MEDICAL POLICY

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

CLINICAL BENEFIT	☒ MINIMIZE SAFETY RISK OR CONCERN. ☒ MINIMIZE HARMFUL OR INEFFECTIVE INTERVENTIONS. ☐ ASSURE APPROPRIATE LEVEL OF CARE. ☐ ASSURE APPROPRIATE DURATION OF SERVICE FOR INTERVENTIONS. ☐ ASSURE THAT RECOMMENDED MEDICAL PREREQUISITES HAVE BEEN MET. ☐ ASSURE APPROPRIATE SITE OF TREATMENT OR SERVICE.
Effective Date:	**10/1/2024**

I. POLICY

Trial of Transcutaneous Electrical Nerve Stimulation (TENS)
Transcutaneous electrical nerve stimulation (TENS) may be considered **medically necessary** when used as an adjunct or as an alternative to the use of drugs in the treatment of acute post-operative pain in the first 30 days after surgery.

A TENS therapeutic trial may be considered **medically necessary** to establish effectiveness in the treatment of refractory chronic pain when **ALL** the following conditions have been met:

- Pain condition causes significant disruption of function and is unresponsive to at least 3 months of conservative medical therapy directed by a physician, nurse practitioner or physician assistant. This therapy must include medication, physical therapy and/or behavioral therapy.
- Trial meets **ALL** the following:
  - Monitored by a physician
  - At least 30 days in duration
  - Not to exceed 60 days in duration

Continued Use of Transcutaneous Electrical Nerve Stimulation (TENS)
Continued use of TENS may be considered **medically necessary** to treat refractory chronic pain when **ALL** the following conditions have been met:

- Efficacy has been demonstrated in an initial therapeutic trial
- Compliance has been demonstrated in the therapeutic trial with the device used on a regular basis (e.g., daily or near daily use) throughout the trial period

Transcutaneous Electrical Nerve Stimulation (TENS) Garment
Form-fitting conductive garments may be considered **medically necessary** when **ALL** the following conditions have been met:

- Pain condition meets TENs medically necessary criteria
- Garment has received permission or approval for marketing by the FDA

- Prescribed by a physician, nurse practitioner or physician assistant
- Prescribed for ANY of the following medical indications:
  - Area to be stimulated is large or there are multiple sites
  - Stimulation would be delivered so frequently that it is not feasible to use electrodes, adhesive tape, and lead wires
  - Areas are inaccessible with use of electrodes, adhesive tape, and lead wires
  - Documentation of medical condition (i.e., skin problems) that preclude the application of electrodes, adhesive tape, and lead wires

Investigational Uses of Transcutaneous Electrical Nerve Stimulation (TENS)
The use of TENS for any other condition, including but not limited to, the treatment of dementia, chronic headaches, prevention or treatment of migraine headaches, management of essential tremors or management of attention deficit hyperactivity disorder, is considered in **investigational** as there is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure.

Policy Guidelines
Refractory chronic pain is defined in this policy as pain that causes significant disruption of function and has not responded to at least 3 months of conservative therapy supervised by a physician, nurse practitioner, or physician assistant, including medication, physical therapy, and/or behavioral therapy.

Medical record documentation prior to a TENS trial should include all the following:

- Initial assessment/evaluation of the nature, duration, and perceived intensity of pain;
- Functional limitations caused by pain;
- The types and duration of prior treatments;
- Treatment plan including ongoing medications and proposed use of TENS unit, including the frequency and duration of treatment.

Medical record documentation of a TENS trial to determine effectiveness should include all of the following:

- Perceived intensity of pain with and without TENS (e.g., 2 point or 30% improvement in visual analog scale);
- Functional limitations with and without TENS;
- Ongoing medication requirements for pain relief (if any);
- Other modalities (if any) in use for pain control;
- Actual use of TENS on a daily basis (frequency and duration of application).

TENS devices may be delivered through a practitioner and require a prescription or obtained without a prescription. It is possible that prescribed devices provide higher intensity stimulation than units sold directly to the public.

Supplies
Separate allowance will be made for replacement supplies when they are reasonable and necessary and are used with a covered TENS. Usual maximum utilization is:\

- 2 TENS leads – a maximum of one unit of A4595 per month or four units of A4556
- 4 TENS leads – a maximum of two units of A4595 per month or eight units of A4556
- A maximum of one unit of A4630 per month

A 4-lead TENS unit may be used with either 2 leads or 4 leads, depending on the characteristics of the individual's pain. If it is ordered for use with 4 leads, the medical record must document why 2 leads are insufficient to meet the individual's needs.

If the use of the TENS unit is less than daily, the frequency of billing for the TENS supply code should be reduced proportionally. Replacement of lead wires (A4557) more often than every 12 months would rarely be reasonable and necessary.

For ongoing TENS supplies the medical record must include documentation of current frequency and duration of use, effect on pain, and effect on function.

Cross-references:

MP 2.062 Temporomandibular Joint Dysfunction (TMJ)
MP 6.045 Sympathetic Therapy for the Treatment of Pain
MP 6.046 Threshold Electrical Stimulation as a Treatment of Motor Disorders
MP 6.047 Interferential Current Stimulation
MP 6.048 Electrical Stimulation for the Treatment of Arthritis and Miscellaneous Conditions
MP 6.049 H-Wave Electrical Stimulation
MP 6.050 Percutaneous Electrical Nerve Stimulation (PENS) and Percutaneous Neuromodulation Therapy (PNT)
MP 6.051 Neuromuscular and Functional Neuromuscular Electrical Stimulation

II. PRODUCT VARIATIONS

TOP

This policy is only applicable to certain programs and products administered by Capital BlueCross and subject to benefit variations as discussed in Section VI. Please see additional information below.

FEP PPO – Refer to FEP Medical Policy Manual. The FEP Medical Policy manual can be found at: https://www.fepblue.org/benefit-plans/medical-policies-and-utilization-management-guidelines/medical-policies

III. DESCRIPTION/BACKGROUND

TOP

Transcutaneous electrical nerve stimulation (TENS) describes the application of electrical stimulation to the surface of the skin. In addition to more traditional settings such as a physician's office or an outpatient clinic, TENS can be self-administered in a patient's home.

TENS has been used to treat chronic intractable pain, migraine headache pain, postsurgical pain, and pain associated with active or post-trauma injury unresponsive to other standard pain therapies. It has been proposed that TENS may provide pain relief through release of endorphins in addition to potential blockade of local pain pathways. TENS has also been used to treat dementia by altering neurotransmitter activity and increasing brain activity that is thought to reduce neural degeneration and stimulate regenerative processes.

Percutaneous electrical nerve stimulation is similar to TENS but uses microneedles that penetrate the skin instead of surface electrodes. Interferential stimulation uses a modulated waveform for deeper tissue stimulation and is believed to improve blood flow to the affected area.

Regulatory Status

TENS devices consist of an electrical pulse generator, usually battery-operated, connected by wire to two or more electrodes, which are applied to the surface of the skin at the site of the pain. Since 1977, a large number of devices have been cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process. Marketing clearance via the 510(k) process does not require data on clinical efficacy; as a result, these cleared devices are considered substantially equivalent to predicate devices marketed in interstate commerce before May 1976, the enactment date of the Medical Device Amendments. The cleared devices are also equivalent to devices that have been reclassified and do not require a premarket approval application. FDA product code: GZJ.

In 2014, the Cefaly® (STX-Med), which is a TENS device, was granted a de novo 510(k) classification by the FDA for the prophylactic treatment of migraine in patients 18 years of age or older. The Cefaly® Acute and Cefaly® Dual devices were cleared by the FDA through the 510(k) process for the acute treatment of migraine in patients in 18 years of age or older and for both the acute treatment and prophylaxis of migraines in adults, respectively, in 2017. Other TENS devices cleared by the FDA through the 510(k) process for the prophylactic treatment of migraine in patients include Allive (Nu Eyne Co), Relivion (Leurolief Ltd.) and HeadaTerm (Eespress) among others. FDA product code: PCC.

In 2018, the FDA reviewed the Cala ONE™ TENS device (Cala Health) via the de novo pathway and granted approval for the device as an aid in the transient relief of hand tremors following stimulation in the affected hand of adults with essential tremor. This prescription device is contraindicated for use in patients with an implanted electrical medical device, those that have suspected or diagnosed epilepsy or other seizure disorder, those who are pregnant, and patients with swollen, infected, inflamed areas, or skin eruptions, open wounds, or cancerous lesions. In October 2020, the FDA granted breakthrough device designation to the Cala Trio™ device for the treatment of action tremors in the hands of adults with Parkinson's disease. In November 2022, the Cala kIQ™ device was approved via the 510(k) pathway (K222237). The device is indicated to aid in the temporary relief of hand tremors in the treated hand following stimulation in adults with essential tremor. It was also approved to aid in the temporary relief of postural and kinetic hand tremor symptoms that impact some activities of daily living in the treated hand of adults with Parkinson's disease.

In 2019, the FDA permitted marketing of the first medical device to treat attention deficit hyperactivity disorder (ADHD) – the Monarch® external Trigeminal Nerve Stimulation (eTNS) System by NeuroSigma. The FDA reviewed the system through the de novo premarket review pathway. This prescription only TENS device is indicated for patients 7 to 12 years of age who are not currently taking prescription ADHD medication. The Monarch eTNS System is intended to be used in the home under the supervision of a caregiver. The device generates a low-level electrical pulse and connects via a wire to a small patch that adheres to a patient's forehead, just above the eyebrow.

In 2021, the FDA approved the Axon Therapy device (Neuralace Medical, Inc.) for marketing through the 510(k) process for relief of chronic, intractable postsurgical or posttraumatic pain in adults. The Axon Therapy device is an electromagnetic transcutaneous peripheral nerve stimulator. FDA product codes: QPL, IPF.

IV. RATIONALE

TOP

Summary of Evidence

For individuals who have chronic pain (e.g., musculoskeletal, neuropathic, and mixed pain conditions) who receive TENS, the evidence includes numerous randomized controlled trials (RCTs) and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and medication use. The overall strength of the evidence is weak. The best evidence exists for treatment of chronic, intractable pain. Available evidence indicates that TENS can improve chronic intractable pain in some patients, and there is support for its use in clinical guidelines by specialty societies. To best direct TENS toward patients who will benefit, a short-term trial of TENS is appropriate, with continuation only in patients who show an initial improvement. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have acute pain (e.g., surgical, musculoskeletal, labor, and mixed pain conditions) who receive TENS, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms functional outcomes, quality of life, and medication use. Overall, evidence for the use of TENS from high-quality trials remains inconclusive for most indications. A systematic review of TENS for acute and chronic pain found some evidence that TENS reduces pain intensity over and above that seen with placebo and other control groups in patients with acute pain, but small-sized trials contributed to imprecision in magnitude estimates. Systematic reviews have found that TENS may help reduce pain in patients with post-operative pain (post-caesarean and total knee arthroplasty), dysmenorrhea, and pain associated with labor and delivery. For low back pain, systematic reviews have found insufficient evidence to support or refute the use of TENS. Randomized controlled trials have reported mixed results in the efficacy of TENS across various acute pain conditions. The evidence is insufficient to determine that the technology results in an improvement in the net health outcomes.

However, clinical input obtained in 2016 from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine and the American Society of Anesthesiologists' Committee on Regional Anesthesia: Management of Postoperative Pain support the use of TENS for post-operative pain. Thus, based on clinical input and guideline recommendations, this indication may be considered medically necessary.

For individuals who have essential tremor who receive TENS, the evidence includes a nonrandomized study. Relevant outcomes are symptoms, functional outcomes, quality of life, and medication use. Results from the nonrandomized study suggest that TENS therapy is effective and safe for patients with essential tremor. However, the trial was limited by its open-label, single-arm design, lack of defined standards for what constitutes a clinically meaningful improvement in stated endpoints, and exclusion of patients who exited the study early from the pre-specified primary and secondary endpoint analyses. Further studies comparing TENS to standard of care therapy for essential tremor are needed. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have attention deficit hyperactivity disorder (ADHD) who receive TENS, the evidence includes RCT. Relevant outcomes are symptoms, functional outcomes, quality of life, and medication use. Results of the RCT concluded that TENS is an effective and safe treatment option for pediatric patients with ADHD. However, the study included a small patient sample and was of short duration. Further studies comparing TENS to standard of care therapy for ADHD are needed. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have chronic or episodic migraine who receive TENS for treatment of acute migraine, the evidence includes three (3) double-blind, sham-controlled RCTs. Two of the RCTs evaluated healthcare-provider administration of a TENS device during a single episode in emergency departments, and one (1) evaluated self-administration of the device at home during acute episodes over a 3-month period. The studies conducted in emergency departments showed clinically and statistically significant reductions in pain intensity and medication use within 2 hours of use. The self-administration study had mixed results: The difference in median pain scores before and after treatment was significantly higher in the TENS group at months 1 and 2, but at month 3 the difference was not statistically significant. Function and analgesic medication use did not differ between groups at any time point. Strengths of the RCTs included the use of a sham device and blinded outcome assessment using validated outcome measures. Although short-term pain relief was demonstrated at some time points, the quality of the overall body of evidence was downgraded due to inconsistency of results and heterogeneity in study settings. It is not clear whether the pain intensity reductions demonstrated in emergency department settings would generalize to other settings over longer time periods. Supporting evidence from RCTs is needed. Additionally, based on the existing evidence, it is unclear how TENS would fit into the current migraine treatment pathway, although it could provide benefit for those who do not receive adequate benefit from pharmacologic first- or second-line therapies, or who may have a contraindication to pharmacologic therapies. The specific intended use must be specified in order to adequately evaluate net health benefit. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have chronic or episodic migraine who receive TENS for migraine prevention, the evidence includes 1 RCT. Relevant outcomes are symptoms, functional outcomes, quality of life, and medication use. The RCT (N=67) reported a greater proportion of participants achieving at least a 50% reduction in migraines with TENS than with sham placebo and modest reductions in the number of total headache and migraine days. In the intention-to-treat analysis, the reduction in the number of migraine days (run-in vs. 3-months) was not statistically significant. The proportion of responders (≥50% reduction in the number of migraine days/month) significantly higher in the TENS group. The number of migraine attacks from the run-in period to the 3-month evaluation, number of headache days, and antimigraine medication use were significantly lower for the active TENS group. The severity of migraine days did not differ significantly between groups. This manufacturer-sponsored trial needs corroboration before conclusions can be made with certainty about the efficacy of TENS for preventing migraine headaches. Additionally, based on the existing evidence, it is unclear how TENS would fit into the current migraine prevention pathway, although it could provide benefit for those who do not receive adequate benefit from pharmacologic first- or second-line therapies, or who may have a contraindication to pharmacologic therapies. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

V. DEFINITIONS

TOP

N/A

VI. BENEFIT VARIATIONS

TOP

The existence of this medical policy does not mean that this service is a covered benefit under the member's health benefit plan. Benefit determinations should be based in all cases on the applicable health benefit plan language. Medical policies do not constitute a description of benefits. A member's health benefit plan governs which services are covered, which are excluded, which are subject to benefit limits, and which require preauthorization. There are different benefit plan designs in each product administered by Capital Blue Cross. Members and providers should consult the member's health benefit plan for information or contact Capital Blue Cross for benefit information.

VII. DISCLAIMER

TOP

Capital Blue Cross' medical policies are developed to assist in administering a member's benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member's benefit information, the benefit information will govern. If a provider or a member has a question concerning the application of this medical policy to a specific member's plan of benefits, please contact Capital Blue Cross' Provider Services or Member Services. Capital Blue Cross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

TOP

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Covered when medically necessary:

Procedure Codes								
A4558	A4595	A4630	E0720	E0730	E0731			

Investigational; therefore, not covered:

Procedure Codes								
A4540	A4542	E0733	E0734					

ICD-10-CM Diagnosis Codes	Description
G54.1	Lumbosacral plexus disorders
G54.2	Cervical root disorders, not elsewhere classified
G54.3	Thoracic root disorders, not elsewhere classified
G54.4	Lumbosacral root disorders, not elsewhere classified
G54.5	Neuralgic amyotrophy
G54.8	Other nerve root and plexus disorders
G54.9	Nerve root and plexus disorder, unspecified
G55	Nerve root and plexus compressions in diseases classified elsewhere
G56.00	Carpal tunnel syndrome, unspecified upper limb
G56.01	Carpal tunnel syndrome, right upper limb
G56.02	Carpal tunnel syndrome, left upper limb
G56.03	Carpal tunnel syndrome, bilateral upper limbs
G56.10	Other lesions of median nerve, unspecified upper limb
G56.11	Other lesions of median nerve, right upper limb
G56.12	Other lesions of median nerve, left upper limb
G56.13	Other lesions of median nerve, bilateral upper limbs
G56.20	Lesion of ulnar nerve, unspecified upper limb
G56.21	Lesion of ulnar nerve, right upper limb
G56.22	Lesion of ulnar nerve, left upper limb
G56.23	Lesion of ulnar nerve, bilateral upper limbs
G56.30	Lesion of radial nerve, unspecified upper limb

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
G56.31	Lesion of radial nerve, right upper limb
G56.32	Lesion of radial nerve, left upper limb
G56.33	Lesion of radial nerve, bilateral upper limbs
G56.40	Causalgia of unspecified upper limb
G56.41	Causalgia of right upper limb
G56.42	Causalgia of left upper limb
G56.43	Causalgia of bilateral upper limbs
G56.80	Other specified mononeuropathies of unspecified upper limb
G56.81	Other specified mononeuropathies of right upper limb
G56.82	Other specified mononeuropathies of left upper limb
G56.83	Other specified mononeuropathies of bilateral upper limbs
G56.90	Unspecified mononeuropathy of unspecified upper limb
G56.91	Unspecified mononeuropathy of right upper limb
G56.92	Unspecified mononeuropathy of left upper limb
G56.93	Unspecified mononeuropathy of bilateral upper limbs
G57.00	Lesion of sciatic nerve, unspecified lower limb
G57.01	Lesion of sciatic nerve, right lower limb
G57.02	Lesion of sciatic nerve, left lower limb
G57.03	Lesion of sciatic nerve, bilateral lower limbs
G57.10	Meralgia paresthetica, unspecified lower limb
G57.11	Meralgia paresthetica, right lower limb
G57.12	Meralgia paresthetica, left lower limb
G57.13	Meralgia paresthetica, bilateral lower limbs
G57.20	Lesion of femoral nerve, unspecified lower limb
G57.21	Lesion of femoral nerve, right lower limb
G57.22	Lesion of femoral nerve, left lower limb
G57.23	Lesion of femoral nerve, bilateral lower limbs
G57.30	Lesion of lateral popliteal nerve, unspecified lower limb
G57.31	Lesion of lateral popliteal nerve, right lower limb
G57.32	Lesion of lateral popliteal nerve, left lower limb
G57.33	Lesion of lateral popliteal nerve, bilateral lower limbs
G57.40	Lesion of medial popliteal nerve, unspecified lower limb
G57.41	Lesion of medial popliteal nerve, right lower limb
G57.42	Lesion of medial popliteal nerve, left lower limb
G57.43	Lesion of medial popliteal nerve, bilateral lower limbs

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
G57.50	Tarsal tunnel syndrome, unspecified lower limb
G57.51	Tarsal tunnel syndrome, right lower limb
G57.52	Tarsal tunnel syndrome, left lower limb
G57.53	Tarsal tunnel syndrome, bilateral lower limbs
G57.60	Lesion of plantar nerve, unspecified lower limb
G57.61	Lesion of plantar nerve, right lower limb
G57.62	Lesion of plantar nerve, left lower limb
G57.63	Lesion of plantar nerve, bilateral lower limbs
G57.70	Causalgia of unspecified lower limb
G57.71	Causalgia of right lower limb
G57.72	Causalgia of left lower limb
G57.73	Causalgia of bilateral lower limbs
G57.81	Other specified mononeuropathies of right lower limb
G57.82	Other specified mononeuropathies of left lower limb
G57.90	Unspecified mononeuropathy of unspecified lower limb
G57.91	Unspecified mononeuropathy of right lower limb
G57.92	Unspecified mononeuropathy of left lower limb
G58.0	Intercostal neuropathy
G58.7	Mononeuritis multiplex
G60.0	Hereditary motor and sensory neuropathy
G60.1	Refsum's disease
G60.2	Neuropathy in association with hereditary ataxia
G60.3	Idiopathic progressive neuropathy
G60.8	Other hereditary and idiopathic neuropathies
G60.9	Hereditary and idiopathic neuropathy, unspecified
G89.21	Chronic pain due to trauma
G89.22	Chronic post-thoracotomy pain
G89.28	Other chronic postprocedural pain
G89.29	Other chronic pain
G89.4	Chronic pain syndrome
G90.50	Complex regional pain syndrome I, unspecified
G90.521	Complex regional pain syndrome I of right lower limb
G90.522	Complex regional pain syndrome I of left lower limb
G90.523	Complex regional pain syndrome I of lower limb, bilateral
G90.529	Complex regional pain syndrome I of unspecified lower limb

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
G90.59	Complex regional pain syndrome I of other specified site
M25.50	Pain in unspecified joint
M25.511	Pain in right shoulder
M25.512	Pain in left shoulder
M25.519	Pain in unspecified shoulder
M25.521	Pain in right elbow
M25.522	Pain in left elbow
M25.529	Pain in unspecified elbow
M25.531	Pain in right wrist
M25.532	Pain in left wrist
M25.539	Pain in unspecified wrist
M25.551	Pain in right hip
M25.552	Pain in left hip
M25.559	Pain in unspecified hip
M25.561	Pain in right knee
M25.562	Pain in left knee
M25.569	Pain in unspecified knee
M25.571	Pain in right ankle and joints of right foot
M25.572	Pain in left ankle and joints of left foot
M25.579	Pain in unspecified ankle and joints of unspecified foot
M25.59	Pain in other specified Joint
M25.78	Osteophyte, vertebrae
M43.20	Fusion of spine, site unspecified
M43.21	Fusion of spine, occipito-atlanto-axial region
M43.22	Fusion of spine, cervical region
M43.23	Fusion of spine, cervicothoracic region
M43.24	Fusion of spine, thoracic region
M43.25	Fusion of spine, thoracolumbar region
M43.26	Fusion of spine, lumbar region
M43.27	Fusion of spine, lumbosacral region
M43.28	Fusion of spine, sacral and sacrococcygeal region
M43.8X9	Other specified deforming dorsopathies, site unspecified
M46.1	Sacroiliitis, not elsewhere classified
M47.011	Anterior spinal artery compression syndromes, occipito-atlanto-axial region
M47.012	Anterior spinal artery compression syndromes, cervical region

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M47.013	Anterior spinal artery compression syndromes, cervicothoracic region
M47.014	Anterior spinal artery compression syndromes, thoracic region
M47.015	Anterior spinal artery compression syndromes, thoracolumbar region
M47.016	Anterior spinal artery compression syndromes, lumbar region
M47.019	Anterior spinal artery compression syndromes, site unspecified
M47.021	Vertebral artery compression syndromes, occipito-atlanto-axial region
M47.022	Vertebral artery compression syndromes, cervical region
M47.029	Vertebral artery compression syndromes, site unspecified
M47.10	Other spondylosis with myelopathy, site unspecified
M47.11	Other spondylosis with myelopathy, occipito-atlanto-axial region
M47.12	Other spondylosis with myelopathy, cervical region
M47.13	Other spondylosis with myelopathy, cervicothoracic region
M47.14	Other spondylosis with myelopathy, thoracic region
M47.15	Other spondylosis with myelopathy, thoracolumbar region
M47.16	Other spondylosis with myelopathy, lumbar region
M47.20	Other spondylosis with radiculopathy, site unspecified
M47.21	Other spondylosis with radiculopathy, occipito-atlanto-axial region
M47.22	Other spondylosis with radiculopathy, cervical region
M47.23	Other spondylosis with radiculopathy, cervicothoracic region
M47.24	Other spondylosis with radiculopathy, thoracic region
M47.25	Other spondylosis with radiculopathy, thoracolumbar region
M47.26	Other spondylosis with radiculopathy, lumbar region
M47.27	Other spondylosis with radiculopathy, lumbosacral region
M47.28	Other spondylosis with radiculopathy, sacral and sacrococcygeal region
M47.811	Spondylosis without myelopathy or radiculopathy, occipito-atlanto-axial region
M47.812	Spondylosis without myelopathy or radiculopathy, cervical region
M47.813	Spondylosis without myelopathy or radiculopathy, cervicothoracic region
M47.814	Spondylosis without myelopathy or radiculopathy, thoracic region
M47.815	Spondylosis without myelopathy or radiculopathy, thoracolumbar region
M47.816	Spondylosis without myelopathy or radiculopathy, lumbar region
M47.817	Spondylosis without myelopathy or radiculopathy, lumbosacral region
M47.818	Spondylosis without myelopathy or radiculopathy, sacral and sacrococcygeal region
M47.819	Spondylosis without myelopathy or radiculopathy, site unspecified
M47.891	Other spondylosis, occipito-atlanto-axial region
M47.892	Other spondylosis, cervical region

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M47.893	Other spondylosis, cervicothoracic region
M47.894	Other spondylosis, thoracic region
M47.895	Other spondylosis, thoracolumbar region
M47.896	Other spondylosis, lumbar region
M47.897	Other spondylosis, lumbosacral region
M47.898	Other spondylosis, sacral and sacrococcygeal region
M47.899	Other spondylosis, site unspecified
M47.9	Spondylosis, unspecified
M48.00	Spinal stenosis, site unspecified
M48.01	Spinal stenosis, occipito-atlanto-axial region
M48.02	Spinal stenosis, cervical region
M48.03	Spinal stenosis, cervicothoracic region
M48.04	Spinal stenosis, thoracic region
M48.05	Spinal stenosis, thoracolumbar region
M48.061	Spinal stenosis, lumbar region without neurogenic claudication
M48.062	Spinal stenosis, lumbar region with neurogenic claudication
M48.07	Spinal stenosis, lumbosacral region
M48.08	Spinal stenosis, sacral and sacrococcygeal region
M48.10	Ankylosing hyperostosis [Forestier], site unspecified
M48.11	Ankylosing hyperostosis [Forestier], occipito-atlanto-axial region
M48.12	Ankylosing hyperostosis [Forestier], cervical region
M48.13	Ankylosing hyperostosis [Forestier], cervicothoracic region
M48.14	Ankylosing hyperostosis [Forestier], thoracic region
M48.15	Ankylosing hyperostosis [Forestier], thoracolumbar region
M48.16	Ankylosing hyperostosis [Forestier], lumbar region
M48.17	Ankylosing hyperostosis [Forestier], lumbosacral region
M48.18	Ankylosing hyperostosis [Forestier], sacral and sacrococcygeal region
M48.19	Ankylosing hyperostosis [Forestier], multiple sites in spine
M48.20	Kissing spine, site unspecified
M48.21	Kissing spine, occipito-atlanto-axial region
M48.22	Kissing spine, cervical region
M48.23	Kissing spine, cervicothoracic region
M48.24	Kissing spine, thoracic region
M48.25	Kissing spine, thoracolumbar region
M48.26	Kissing spine, lumbar region

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M48.27	Kissing spine, lumbosacral region
M48.30	Traumatic spondylopathy, site unspecified
M48.31	Traumatic spondylopathy, occipito-atlanto-axial region
M48.32	Traumatic spondylopathy, cervical region
M48.33	Traumatic spondylopathy, cervicothoracic region
M48.34	Traumatic spondylopathy, thoracic region
M48.35	Traumatic spondylopathy, thoracolumbar region
M48.36	Traumatic spondylopathy, lumbar region
M48.37	Traumatic spondylopathy, lumbosacral region
M48.38	Traumatic spondylopathy, sacral and sacrococcygeal region
M48.9	Spondylopathy, unspecified
M50.00	Cervical disc disorder with myelopathy, unspecified cervical region
M50.01	Cervical disc disorder with myelopathy, high cervical region
M50.02	Cervical disc disorder with myelopathy, mid-cervical region
M50.03	Cervical disc disorder with myelopathy, cervicothoracic region
M50.10	Cervical disc disorder with radiculopathy, unspecified cervical region
M50.11	Cervical disc disorder with radiculopathy, high cervical region
M50.12	Cervical disc disorder with radiculopathy, mid-cervical region
M50.13	Cervical disc disorder with radiculopathy, cervicothoracic region
M50.20	Other cervical disc displacement, unspecified cervical region
M50.21	Other cervical disc displacement, high cervical region
M50.22	Other cervical disc displacement, mid-cervical region
M50.23	Other cervical disc displacement, cervicothoracic region
M50.30	Other cervical disc degeneration, unspecified cervical region
M50.31	Other cervical disc degeneration, high cervical region
M50.32	Other cervical disc degeneration, mid-cervical region
M50.33	Other cervical disc degeneration, cervicothoracic region
M50.80	Other cervical disc disorders, unspecified cervical region
M50.81	Other cervical disc disorders, high cervical region
M50.82	Other cervical disc disorders, mid-cervical region
M50.83	Other cervical disc disorders, cervicothoracic region
M50.90	Cervical disc disorder, unspecified, unspecified cervical region
M50.91	Cervical disc disorder, unspecified, high cervical region
M50.92	Cervical disc disorder, unspecified, mid-cervical region
M50.93	Cervical disc disorder, unspecified, cervicothoracic region

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M51.04	Intervertebral disc disorders with myelopathy, thoracic region
M51.05	Intervertebral disc disorders with myelopathy, thoracolumbar region
M51.14	Intervertebral disc disorders with radiculopathy, thoracic region
M51.15	Intervertebral disc disorders with radiculopathy, thoracolumbar region
M51.16	Intervertebral disc disorders with radiculopathy, lumbar region
M51.17	Intervertebral disc disorders with radiculopathy, lumbosacral region
M51.24	Other intervertebral disc displacement, thoracic region
M51.25	Other intervertebral disc displacement, thoracolumbar region
M51.26	Other intervertebral disc displacement, lumbar region
M51.27	Other intervertebral disc displacement, lumbosacral region
M51.34	Other intervertebral disc degeneration, thoracic region
M51.35	Other intervertebral disc degeneration, thoracolumbar region
M51.360	Other intervertebral disc degeneration, lumbar region with discogenic back pain only
M51.361	Other intervertebral disc degeneration, lumbar region with lower extremity pain only
M51.362	Other intervertebral disc degeneration, lumbar region with discogenic back pain and lower extremity pain
M51.369	Other intervertebral disc degeneration, lumbar region without mention of lumbar back pain or lower extremity pain
M51.370	Other intervertebral disc degeneration, lumbosacral region with discogenic back pain only
M51.371	Other intervertebral disc degeneration, lumbosacral region with lower extremity pain only
M51.372	Other intervertebral disc degeneration, lumbosacral region with discogenic back pain and lower extremity pain
M51.379	Other intervertebral disc degeneration, lumbosacral region without mention of lumbar back pain or lower extremity pain
M51.84	Other intervertebral disc disorders, thoracic region
M51.85	Other intervertebral disc disorders, thoracolumbar region
M51.86	Other intervertebral disc disorders, lumbar region
M51.87	Other intervertebral disc disorders, lumbosacral region
M51.9	Unspecified thoracic, thoracolumbar and lumbosacral intervertebral disc disorder
M53.0	Cervicocranial syndrome
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

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M53.80	Other specified dorsopathies, site unspecified
M53.84	Other specified dorsopathies, thoracic region
M53.85	Other specified dorsopathies, thoracolumbar region
M53.86	Other specified dorsopathies, lumbar region
M53.87	Other specified dorsopathies, lumbosacral region
M53.88	Other specified dorsopathies, sacral and sacrococcygeal region
M53.9	Dorsopathy, unspecified
M54.10	Radiculopathy, site unspecified
M54.11	Radiculopathy, occipito-atlanto-axial region
M54.12	Radiculopathy, cervical region
M54.13	Radiculopathy, cervicothoracic region
M54.14	Radiculopathy, thoracic region
M54.15	Radiculopathy, thoracolumbar region
M54.16	Radiculopathy, lumbar region
M54.17	Radiculopathy, lumbosacral region
M54.18	Radiculopathy, sacral and sacrococcygeal region
M54.2	Cervicalgia
M54.30	Sciatica, unspecified side
M54.31	Sciatica, right side
M54.32	Sciatica, left side
M54.40	Lumbago with sciatica, unspecified side
M54.41	Lumbago with sciatica, right side
M54.42	Lumbago with sciatica, left side
M54.50	Low back pain, unspecified
M54.51	Vertebrogenic low back pain
M54.59	Other low back pain
M54.6	Pain in thoracic spine
M60.80	Other myositis, unspecified site
M60.811	Other myositis, right shoulder
M60.812	Other myositis, left shoulder
M60.819	Other myositis, unspecified shoulder
M60.821	Other myositis, right upper arm
M60.822	Other myositis, left upper arm
M60.829	Other myositis, unspecified upper arm
M60.831	Other myositis, right forearm

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M60.832	Other myositis, left forearm
M60.839	Other myositis, unspecified forearm
M60.841	Other myositis, right hand
M60.842	Other myositis, left hand
M60.849	Other myositis, unspecified hand
M60.851	Other myositis, right thigh
M60.852	Other myositis, left thigh
M60.859	Other myositis, unspecified thigh
M60.861	Other myositis, right lower leg
M60.862	Other myositis, left lower leg
M60.869	Other myositis, unspecified lower leg
M60.871	Other myositis, right ankle and foot
M60.872	Other myositis, left ankle and foot
M60.879	Other myositis, unspecified ankle and foot
M60.88	Other myositis, other site
M60.89	Other myositis, multiple sites
M60.9	Myositis, unspecified
M79.10	Myalgia, unspecified site
M79.12	Myalgia of auxiliary muscles, head, and neck
M79.18	Myalgia, other site
M79.2	Neuralgia and neuritis, unspecified
M79.601	Pain in right arm
M79.602	Pain in left arm
M79.603	Pain in arm, unspecified
M79.604	Pain in right leg
M79.605	Pain in left leg
M79.606	Pain in leg, unspecified
M79.609	Pain in unspecified limb
M79.621	Pain in right upper arm
M79.622	Pain in left upper arm
M79.629	Pain in unspecified upper arm
M79.631	Pain in right forearm
M79.632	Pain in left forearm
M79.639	Pain in unspecified forearm
M79.641	Pain in right hand

POLICY TITLE	TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION
POLICY NUMBER	MP 6.020

ICD-10-CM Diagnosis Codes	Description
M79.642	Pain in left hand
M79.643	Pain in unspecified hand
M79.644	Pain in right finger(s)
M79.645	Pain in left finger(s)
M79.651	Pain in right thigh
M79.652	Pain in left thigh
M79.659	Pain in unspecified thigh
M79.661	Pain in right lower leg
M79.662	Pain in left lower leg
M79.669	Pain in unspecified lower leg
M79.671	Pain in right foot
M79.672	Pain in left foot
M79.673	Pain in unspecified foot
M79.674	Pain in right toe(s)
M79.675	Pain in left toe(s)
M99.20	Subluxation stenosis of neural canal of head region
M99.21	Subluxation stenosis of neural canal of cervical region
M99.22	Subluxation stenosis of neural canal of thoracic region
M99.23	Subluxation stenosis of neural canal of lumbar region
M99.24	Subluxation stenosis of neural canal of sacral region
M99.26	Subluxation stenosis of neural canal of lower extremity
M99.27	Subluxation stenosis of neural canal of upper extremity
M99.28	Subluxation stenosis of neural canal of rib cage
M99.30	Osseous stenosis of neural canal of head region
M99.31	Osseous stenosis of neural canal of cervical region
M99.32	Osseous stenosis of neural canal of thoracic region
M99.33	Osseous stenosis of neural canal of lumbar region
M99.34	Osseous stenosis of neural canal of sacral region
M99.36	Osseous stenosis of neural canal of lower extremity
M99.37	Osseous stenosis of neural canal of upper extremity
M99.38	Osseous stenosis of neural canal of rib cage
M99.40	Connective tissue stenosis of neural canal of head region
M99.41	Connective tissue stenosis of neural canal of cervical region
M99.42	Connective tissue stenosis of neural canal of thoracic region
M99.43	Connective tissue stenosis of neural canal of lumbar region

ICD-10-CM Diagnosis Codes	Description
M99.44	Connective tissue stenosis of neural canal of sacral region
M99.46	Connective tissue stenosis of neural canal of lower extremity
M99.47	Connective tissue stenosis of neural canal of upper extremity
M99.48	Connective tissue stenosis of neural canal of rib cage
M99.50	Intervertebral disc stenosis of neural canal of head region
M99.51	Intervertebral disc stenosis of neural canal of cervical region
M99.52	Intervertebral disc stenosis of neural canal of thoracic region
M99.53	Intervertebral disc stenosis of neural canal of lumbar region
M99.54	Intervertebral disc stenosis of neural canal of sacral region
M99.56	Intervertebral disc stenosis of neural canal of lower extremity
M99.57	Intervertebral disc stenosis of neural canal of upper extremity
M99.58	Intervertebral disc stenosis of neural canal of rib cage
M99.60	Osseous and subluxation stenosis of intervertebral foramina of head region
M99.61	Osseous and subluxation stenosis of intervertebral foramina of cervical region
M99.62	Osseous and subluxation stenosis of intervertebral foramina of thoracic region
M99.63	Osseous and subluxation stenosis of intervertebral foramina of lumbar region
M99.64	Osseous and subluxation stenosis of intervertebral foramina of sacral region
M99.66	Osseous and subluxation stenosis of intervertebral foramina of lower extremity
M99.67	Osseous and subluxation stenosis of intervertebral foramina of upper extremity
M99.68	Osseous and subluxation stenosis of intervertebral foramina of rib cage
M99.69	Osseous and subluxation stenosis of intervertebral foramina of abdomen and other regions
M99.70	Connective tissue and disc stenosis of intervertebral foramina of head region
M99.71	Connective tissue and disc stenosis of intervertebral foramina of cervical region
M99.72	Connective tissue and disc stenosis of intervertebral foramina of thoracic region
M99.73	Connective tissue and disc stenosis of intervertebral foramina of lumbar region
M99.74	Connective tissue and disc stenosis of intervertebral foramina of sacral region
M99.76	Connective tissue and disc stenosis of intervertebral foramina of lower extremity
M99.77	Connective tissue and disc stenosis of intervertebral foramina of upper extremity
M99.78	Connective tissue and disc stenosis of intervertebral foramina of rib cage

IX. REFERENCES

TOP

1. *ACOG Committee on Practice Bulletins--Gynecology. ACOG Practice Bulletin No. 51. Chronic pelvic pain. Obstet Gynecol. Mar 2004;103(3):589-605. PMID 14990428*
2. *American Congress of Obstetricians and Gynecologists (ACOG) Committee Opinion Number 766 on Approaches to Limit Intervention During Labor and Birth. February 2019*

3. *Ahmed S, Plazier M, Ost J, et al. The effect of occipital nerve field stimulation on the descending pain pathway in patients with fibromyalgia: a water PET and EEG imaging study. BMC Neurol. Nov 12 2018; 18(1): 191. PMID 30419855*
4. *Ailani J, Burch RC, Robbins MS. The American Headache Society Consensus Statement: Update on integrating new migraine treatments into clinical practice. Headache. Jul 2021; 61(7): 1021-1039. PMID 34160823*
5. *Amatya B, Young J, Khan F. Non-pharmacological interventions for chronic pain in multiple sclerosis. Cochrane Database Syst Rev. Dec 19 2018; 12(12): CD012622. PMID 30567012*
6. *Amer-Cuenca JJ, Badenes-Ribera L, Biviá-Roig G, et al. The dose-dependent effects of transcutaneous electrical nerve stimulation for pain relief in individuals with fibromyalgia: a systematic review and meta-analysis. Pain. Aug 01 2023; 164(8): 1645-1657. PMID 36893318*
7. *American Congress of Obstetricians and Gynecologists (ACOG). Women's Health Care Physicians. 2007*
8. *American Society of Anesthesiologists Task Force on Chronic Pain Management, American Society of Regional Anesthesia Pain Medicine. Practice guidelines for chronic pain management: an updated report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. Anesthesiology. Apr 2010;112(4):810-833. PMID 20124882*
9. *American Society of Anesthesiologists. Practice guidelines for chronic pain management. A report by the American Society of Anesthesiologists Task Force on Pain Management, Chronic Pain Section. Anesthesiology. Apr 1997;86(4):995-1004. PMID 9105246*
10. *American Pain Society. Management of Postoperative Pain: A Clinical Practice Guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. Feb 2016;17(2):131-157 PMID 26827847*
11. *Arik MI, Kiloatar H, Aslan B, et al. The effect of TENS for pain relief in women with primary dysmenorrhea: A systematic review and meta-analysis. Explore (NY). 2022; 18(1): 108-113. PMID 32917532*
12. *Báez Suárez A, Martín Castillo E, García Andújar J, et al. Evaluation of the effectiveness of transcutaneous nerve stimulation during labor in breech presentation: a case series. J Matern Fetal Neonatal Med. Jan 2021; 34(1): 24-30. PMID 30654675*
13. *Bannuru RR, Osani MC, Vaysbrot EE, et al. OARSI guidelines for the non-surgical management of knee, hip, and polyarticular osteoarthritis. Osteoarthritis Cartilage. Nov 2019; 27(11): 1578-1589. PMID 31278997*
14. *Benzon HT, Connis RT, De Leon-Casasola OA, et al. Practice guidelines for chronic pain management: an updated report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. Anesthesiology. Apr 2010; 112(4): 810-33. PMID 20124882*
15. *Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). TENS or PENS in the treatment of chronic and postoperative pain. TEC Assessments. 1996;Volume 11, Tab 21*

16. *Boldt I, Eriks-Hoogland I, Brinkhof MW, et al. Non-pharmacological interventions for chronic pain in people with spinal cord injury. Cochrane Database Syst Rev. 2014;11:CD009177. PMID 25432061*
17. *Bono CM, Ghiselli G, Gilbert TJ, et al. An evidence-based clinical guideline for the diagnosis and treatment of cervical radiculopathy from degenerative disorders. Spine J. Jan 2011;11(1):64-72. PMID 21168100*
18. *Bronfort G, Nilsson N, Haas M, et al. Non-invasive physical treatments for chronic/recurrent headache. Cochrane Database Syst Rev. Jul 2004(3):CD001878. PMID 15266458*
19. *Brosseau L, Judd MG, Marchand S, et al. Transcutaneous electrical nerve stimulation (TENS) for the treatment of rheumatoid arthritis in the hand. Cochrane Database Syst Rev. Aug 2003(3):CD004377. PMID 12918009*
20. *Brosseau LU, Pelland LU, Casimiro LY, et al. Electrical stimulation for the treatment of rheumatoid arthritis. Cochrane Database Syst Rev. Jun 2002(2):CD003687. PMID 12076504*
21. *Butera KA, George SZ, Borsa PA, et al. Prolonged Reduction in Shoulder Strength after Transcutaneous Electrical Nerve Stimulation Treatment of Exercise-Induced Acute Muscle Pain. Pain Pract. Nov 2018; 18(8): 954-968. PMID 29505689*
22. *Cala Health news release. Cala Health receives FDA breakthrough device designation for Cala Trio therapy to treat action tremors in Parkinson's disease*
23. *Cameron M, Lonergan E, Lee H. Transcutaneous electrical nerve stimulation (TENS) for dementia. Cochrane Database Syst Rev. Aug 2003(3):CD004032. PMID 12917999*
24. *Carroll D, Moore RA, McQuay HJ, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic pain. Cochrane Database Syst Rev. Nov 2001(3):CD003222. PMID 11687055*
25. *Centers for Medicare & Medicaid. National Coverage Determination (NCD) for Transcutaneous Electrical Nerve Stimulators (TENS) (280.13). 2012*
26. *Centers for Medicare and Medicaid. Decision Memo for Transcutaneous Electrical Nerve Stimulation for Chronic Low Back Pain (160.27). 2012*
27. *Centers for Medicare and Medicaid. National Coverage Determination (NCD) for Transcutaneous Electrical Nerve Stimulation (TENS) for Acute Post-Operative Pain (10.2). 1995*
28. *Centers for Medicare and Medicaid. National Coverage Determination (NCD) for Assessing Patient's Suitability for Electrical Nerve Stimulation Therapy (160.7.1). 2006*
29. *Chen WL, Hsu WC, Lin YJ, et al. Comparison of intra-articular hyaluronic acid injections with transcutaneous electric nerve stimulation for the management of knee osteoarthritis: a randomized controlled trial. Arch Phys Med Rehabil. Aug 2013;94(8):1482-1489. PMID 23628378*
30. *Cherian JJ, Harrison PE, Benjamin SA, et al. Do the effects of transcutaneous electrical nerve stimulation on knee osteoarthritis pain and function last? J Knee Surg. Aug 2016;29(6):497-501. PMID 26540652*
31. *Chesterton LS, Lewis AM, Sim J, et al. Transcutaneous electrical nerve stimulation as adjunct to primary care management for tennis elbow: pragmatic randomised controlled trial (TATE trial). BMJ. Sep 02 2013;347:f5160. PMID 23999980*
32. *Chou DE, Shnayderman Yugrakh M, Winegarner D, et al. Acute migraine therapy with external trigeminal neurostimulation (ACME): A randomized controlled trial. Cephalalgia. Jan 2019; 39(1): 3-14. PMID 30449151*

33. *Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. Ann Intern Med. Oct 2 2007;147(7):478-491. PMID 17909209*
34. *Dailey DL, Rakel BA, Vance CG, et al. Transcutaneous electrical nerve stimulation reduces pain, fatigue and hyperalgesia while restoring central inhibition in primary fibromyalgia. Pain. Nov 2013;154(11):2554-2562. PMID 23900134*
35. *Davison P, Wilkinson R, Miller J, et al. A systematic review of using electrical stimulation to improve clinical outcomes after hip fractures. Physiother Theory Pract. Dec 2022; 38(12): 1857-1875. PMID 33890541*
36. *de Castro-Carletti EM, Müggenborg F, Dennett L, et al. Effectiveness of electrotherapy for the treatment of orofacial pain: A systematic review and meta-analysis. Clin Rehabil. Jul 2023; 37(7): 891-926. PMID 36594219*
37. *De Giorgi I, Castroflorio T, Sartoris B, et al. The use of conventional transcutaneous electrical nerve stimulation in chronic facial myalgia patients. Clin Oral Investig. Jan 2017;21(1):275-280. PMID 27000071*
38. *DeSantana JM, Walsh DM, Vance C, et al. Effectiveness of transcutaneous electrical nerve stimulation for treatment of hyperalgesia and pain. Curr Rheumatol Rep. Dec 2008;10(6):492-499. PMID 19007541*
39. *Deussen AR, Ashwood P, Martis R, et al. Relief of pain due to uterine cramping/involution after birth. Cochrane Database Syst Rev. Oct 20 2020; 10(10): CD004908. PMID 33078388*
40. *Deyo RA, Walsh NE, Martin DC, et al. A controlled trial of transcutaneous electrical nerve stimulation (TENS) and exercise for chronic low back pain. N Engl J Med. Jun 7 1990;322(23):1627-1634. PMID 2140432*
41. *Díaz-Pulido B, Pérez-Martín Y, Pecos-Martín D, et al. Efficacy of Manual Therapy and Transcutaneous Electrical Nerve Stimulation in Cervical Mobility and Endurance in Subacute and Chronic Neck Pain: A Randomized Clinical Trial. J Clin Med. Jul 23 2021; 10(15). PMID 34362029*
42. *Diener HC, Tassorelli C, Dodick DW, et al. Guidelines of the International Headache Society for controlled trials of acute treatment of migraine attacks in adults: Fourth edition. Cephalalgia. May 2019; 39(6): 687-710. PMID 30806518*
43. *Domingues FS, Gayoso MV, Sikandar S, et al. Analgesic efficacy of a portable, disposable, and self-applied transcutaneous electrical nerve stimulation device during migraine attacks: A real-life randomized controlled trial. Pain Pract. Nov 2021; 21(8): 850-858. PMID 34013542*
44. *Dowswell T, Bedwell C, Lavender T, et al. Transcutaneous electrical nerve stimulation (TENS) for pain relief in labour. Cochrane Database Syst Rev. Apr 15 2009(2):CD007214. PMID 19370680*
45. *Dubinsky RM, Miyasaki J. 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. Jan 12 2010;74(2):173-176. PMID 20042705*
46. *FDA news release. FDA permits marketing of first medical device for treatment of ADHD. April 19, 2019*
47. *Ferreira AP, Costa DR, Oliveira AI, et al. Short-term transcutaneous electrical nerve stimulation reduces pain and improves the masticatory muscle activity in temporomandibular*

disorder patients: a randomized controlled trial. J Appl Oral Sci. Mar-Apr 2017;25(2):112-120. PMID 28403351

48. *Food and Drug Administration. De Novo Classification Request for Cefaly Device. 2012*
49. *Food and Drug Administration. Cefaly Dual Device: K173006. 2017*
50. *Food and Drug Administration. Cefaly Acute Device: K171446. 2017*
51. *Food and Drug Administration. HeadaTerm Device: K172450. 2018*
52. *Food and Drug Administration. Allive Device: K192773. 2019*
53. *Food and Drug Administration. Relivion Device: K203419. February 2021*
54. *Food and Drug Administration. Axon Therapy Device: K210021. 2021*
55. *Forogh B, Aslanpour H, Fallah E, et al. Adding high-frequency transcutaneous electrical nerve stimulation to the first phase of post anterior cruciate ligament reconstruction rehabilitation does not improve pain and function in young male athletes more than exercise alone: a randomized single-blind clinical trial. Disabil Rehabil. Mar 2019; 41(5): 514-522. PMID 29117738*
56. *Galli TT, Chiavegato LD, Liebano RE. Effects of TENS in living kidney donors submitted to open nephrectomy: a randomized placebo-controlled trial. Eur J Pain. Jan 2015;19(1):67-76. PMID 24831862*
57. *Gibson W, Wand BM, Meads C, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic pain - an overview of Cochrane Reviews. Cochrane Database Syst Rev. Apr 03 2019; 4(4): CD011890. PMID 30941745*
58. *Goldman AR, Porsch L, Hintermeister A, et al. Transcutaneous Electrical Nerve Stimulation to Reduce Pain With Medication Abortion: A Randomized Controlled Trial. Obstet Gynecol. Jan 01 2021; 137(1): 100-107. PMID 33278292*
59. *Gossrau G, Wahner M, Kuschke M, et al. Microcurrent transcutaneous electric nerve stimulation in painful diabetic neuropathy: a randomized placebo-controlled study. Pain Med. Jun 2011;12(6):953-960. PMID 21627767*
60. *Guy M, Foucher C, Juhel C, et al. Transcutaneous electrical neurostimulation relieves primary dysmenorrhea: A randomized, double-blind clinical study versus placebo. Prog Urol. Jul 2022; 32(7): 487-497. PMID 35249825*
61. *Hatefi F, Kazemi M, Manglian P, et al. The effects of cold compress and transcutaneous electrical nerve stimulation on the pain associated with chest tube removal among patients with coronary bypass grafting. J Cardiothorac Surg. May 25 2023; 18(1): 186. PMID 37231409*
62. *Hokenek NM, Erdogan MO, Hokenek UD, et al. Treatment of migraine attacks by transcutaneous electrical nerve stimulation in emergency department: A randomize controlled trial. Am J Emerg Med. Jan 2021; 39: 80-85. PMID 31983598*
63. *Hurlow A, Bennett MI, Robb KA, et al. Transcutaneous electric nerve stimulation (TENS) for cancer pain in adults. Cochrane Database Syst Rev. Mar 14 2012;3(3):CD006276. PMID 22419313*
64. *Isaacson SH, Peckham E, Tse W, et al. Prospective Home-use Study on Non-invasive Neuromodulation Therapy for Essential Tremor. Tremor Other Hyperkinet Mov (N Y). Aug 14 2020; 10: 29. PMID 32864188*
65. *Jalalvandi F, Ghasemi R, Mirzaei M, et al. Effects of back exercises versus transcutaneous electric nerve stimulation on relief of pain and disability in operating room nurses with*

chronic non-specific LBP: a randomized clinical trial. BMC Musculoskelet Disord. Mar 26 2022; 23(1): 291. PMID 35337314

66. *Jamison RN, Edwards RR, Curran S, et al. Effects of Wearable Transcutaneous Electrical Nerve Stimulation on Fibromyalgia: A Randomized Controlled Trial. J Pain Res. 2021; 14: 2265-2282. PMID 34335055*
67. *Jamison RN, Wan L, Edwards RR, et al. Outcome of a High-Frequency Transcutaneous Electrical Nerve Stimulator (hfTENS) Device for Low Back Pain: A Randomized Controlled Trial. Pain Pract. Jun 2019; 19(5): 466-475. PMID 30636101*
68. *Johnson MI, Mulvey MR, Bagnall AM. Transcutaneous electrical nerve stimulation (TENS) for phantom pain and stump pain following amputation in adults. Cochrane Database Syst Rev. Aug 18 2015;8:CD007264. PMID 26284511*
69. *Johnson MI, Paley CA, Howe TE, et al. Transcutaneous electrical nerve stimulation for acute pain. Cochrane Database Syst Rev. Jun 15 2015;6(6):CD006142. PMID 26075732*
70. *Johnson MI, Paley CA, Jones G, 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. Feb 10 2022; 12(2): e051073. PMID 35144946*
71. *Kayman-Kose S, Arioz DT, Toktas H, et al. Transcutaneous electrical nerve stimulation (TENS) for pain control after vaginal delivery and cesarean section. J Matern Fetal Neonatal Med. Oct 2014;27(15):1572-1575. PMID 24283391*
72. *Keskin EA, Onur O, Keskin HL, et al. Transcutaneous electrical nerve stimulation improves low back pain during pregnancy. Gynecol Obstet Invest. Jun 2012;74(1):76-83. PMID 22722614*
73. *Khadilkar A, Milne S, Brosseau L, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic low-back pain. Cochrane Database Syst Rev. Jul 20 2005(3):CD003008. PMID 16034883*
74. *Khadilkar A, Odebiyi DO, Brosseau L, et al. Transcutaneous electrical nerve stimulation (TENS) versus placebo for chronic low-back pain. Cochrane Database Syst Rev. Oct 08 2008(4):CD003008. PMID 18843638*
75. *Koukoulithras I, Stamouli A, Kolokotsios S, et al. The Effectiveness of Non-Pharmaceutical Interventions Upon Pregnancy-Related Low Back Pain: A Systematic Review and Meta-Analysis. Cureus. Jan 30 2021; 13(1): e13011. PMID 33728108*
76. *Kroeling P, Gross A, Goldsmith CH, et al. Electrotherapy for neck pain. Cochrane Database Syst Rev. Oct 07 2009(4):CD004251. PMID 19821322*
77. *Kurata NB, Ghatnekar RJ, Mercer E, et al. Transcutaneous Electrical Nerve Stimulation for Post-Cesarean Birth Pain Control: A Randomized Controlled Trial. Obstet Gynecol. Aug 01 2022; 140(2): 174-180. PMID 35852266*
78. *Lang T, Barker R, Steinlechner B, et al. TENS relieves acute posttraumatic hip pain during emergency transport. J Trauma. Jan 2007;62(1):184-188; discussion 188. PMID 17215752*
79. *Lauretti GR, Chubaci EF, Mattos AL. Efficacy of the use of two simultaneously TENS devices for fibromyalgia pain. Rheumatol Int. Aug 2013;33(8):2117-2122. PMID 23423539*
80. *Leemans L, Elma Ö, Nijs J, et al. Transcutaneous electrical nerve stimulation and heat to reduce pain in a chronic low back pain population: a randomized controlled clinical trial. Braz J Phys Ther. 2021; 25(1): 86-96. PMID 32434666*

81. *Lison JF, Amer-Cuenca JJ, Piquer-Marti S, et al. Transcutaneous nerve stimulation for pain relief during office hysteroscopy: a randomized controlled trial. Obstet Gynecol. Feb 2017;129(2):363-370. PMID 28079781*
82. *Martimbianco ALC, Porfírio GJ, Pacheco RL, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic neck pain. Cochrane Database Syst Rev. Dec 12 2019; 12(12): CD011927. PMID 31830313*
83. *Martins-de-Sousa PH, Fidelis-de-Paula-Gomes CA, Pontes-Silva A, et al. Additional effect of transcutaneous electrical nerve stimulation in a therapeutic exercise program for sedentary with chronic neck pain: A double-blind randomized controlled trial. Physiother Res Int. Jan 2023; 28(1): e1978. PMID 36252091*
84. *McAlindon TE, Bannuru RR, Sullivan MC, et al. OARSI guidelines for the non-surgical management of knee osteoarthritis. Osteoarthritis Cartilage. Mar 2014;22(3):363-388. PMID 24462672*
85. *McGough JJ, Sturm A, Cowen J, et al. Double-Blind, Sham-Controlled, Pilot Study of Trigeminal Nerve Stimulation for Attention-Deficit/Hyperactivity Disorder. J Am Acad Child Adolesc Psychiatry. Apr 2019; 58(4): 403-411.e3. PMID 30768393*
86. *Milne S, Welch V, Brosseau L, et al. Transcutaneous electrical nerve stimulation (TENS) for chronic low back pain. Cochrane Database Syst Rev. Jun 2001(2):CD003008. PMID 11406059*
87. *Mulvey MR, Bagnall AM, Johnson MI, et al. Transcutaneous electrical nerve stimulation (TENS) for phantom pain and stump pain following amputation in adults. Cochrane Database Syst Rev. May 12 2010(5):CD007264. PMID 20464749*
88. *National Cancer Institute. Pain (PDQ®)-Health Professional Version. 2017 Aug 30*
89. *National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain. Version 2.2023*
90. *National Institute for Health and Care Excellence (NICE). Intrapartum care for healthy women and babies [CG190]. 2014 (last updated 2022)*
91. *National Institute for Health and Care Excellence (NICE). Osteoarthritis in over 16s: diagnosis and management [NG226]. 2022*
92. *National Institute for Health and Care Excellence (NICE). Low back pain and sciatica in over 16s: assessment and management [NG59]. 2016 (last updated 2020)*
93. *Njogu A, Qin S, Chen Y, et al. The effects of transcutaneous electrical nerve stimulation during the first stage of labor: a randomized controlled trial. BMC Pregnancy Childbirth. Feb 24 2021; 21(1): 164. PMID 33627077*
94. *Nnoaham KE, Kumbang J. Transcutaneous electrical nerve stimulation (TENS) for chronic pain. Cochrane Database Syst Rev. Jul 16 2008(3):CD003222. PMID 18646088*
95. *North American Spine Society. Diagnosis and Treatment of Low Back Pain. 2020*
96. *Osiri M, Welch V, Brosseau L, et al. Transcutaneous electrical nerve stimulation for knee osteoarthritis. Cochrane Database Syst Rev. Oct 2000(4):CD002823. PMID 11034768*
97. *Oztas B, Iyigun E. The effects of two different electrical stimulation methods on the pain intensity of the patients who had undergone abdominal surgery with a midline incision: Randomized controlled clinical trial. Contemp Nurse. 2019; 55(2-3): 122-138. PMID 31169066*

98. *Palmer S, Domaille M, Cramp F, et al. Transcutaneous electrical nerve stimulation as an adjunct to education and exercise for knee osteoarthritis: a randomized controlled trial. Arthritis Care Res. Mar 2014;66(3):387-394. PMID 23983090*
99. *Parseliunas A, Paskauskas S, Kubiliute E, et al. Transcutaneous Electric Nerve Stimulation Reduces Acute Postoperative Pain and Analgesic Use After Open Inguinal Hernia Surgery: A Randomized, Double-Blind, Placebo-Controlled Trial. J Pain. May 2021; 22(5): 533-544. PMID 33309784*
100. *Platon B, Thörn SE, Mannheimer C, et al. Effects of high-frequency, high-intensity transcutaneous electrical nerve stimulation versus intravenous opioids for pain relief after hysteroscopy: a randomized controlled study. Obstet Gynecol Sci. Sep 2020; 63(5): 660-669. PMID 32717773*
101. *Price CI, Pandyan AD. Electrical stimulation for preventing and treating post-stroke shoulder pain. Cochrane Database Syst Rev. Oct 2000(4):CD001698. PMID 11034725*
102. *Proctor ML, Smith CA, Farquhar CM, et al. Transcutaneous electrical nerve stimulation and acupuncture for primary dysmenorrhoea. Cochrane Database Syst Rev. Mar 2002(1):CD002123. PMID 11869624*
103. *Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. Ann Intern Med. Apr 04 2017;166(7):514-530. PMID 28192789*
104. *Ramanathan D, Saleh A, Klika AK, et al. The use of transcutaneous electrical nerve stimulation after total knee arthroplasty: a prospective randomized controlled trial. Surg Technol Int. Jul 25 2017;30:425-434. PMID 28537354*
105. *Reichenbach S, Jüni P, Hincapié CA, et al. Effect of transcutaneous electrical nerve stimulation (TENS) on knee pain and physical function in patients with symptomatic knee osteoarthritis: the ETRELKA randomized clinical trial. Osteoarthritis Cartilage. Mar 2022; 30(3): 426-435. PMID 34826572*
106. *Robb KA, Bennett MI, Johnson MI, et al. Transcutaneous electric nerve stimulation (TENS) for cancer pain in adults. Cochrane Database Syst Rev. Jul 16 2008(3):CD006276. PMID 18646140*
107. *Rutjes AW, Nuesch E, Sterchi R, et al. Transcutaneous electrostimulation for osteoarthritis of the knee. Cochrane Database Syst Rev. Oct 07 2009(4):CD002823. PMID 19821296*
108. *Sawant A, Dadurka K, Overend T, et al. Systematic review of efficacy of TENS for management of central pain in people with multiple sclerosis. Mult Scler Relat Disord. May 2015;4(3):219-227. PMID 26008938*
109. *Schneider MP, Tellenbach M, Mordasini L, et al. Refractory chronic pelvic pain syndrome in men: can transcutaneous electrical nerve stimulation help? BJU Int. Jul 2013;112(2):E159-163. PMID 23433012*
110. *Schoenen J, Vandersmissen B, Jeangette S, et al. Migraine prevention with a supraorbital transcutaneous stimulator: a randomized controlled trial. Neurology. Feb 19 2013;80(8):697-704. PMID 23390177*
111. *Serrano-Muñoz D, Beltran-Alacreu H, Martín-Caro Álvarez D, et al. Effectiveness of Different Electrical Stimulation Modalities for Pain and Masticatory Function in Temporomandibular Disorders: A Systematic Review and Meta-Analysis. J Pain. Jun 2023; 24(6): 946-956. PMID 36801166*

112. *Silva MB, de Melo PR, de Oliveira NM, et al. Analgesic effect of transcutaneous electrical nerve stimulation after laparoscopic cholecystectomy. Am J Phys Med Rehabil. Aug 2012;91(8):652-657. PMID 22311059*
113. *Simpson PM, Fouche PF, Thomas RE, 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. PMID 23839103*
114. *Singh RBH, VanderPluym JH, Morrow AS, et al. Acute Treatments for Episodic Migraine [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2020 Dec. (Comparative Effectiveness Review, No. 239.)*
115. *Takla MKN. Low-frequency high-intensity versus medium-frequency low-intensity combined therapy in the management of active myofascial trigger points: A randomized controlled trial. Physiother Res Int. Oct 2018; 23(4): e1737. PMID 30095858*
116. *Tassorelli C, Diener HC, Silberstein SD, et al. Guidelines of the International Headache Society for clinical trials with neuromodulation devices for the treatment of migraine. Cephalalgia. Oct 2021; 41(11-12): 1135-1151. PMID 33990161*
117. *Thuvarakan K, Zimmermann H, Mikkelsen MK, et al. Transcutaneous Electrical Nerve Stimulation As A Pain-Relieving Approach in Labor Pain: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Neuromodulation. Aug 2020; 23(6): 732-746. PMID 32691942*
118. *Tokuda M, Tabira K, Masuda T, et al. Effect of modulated-frequency and modulated-intensity transcutaneous electrical nerve stimulation after abdominal surgery: a randomized controlled trial. Clin J Pain. Jul 2014;30(7):565-570. PMID 24901753*
119. *Tucker DL, Rockett M, Hasan M, et al. Does transcutaneous electrical nerve stimulation (TENS) alleviate the pain experienced during bone marrow sampling in addition to standard techniques? A randomised, double-blinded, controlled trial. J Clin Pathol. Jun 2015;68(6):479-483. PMID 25759407*
120. *Vance CG, Rakel BA, Blodgett NP, 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. Jul 2012;92(7):898-910. PMID 22466027*
121. *Walsh DM, Howe TE, Johnson MI, et al. Transcutaneous electrical nerve stimulation for acute pain. Cochrane Database Syst Rev. Apr 15 2009(2):CD006142. PMID 19370629*
122. *Wu LC, Weng PW, Chen CH, et al. Literature Review and Meta-Analysis of Transcutaneous Electrical Nerve Stimulation in Treating Chronic Back Pain. Reg Anesth Pain Med. May 2018; 43(4): 425-433. PMID 29394211*
123. *Zhu Y, Feng Y, Peng L. Effect of transcutaneous electrical nerve stimulation for pain control after total knee arthroplasty: A systematic review and meta-analysis. J Rehabil Med. Nov 21 2017; 49(9): 700-704. PMID 28933513*
124. *Zimpel SA, Torloni MR, Porfírio GJ, et al. Complementary and alternative therapies for post-caesarean pain. Cochrane Database Syst Rev. Sep 01 2020; 9(9): CD011216. PMID 32871021*
125. *Blue Cross Blue Shield Association Medical Policy Reference Manual. 1.01.09, Transcutaneous Electrical Nerve Stimulation. January 2024*

X. POLICY HISTORY

TOP

MP 6.020	**08/28/2020 Consensus Review.** No changes to policy statements. References updated.
	09/01/2020 Administrative Update. Added ICD10 code M25.59
	04/01/2021 Administrative Update. Added New Codes K1016, K1017, K1018, K1019
	05/04/2021 Minor Review. TENS for acute post-op pain changed to MN. Codes that were added on 4/1 K1018 and K1019 moved to correct heading (INV). Rationale updated; References updated. Codes K1016 and K1017 moved to MP 2.092. Deleted INV bullets and replaced with one INV statement.
	09/07/2021 Administrative Update. Addition of new ICD-10 codes. Effective date 10/1/2021.
	09/22/2021 Administrative Update. Added new code K1023 to policy. Effective 10/1/2021
	02/02/2022 Consensus Review. No change to policy statement. References reviewed and updated. Product Variations updated.
	03/16/2023 Administrative Update. Revised K1019 description, effective 4/1/23.
	12/12/2023 Administrative Update. Added New Codes A4540, A4542, E0734 & E0733. Removed deleted codes K1018, K1019 & K1023. Effective 1/1/24.
	01/10/2024 Consensus Review. No change to policy statement. Background and Rationale updated. Referenced added. Removed ICD10 codes M48.00 and M54.5.
	08/16/2024 Administrative Review. Added New Codes M51.360, M51.361, M51.362, M51.369, M51.370, M51.371, M51.372, M51.379. Removed M51.36 & M51.37. Effective 10/1/24

TOP