BlueCross BlueShield of Vermont
An Independent Licensee of the Blue Cross and Blue Shield Association.

Neuromuscular Electrical Stimulator (NMES) Corporate Medical Policy

File Name: Neuromuscular Electrical Stimulator (NMES)
File Code: 8.03.VT01
Origination: 05/01/2007
Last Review: 10/2020
Next Review: 10/2021
Effective Date: 03/01/2021

Description/Summary

Neuromuscular electrical stimulators (NMES) are divided into two broad categories: *therapeutic* and *functional*. Therapeutic electrical stimulation strengthens muscles weakened by disuse while functional electrical stimulation attempts to replace destroyed nerve pathways by electrical stimulation to the muscle in order to assist a functional movement.

Functional neuromuscular electrical stimulation (NMES) involves the use of an orthotic device with microprocessor-controlled electrical muscular stimulation. These devices are being developed to restore function to patients with damaged or destroyed nerve pathways (eg, spinal cord injury, stroke, multiple sclerosis, cerebral palsy).

For individuals who have loss of hand and upper-extremity function due to spinal cord injury or stroke who receive functional NMES, the evidence includes a few small case series. Relevant outcomes are functional outcomes and quality of life. Interpretation of the evidence is limited by the low number of patients studied and lack of data demonstrating the utility of NMES outside the investigational setting. It is uncertain whether FES can restore some upper-extremity function or improve the quality of life. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have chronic foot drop who receive FES, the evidence includes randomized controlled trials (RCTs), a systematic review, and a longitudinal cohort study. Relevant outcomes are functional outcomes and quality of life. For chronic poststroke foot drop, 2 RCTs comparing FES with a standard ankle-foot orthosis (AFO) showed improved patient satisfaction with FES but no significant differences between groups in objective measures such as walking. The cohort study assessed patients' ability to avoid obstacles while walking on a treadmill using FES versus AFO. Although the FES group averaged a 4.7% higher rate of avoidance, the individual results

between devices ranged widely. One RCT with 53 subjects examining neuromuscular stimulation for foot drop in patients with multiple sclerosis showed a reduction in falls and improved patient satisfaction compared with an exercise program but did not demonstrate a clinically significant benefit in walking speed. The other RCT showed that at 12 months, both FES and AFO had improved walking speed, but the difference in improvement between the 2 devices was not significant. A reduction in falls is an important health outcome. However, it was not a primary study outcome and should be corroborated. The literature on FES in children with cerebral palsy includes a systematic review of small studies with within-subject designs. Further study is needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have SCI at segments T4 to T12 who receive FES, the evidence includes case series. Relevant outcomes are functional outcomes and quality of life. No controlled trials were identified on FES for standing and walking in patients with SCI. However, case series are considered adequate for this condition because there is no chance for unaided ambulation in this population with SCI at this level. Some studies have reported improvements in intermediate outcomes, but improvements in health outcomes (eg, ability to perform activities of daily living, quality of life) have not been demonstrated. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have SCI who receive FES exercise equipment, the evidence includes prospective within-subject comparisons. Relevant outcomes are symptoms, functional outcomes, and quality of life. The evidence on FES exercise equipment consists primarily of within-subject, pretreatment to posttreatment comparisons. Evidence was identified on 2 commercially available FES cycle ergometer models for the home, the RT300 series and the REGYS/ERGYS series. There is limited evidence on the RT300 series. None of the studies showed an improvement in health benefits, and 1 analysis of use for 314 individuals over 20 000 activity sessions with a Restorative Therapies device showed that a majority of users used the device for 34 minutes per week. Two percent of individuals with SCI used the device for an average of 6 days per week, but caloric expenditure remained low. Compliance was shown in 1 study to be affected by the age of participants and level of activity prior to the study. Studies on the REGYS/ERGYS series have more uniformly shown an improvement in physiologic measures of health and in sensory and motor function. A limitation of these studies is that they all appear to have been conducted in supervised in research centers. No studies were identified on long-term home use of ERGYS cycle ergometers. The feasibility and long-term health benefits of using this device in the home is uncertain. The evidence is insufficient to determine the effects of the technology on health outcomes.

Policy

Coding Information

Click the links below for attachments, coding tables & instructions.

Attachment I – Coding Table & Instructions

When a service may be considered medically necessary

Therapeutic NMES devices may be considered medically necessary for the treatment of adequately documented disuse atrophy when the nerve supply to the muscle is intact and results from listed conditions in which clinical improvement may be expected.

When requesting prior authorization for the use of NMES in disuse atrophy, the medical record must show supporting documentation of the member's diagnosis of disuse atrophy (based on physical exam) and electromyography (EMG) as a result of one of the following:

- Recent hip surgery until the patient begins physical therapy, or
- Prolonged (greater than 12 weeks) casting or splinting of a joint, or
- Contractures as a result of scarring of soft tissue from burns.
- Treatment to improve wrist and finger function and prevent or correct shoulder subluxation in persons with partial paralysis following stroke.

When a service is considered investigational

Neuromuscular stimulation is considered **investigational** as a technique to restore function following nerve damage or nerve injury, including but not limited to the following situations:

- To provide upper-extremity function in patients with nerve damage (eg, spinal cord injury or post stroke)
- To improve ambulation in patients with foot drop caused by congenital disorders (eg, cerebral palsy) or nerve damage (eg, poststroke, or in those with multiple sclerosis)
- As a technique to provide ambulation in patients with spinal cord injury
- Use of exercycles that use functional electrical stimulation technology as a means of physical therapy and exercise for patients with spinal cord injury.

Reference Resources

1. BCBSA Policy 8.03.01 – Functional Neuromuscular Electrical Stimulation. Updated 06/2020, Accessed 10/2020.
2. Nussbaum EL, Houghton P, Anthony J, Rennie S, Shay BL, Hoens AM. Neuromuscular Electrical Stimulation for Treatment of Muscle Impairment: Critical Review and Recommendations for Clinical Practice. Physiother Can. 2017;69(5):1-76. doi:10.3138/ptc.2015-88

Related Policies

Durable Medical Equipment (DME)
Physical Medicine

Document Precedence

Blue Cross and Blue Shield of Vermont (BCBSVT) Medical Policies are developed to provide

clinical guidance and are based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. The applicable group/individual contract and member certificate language, or employer's benefit plan if an ASO group, determines benefits that are in effect at the time of service. Since medical practices and knowledge are constantly evolving, BCBSVT reserves the right t o review and revise its medical policies periodically. To the extent that there may be any conflict between medical policy and contract/employer benefit plan language, the member's contract/employer benefit plan language takes precedence.

Audit Information

BCBSVT reserves the right to conduct audits on any provider and/or facility to ensure compliance with the guidelines stated in the medical policy. If an audit identifies instances of non-compliance with this medical policy, BCBSVT reserves the right to recoup all non-compliant payments.

Administrative and Contractual Guidance

Benefit Determination Guidance

Prior approval is required and benefits are subject to all terms, limitations and conditions of the subscriber contract.

Incomplete authorization requests may result in a delay of decision pending submission of missing information. To be considered compete, see policy guidelines above.

NEHP/ABNE members may have different benefits for services listed in this policy. To confirm benefits, please contact the customer service department at the member's health plan.

Federal Employee Program (FEP): Members may have different benefits that apply. For further information please contact FEP customer service or refer to the FEP Service Benefit Plan Brochure. It is important to verify the member's benefits prior to providing the service to determine if benefits are available or if there is a specific exclusion in the member's benefit.

Coverage varies according to the member's group or individual contract. Not all groups are required to follow the Vermont legislative mandates. Member Contract language takes precedence over medical policy when there is a conflict.

If the member receives benefits through an Administrative Services Only (ASO) group, benefits may vary or not apply. To verify benefit information, please refer to the member's employer benefit plan documents or contact the customer service department. Language in the employer benefit plan documents takes precedence over medical policy when there is a conflict.

Policy Implementation/Update information

05/2007	Reviewed by the CAC
01/2008	Annual review. No changes made. Reviewed by the CAC 05/2008
11/2011	Updated and Transferred to new format. Criteria for medically necessary use updated. New language concerning use for cerebral palsy as investigational. Clarification as to the difference between functional and therapeutic uses of NMES. References updated. Coding table updated to include new CPT codes for 2012. CPT and HCPSC investigational codes designations added to coding table.
01/2013	Description section updated to include FDA approved systems. New Investigational wording added. Codes updated, some codes moved to investigational (formally required PA). Approved by both the Medical Policy and Medical Policy and Provider Committees. Medical/ Clinical Coder reviewed. RLJ
11/2017	Reviewed BCBSA MPRM 8.03.01 no changes in policy statement. Removed CPT® code 64577 code deleted 01.01.2012. Removed CPT® code 95973 deleted 01/01/2016.
06/2018	Reviewed BCBSA MPRM 8.03.01 no changes in policy statement. Removed CPT code 64577 from PA list and medical policy -code deleted 01.01.2012. Deleted 95973 01/01/2016
06/2019	Update references and added language around Exercycles.
10/2020	Policy reviewed. References updated. No changes to policy statements. Code 95970 changed from investigational to requiring prior approval. Codes 0282T, 0283T, 0284T, 0285T deleted.

Eligible providers

Qualified healthcare professionals practicing within the scope of their license(s).

Approved by BCBSVT Medical Directors Date Approved

Joshua Plavin, MD, MPH, MBA
Chief Medical Officer

Kate McIntosh, MD, MBA, FAAP
Senior Medical Director

Attachment I
Coding Table & Instructions

Code Type	Number	Brief Description	Policy Instructions
The following codes will be considered as medically necessary when applicable criteria have been met.			
CPT®	63650	Percutaneous implantation of neurostimulator electrode array, epidural	Prior Approval Required
CPT®	63655	Laminectomy for implantation of neurostimulator electrodes, plate/paddle, epidural	Prior Approval Required
CPT®	63661	Removal of spinal neurostimulator electrode percutaneous array(s), including fluoroscopy, when performed	Prior Approval Required
CPT®	63662	Removal of spinal neurostimulator electrode plate/paddle(s) placed via laminotomy or laminectomy, including fluoroscopy, when performed	Prior Approval Required
CPT®	63663	Revision including replacement, when performed, of spinal neurostimulator electrode percutaneous array(s), including fluoroscopy, when performed	Prior Approval Required
CPT®	63664	Revision including replacement, when performed, of spinal neurostimulator electrode plate/paddle(s) placed via laminotomy or laminectomy, including fluoroscopy, when performed	Prior Approval Required
CPT®	63685	Insertion or replacement of spinal neurostimulator pulse generator or receiver, direct or inductive coupling	Prior Approval Required
CPT®	63688	Revision or removal of implanted spinal neurostimulator pulse generator or receiver	Prior Approval Required

CPT®	64580	Incision for implantation of neurostimulator electrodes; neuromuscular	Prior Approval Required
CPT®	64581	Incision for implantation of neurostimulator electrodes; sacral nerve (transforaminal placement)	Prior Approval Required
CPT®	95970	Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude & duration, configuration of wave form, battery status, electrode selectability, output modulation, cycling, impedance & patient compliance measurements); simple or complex brain, spinal cord, or peripheral (i.e., cranial nerve, peripheral nerve, autonomic nerve, neuromuscular) neurostimulator pulse generator/transmitter, without reprogramming	Prior Approval Required
CPT®	95971	Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude & duration, configuration of wave form, battery status, electrode selectability, output modulation, cycling, impedance & patient compliance measurements); simple spinal cord, or peripheral (i.e., peripheral nerve, autonomic nerve, neuromuscular) neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming	Prior Approval Required

CPT®	95972	Electronic analysis of implanted neurostimulator pulse generator system (e.g., rate, pulse amplitude and duration, configuration of wave form, battery status, electrode selectability, output modulation, cycling, impedance and patient compliance measurements); complex spinal cord, or peripheral (except cranial nerve) neurostimulator pulse generator/transmitter, with intraoperative or subsequent programming, first hour	Prior Approval Required
HCPCS	A4595	Electrical stimulator supplies, 2 lead, per month, (e.g., TENS, NMES)	Prior Approval Required
HCPCS	E0731	Form fitting conductive garment for delivery of TENS or NMES (with conductive fibers separated from the patients skin by layers of fabric)	Prior Approval Required
HCPCS	E0745	Neuromuscular stimulator, electronic shock unit	Prior Approval Required
HCPCS	L8680	Implantable neurostimulator electrode (with any number of contact points)	Prior Approval Required
HCPCS	L8681	Patient programmer (external) for use with implantable programmable neurostimulator pulse generator, replacement only	Prior Approval Required
HCPCS	L8682	Implantable neurostimulator radiofrequency receiver	Prior Approval Required
HCPCS	L8683	Radiofrequency transmitter (external) for use with implantable neurostimulator radiofrequency receiver	Prior Approval Required
HCPCS	L8685	Implantable neurostimulator pulse generator, single array, rechargeable, includes extension	Prior Approval Required
HCPCS	L8686	Implantable neurostimulator pulse generator	Prior Approval Required

HCPCS	L8687	Implantable neurostimulator pulse generator, dual array, rechargeable, includes extension	Prior Approval Required
HCPCS	L8688	Implantable neurostimulator pulse generator, dual array, non-rechargeable, includes extension	Prior Approval Required
HCPCS	L8689	External recharging system for battery (internal) for use with implantable neurostimulator, replacement only	Prior Approval Required
The following codes will be denied as Investigational			
CPT®	64575	Incision for implantation of neurostimulator electrodes; peripheral nerve (excludes sacral nerve)	Investigational
CPT®	64585	Revision or removal of peripheral neurostimulator electrodes	Investigational
HCPCS	E0762	Transcutaneous electrical joint stimulation device system	Investigational
HCPCS	E0764	Functional neuromuscular stimulation, transcutaneous stimulation of sequential muscle groups of ambulation with computer control, used for walking by spinal cord injured, entire system, after completion of training program	Investigational
HCPCS	E0744	Neuromuscular stimulator for scoliosis	Investigational
HCPCS	E0770	Functional electrical stimulator, transcutaneous stimulation of nerve and/or muscle groups, any type, complete system, not otherwise specified	Investigational