in conjunction with chemodenervation
95874	Needle electromyography for guidance in conjunction with chemodenervation
95885	Needle electromyography, each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency/velocity study; limited (list separately in addition to code for primary procedure)
95886	Needle electromyography, each extremity, with related paraspinal areas, when performed, done with nerve conduction, amplitude and latency/velocity study; complete, five or more muscles studied, innervated by three or more nerves or four or more spinal levels (list separately in addition to code for primary procedure)
95887	Needle electromyography, non-extremity (cranial nerve supplied or axial) muscle(s) done with nerve conduction, amplitude and latency/velocity study (list separately in addition to code for primary procedure)
95905	Motor and/or sensory nerve conduction, using preconfigured electrode array (s), amplitude and latency/ velocity study, each limb, includes F-wave study when performed with interpretation and report
95907	Nerve conduction studies; 1-2 studies
95908	Nerve conduction studies; 3-4 studies

95909	Nerve conduction studies; 5-6 studies
95910	Nerve conduction studies; 7-8 studies
95911	Nerve conduction studies; 9-10 studies
95912	Nerve conduction studies; 11-12 studies
95913	Nerve conduction studies; 13 or more studies
95933	Orbicularis oculi (blink) reflex, by electrodiagnostic testing
95937	Neuromuscular junction testing (repetitive stimulation, paired stimuli), each nerve; any 1 method
HCPCS codes NOT covered:	
G0255	Current perception threshold/sensory nerve conduction test (sNCT) per limb, any nerve
ICD-10 codes (All CPT codes except 95905 and 95937):	
A05.1	Botulism food poisoning
A33-A35	Tetanus
B91	Sequelae of poliomyelitis
C70.0-C72.9	Malignant neoplasms of brain and other parts of central nervous system
C79.31-C79.52	Secondary malignant neoplasm of brain, cerebral meninges, and other parts of nervous system
D32.0-D33.9	Benign neoplasm of meninges, brain, and other parts of nervous system
E08.40-E08.618	Diabetes mellitus due to underlying neurological conditions
E09.40-09.610	Drug or chemical induced diabetes mellitus with neurological complications
E10.40-E10.65	Type 1 diabetes mellitus with complications
E11.311-E11.618	Diabetes type 2 with neurological complications
E13.311-E13.618	Other specified diabetes mellitus with neurological complications
E51.2-E51.9	Other manifestations of thiamine deficiency
E56.0-E56.8	Deficiency of other vitamins
E56.9	Vitamin Deficiency Unspecified

E78.6	Lipoprotein deficiency
G04.1	Topical spastic paraplegia
G14	Postpolio syndrome
G20-G21.4	Parkinson's disease
G24.01-G24.9	Dystonia
G25.0-G25.9	Other extrapyramidal and movement disorders
G11.0-G13.8	Hereditary ataxia, spinal muscular atrophy and related syndromes, and systemic atrophies primarily affecting central nervous system in diseases classified elsewhere
G35	Multiple sclerosis
G36.0-G37.9	Other acute disseminated or other demyelinating diseases of central nervous system
G50.0-G59	Nerve, nerve root and plexus disorders
G60.0-G65.2	Sequelae of inflammatory and toxic polyneuropathies
G70.00-G73.7	Diseases of myoneural junction and muscle
G80.0-G80.9	Cerebral palsy
G81.00-G81.94	Hemiplegia and hemiparesis
G82.20-G83.9	Paralytic syndromes
G90.01-G90.9	Disorders of autonomic nervous system
G95.0-G95.9	Other and unspecified diseases of spinal cord
H02.141-H02.149	Spastic ectropion of eyelid
H49.00-H52.7	Disorders of ocular muscles, binocular movement, accommodation and refraction
H53.2	Diplopia
I95.1	Orthostatic hypotension
J38.00-J38.02	Paralysis of vocal cords and larynx
J38.5	Laryngeal spasm
J38.7	Other disease of larynx
K22.0	Achalasia of cardia

M21.00-M21.969	Other acquired deformities of limbs
M30.0-M36.8	Systemic disorders of connective tissue in diseases classified elsewhere
M43.00-M43.19	Spondylisthesis site unspecified
M47.011-M47.9	Spondylosis
M48.00	Spinal stenosis, site unspecified
M48.02	Spinal stenosis, cervical region
M48.061	Spinal stenosis, lumbar region without neurogenic claudication
M50.00-M54.9	Other dorsopathies
M60.000-M60.09	Myositis
M62.00-M62.9	Other disorders of muscle
M79.0-M79.2	Rheumatism, myalgia, and neuralgia and neuritis, unspecified
M79.601-M79.676	Pain in limb, unspecified
M96.1	Post laminectomy syndrome, not elsewhere classified
Q05.0-Q05.9	Spina bifida
Q06.2	Diastematomyelia
Q07.01	Arnold-Chiari syndrome with spina bifida
Q07.03	Arnold-Chiari syndrome with spina bifida and hydrocephalus
Q68.0	Congenital deformity of sternocleidomastoid muscle
Q85.00-Q85.09	Neurofibromatosis and Schwannomatosis
R20.0-R20.9	Disturbances of skin sensation
R25.0-R25.9	Abnormal involuntary movements
R26.0-R26.9	Abnormalities of gait and mobility
R27.0-R27.9	Other lack of coordination
R29.3	Abnormal posture
R29.810	Facial weakness

R29.898	Other symptoms and signs involving the musculoskeletal system
R41.0-41.9	Other symptoms and sings involving cognitive functions and awareness
R47.01-R47.9	Speech disturbances, not elsewhere classified
R49.0-R49.9	Voice and resonance disorders
R53.0-R53.83	Malaise and fatigue
R94.131	Abnormal electromyogram (EMG)
S04.01-S04.9XXS	Injury to the optic and other cranial nerves
S12.000A-S14.104A	Fracture of cervical vertebra and other parts of neck
S14.0XXA-S14.9XXS	Injury of nerves and spinal cord at neck level
S22.00A-S22.9XXS	Fracture of rib (s), sternum and thoracic spine
S24.0XXA-S24.9XXS	Injury of nerves and spinal cord at thorax level
S32.000A-S32.9XXS	Fracture of lumbar spine and pelvis
S34.01XA-S34.9XXS	Injury of lumbar and sacral spinal cord and nerves at abdomen, lower back, and pelvis level
S44.00XA-S44.92XA	Injury of nerves at shoulder and upper arm level
S74.00XA-S84.929S	Injury of nerves at lower leg level
ICD-10 codes specifically for 95905:	
G56.00-G56.92	Carpal tunnel syndrome and mononeuropathies of upper limb
ICD-10 codes specifically for 95937:	
A05.1	Botulism food poisoning
A48.52	Wound botulism
G12.0-G12.9	Spinal muscular atrophy and related syndromes
G61.0	Guillain-Barre syndrome

G62.80-G62.81	Critical illness polyneuropathies
G70.0-G70.9	Myasthenia gravis and other myoneural disorders
G71.11-G71.12	Myotonic muscular dystrophy and congenita
G72.3	Periodic paralysis
G72.81	Critical illness myopathy
G73.1	Lambert-Eaton syndrome
G73.3	Myasthenic syndromes in other diseases classified elsewhere
H02.401	Unspecified ptosis of right eyelid
H02.402	Unspecified ptosis of left eyelid
H02.403	Unspecified ptosis of bilateral eyelids
H02.049	Spastic entropion of unspecified eye, unspecified eye
H02.409	Unspecified ptosis of unspecified eyelid
R13.0-R13.19	Dysphasia
H53.019	Deprivation amblyopia, unspecified eye
R47.02	Dysphasia
R47.1	Dysarthria and anarthria
R47.81-R47.9	Slurred speech, other speech disturbances
R49.0-R49.9	Voice and resonance disorders

References

1. American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM). Position Statement-Recommended Policy for Electrodiagnostic Medicine, Updated: 08/30/2014. https://www.aanem.org/getmedia/3275d71c-81dc-4b23-96a7-03173ecf8446/Recommended_Policy_EDX_Medicine_062810.pdf
2. American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM). Position Statement: Proper Performance and Interpretation of Electrodiagnostic Studies. Muscle Nerve. 2006 Mar; 33:436-439. https://www.aanem.org/getmedia/bd1642ce-ec01-4271-8097-81e6e5752042/Position-Statement_Proper-Performance-of-EDX_-2014.pdf
3. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) No. L35081- Nerve Conduction Studies and Electromyography. (Contractor: Novitas Solutions, Inc.). Revision Effective Date: 10/01/2017. https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=35081&ver=59&Date=&DocID=L35081&bc=iAAAABAAAAAA&
4. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD) No. L34996 - Neuromuscular Junction Testing, (Contractor: Novitas Solutions, Inc.): Effective Date: 10/01/2017. https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=34996&ver=17&Date=&DocID=L34996&bc=iAAAABAAAAAA&
5. Centers for Medicare and Medicaid Services (CMS). National Coverage Determination (NCD) for Sensory Nerve Conduction Threshold Tests (sNCTs)-160.23: Effective date 4/1/2004. http://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=270&ncdver=2&bc=AgAAgAAAAAAAAA%3d%3d&
6. Elkowitz SJ, Dubin NH, Richards BE, et al. Clinical utility of portable versus traditional electrodiagnostic testing for diagnosing, evaluating, and treating carpal tunnel syndrome. Am J Orthop. 2005 Aug; 34(8):362-364. http://www.ncbi.nlm.nih.gov/pubmed/16187725
7. Guyette TM, Wilgis EF. Timing of improvement after carpal tunnel release. J. Surg Orthop Adv. 2004 Winter; 13(4):206-209. http://www.ncbi.nlm.nih.gov/pubmed/?term=Guyette+t+%5Bau%5D+AND+carpal+%5Btiab%5D
8. Kong X, Gozani SN, Hayes MT, et al. NC-stat sensory nerve conduction studies in the median and ulnar nerves of symptomatic patients. Clin Neurophysiol. 2006 Feb; 117(2):405-413. http://www.ncbi.nlm.nih.gov/pubmed/16403673

9. Leonard Jr. JA, Abel N, Cochrane T, et al. AANEM Practice Topic: Guidelines for Ethical Behavior Relating to Clinical Practice Issues in Electrodiagnostic Medicine. Muscle Nerve. 2010 Oct; 42: 480-486. https://www.aanem.org/getmedia/3270396e-9408-4968-8eb4-d01c0915c3cf/Guidelines_EthicalBehavior.pdf.aspx
10. Medical Definition of Electromyography (EMG): from National Library of Medicine – Medline Plus. Updated 07/27/2014. http://www.nlm.nih.gov/medlineplus/ency/article/003929.htm

Disclaimer:
MedStar Health medical payment and prior authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. The policies constitute only the reimbursement and coverage guidelines of MedStar Health and its affiliated managed care entities. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies.

MedStar Health reserves the right to review and update the medical payment and prior authorization guidelines in its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.