MEDICAL POLICY

Excellus
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Medical Policy Title	**Non-Invasive Surface Electrical Stimulation for Pain and Rehabilitation**
Policy Number	**1.01.61**
Current Effective Date	**May 21, 2026**
Next Review Date	**May 2027**

Our medical policies are guides to evaluate technologies or services for medical necessity. Criteria are established through the assessment of evidence based, peer-reviewed scientific literature, and national professional guidelines. Federal and state law(s), regulatory mandates and the member's subscriber contract language are considered first in the determination of a covered service.
(Link to Product Disclaimer)

POLICY STATEMENT(S)

Transcutaneous Electrical Nerve Stimulation (TENS)

I. TENS devices are considered **medically necessary** when **ALL** of the following criteria are met:
   A. The device is U.S. Food and Drug Administration (FDA) approved;
   B. The device is utilized for the treatment of pain;
   C. Symptoms persist for more than three (3) months;
   D. There has been a failure of physical therapy, osteopathic manipulative therapy, or chiropractic therapy;
   E. Failure of medications (e.g., simple analgesics, nonsteroidal anti-inflammatory drugs (NSAIDS), or opioids); **and**
   F. A 30-day trial period has demonstrated efficacy of the treatment.

II. Form-fitting TENS conductive conducting garments utilized for the delivery of TENS therapy are considered **medically necessary** when **ALL** of the following criteria are met:
   A. The criteria in policy statement I are met;
   B. The nerve supply to the stimulated area is intact; **and**
   C. At least **ONE** of the following criteria apply:
      1. Treatment includes a large stimulation area or considerable number of stimulation sites, and the member cannot reasonably manage the treatment without the use of the garment;
      2. The stimulation site is not accessible with standard electrodes, adhesive tape, or lead wires; **or**
      3. Skin or other medical conditions exist that would prevent the adherence of standard electrodes, tapes, or lead wires.

III. TENS is considered **not medically necessary** for the following indications:

A. The relief of pain in labor and vaginal delivery;
B. Treatment of headaches and/or migraines;
C. Visceral abdominal pain;
D. Temporomandibular joint (TMJ) disorder;
E. Cancer pain;
F. Essential tremor;
G. Low back pain;
H. Neck pain.

Neuromuscular Electrical Stimulation (NMES)

IV. NMES is considered **medically necessary** for disuse muscle atrophy when **BOTH** of the following criteria are met:
   A. Nerve supply to the muscle is intact (including brain, spinal cord, and peripheral nerves); **and**
   B. For non-neurological reasons (e.g., casting or splinting of a limb, contracture due to scarring of soft tissue as in burn lesions, and hip or knee replacement surgery) (until orthotic training begins).

V. NMES is considered **not medically necessary** for **ALL** other indications.

Functional Electrical Stimulation (FES)

VI. FES is considered **not medically necessary** for **ANY** of the following indications, including but not limited to:
   A. For ambulation in patients with spinal cord injury;
   B. For stroke rehabilitation;
   C. Gait training.

Investigational

VII. The following forms of stimulation are considered **investigational**:
   A. Interferential Stimulation; (e.g., RS 4i Sequential Stimulator, Empi IF 3Wave);
   B. Transcutaneous Electrical Joint Stimulation (TEJSD) for the treatment of joint pain associated with arthritis;
   C. Multiple Modality Delivery Stimulation (e.g., RS-4i Plus).

Durable Medical Equipment (DME) Repair

VIII. Repair and/or replacement of medically necessary electrical stimulation devices or components not under warranty will be considered **medically appropriate** when the following criteria are met:

A. Physician documentation includes **ALL** of the following:
   1. date of DME initiation;
   2. manufacturer warranty information, if applicable;
   3. attestation that the patient has been compliant with the use of the DME and will continue to benefit from the use of device;

B. The DME is no longer functioning adequately; and **BOTH** of the following criteria are met:
   1. inadequate function interferes with activities of daily living; **and**
   2. repair is expected to make the equipment fully functional (as defined by manufacturer).

IX. Repair of equipment damaged due to patient neglect, theft, abuse, or when another available coverage source is an option (e.g., homeowners, rental, auto, liability insurance, etc.) is **ineligible for coverage**.

DME Replacement

X. Replacement of a medically necessary electrical stimulator or components not under warranty will be considered **medically appropriate** when **EITHER** of the following criteria are met:
   A. The DME is no longer functioning adequately and has been determined to be non-repairable, or the cost of the repair is in excess of the replacement cost;
   B. There is documentation that a change in the patient's condition makes the present unit non-functional and improvement is expected with a replacement unit.

XI. The replacement of a properly functioning electrical stimulator, its components or accessories, is considered **not medically necessary**. This includes, but is not limited to, replacement desired due to advanced technology or to make the DME more aesthetically pleasing;

XII. The replacement of equipment damaged or lost due to patient neglect, theft, abuse, or when another available coverage source is an option (e.g., homeowners, rental, auto, liability insurance, etc.) is **ineligible for coverage**.

XIII. Accessories or components for electrical stimulation devices that are considered not medically necessary or investigational by peer-reviewed literature will also be considered as **not medically necessary or investigational** by the Health Plan.

RELATED POLICIES

Corporate Medical Policy

1.01.07 Oral Appliance for the Treatment of Obstructive Sleep Apnea

1.01.19 Pelvic Floor Electrical Stimulation as a Treatment for Urinary or Fecal Incontinence

1.01.58 Cranial and Auricular Neuromodulation

01.01 59 Electromagnetic and Pulsed Field Stimulation

1.01.60 Implantable and Invasive Neuromodulation Systems

1.01.62 Specialized Neuromodulation for Specific Conditions

7.01.05 Vagus Nerve Stimulation and Vagus Nerve Blocking Therapy

7.01.10 Sacral Nerve Stimulation

7.01.41 Surgical Management of Sleep Disorders

8.01.22 Tibial Nerve Stimulation (TNS) for Voiding Dysfunction

11.01.03 Experimental or Investigational Services

POLICY GUIDELINE(S)

I. The use of TENS therapy is a relative contraindication in patients with a pacemaker or an implantable cardioverter defibrillator (ICD). Electrical interference from the TENS unit has been reported and may interfere with the proper functioning of these devices.

DESCRIPTION

Electrical stimulation (Estim) is a technique that uses low level electrical currents to stimulate muscles or nerves for therapeutic purposes. These devices and treatments are used in various medical and physical therapy applications. The FDA has approved many stimulation devices based on their substantial equivalence to predicate devices. There are devices for both home and clinic use. Altering the frequency, intensity, location, and pulse duration of the devices allows them to be marketed individually.

Transcutaneous Electrical Nerve Stimulation (TENS)

TENS is the application of an electrical current through the skin to stimulate the nervous system. The first device was patented by Medtronic Inc. and is utilized to relieve pain in a portable, non-invasive way. The device delivers mild pulsed electrical currents through electrode pads placed on the surface of the skin. Users can change the frequency, intensity, and pulse duration of the TENS based upon the patient's comfort and response. The intensity of the TENS device can be altered to a comfortable sensation without motor contraction, to the highest level of motor contractions (noxious). Traditional TENS is delivered utilizing high-frequency, low intensities and small pulse durations. Noxious level TENS have been investigated for patients with chronic pain.

TENS for the Treatment of Arthritis

The BioniCare Bio-1000 stimulator (VQ OrthoCare) delivers pulsed electrical stimulation for adjunctive treatment of osteoarthritis of the knee and was then later approved for rheumatoid arthritis of the hand. The FDA originally determined that this device was equivalent to TENS devices. In 2006, the FDA reclassified the device as a transcutaneous electrical stimulator for arthritis upon the manufacturer's request given that the target tissue is not nerve, but rather joint tissue.

The OrthoCor Active Knee System (OrthoCor Medical; acquired by Caerus Corp) uses pulsed electromagnetic field energy at a radiofrequency of 27.12 MHz to treat pain. The OrthoCor Knee System is classified as a short-wave diathermy device for use other than applying therapeutic deep heat. It is indicated for adjunctive use in the palliative treatment of postoperative pain and edema in

superficial soft tissue and for the treatment of muscle and joint aches and pain associated with overexertion, strains, sprains, and arthritis. the SofPulse (also called Torino II, 912-M10, and Roma; Ivivi Health Sciences, renamed Amp Orthopedics) was cleared for marketing as a short-wave diathermy device that applies electromagnetic energy at a radiofrequency of 27.12 MHz. The device is indicated for adjunctive use in the palliative treatment of postoperative pain and edema in superficial soft tissue.

H-wave Stimulation is a form of electrical stimulation that differs from others given its waveform. It emits prolonged pulse width/duration and can produce effective anesthesia/analgesia without weakness or tetany with extended use such as that which is seen with neuromuscular electrical stimulation. H -wave devices are available for home use as durable medical equipment. H-wave stimulation has been used for pain control, treatment of diabetic neuropathy, muscle sprains, TMJ dysfunctions or reflex sympathetic dystrophy. It has also been used to accelerate healing of wounds (e.g., diabetic ulcers).

Neuromuscular Electrical Stimulation (NMES) /Functional Electrical Stimulation (FES)

NMES is a form of treatment that uses a device that transmits an electrical impulse to activate muscle groups by way of electrodes. NMES is proposed to promote neuromuscular re-education, improve motor unit recruitment, and prevent or diminish muscle atrophy. NMES is typically used as a component of a comprehensive rehabilitation program. Compared to TENS, NMES delivers a stronger current with a wider pulse width. The stimulator device is classified as durable medical equipment. NMES can be referred to as functional electrical stimulation (FES), functional neuromuscular stimulation (FNMS), or electromyography (EMG) triggered neuromuscular stimulation.

Functional electrical stimulation involves the use of an orthotic device or exercise equipment with microprocessor controlled electrical muscular stimulation. FES devices are being developed to restore function and improve health in individuals with damaged or destroyed nerve pathways (e.g., spinal cord injury [SCI], stroke, multiple sclerosis, cerebral palsy). It attempts to replace stimuli from destroyed nerve pathways with computer-controlled sequential electrical stimulation of muscles through surface or implanted electrodes. The goal is to enable patients with spinal cord injury (SCI) or stroke to function independently or at least maintain muscle tone and strength.

Surface or percutaneous devices for upper extremity FES (e.g., H200 Wireless Hand Rehabilitation System) combine a wrist/hand orthosis with integrated surface electrodes to activate muscles of the paralyzed forearm and hand. Upper extremity surface FES devices may be most effective when used soon after spinal cord injury, during the acute phase of rehabilitation.

Threshold electrical stimulation (TES) uses surface electrodes to stimulate the muscle when the patient is in a resting state. It is intended to increase muscle strength and joint mobility, leading to improved voluntary motor function.

Parastep I is a surface FES device intended to allow patients with lower extremity paralysis to stand and walk short distances.

The WalkAide system is a FES device that improves the walking ability of people suffering from foot drop. WalkAide uses sensor technology to analyze the movement of the leg and foot, sending electrical signals to the peroneal nerve which activates the muscles to raise the foot at the

appropriate time during the step cycle.

Implanted FES devices (e.g., the Freehand System) incorporate surgically implanted stimulation electrodes, an implanted stimulator, and an external power supply. A shoulder position sensor mounted on the chest and shoulder translates small shoulder movements into a control signal. Use of these devices requires intensive and lengthy training by rehabilitation specialists.

MicroVas is a noninvasive electrical stimulator that causes muscles contraction and relaxation cycles. It is used to treat small vessel disease and neuropathy in the feet and ankles. The MicroVas stimulator is supposed to increase blood flow, tissue oxygenation, promote lymphatic drainage, and induce involuntary exercise. However, it has not been proven for this purpose. MicroVas therapy was developed originally by the U.S. Military to treat hypothermia in Navy Seals.

VitalStim Therapy is a type of neuromuscular electrical stimulation in which a small current is passed through external electrodes placed on the neck to stimulate inactive or atrophied swallowing muscles. With repeated therapy, throat muscles are reported to be re-trained, and the patient progresses to an optimum level of swallow function.

Interferential Stimulation (IFS)

IFS is an anti-inflammatory based treatment modality. The interferential stimulator crosses two medium frequency alternating currents, which penetrate deep into soft tissue. It is intended for use in the treatment of circulation disorders, range of motion issues, edema, and muscle spasms. It is reported to stimulate bone healing, inhibit pain and promote soft tissue healing. A number of interferential stimulator devices have received FDA approval including the Medstar 100 (Mednet Services and the RS-4V (RS Medical).

Multimodal Electrotherapy Stimulation Devices

Combination transcutaneous electrical nerve stimulation, interferential stimulation and neuromuscular electrical stimulation devices are TENS devices capable of delivering any of the three modalities depending on electrode arrangement on the body and programming options. This type of device is intended to treat a wide variety of symptoms especially for acute and chronic pain relief. TruWave Plus, NexWave, and Empi Continuum are examples of combination devices.

SUPPORTIVE LITERATURE

Transcutaneous Electrical Nerve Stimulation and H-Wave Stimulation

TENS and H-Wave Muscle Stimulators have a treatment effect beyond that of a credible placebo. Their use may be justified in those individuals with mild acute or chronic pain who wish to use a nonpharmacological form of analgesia. The FDA classified this device as a TENS unit; however, the manufacturer has indicated that it is a new category of device, as it uses a different array of proprietary electrical amplitudes than a TENS unit and does not function to stimulate nerves. Instead, the BioniCare device is purported to stimulate chondrogenesis. However, no studies have been performed to evaluate whether chondrogenesis occurs with use of this device.

Johnson et al (2022) conducted a systematic review and meta-analysis that evaluated the effectiveness and safety of TENS for pain relief in adults. Researchers analyzed data from 381

randomized controlled trials involving 24,532 participants. The findings showed that TENS significantly reduced pain intensity during or immediately after treatment compared to placebo, with moderate-certainty evidence. It also showed benefits over standard pharmacological and non-pharmacological treatments, though with low-certainty evidence due to small sample sizes and imprecision. The type of pain and study methodology did not significantly affect outcomes. Adverse events were infrequently reported, generally mild, and similar to those in comparison groups. Overall, TENS appears to be a safe and moderately effective method for short-term pain relief.

Neuromuscular and Functional Electrical Stimulation

Sajiki-Ito et al (2024) conducted a retrospective study to investigate the effects of inpatient rehabilitation on muscle mass and physical performance in older adults following hip fracture surgery. Seventeen patients with a mean age of 85 years underwent a rehabilitation program that included exercises for joint mobility, muscle strengthening, gait training, early mobilization, and neuromuscular electrical stimulation. Over six weeks, lower limb muscle mass significantly increased, while upper limb muscle mass and body weight decreased. Total muscle and fat mass remained stable. Grip strength was maintained, and knee extension strength improved on both the healthy and affected sides. All patients showed better ability to perform daily activities, though only about half regained their pre-injury walking ability. The findings suggest that targeted rehabilitation can effectively enhance lower limb muscle mass and functional recovery after hip fracture surgery.

Conley et al (2021) conducted a systematic review aimed to evaluate how different neuromuscular electrical stimulation (NMES) parameters affect quadriceps strength recovery following knee surgery. Researchers searched four major databases and included eight randomized controlled trials (RCTs) that met strict criteria, such as reporting specific NMES parameters and quadriceps strength outcomes. The study consisted of 17 patients with a mean age of 84 years. Postoperative factors measured after one and six weeks were: muscle mass, body weight, fat mass, grip strength, bilateral knew extension strength, ability to walk and ability to perform activities of daily living (ADLs). Results showed lower limbs skeletal muscle mass increased (median 4.8 kg to 4.9 kg), while upper limbs skeletal muscle mass and body weight decreased (median 1.2 kg to 1.1 kg), (median 46.8 kg to 45.5 kg). Total skeletal muscle mass and fat mass remained unchanged. Grip strength was maintained, and knee extension muscle strength on the healthy and affected sides increased (healthy side median 10.7 kgf to 13.7 kgf; affected side median 5.5 kgf to 9.5 kgf). Ability to perform ADLs improved amongst all patients. Patients regained their pre-injury walking ability (52.9%). Optimal outcomes were associated with NMES applied within the first two weeks post-surgery, using a frequency of ≥50 Hz, maximum tolerable intensity, biphasic current, large electrodes, and a duty cycle ratio of 1:2 to 1:3 with a 2–3 second ramp time.

There is insufficient data to demonstrate that FES results in improved net health outcomes. Data is insufficient regarding whether patients remain compliant and committed with long-term use of the devices (Parastep I, the Neuro Control Freehand System, the Ness H200 Hand Rehabilitation System, the Ness L300 Foot Drop System, G. Estim FES, and the WalkAide System).

No published studies of the MicroVas device were identified. Micro Vas therapy has been around since the late 1980s. It was originally used to treat hypothermia in Navy Seals who experienced the negative effects of extreme temperatures. Over time, Micro Vas therapy evolved into a treatment for

neuropathy and other painful conditions, especially those that affect the extremities.

To date, there have been very few studies of surface electrical stimulation to the neck for swallowing that support the efficacy of VitalStim. These studies have small sample sizes and report mixed results. There is insufficient evidence in the peer reviewed literature to conclude that electrical stimulation is effective in the treatment of dysphagia. Stimulators have not been studied in pregnant women or patients with seizures and balance disorders.

Interferential Stimulation

Hussien et al (2022) conducted a meta-analysis including 19 trials, (N=1167) to analyze the efficacy of IFS in alleviating musculoskeletal pain. Two trials compared IFS with placebo and the pooled mean difference in pain was significantly reduced with IFS versus a placebo (-0.98; 95% confidence interval [CI], -1.42 to -0.54; p<.0001), but this was not demonstrated in the six (6) trials comparing IFS to other interventions (-0.04; 95% CI, -0.20 to 0.12; p<.65). When used as an adjunct to other pain interventions, IFS did not significantly improve pain compared with placebo in four (4) studies (-0.06; 95% CI, -0.6 to0.48; p=.82) or compared with active treatment in eight (8) studies (0.02; 95% CI, -0.88 to 0.92; p=not reported). The authors concluded that IFS reduced musculoskeletal pain when used as a single agent compared with placebo, but this is limited by the small number of trials (n=2) and patients enrolled.

PROFESSIONAL GUIDELINE(S)

According to the Agency for Healthcare Research and Quality (AHRQ) Comparative Effectiveness publication on Non-Invasive Treatments for Low Back Pain (2016), additional evidence demonstrates that TENS is not effective versus sham TENS. Effectiveness of TENS was previously classified as insufficient, and the strength of evidence remains low because of methodological limitations in the trials and imprecision. Evidence on harms associated with TENS was limited but suggests an increased risk of skin site irritation without an increased risk of serious adverse events (AHRQ 2016).

The American College of Physician's Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain Clinical Practice Guideline (2017), stated that evidence was insufficient to determine the effectiveness of transcutaneous electrical nerve stimulation (TENS).

REGULATORY STATUS

The United States Food and Drug Administration (FDA) regulates electrical stimulation devices as medical devices. All electrical stimulation devices including related components require FDA approval before marketing and use in the United States to ensure they are safe and effective for human use. Refer to the FDA Medical Device website. Available from: https://www.fda.gov/medical-devices [accessed 2026 Mar 20]

The FDA lists the most serious type of medical device recalls as well as early alert communications about corrective actions being taken by companies that the FDA believes are likely to be the most serious type of recalls. Available from: Medical Device Recalls | FDA [accessed 2026 Mar 20]

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CPT Codes

Code	Description
Not Applicable	

HCPCS Codes

Code	Description
A4595	Electrical stimulation supplies, 2 lead, per month, (e.g., TENS, NMES)
A4630	Replacement batteries, medically necessary, transcutaneous electrical stimulator, owned by patient
E0720	TENS, two lead, localized stimulation
E0730	TENS, four or more leads, for multiple nerve stimulation
E0731	Form-fitting conductive garment for delivery of TENS or NMES (with conductive fibers separated from the patient's skin by layers of fabric).
E0744	Neuromuscular stimulator for scoliosis
E0745	Neuromuscular stimulator, electronic shock unit
E0762 (E/I)	Transcutaneous electrical joint stimulation device system, includes all accessories
E0764 (NMN)	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
E0770 (NMN)	Functional neuromuscular stimulator, transcutaneous stimulation of nerve and/or muscle groups, any type, complete system, not otherwise specified
G0283 (NMN)	Electrical stimulation (unattended), to one or more areas for indication(s) other than wound care, as part of a therapy plan of care
S8130 (E/I)	Interferential current stimulator, 2 channel
S8131 (E/I)	Interferential current stimulator, 4 channel

ICD10 Codes

Code	Description
E08.40-E08.42	Diabetes mellitus due to underlying condition with diabetic neuropathy (code range)
E09.40-E09.42	Drug or chemical induced diabetes mellitus with neurological complications with diabetic neuropathy (code range)
E10.40-E10.42	Type 1 diabetes mellitus with diabetic neuropathy (code range)
E11.40-E11.42	Type 2 diabetes mellitus with diabetic neuropathy (code range)
E13.40-E13.42	Other specified diabetes mellitus with diabetic neuropathy (code range)
G43.101-G43.419	Polyneuropathy in diseases classified elsewhere
G43.701-G43.719	Sequelae of inflammatory polyneuropathy (code range)
G43.B0-G43.B1	Chronic pain, not elsewhere classified (code range)
G43.801-G43.919	Chronic pain syndrome
G44.1	Complex regional pain syndrome I (code range)
G44.201-G44.209	Polyosteoarthritis (code range)
G44.211-G44.219	Osteoarthritis of hip (code range)
G44.221-G44.229	Osteoarthritis of knee (code range)
G44.301-G44.309	Osteoarthritis of first carpometacarpal joint (code range)
G44.321-G44.329	Osteoarthritis, shoulder, arm and hand (code range)
G46.0-G46.8 (NMN)	Pain in joint (code range)
G50.0-G50.9	Systemic sclerosis with polyneuropathy

Code	Description
G51.2-G51.9	Fusion of spine, lumbosacral region
G56.00-G56.03	Fusion of spine, sacral and sacrococcygeal region
M15.0-M15.9	Polyosteoarthritis (code range)
M16.0-M16.9	Osteoarthritis of hip (code range)
M17.0-M17.9	Osteoarthritis of knee (code range)
M18.0-M18.9	Osteoarthritis of first carpometacarpal joint (code range)
M19.011-M19.079	Primary osteoarthritis (code range)
M19.111-M19.179	Post-traumatic osteoarthritis (code range)
M19.211-M19.279	Secondary osteoarthritis (code range)
M19.90-M19.93	Osteoarthritis, unspecified site (code range)
M25.50-M25.579	Pain in joint (code range)
M26.621-M26.629	Arthralgia of temporomandibular joint (code range)
M43.26-M43.28	Fusion of spine (code range)
M43.8x6-M43.8x9	Other specified deforming dorsopathies (code range)
M51.16-M51.17	Intervertebral disc disorders with radiculopathy (code range)
M53.1	Cervicobrachial syndrome
M53.2x7	Spinal instabilities, lumbosacral region
M53.2x8	Spinal instabilities, sacral and sacrococcygeal region
M53.3	Sacrococcygeal disorders, not elsewhere classified

Code	Description
M53.86-M53.88	Other specified dorsopathies (code range)
M53.9	Dorsopathy, unspecified
M54.06-M54.09	Panniculitis affecting regions of neck and back (code range)
M54.16-M54.18	Radiculopathy (code range)
M54.30-M54.32	Sciatica (code range)
M54.40-M54.42	Lumbago with sciatica (code range)
M54.5	Low back pain
M60.80-M60.9	Other myositis (code range)
M62.830	Muscle spasm of back
M77.10-M77.12	Lateral epicondylitis (code range)
M79.0	Rheumatism, unspecified
M79.10-M79.18	Myalgia (code range)
M79.2	Neuralgia and neuritis, unspecified
M79.601-M79.676	Pain in limb, hand, foot, fingers and toes (code range)
R10.0-R10.9	Abdominal and pelvic pain (code range)
R51.0-R51.9	Headache (code range)
R52	Pain, unspecified

REFERENCES

Allen CB, et al. Do electrical stimulation devices reduce pain and improve function? A comparative review. Pain Ther 2023;12:1339-1354.

Beltran-Alacreu H, et al. Percutaneous versus transcutaneous electrical nerve stimulation for the treatment of musculoskeletal pain. A systematic review and meta-analysis. Pain Med. 2022 Aug 01; 23(8):1387-1400.

Boldt I, et al. Non-pharmacological interventions for chronic pain in people with spinal cord injury. Cochrane Database Syst Rev. 2014;11:CD009177.

Brosseau L, et al. Transcutaneous electrical nerve stimulation (TENS) for the treatment of rheumatoid arthritis in the hand (Review). Cochrane Database Syst Rev. 2010;(7):CD004377.

Buchmuller A, et al. Value of TENS for relief of chronic low back pain with or without radicular pain. Eur J Pain. 2012 May;16(5):656-65.

Conley CEW, et al. A comparison of neuromuscular electrical stimulation parameters for postoperative quadriceps strength in patients after knee surgery: a systematic review. Sports Health. 2021 Mar;13(2):116-127.

Dantas et al. Gait training with functional electrical stimulation improves mobility in people post-stroke. International Journal of Environmental Research and Public Health. 2023 May; 20(9):5728.

Dowswell T, et al. Transcutaneous electrical nerve stimulation (TENS) for pain relief in labour. Cochrane Database Syst Rev. 2009;(2):CD007214.

Dubinsky RM, et al. Assessment: efficacy of transcutaneous electric nerve stimulation in the treatment of pain in neurologic disorders (an evidence-based review). Report of the therapeutics and technology assessment subcommittee of the American Academy of Neurology. Neurology. 2010;74:173–6.

Gibson W, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic pain. Cochrane Database Syst Rev. 2019;(4):CD011890.

Hurlow A, et al. Transcutaneous electrical nerve stimulation (TENS) for cancer pain in adults. Cochrane Database Syst Rev. 2012;(3):CD 006276.

Hussein HM, et al. A systematic review and meta-analysis investigating the pain-relieving effect of interferential current on musculoskeletal pain. Am J Phys Med Rehabil. 2022 July;101(7)624-633.

Johnson MI, et al. Efficacy and safety of transcutaneous electrical nerve stimulation (TENS) for acute and chronic pain in adults: a systematic review and meta-analysis of 381 studies (the meta-TENS study). BMJ Open. 2022 Feb 10;12(2):e051073.

Johnson MI, et al. Transcutaneous electrical nerve stimulation (TENS) for phantom pain and stump pain following amputation in adults. Cochrane Database Syst Rev. 2015 Aug 18;8:CD007264.

Khadilkar A, et al. Transcutaneous electrical nerve stimulation (TENS) versus placebo for chronic low-back pain. Cochrane Database Syst Rev. 2013;(2):CD003008.

Kreiner DS, et al. Guideline summary review: an evidence-based clinical guideline for the diagnosis and treatment of low back pain. Spine J. 2020 Jul;20(7):998-1024.

Kroeling P, et al. Electrotherapy for neck pain. Cochrane Database Syst Rev. 2013;(8):CD004251.

Loh J, et al. The use of transcutaneous electrical nerve stimulation (TENS) in a major cancer center for the treatment of severe cancer-related pain and associated disability. Pain Med. 2015 Jun;16(6):1204-1210.

Martimbianco ALC, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic neck pain. Cochrane Database Syst Rev. 2019 Dec 12;12(12):CD011927.

Pelland L, et al. Electrical stimulation for the treatment of rheumatoid arthritis (Review). Cochrane Database Syst Rev. 2010;(7):CD003687.

Rutjes AWS, et al. Transcutaneous electrostimulation for osteoarthritis of the knee. Cochrane Database Syst Rev. 2010;(1):CD002823.

Sajiki-Ito M, et al. Postoperative rehabilitation program for increasing muscle mass in patients with hip fracture: a retrospective study. Cureus. 2024 Jun 24;16(6):363053.

Simpson PM, et al. Transcutaneous electrical nerve stimulation for relieving acute pain in the prehospital setting: a systematic review and meta-analysis of randomized-controlled trials. Eur J Emerg Med. Feb 2014;21(1):10-17.

van Middlelkoop M, et al. A systematic review of the effectiveness of physical and rehabilitation interventions for chronic non-specific low back pain. Eur Spine. J 2011 Jan;(1):19-39.

Vance CG, et al. Effects of transcutaneous electrical nerve stimulation on pain, pain sensitivity and function in people with knee osteoarthritis: a randomized controlled trial. Phys Ther. 2012 Jul;92(7):898-910.

Walsh DM et al. Transcutaneous electrical nerve stimulation for acute pain. Cochrane Database Syst Rev. 2009;(2):CD006142.

SEARCH TERMS

Not Applicable

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Assessing Patient's Suitability for Electrical Nerve Stimulation Therapy (NCD 160.7.1) [accessed 2026 Mar 13]

Transcutaneous Electrical Nerve Stimulators (TENS) (LCD L33802) [accessed 2026 Mar 13]

Transcutaneous Electrical Nerve Stimulation (TENS) for Acute Post-Operative Pain (NCD 10.2) [accessed 2026 Mar 13]

Transcutaneous Electrical Nerve Stimulation (TENS) for Chronic Low Back Pain (CLBP) (NCD 160.27) [accessed 2026 Mar 13]

Supplies Used in the Delivery of Transcutaneous Electrical Nerve Stimulation (TENS) and Neuromuscular Electrical Stimulation (NMES) (NCD 160.13) [accessed 2026 Mar 13]

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION	
Committee Approval Dates	
05/21/26	
Date	**Summary of Changes**
05/21/26	New Policy with effective date of 05/21/26; policy content derived from 1.01.55 Electrical Stimulation as a Treatment for Pain and Other Medical Conditions.