Clinical Policy Title: Electrical muscle stimulation

Clinical Policy Number: 09.02.09

<table>
<thead>
<tr>
<th>Effective Date:</th>
<th>June 1, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Review Date:</td>
<td>April 10, 2018</td>
</tr>
<tr>
<td>Most Recent Review Date:</td>
<td>May 1, 2018</td>
</tr>
<tr>
<td>Next Review Date:</td>
<td>May 2019</td>
</tr>
</tbody>
</table>

Policy contains:
- Neuromuscular electrical stimulation.
- Functional electrical stimulation.
- Rehabilitation.

Related policies:
- CP# 00.02.02 Botulinum toxin products
- CP# 03.02.04 Transcutaneous electrical nerve stimulators
- CP# 07.02.01 Pulmonary rehabilitation
- CP# 07.02.02 Phrenic (diaphragmatic) nerve stimulation
- CP# 09.01.03 Electrical stimulation for oropharyngeal dysphagia

ABOUT THIS POLICY: Prestige Health Choice has developed clinical policies to assist with making coverage determinations. Prestige Health Choice’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Prestige Health Choice when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Prestige Health Choice’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Prestige Health Choice’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Prestige Health Choice will update its clinical policies as necessary. Prestige Health Choice’s clinical policies are not guarantees of payment.

Coverage policy

Prestige Health Choice considers the use of electrical muscle stimulation (also referred to as neuromuscular electrical stimulation) to be clinically proven and, therefore, medically necessary when used in accordance with U.S. Food and Drug Administration labeling instructions for each device for the following indications:
- To correct lack of ankle dorsiflexion (foot drop) of central neurological origin when an ankle-foot orthosis is not tolerated (Healthcare Common Procedure Coding System [HCPCS] code E0770) (Moll, 2017; Prenton, 2016; National Institute for Health and Care Excellence, 2009).
• To attenuate muscle disuse atrophy in immobilized lower limbs (HCPCS code E0745) following a non-neurological injury or surgery where the nerve supply to the muscle is intact (e.g., post orthopedic surgery, casting, splinting, or soft-tissue scarring) (Gatewood, 2017).
• To correct or prevent glenohumeral subluxation following an acute or subacute stroke (Lee, 2017; Weinstein, 2016).
• To restore upper limb function (HCPCS code E0770) following an acute or subacute stroke or spinal cord injury in the presence of minimal volitional movement, when combined with task-specific training (e.g., grasp function), after a trial showing evidence of muscle contraction but an inability to move the arm against resistance (Fehlings, 2017; Weinstein, 2016; National Institute for Health and Care Excellence, 2013).
• To enable independent, unbraced ambulation using the Parastep 1® system (Sigmedics Inc., Fairborn, Ohio) (HCPCS code E0764) for skeletally mature members with spinal cord injury, who meet all of the following criteria (Sigmedics, 2018)
  - Intact lower motor units (both muscle and peripheral nerve of L1 and below).
  - Muscle and joint stability of the upper and lower extremities for weight bearing, with demonstration of balance and trunk control to independently maintain an upright posture.
  - Demonstration of brisk muscle contraction to neuromuscular stimulation and have sensory perception of electrical stimulation sufficient for muscle contraction.
  - Ability to transfer independently and demonstrate independent standing tolerance for at least three minutes.
  - Possession of high motivation, commitment, and cognitive ability to use the device for walking.
  - Demonstration of hand and finger function to manipulate the device controls.
  - At least six-month post-recovery from spinal cord injury and restorative surgery.
  - Absence of degenerative disease of the hip and knee, and no history of long bone fracture secondary to osteoporosis.
  - Demonstration of a willingness to use the device for a long term.

Prestige Health Choice considers the use of a U.S. Food and Drug Administration-approved conductive garment (HCPCS code E0731) in conjunction with neuromuscular electrical stimulation to be medically necessary for members with a medical need for rehabilitation strengthening (pursuant to a written plan of rehabilitation), where the nerve supply to the muscle is intact, for any of the following indications:
• There is a large area or many sites to be stimulated, and the stimulation would have to be delivered so frequently that it is not feasible to use conventional electrodes, adhesive tapes, and lead wires.
• There is a medical condition (e.g., skin condition) that precludes the application of conventional electrodes, adhesive tapes, and lead wires.
• Area to be treated for disuse atrophy or chronic intractable pain is inaccessible to conventional electrodes, adhesive tapes, and lead wires (e.g., underneath a cast).
Limitations:

Coverage determinations are subject to benefit limitations and exclusions as delineated by the state Medicaid authority. The Florida Medicaid website may be accessed at http://ahca.myflorida.com/Medicaid/.

All other uses of neuromuscular electrical stimulation are not medically necessary, as the safety and effectiveness has not been established. These include, but are not limited to:

- Muscle disuse atrophy in members with spinal cord injury.
- Pain control.
- Non-medical uses (e.g., exercise).

Absolute contraindications to electrical muscle stimulation include (Sigmedics, 2018):

- Autonomic dysreflexia.
- Cardiac pacemakers.
- Presence of irreversible contracture.
- Presence of skin disease or cancer at the area of stimulation.
- Severe osteoporosis.
- Severe scoliosis.

Requirements for functional electrical stimulation of the upper or lower extremities include attended physical therapy training with the device. The physical therapist performing this training must have sufficient skills to provide these services that are part of a one-on-one training program in inpatient hospitals, outpatient hospitals, comprehensive outpatient rehabilitation facilities, and outpatient rehabilitation facilities.

A conductive garment used with neuromuscular electrical stimulation (HCPCS code E0731) is not medically necessary when the service can be delivered effectively through the use of conventional electrodes, adhesive tapes, and lead wires.

The use of the Hako-Med PRO ElecDT® 2000 (Hako Med Holdings Inc., Las Vegas, Nevada, distributed in the United States by Alive Inc.) for electrical muscle stimulation is not medically necessary, as its safety and effectiveness has not been established.

Replacement supplies are considered medically necessary when used with medically necessary neuromuscular electrical stimulation up to plan limits.

For Medicare members only:

Prestige Health Choice considers neuromuscular electrical stimulation to be reasonable and necessary in accordance with Medicare National Coverage Determinations 160.12 and 160.13 and Decision Memo
for Neuromuscular Electrical Stimulation for Spinal Cord Injury (CAG-00153R). The approved indications are:

- To treat disuse atrophy where nerve supply to the muscle is intact, including brain, spinal cord, and peripheral nerves, and other non-neurological reasons for disuse atrophy. Treatment involves stimulating the muscle when the patient is in a resting state.
- To enhance the ability to walk in members with spinal cord injury.

All other uses are not medically necessary.

For members with spinal cord injury, coverage is limited to enhancing ambulation and completing a training program, which consists of at least 32 physical therapy sessions with the device over three months. The trial period of physical therapy will enable the physician treating the member for spinal cord injury to properly evaluate the member’s ability to use these devices frequently and for the long term. Physical therapy necessary to perform this training must be directly performed by the physical therapist as part of a one-on-one training program. The only settings where therapists with sufficient skills to provide these services are employed in inpatient hospitals, outpatient hospitals, comprehensive outpatient rehabilitation facilities, and outpatient rehabilitation facilities.

**Alternative covered services:**

- Occupational therapy.
- Physical therapy.
- Speech therapy.
- Specialist consultation.

**Background**

Electrical stimulation is one of many interventions employed to restore body movement critical for daily function and quality of life. Available in many forms, electrical stimulation facilitates changes in either bioelectrical or biochemical communication among cellular components to effect muscle action, pain modulation, and performance. Electrodes may be positioned transcutaneously, percutaneously, or subcutaneously. Small portable units with modifiable capabilities are the most popular, because they allow providers to set parameters and design custom programs that patients can use in the clinic or at home (Doucet, 2012).

Transcutaneous methods such as transcutaneous electrical nerve stimulation and interferential current work at lower frequencies (0.5 to 100 Hz) in the bioelectric range to alter pain signals that travel to the brain, thereby decreasing acute and chronic pain without any discernable muscle contraction. Other benefits may be improved circulation, lymphatic flow, swelling, and muscle function. Similarly, higher-
frequency electrical stimulation is used to decrease pain, improve circulation, and speed wound healing (Doucet, 2012).

Electrical muscle stimulation, also referred to as neuromuscular electrical stimulation or e-stim, typically delivers higher frequencies (20 – 50 Hz) to produce muscle tetany and contraction. It has two main purposes: 1) to treat muscle atrophy during temporary extremity immobilization; and 2) to pair the stimulation simultaneously or intermittently with a functional task in neurologically impaired individuals (commonly referred to as functional electrical stimulation). Electrical muscle stimulation was first applied clinically to correct foot drop in paraplegics and has become an integral part of modern rehabilitation programs (Doucet, 2012).

Electroceutical therapy, also referred to as bioelectric nerve block, uses even higher electrical frequencies (ranging from 1 to 20,000 Hz) to mimic the human bioelectric system. An example of this is the Hako-Med PRO ElecDT 2000. This device employs a proprietary concept called Horizontal® Therapy into its product, which the manufacturer claims can treat both bioelectrical and biochemical cellular communication components in one treatment session by holding the bioelectric intensity constant while changing the frequency. Due to safety concerns, it may only be prescribed and administered under the supervision of a health care provider experienced in this method of treatment.

**Regulation:**

The U.S. Food and Drug Administration regulates neuromuscular electrical stimulators for clinical use either through the 510(k) process or the premarket approval process. Devices required to go through the more rigorous premarket approval process have additional issues of safety and efficacy. Several devices have been approved for a range of indications that often overlap with other transcutaneous methods (U.S. Food and Drug Administration, 2018a, b, and c):

- Stroke rehabilitation by muscle re-education.
- Relaxation of muscle spasm.
- Attenuation of disuse atrophy.
- Increasing local blood circulation.
- Muscle re-education for other conditions.
- Maintaining or increasing range of motion.
- Prevention of deep vein thrombosis following surgery.

Unlike neuromuscular electrical stimulators (product codes IPF, GZI, and MKD), approved uses for transcutaneous methods, such as interferential current therapy, typically include control of pain. As such, these devices are regulated as transcutaneous electrical nerve stimulators (product code LIH).

**Searches**

Prestige Health Choice searched PubMed and the databases of:
We conducted searches on March 4, 2018. Search terms were: “Electric Stimulation Therapy/therapeutic use” (MeSH), “Electric Stimulation Therapy/therapy” (MeSH), and the free text terms “neuromuscular electrical stimulation,” “functional electrical stimulation,” “functional neuromuscular stimulation,” and “threshold electrical stimulation.”

We included:
- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

The evidence from several systematic reviews, meta-analyses, and guidelines suggests electrical muscle stimulation is safe and efficacious when used in accordance with established rehabilitation protocols requiring supervision or in unattended settings (Lee, 2017; Fehlings, 2017; Gatewood, 2017; Moll, 2017; Prenton, 2016; Winstein, 2016; Ho, 2014; National Institute for Health and Care Excellence, 2013; National Institute for Health and Care Excellence, 2009). Overall, the evidence is of low quality with few randomized controlled trials, and heterogeneous with respect to devices and treatment protocols, making it difficult to identify the optimal treatment regimen for any one indication. Most of the literature consists of studies of adults with spinal cord injury or stroke or after orthopedic knee surgery, and, to a lesser extent, in children with cerebral palsy.

Neuromuscular fatigue is the main limitation of electrical muscle stimulation. Its delivery can be customized to reduce fatigue and optimize force output by adjusting the associated stimulation parameters (e.g., frequency, amplitude, intensity, electrode placement, and pulse patterns). Conductive garments may be used to provide pathways for electrodes and lead wires for large or hard-to-reach areas (Doucet, 2012).

Neuromuscular electrical stimulation of any type is contraindicated in persons with cardiac pacemakers. Other contraindications are specific to the device, although few have been described either in product labeling or the literature. In the case of functional electrical stimulation, the manufacturer of the
Parastep 1 system lists autonomic dysreflexia, irreversible contracture, skin disease or cancer at area of stimulation, severe osteoporosis, and severe scoliosis as additional contraindications (Sigmedics, 2018). It is reasonable to extrapolate these to other functional electrical stimulation devices.

There is insufficient evidence to recommend the Hako-Med PRO ElecDT 2000 for electrical muscle stimulation. The evidence consists of three randomized controlled trials that addressed treatment of pain related to knee osteoarthritis or spinal fractures or degeneration (Di Sante, 2012; Zambito, 2007; Zambito, 2006). While these studies found favorable results for horizontal therapy compared to interventional modalities or placebo, evidence-based guidelines found inconclusive evidence to support transcutaneous electrical nerve stimulation or other electrotherapy for these indications and made no mention of horizontal/electroceutical therapy (Qaseem, 2017; American Association of Orthopaedic Surgeons, 2013).

Neuromuscular electrical stimulation:

In an immobilized extremity, neuromuscular electrical stimulation can control edema, increase local blood circulation, maintain muscle tone, or delay the development of disuse atrophy (Doucet, 2012). It has been proposed as treatment for muscle atrophy in conditions such as cerebral palsy, congestive heart failure, progressive neuromuscular diseases, chronic obstructive pulmonary disease, and upper extremity hemiplegia. In these populations, the rationale for use is to enhance the effects of rehabilitation or provide an alternative for patients with muscle weakness who have difficulty engaging with traditional rehabilitation services.

There is sufficient evidence to recommend neuromuscular electrical stimulation as part of a comprehensive rehabilitation program to attenuate muscle atrophy in immobilized limbs following a non-neurological injury or surgery where the nerve supply to the muscle is intact (e.g., post orthopedic surgery, casting or splinting, soft-tissue scarring) (Gatewood, 2017). For all other indications, there lacks sufficient evidence of comparative effectiveness to recommend neuromuscular electrical stimulation as an adjunct to, or replacement for, standard rehabilitation interventions (Martimbianco, 2017; Newberry, 2017; Jones, 2016; McCaughey, 2016; Dewar, 2015; Hajibandeh, 2015; Mills, 2015; Maltais, 2014; McAlindon, 2014; Preissner, 2014).

Functional electrical stimulation:

In the lower extremities, functional electrical (muscle) stimulation has been used to perform stationary exercise and assist with standing and walking. For persons with upper extremity paralysis caused by injury or disease of the central nervous system, it has been used to improve hand function and range of motion, and correct or prevent glenohumeral subluxation in stroke. Devices used to augment stationary exercise are considered exercise equipment and not necessarily for medical use.

There is sufficient evidence to support functional electrical stimulation for the following indications as part of a comprehensive rehabilitation program:
• To correct foot drop in persons with stroke or spinal cord injury when an ankle-foot orthosis is not tolerated (Moll, 2017; Prenton, 2016; National Institute for Health and Care Excellence, 2009).
• To improve hand function and active range of motion in patients with hemiplegia due to stroke or upper limb paralysis, and minimal volitional movement, after a trial showing evidence of muscle contraction but inability to move the arm against resistance (Fehlings, 2017; Winstein, 2016; National Institute for Health and Care Excellence, 2013).
• To correct or prevent glenohumeral subluxation in patients after stroke (Lee, 2017; Winstein, 2016).
• In spinal cord injury care, to assist in ambulation using the Parastep I system (Sigmedics, 2018; Ho, 2014).

Summary of clinical evidence:

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lee (2017)</td>
<td>Effectiveness of neuromuscular electrical stimulation for management of shoulder subluxation post-stroke</td>
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<tr>
<td></td>
<td><strong>Key points:</strong></td>
</tr>
<tr>
<td></td>
<td>• Systematic review and meta-analysis of 11 randomized controlled trials (432 total participants).</td>
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<tr>
<td></td>
<td>• Overall quality: seven studies were good quality, four were fair.</td>
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<tr>
<td></td>
<td>• Significant reduction of subluxation for persons with acute and subacute stroke.</td>
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<td></td>
<td>• No significant effect for patients with chronic stroke or on arm function or shoulder pain.</td>
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<tr>
<td>Fehlings (2017) for the AOSpine North America, AOSpine International, and the American Association and Congress of Neurological Surgeons</td>
<td>A clinical practice guideline for the management of patients with acute spinal cord injury: recommendations on the type and timing of rehabilitation</td>
</tr>
<tr>
<td></td>
<td><strong>Key points:</strong></td>
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<tr>
<td></td>
<td>• A systematic review and recommendations based on GRADE (Grading of Recommendation, Assessment, Development and Evaluation).</td>
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<td></td>
<td>• Weak recommendation for functional electrical stimulation in individuals with acute and subacute cervical spinal cord injury to improve hand and upper extremity function (low-quality evidence from two randomized controlled trials suggesting functional electrical stimulation added to occupational therapy produces significant improvements in function compared to occupational therapy alone).</td>
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<tr>
<td>Gatewood (2017)</td>
<td>The efficacy of post-operative devices following knee arthroscopic surgery</td>
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<td><strong>Key points:</strong></td>
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<tr>
<td></td>
<td>• Systematic review of 25 studies of various modalities.</td>
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<td></td>
<td>• Recommends neuromuscular electrical stimulation for inclusion into rehabilitation protocols following arthroscopic knee surgery to assist with recovery of muscle strength and knee function and accelerate recovery.</td>
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<tr>
<td>Moll (2017)</td>
<td>Functional electrical</td>
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<tr>
<td></td>
<td><strong>Key points:</strong></td>
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<td></td>
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<td>Citation</td>
<td>Content, Methods, Recommendations</td>
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| **stimulation of the ankle dorsiflexors during walking in spastic cerebral palsy** | - Systematic review of five articles (three studies) of level I to III evidence based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.  
- Evidence suggests increased (active) ankle dorsiflexion angle, strength, and improved selective motor control, balance, and gait kinematics, but decreased walking speed.  
- Adverse events include skin irritation, toleration, and acceptation issues.  
- Insufficient data of functional gain on activity and participation level. |
| Prenton (2016) | **Key points:**  
- Systematic review and meta-analyses of five randomized controlled trials (815 patients with stroke).  
- Comparable results between groups with respect to improvements in key walking measures: walking speed over 10 m (p = 0.04 to 0.79); functional exercise capacity (p = 0.10 to 0.31); timed up-and-go (p = 0.812 and p = 0.539); and perceived mobility (p = 0.80).  
- Further long-term, high-quality randomized controlled trials are needed to determine mechanisms of action and translate improvements in impairment to function, plus detailed reporting of the devices used across diagnoses. |
| Weinstein (2016) for the American Heart Association/American Stroke Association Guideline for adult stroke rehabilitation and recovery | **Key points:**  
- Recommendations or consideration for electrical muscle stimulation:  
  - Shoulder pain: surface or intramuscular methods (may be considered).  
  - Spasticity: as an adjunct to rehabilitation therapy (may be considered).  
  - Foot drop: as an alternative to an ankle-foot orthosis (reasonable to perform).  
  - Upper extremity activity: combined with task-specific training for individuals with minimal volitional movement within the first few months after stroke or to correct or prevent shoulder subluxation (reasonable to perform).  
- Dysphagia: not recommended. |
| Ho (2014) | **Key points:**  
- Electrical stimulation should be routinely considered as part of the rehabilitation and medical management of eligible persons with spinal cord injuries.  
- Available clinical applications:  
  - Upper extremity functional restoration of the forearm and hand to exercise and produce functional movements (grasp function).  
  - Lower extremity functional restoration to simulate exercise training (cycling) in muscles with intact innervation, leading to increase in oxygen consumption during exercise, muscle mass and strength, and quality of life.  
- Research only:  
  - Trunk control and posture.  
  - Prevention of pressure ulcers.  
  - Restoring bladder control. |
| National Institute for Health and Care Excellence (2013) Guideline: stroke rehabilitation in adults | **Key points:**  
- Electrical stimulation of the upper limb is indicated to improve functional strength in the context of a comprehensive stroke rehabilitation program.  
- Do not routinely offer for hand and arm, but consider a trial guided by a qualified rehabilitation professional for people who have evidence of muscle contraction after stroke, |
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<th>Citation</th>
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| National Institute for Health and Care Excellence (2009) Guideline: drop foot of central neurological origin | **but cannot move their arm against resistance.**  
- Continue if progress toward clear functional goals is demonstrated.  

**Key points:**  
- Current evidence on the safety and efficacy (in improving gait) of functional electrical stimulation for drop foot of central neurological origin appears adequate to support the use of this procedure provided that normal arrangements are in place for clinical governance, consent, and audit.  
- Evidence of efficacy based on trials enrolling patients with stroke.  
- Skin surface, percutaneous, or implanted devices may be used.

**References**

**Professional society guidelines/other:**


NICE. Functional electrical stimulation for drop foot of central neurological origin. Interventional procedures guidance [IPG278]. Published date: January 2009. NICE website.  

NICE. Stroke rehabilitation in adults. Clinical guideline [CG162]. Published date: June 2013 NICE website.  


**Peer-reviewed references:**


CMS National Coverage Determinations (NCDs):


Decision Memo for Neuromuscular electrical stimulation (NMES) for Spinal Cord Injury (CAG-00153R). CMS website. https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=55&NCDid=175&ncdver=2&SearchType=Advanced&CovSelection=Both&NCSelection=NCA%7cCAL%7cNCD%7cMEDCAC%7cTA%7cMCD&ArticleType=SAD%7cEd&PolicyType=Both&s=All&KeyWord=electrical+stimulation&KeyWordLookUp=Doc&KeyWordSearchType=Exact&CptHcpcsCod=97032&kq=true&IsPopup=y&bc=AAAAAAAAAQA&. Accessed March 8, 2018.

Local Coverage Determinations (LCDs):

No LCDs identified as of the writing of this policy.

Commonly submitted codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.
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<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comments</th>
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<td>Not Applicable</td>
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<tr>
<th>ICD-10 Code</th>
<th>Description</th>
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<tr>
<td>M21.371-M21.379</td>
<td>Foot drop</td>
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<tr>
<td>M62.52-M62.539</td>
<td>Muscle wasting and atrophy, arm/forearm</td>
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<tr>
<td>M562.551-M62.569</td>
<td>Muscle wasting and atrophy, thigh/lower leg</td>
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<tr>
<td>S14.10A-S14.10S</td>
<td>Unspecified injury of cervical spinal cord</td>
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<tr>
<td>S14.102A-S14.102S</td>
<td>Unspecified injury at C2 level of cervical spinal cord</td>
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<tr>
<td>S14.103A-S14.103S</td>
<td>Unspecified injury at C3 level of cervical spinal cord</td>
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<tr>
<td>S14.104A-S14.104S</td>
<td>Unspecified injury at C4 level of cervical spinal cord</td>
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<tr>
<td>S14.105A-S14.105S</td>
<td>Unspecified injury at C5 level of cervical spinal cord</td>
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<tr>
<td>S14.106A-S14.106S</td>
<td>Unspecified injury at C6 level of cervical spinal cord</td>
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<tr>
<td>S14.107A-S14.107S</td>
<td>Unspecified injury at C7 level of cervical spinal cord</td>
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<td>S24.101A-S24.101S</td>
<td>Unspecified injury at T1 level of thoracic spinal cord</td>
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<tr>
<td>S24.102A-S24.102S</td>
<td>Unspecified injury at T2-T6 level of thoracic spinal cord</td>
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<tr>
<td>S24.103A-S24.103S</td>
<td>Unspecified injury at T7-T10 level of thoracic spinal cord</td>
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<tr>
<td>S24.104A-S24.104S</td>
<td>Unspecified injury at T11-T12 level of thoracic spinal cord</td>
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<tr>
<td>S24.109A-S24.109S</td>
<td>Unspecified injury at unspecified level of thoracic spinal cord</td>
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<tr>
<td>S34.101A-S34.101S</td>
<td>Unspecified injury to L1 level of lumbar spinal cord</td>
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<tr>
<td>S34.102A-S34.102S</td>
<td>Unspecified injury to L2 level of lumbar spinal cord</td>
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<tr>
<td>S34.103A-S34.103S</td>
<td>Unspecified injury to L3 level of lumbar spinal cord</td>
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<tr>
<td>S34.104A-S34.104S</td>
<td>Unspecified injury to L4 level of lumbar spinal cord</td>
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<tr>
<td>ICD-10 Code</td>
<td>Description</td>
<td>Comments</td>
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<tr>
<td>S34.105A-S34.105S</td>
<td>Unspecified injury to L5 level of lumbar spinal cord</td>
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<tr>
<td>S34.109A-S34.109S</td>
<td>Unspecified injury to unspecified level of lumbar spinal cord</td>
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<tr>
<td>S43.081A-S43.083S</td>
<td>Subluxation of shoulder joint</td>
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<thead>
<tr>
<th>HCPCS Level II Code</th>
<th>Description</th>
<th>Comments</th>
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<tbody>
<tr>
<td>E0731</td>
<td>Form-fitting conductive garment for delivery of TENS or NMES (with conductive fibers separated from the patient's skin by layers of fabric)</td>
<td></td>
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<tr>
<td>E0745</td>
<td>Neuromuscular stimulator, electronic shock unit</td>
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<tr>
<td>E0764</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>E0770</td>
<td>Functional electrical stimulator, transcutaneous stimulation of nerve and/or muscle groups, any type, complete system, not otherwise specified</td>
<td></td>
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