

## Corporate Medical Policy

### Electrodiagnostic Studies

**File Name:** electrodiagnostic\_studies  
**Origination:** 2/2008  
**Last Review:** 10/2025

#### Description of Procedure or Service

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Electrodiagnostic studies are performed by providers who have extensive knowledge of neurological and musculoskeletal disorders. These providers must have successfully completed special training in electrodiagnostic studies to be able to accurately interpret and diagnose the individual's condition. Electrodiagnostic studies are diagnostic aids for the evaluation of myopathy and peripheral neuropathy by identifying, localizing, and characterizing electrical abnormalities in the skeletal muscles and peripheral nerves. They are used to establish an accurate diagnosis for individuals presenting with symptoms suggestive of a neuromuscular disorder when the clinical examination and standard laboratory testing does not provide a definitive diagnosis.

An electrodiagnostic consultation includes: 1) a focused neuromusculoskeletal history and physical exam; 2) a differential diagnosis based on the history and physical; 3) testing of the muscles and nerves with nerve conduction studies (NCSs) and needle electromyography (EMG); and 4) a final diagnosis. Electrodiagnostic studies are an extension of a detailed neuromuscular history and physical examination. Knowledge of the individual and their condition improves the ability to determine a differential diagnosis and final diagnosis. The physical examination focuses on the individual's symptoms and history to determine what nerves and muscles need to be studied. Therefore electrodiagnostic studies are individualized based on the individual's specific symptoms.

An assortment of tests may be used to obtain the specific information needed to make a final diagnosis, including motor and sensory nerve conduction latency and velocity studies, invasive needle EMG, repetitive stimulations studies, reflex latency measurements, measurements of evoked potentials, twitch tension measurement, exercise tests, and the evaluation of autonomic nervous system functions.

Nerve conduction studies (NCS) are done first to assess the integrity and diagnose disease of the peripheral nervous system. They assess the speed, conduction velocity and/or latency, size, amplitude and shape of the response. Electrodes are placed on the skin to electronically stimulate the nerve and measure the response. Individuals can have normal NCS but still need the EMG studies to evaluate for suspected radiculopathy, plexopathy or motor neuron disease.

Needle EMG studies are individualized based on the findings from the nerve conduction study and may need to be changed during the procedure based on real time findings. Needles are inserted into the specific skeletal muscle to measure the muscle's response to nerve stimulation. The findings of these studies evaluate muscle weakness and whether the weakness is due to the muscles or with the nerves that supply the muscles. All the data is evaluated to determine a final diagnosis.

#### Regulatory Status:

EMG/NCS measure nerve and muscle function and may be indicated when evaluating limb pain, weakness related to possible spinal nerve compression, or other neurologic injury or disorder. A number of electromyographic devices have received marketing clearance from the U.S. Food and Drug Administration (FDA) with the most recent being the Mega-TMS™, manufactured by Soterix

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Medical, Inc, in 2021. There are several additional devices that can be found in the FDA Product Codes: ETN, GWF, GZL, IKN, and JXE.

## **Related Policies:**

Intraoperative Neurophysiologic Monitoring (sensory-evoked potentials, motor-evoked potentials, EEG and EMG monitoring)

*\*\*\*Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.*

## **Policy**

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**BCBSNC will provide coverage for Electrodiagnostic Studies when it is determined to be medically necessary because the medical criteria and guidelines shown below are met.**

## **Benefits Application**

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This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

## **When Electrodiagnostic Studies are covered**

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Electrodiagnostic studies may be necessary to evaluate or diagnose the following conditions:

1. Myopathies;
2. Neuropathies;
3. Neuromuscular junction disorder;
4. Nerve compression syndromes;
5. Plexopathies
6. Intraoperative monitoring for surgeries that may pose a risk for nervous system damage and continuous monitoring is reported simultaneously to the surgical team.

## **When Electrodiagnostic Studies are not covered**

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Electrodiagnostic studies are not covered for the following:

1. When the criteria listed above are not met,
2. Nerve Conduction Studies are considered investigational for screening,
3. Nerve Conduction Studies without needle EMG are considered not medically necessary, \*\*\*
4. Electrodiagnostic studies that are not onsite and not in real time.
5. When performed by providers without appropriate training and education as stated in the Policy Guidelines.

## **Policy Guidelines**

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The following list gives specific diagnoses, according to categories of testing listed in the coverage section above, for which electromyography (EMG) and nerve conduction studies (NCS) generally provide useful information in confirming or excluding the diagnosis, above that provided by clinical examination and imaging alone. The list includes the most common diagnoses for testing but is not exhaustive:

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- Myopathies
  - Polymyositis
  - Dermatomyositis
  - Muscular dystrophies
- Neuropathies
  - Compressive neuropathies
    - Carpal tunnel syndrome
    - Ulnar nerve entrapment
    - Thoracic outlet syndrome
    - Tarsal tunnel syndrome
    - Other peripheral nerve entrapments
  - Generalized and focal polyneuropathies
    - Diabetic neuropathy
    - Uremic neuropathy
    - Alcohol-related neuropathy
  - Hereditary neuropathies
    - Charcot-Marie-Tooth
    - Other hereditary neuropathies
  - Demyelinating polyneuropathies
    - Guillian-Barré syndrome (acute)
    - Chronic idiopathic demyelinating polyneuropathy
  - Traumatic nerve injury
- Neuromuscular Junction Disorder
  - Myasthenia gravis
  - Myasthenic syndrome
  - Lambert-Eaton syndrome
- Nerve Compression Syndrome
  - Cervical nerve root compression
  - Thoracic nerve root compression
  - Lumbosacral nerve root compression
- Plexopathies
  - Cervical plexopathy
  - Brachial plexopathy
  - Lumbosacral plexopathy

For individuals with suspected peripheral neuropathy or myopathy who receive electrodiagnostic assessment including EMG and NCS, the evidence includes small observational studies on a few diagnoses, such as carpal tunnel syndrome, radiculopathy, and myopathy. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. Because electrodiagnostic assessment is considered the criterion standard for evaluating the electrical function of peripheral nerves and muscles, there is no true alternative reference standard against which the sensitivity and specificity of particular EMG/NCS abnormalities for particular clinical disorders can be calculated. Different studies have used different reference standards, such as EMG/NCS measures of healthy individuals or clinical examination results. In general, these tests are considered more specific than sensitive, and normal results do not rule out the disease. The limited evidence has shown a wide range of sensitivities, which are often less than 50%. The specificity is expected to be considerably higher but the data are insufficient to provide precise estimates of either sensitivity or specificity. The evidence is insufficient to determine that the technology results in an improvement in the health net outcome.

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For individuals with suspected peripheral neuropathy or myopathy who receive electrodiagnostic assessment including EMG and NCS, guidelines from specialty societies indicate this use is consistent with generally accepted medical practice.

## Training and Qualification

Needle insertion for an EMG requires detailed knowledge of anatomy to prevent injury to anatomical structures, nerves, and arteries. A qualified provider in electrodiagnostic studies must be knowledgeable regarding the pathology of muscle and nerve, neuromuscular physiology, electrophysiology, and clinical understanding of neurological and musculoskeletal conditions in order to formulate an accurate diagnosis.

The American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) has indicated in their position statements that needle EMG must be performed by a provider with special training in electrodiagnostic medicine (typically neurologists or physiatrists). This training and education is usually obtained through an accredited residency or fellowship program in neurology or physical medicine and rehabilitation. The provider must complete at least 200 electrodiagnostic consultations during his/her training program. Full competency is achieved through the experience of completing an additional 200 complete Electrodiagnostic consultations. It is also recommended that the provider be credentialed through the American Board of Electrodiagnostic Medicine or other equivalent examining board.

Consistent with North Carolina coverage mandates, electrodiagnostic studies may be rendered by a licensed Chiropractor that has been Board Certified as a Chiropractic Neurologist by the American Chiropractic Neurology Board.

Electrodiagnostic studies may also be rendered by a Licensed Physical Therapist who is currently listed on the American Physical Therapy Association website as a Board Certified Clinical Electrophysiologic Certified Specialist per the American Board of Physical Therapy Specialists. In North Carolina, appropriately qualified Physical Therapists can perform EMG studies and provide physical therapy interpretations, but not make medical diagnoses based on the results of such testing.

## Independent Use of Nerve Conduction Studies

The American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) states; "Nerve conduction studies performed independent of needle EMG may only provide a portion of the information needed to diagnose muscle, nerve root, and most nerve disorders." "When the NCS is used on its own without integrating needle EMG findings or when an individual relies solely on a review of NCS data, the results can be misleading and important diagnoses may be missed. Patients may thus be subjected to incorrect, unnecessary, and potentially harmful treatment interventions."

## Onsite and Real time

AANEM's Position Statement titled Proper Performance and Interpretation of Electrodiagnostic Studies contains the following clarifying statements:

"The use of the term "onsite" indicates that the summary of the patient's history and physical examination, execution of all of the appropriate nerve conduction studies and EMG examinations, analysis of the EDX data, and determination of the diagnoses for the patient are all performed in the same location which is most commonly the EDX laboratory. "Onsite" would preclude the use of telemetry or other technologies to allow the EDX data to be transmitted and interpreted at a location different from where the EDX study is performed.

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The use of the term “real time” regarding nerve conduction studies indicates that information from the history and physical examinations are integrated, the specific and tailored EDX study is performed, and the analysis of the waveforms are all done at the same time and while the patient is present in the EDX laboratory (whether that be in an office, a hospital, or a medical clinic). An EDX study performed in “real time” is more sensitive and accurate since it allows the specific NCS and EMG tests performed to be modified as dictated by the results as they arise and it allows the physician to perform additional NCS or EMG studies, if necessary, after preliminary review and before the patient leaves the EDX laboratory.”

## Billing/Coding/Physician Documentation Information

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This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at [www.bcbssc.com](http://www.bcbssc.com). They are listed in the Category Search on the Medical Policy search page.

Applicable service codes: 95860, 95861, 95863, 95864, 95865, 95866, 95867, 95868, 95869, 95870, 95872, 95873, 95874, 95875, 95885, 95886, 95887, 95907, 95908, 95909, 95910, 95911, 95912, 95913, 95938, 95939.

\*\*\*Note: Needle EMG codes should not be used for Surface EMG.

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

## Scientific Background and Reference Sources

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The American Association of Neuromuscular & Electrodiagnostic Medicine. AANEM recommended policy for electrodiagnostic medicine. Retrieved 10/17/07 from <http://www.aanem.org/>

The American Association of Neuromuscular & Electrodiagnostic Medicine. Proper performance and interpretation of electrodiagnostic studies. *Muscle Nerve* 2006.22:436-439.

The American Association of Neuromuscular & Electrodiagnostic Medicine. Who is qualified to practice electrodiagnostic medicine? Position Statement. Retrieved 10/17/07 from <http://www.aanem.org/practicissues/postionstatements/Who%27sQualified.cfm>

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Specialty Matched Consultant Advisory Panel - 5/2008

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American Chiropractic Neurology Board. About ACNB Retrieved 6/14/2010 from: <http://www.acnb.org/>.

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North Carolina General Statutes: 58-50-30, Senate Bill 656, Session 2012.

Medical Director – 9/2012

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Specialty Matched Consultant Advisory Panel – 10/2014

The American Association of Neuromuscular & Electrodiagnostic Medicine. What does ‘on site’ and ‘real time’ mean? Position Statement July 2014. Retrieved 9/30/15 from <https://www.aanem.org/getmedia/d551e390-9889-4302-868a-168a59e0bf3a/Defintion-of-Real-Time-Onsite.pdf.aspx>.

The American Association of Neuromuscular & Electrodiagnostic Medicine. Electrodiagnostic Services: Pay for Quality. Position paper. Retrieved 9/30/15 from [https://www.aanem.org/getmedia/3413a275-3758-4da1-bcbb-3d1d7a6458ec/Value-based-reimbursement-position-statement\\_2014.pdf.aspx](https://www.aanem.org/getmedia/3413a275-3758-4da1-bcbb-3d1d7a6458ec/Value-based-reimbursement-position-statement_2014.pdf.aspx).

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Proper performance and interpretation of electrodiagnostic studies. September 2005.

Updated June 2014. Accessed 10/06/2016 at [https://www.aanem.org/getmedia/bd1642ce-ec01-4271-8097-81e6e5752042/Position-Statement\\_Proper-Performance-of-EDX\\_-2014.pdf.aspx](https://www.aanem.org/getmedia/bd1642ce-ec01-4271-8097-81e6e5752042/Position-Statement_Proper-Performance-of-EDX_-2014.pdf.aspx)

Specialty Matched Consultant Advisory Panel – 10/2016

Specialty Matched Consultant Advisory Panel – 10/2017

Specialty Matched Consultant Advisory Panel – 10/2018

Specialty Matched Consultant Advisory Panel – 10/2019

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American Association of Neuromuscular & Electrodiagnostic Medicine. Recommended policy for electrodiagnostic medicine. 2023. Retrieved from: <https://www.aanem.org/clinical-practice-resources/position-statements/position-statement/recommended-policy-for-electrodiagnostic-medicine>.

American Association of Neuromuscular & Electrodiagnostic Medicine. Model Policy for Needle Electromyography and Nerve Conduction Studies. 2022; Retrieved from <https://www.aanem.org/clinical-practice-resources/position-statements/position-statement/model-policy-for-nerve-conduction-studies-and-needle-electromyography>.

Specialty Matched Consultant Advisory Panel – 10/2025

Medical Director review- 10/2025

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## Policy Implementation/Update Information

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- 3/10/08 New policy developed. Reviewed with Senior Medical Director 1/24/2008. Notification given 3/10/2008. Policy effective date is 6/16/2008.
- 6/30/08 Specialty Matched Consultant Panel review 5/29/08. No changes to policy statement. References added.
- 8/31/09 Reviewed with Senior Medical Director 7/20/09. Reworded statement in the "When Non Covered" section; from "8. When performed by physicians or non-physicians without appropriate training and education as stated in the Policy Guidelines." to "When performed by non-physicians or physicians without appropriate training and education as stated in the Policy Guidelines." No change in the intent. (btw)
- 6/22/10 Policy Number(s) removed (amw)
- 10/12/10 Consultant Advisory Panel Meeting August 5, 2010. No changes to policy statement. Added note to "Coding/Billing" section to indicate; "Note: Use of CPT code 95904 is inappropriate coding for Quantitative Sensory Testing." Added the following statement to the "Policy Guidelines" section to indicate; "Consistent with North Carolina coverage mandates, electrodiagnostic studies may be rendered by a licensed Chiropractor that has been Board Certified as a Chiropractic Neurologist by the American Chiropractic Neurology Board." References added. (btw)
- 1/10/12 Specialty Matched Consultant Advisory Panel meeting "Description" revised. "Policy Guidelines" reformatted. Added the following CPT codes to the "Billing/Coding" section: 95885, 95886, 95887, 95938, and 95939. (btw)
- 10/1/12 Added the following to the Policy Guidelines section to indicate: "Electrodiagnostic studies may also be rendered by a Licensed Physical Therapist who is currently listed on the American Physical Therapy Association website as a Board Certified Clinical Electrophysiologic Certified Specialist per the American Board of Physical Therapy Specialists. In North Carolina, appropriately qualified Physical Therapists can perform EMG studies and provide physical therapy interpretations but not medical diagnoses based on the results of such testing." Medical Director review 9/17/2012. Reference to "physician" changed to "provider" where appropriate throughout policy. (btw)
- 11/27/12 Specialty Matched Consultant Advisory Panel review 10/17/2012. No change to policy statement. (btw)
- 12/28/12 Removed deleted codes, 95900, 95903, and 95904 from Billing/Coding section. Added the following new 2013 codes, 95907, 95908, 95909, 95910, 95911, 95912, and 95913. (btw)
- 5/14/13 Changed "Related Policies" to "Related Evidence Based Guidelines" in the Description section.  
removed the following from the When Not Covered section: "Surface Electromyography (SEMG). [See BCBSNC policy entitled, Paraspinal Surface Electromyography (EMG)]. Quantitative Sensory Tests, and Automated Nerve Conduction Tests." (btw)
- 11/12/13 Specialty Matched Consultant Advisory Panel review 10/16/2013. No change to policy. (btw)

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- 11/25/14 Specialty Matched Consultant Advisory Panel review 10/28/2014. Medical Director review. No change to policy statement. (sk)
- 11/24/15 References added. Specialty Matched Consultant Advisory Panel review 10/29/2015. (sk)
- 3/31/17 Reference added. Policy Guidelines updated. When Not Covered statement “Mobile EMG labs” clarified to state “Electrodiagnostic studies that are not onsite and not in real time.” Specialty Matched Consultant Advisory Panel review 10/26/2016. (sk)
- 8/24/18 Specialty Matched Consultant Advisory Panel review 10/25/2017. (sk)
- 11/9/18 Specialty Matched Consultant Advisory Panel review 10/24/2018. (sk)
- 11/26/19 Specialty Matched Consultant Advisory Panel review 10/16/2019. (sk)
- 11/10/20 Specialty Matched Consultant Advisory Panel review 10/21/2020. (sk)
- 11/16/21 Specialty Matched Consultant Advisory Panel review 10/20/2021. (sk)
- 5/2/23 Policy review. Specialty Matched Consultant Advisory Panel review 10/19/2022. (sk)
- 11/7/23 Updated Description section, References, and title of Related Policy. Added Regulatory Status section. Updated Policy Guidelines. No change to policy intent. Specialty Matched Consultant Advisory Panel review 10/2023. Medical Director review 10/2023 (ldh)
- 11/13/24 Removed the following note from the Billing/Coding Sections: “Use of CPT code 95904 is incorrect coding for Quantitative Sensory Testing.” References updated. Specialty Matched Consultant Advisory Panel review 10/2024. Medical Director review 10/2024. (ldh)
- 10/29/25 Removed one Related Policy. References updated. Specialty Matched Consultant Advisory Panel review 10/2025. Medical Director review 10/2025. (ldh)

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Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review