

## Peripheral Nerve Stimulation and Peripheral Nerve Field Stimulation

Related Policies:

[MP-004 Hypoglossal Nerve Stimulator for Obstructive Sleep Apnea](#)[MP-015 Gastric Pacing](#)[MP-036 Transcutaneous Vagus Nerve Stimulation](#)[MP-076 Sacral Nerve Stimulation for Pelvic Floor Dysfunction](#)

Policy MP-061

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**Disclaimer:**

1. Policies are subject to change in accordance with State and Federal notice requirements.
2. Policies outline coverage determinations for U of U Health Plans Commercial, CHIP, Healthy U (Medicaid) and Health Choice Utah (Medicaid) plans. Refer to the "Policy" section for more information.
3. Services requiring prior-authorization may not be covered, if prior-authorization is not obtained.
4. **This Medical Policy does not guarantee coverage or payment of the service. The service must be a benefit in the member's plan, and the member must be eligible for coverage at the time of service. Additional payment guidelines may be applied that are not included in this policy.**

**Description:**

Implantable peripheral nerve stimulation (PNS) is a type of neuromodulation therapy in which electrodes are surgically placed next to a selected peripheral nerve considered to be the source of chronic pain. (Peripheral nerves are nerves located outside of the brain and spinal cord). In this type of treatment, the electrode(s) delivers electrical impulses to the affected nerve. This electrical current is thought to then disrupt the normal transmission of pain signals leading to reduced levels of pain. During the trial period, the electrode is connected to an external device, and if the trial is successful, a small generator gets implanted into the patient's body.

Peripheral nerve field stimulation (PNFS), also known as subcutaneous peripheral field stimulation, is a recent technology proposed for the treatment of chronic cervical, thoracic, or lumbar pain. Electrode leads are placed in subcutaneous tissue around the painful area, and electrical current is applied to create stimulation in the area, or "field," of pain. This technique is different from peripheral nerve stimulation (PNS), in which specific peripheral nerves are

targeted. In peripheral nerve field stimulation, a field of pain is targeted rather than specific nerves.

## **Policy Statement and Criteria**

### **1. Commercial Plans/CHIP**

**U of U Health Plans does NOT cover peripheral nerve field stimulation (PNFS) as there is insufficient evidence to support clinical effectiveness. Therefore, it is considered investigational for all indications.**

**Peripheral nerve stimulation (PNS) is covered when ALL the following requirements have been met:**

- A. Documented chronic and severe intractable pain for at least 3 months; and
- B. Documented failure of less invasive treatment modalities including physical therapy (minimum of 6 weeks), medications, and local injections; and
- C. Lack of surgical contraindications including infections and medical risks; and
- D. Appropriate proper patient education, discussion and disclosure of risks and benefits; and
- E. No active substance abuse issues; and
- F. Formal psychological screening by a mental health professional with no contraindications to peripheral nerve stimulation; and
- G. Successful stimulation trial with greater than or equal to 50% reduction in pain intensity lasting for at least 3 days.

### **2. Medicaid Plans**

**Coverage is determined by the State of Utah Medicaid program; if Utah State Medicaid has no published coverage position and InterQual criteria are not available, the U of U Health Plans Commercial criteria will apply. For the most up-to-date Medicaid policies and coverage, please visit their website at: <https://medicaid.utah.gov/utah-medicaid-official-publications/> or the [Utah Medicaid code Look-Up tool](#) EPSDT may apply.**

**CPT/HCPCS codes covered by Utah State Medicaid may still require further evaluation to determine medical necessity for coverage.**

**Medicaid covers peripheral nerve stimulation (PNS) when ALL the following requirements have been met:**

- H. Documented chronic and severe intractable pain for at least 3 months; and
- I. Documented failure of less invasive treatment modalities including physical therapy (minimum of 6 weeks), medications, and local injections; and
- J. Lack of surgical contraindications including infections and medical risks; and
- K. Appropriate proper patient education, discussion and disclosure of risks and benefits; and

- L. No active substance abuse issues; and
- M. Formal psychological screening by a mental health professional with no contraindications to peripheral nerve stimulation; and
- N. Successful stimulation trial with greater than or equal to 50% reduction in pain intensity lasting for at least 3 days.

**Healthy U and Health Choice Utah do NOT cover peripheral nerve field stimulation (PNFS), for any indication as it is considered investigational, due to insufficient evidence to support safety and effectiveness.**

## **Clinical Rationale**

### *Peripheral Nerve Stimulation (PNS)*

A systematic review and meta-analysis of randomized controlled trials (RCTs) on peripheral nerve stimulation (PNS) for chronic pain management was conducted by Manchikanti et al. in 2025. A comprehensive literature search covered multiple databases from 1966 through February 2025. The primary outcome assessed was the proportion of patients achieving significant pain relief and functional improvement ( $\geq 50\%$ ) sustained for at least 12 months. The review identified 7 high-quality and 2 moderate-quality RCTs based on Cochrane criteria, along with 9 moderate-quality trials. 7 of the 9 studies provided moderate evidence with clinical applicability, while 2 demonstrated low evidence and applicability. Overall, combined qualitative and quantitative analyses supported a fair (Level III) evidence rating, with moderate certainty and moderate strength of recommendation for implantable PNS systems following a trial.

Manchikanti L, Khaira MB, Soin A, Kaye AD, Knezevic NN, Abd-Elsayed A, Sanapati M, Manocha VA, Hirsch JA. Effectiveness of Peripheral Nerve Stimulation in Managing Chronic Pain: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Pain Physician*. 2025 Sep;28(5):E481-E507. PMID: 40986902

<https://pubmed.ncbi.nlm.nih.gov/40986902/>

In June of 2019, Gilmore et al. conducted a double-blind, randomized, placebo-controlled study of 28 lower extremity amputees with post-amputation. The subjects underwent ultrasound-guided implantation of percutaneous PNS leads and were randomized to receive PNS (with SPRINT, SPR Therapeutics), or placebo for 4 weeks. The placebo group then crossed over, and all subjects received PNS for four additional weeks. The primary efficacy endpoint evaluated the proportion of subjects reporting  $\geq 50\%$  pain reduction during one to four weeks. A greater proportion of subjects receiving PNS ( $n=7/12$ , 58%,  $p=0.037$ ) demonstrated  $\geq 50\%$  reductions in average post-amputation pain during weeks one through four compared with subjects receiving placebo ( $n=2/14$ , 14%). Two subjects were excluded from efficacy analysis due to eligibility changes. Greater proportions of PNS subjects also reported  $\geq 50\%$  reductions in pain ( $n=8/12$ , 67%,  $p=0.014$ ) and pain interference ( $n=8/10$ , 80%,  $p=0.003$ ) after 8 weeks of therapy compared with subjects receiving placebo (pain:  $n=2/14$ , 14%; pain interference:  $n=2/13$ , 15%). In conclusion, this study demonstrates that percutaneous PNS therapy may provide enduring

clinically significant pain relief and improve disability in patients with chronic neuropathic post-amputation pain. However, limitations of the study included a small number of subjects.

Then in November of 2019, Gilmore et al reported on the 12-month outcomes from the cohort study conducted by Gilmore et al, in June 2019 (above). It mentioned that more participants in group one reported  $\geq 50\%$  reductions in average weekly pain at 12 months (67%, 6/9) compared with group two at the end of the placebo period (0%, 0/14,  $p=0.001$ ). In addition, 56% (5/9) of participants in group one reported  $\geq 50\%$  reductions in pain interference at 12 months, compared with 2/13 (15%,  $p=0.074$ ) in group two at crossover. The authors concluded that percutaneous PNS delivered over a 60-day period may provide significant carry-over effects including pain relief, potentially avoiding the need for a permanently implanted system while enabling improved function in patients with chronic pain. With limitations of the study including the small number of subjects at 12 months and the loss of participants to follow up, further robust studies are needed.

In a 2018 case series, Wilson et al., investigated the feasibility and safety of a single-lead, fully implantable PNS system for the treatment of chronic shoulder pain in stroke survivors. Subjects had moderate-to-severe shoulder pain not responsive to conservative therapies for 6 months. During the trial phase, which included a blinded sham introductory period, a percutaneous single-lead PNS system was implanted to stimulate the axillary nerve of the affected shoulder. After a 3-week successful trial, subjects received an implantable pulse generator with an electrode placed to stimulate the axillary nerve of the affected shoulder. Outcomes included pain, pain interference, pain-free external rotation ROM, quality of life (QOL), and safety; subjects were followed-up for 24 months. A total of 28 subjects underwent trial stimulation, and 5 participants received an implantable pulse generator. Subjects who received the implantable generator experienced an improvement in pain severity ( $p = 0.0002$ ). All 5 subjects experienced a 50 % or greater pain reduction at 6 and 12 months, and 4 experienced at least a 50 % reduction at 24 months. There was an improvement in pain interference ( $p < 0.0001$ ). There was an improvement in pain-free external ROM ( $p = 0.003$ ). There were no serious AEs related to the device or to the procedure. In conclusion, this study demonstrated the safety and efficacy of a fully implantable axillary PNS system for chronic hemiplegic shoulder pain. Subjects experienced reduction in pain, reduction in pain interference, and improved pain-free external rotation ROM. There were no serious adverse events associated with the system or the procedure.

In 2016, an industry funded crossover study (Deer, et al.), described 94 patients with pain of peripheral origin that were implanted and then randomized to the treatment of 45 patients with peripheral nerve stimulation and 49 patients into the control group. The primary efficacy endpoint was response rate, defined as a 30 percent decrease in a numerical rating scale, with no upward titration in the patient's medication regimen, three months after randomization to treatment. The investigators reported that patients receiving active stimulation achieved a statistically significantly higher response rate of 38% versus the 10% rate found in the control group ( $p = 0.0048$ ). Improvement in pain was statistically significant between the randomized groups, with the treatment group achieving a mean pain reduction of 27.2% from baseline to month 3 compared to a 2.3% reduction in the control group ( $p < 0.0001$ ). During the partial crossover period, patients again demonstrated statistically significant improvement in pain relief with active stimulation compared to baseline. Further, the treatment group had significantly better improvement than the control group in secondary measures including but not limited to quality of life and satisfaction. Safety, assessed throughout the trial and with follow-up to one year, demonstrated no serious adverse events related to the device. The authors concluded that all device-related adverse events were minor and self-limiting. Further studies confirming these benefits are needed.

### Peripheral Nerve Field Stimulation (PNFS)

Randomized controlled clinical trial data, and meta-analyses are lacking in the published, peer-reviewed scientific literature and there is insufficient evidence to determine safety and effectiveness of this therapy. Published peer-reviewed clinical trial data is primarily limited to case series and prospective and retrospective reviews and studies with small number of subjects (McRoberts, et al., 2013; Petersen, et al., 2014; Verrills, et al., 2011; Mitchell, et al., 2016).

A 2018 prospective study (Ishak et al.), assessed the usefulness, safety, and efficacy of subcutaneous peripheral nerve field stimulation, in 26 consecutive patients with chronic low back pain. Two electrodes were implanted vertically at a depth of 1 cm into the subcutaneous tissue,  $\leq 10$  cm from the region of maximum pain. Trial neurostimulation was performed in all patients for 14 days. A successful outcome was defined as at least 50% pain relief and to monitor the effects of permanent neurostimulation, the Visual Analog Scale (VAS), the Oswestry Disability Index (ODI), and quality of life (EQ-5D-3L) were scored preoperatively and at 6-month and 24-month follow-ups. Thirteen patients responded to trial stimulation and had a permanent neurostimulator implanted. The use of pain medication, including opioid analgesics, was reduced in 92% of patients after 24 months. VAS, ODI, and EQ-5D-3L scores were improved in these patients at the 24-month follow-up. The complication rate was 23% (3/13 patients). In non-responders, the VAS and ODI at 24 months dropped as well but the decrease was less pronounced compared to responders and did not lead to decrease in pain medication. The authors concluded that this study included a small number of participants, therefore, larger prospective, randomized, controlled studies are needed to confirm findings.

Hayes' most recent update of their health tech assessment of PNFS for the treatment of low back pain on March 16, 2023, noted additional studies that qualified for the review. The authors found that there remains a very low-quality body of evidence that does not allow for conclusions regarding the efficacy and safety of PNFS for treatment of chronic low back pain (CLBP). A limited evidence base suggests that PNFS may provide statistically significant pain relief in patients with refractory CLBP, although pain relief did not achieve clinical significance in all studies. PNFS appears to be generally safe, with relatively few complications or adverse events and may also reduce analgesic use along with improving function and QOL. Yet, uncertainty still exists due to limited evidence of comparative effectiveness relative to other interventions for CLBP and limited follow-up data. Furthermore, additional studies are needed to evaluate the long-term efficacy and safety of PNFS versus comparable therapies, such as spinal cord stimulation, and definitive alternatives, such as surgery.

The American Society of Anesthesiologists Task Force on Chronic Pain Management; American Society of Regional Anesthesia and Pain Medicine published practice guidelines for chronic pain management (2010). Regarding subcutaneous peripheral nerve stimulation, the guidelines indicate that studies with observational findings indicate that subcutaneous peripheral nerve stimulation can provide pain relief for assessment periods ranging from four months to two years (Category B2 evidence). [Category B2 evidence: the literature contains non-comparative observational studies with associative (e.g., relative risk and correlation) or descriptive statistics].

## **Applicable Coding**

### **CPT Codes**

#### Possibly Covered CPT Codes

**64555** Percutaneous implantation of neurostimulator electrode array; peripheral nerve (excludes sacral nerve)

- 64566** Posterior tibial neurostimulation, percutaneous needle electrode, single treatment, including programming
- 64568** Open implantation of cranial nerve (e.g., vagus nerve) neurostimulator electrode array and pulse generator
- 64575** Incision for implantation of neurostimulator electrode array; peripheral nerve (excludes sacral nerve)
- 64580** Open implantation of neurostimulator electrode array; neuromuscular
- 64585** Revision or removal of peripheral neurostimulator electrode array
- 64590** Insertion or replacement of peripheral or gastric neurostimulator pulse generator or receiver, direct or inductive coupling
- 64595** Revision or removal of peripheral or gastric neurostimulator pulse generator or receiver
- 64999** Unlisted procedure, nervous system
- 95970** Electronic analysis of implanted neurostimulator pulse generator/transmitter (e.g., contact group[s], interleaving, amplitude, pulse width, frequency [Hz], on/off cycling, burst, magnet mode, dose lockout, patient selectable parameters, responsive neurostimulation, detection algorithms, closed loop parameters, and passive parameters) by physician or other qualified health care professional; with brain, cranial nerve, spinal cord, peripheral nerve, or sacral nerve, neurostimulator pulse generator/transmitter, without programming
- 95971** ; with simple spinal cord or peripheral nerve (e.g., sacral nerve) neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional
- 95972** ; with complex spinal cord or peripheral nerve (e.g., sacral nerve) neurostimulator pulse generator/transmitter programming by physician or other qualified health care professional

Non-Covered CPT Codes

- 0720T** Percutaneous electrical nerve field stimulation, cranial nerves, without implantation
- 64596** Insertion or replacement of percutaneous electrode array, peripheral nerve, with integrated neurostimulator, including imaging guidance, when performed; initial electrode array
- 64597** ;each additional electrode array (List separately in addition to code for primary procedure)
- 64598** Revision or removal of neurostimulator electrode array, peripheral nerve, with integrated neurostimulator

## HCPCS Codes

### Possibly Covered HCPCS Codes

<b>C1767</b>	Generator, neurostimulator (implantable), non-rechargeable
<b>C1778</b>	Lead, neurostimulator (implantable)
<b>C1787</b>	Patient programmer, neurostimulator
<b>C1816</b>	Receiver and/or transmitter, neurostimulator (implantable)
<b>C1820</b>	Generator, neurostimulator (implantable), non-high-frequency with rechargeable battery and charging system
<b>C1822</b>	Generator, neurostimulator (implantable), high frequency, with rechargeable battery and charging system
<b>C1883</b>	Adaptor/extension, pacing lead or neurostimulator lead (implantable)
<b>C1897</b>	Lead, neurostimulator test kit (implantable)
<b>L8679</b>	Implantable neurostimulator, pulse generator, any type
<b>L8680</b>	Implantable neurostimulator electrode, each
<b>L8681</b>	Patient programmer (external) for use with implantable programmable neurostimulator pulse generator, replacement only
<b>L9682</b>	Implantable neurostimulator radiofrequency receiver
<b>L8683</b>	Radiofrequency transmitter (external) for use with implantable neurostimulator radiofrequency receiver
<b>L8685</b>	Implantable neurostimulator pulse generator, single array, rechargeable, includes extension
<b>L8686</b>	Implantable neurostimulator pulse generator, single array, non-rechargeable, includes extension
<b>L8687</b>	Implantable neurostimulator pulse generator, dual array, rechargeable, includes extension
<b>L8688</b>	Implantable neurostimulator pulse generator, dual array, non-rechargeable, includes extension
<b>L8689</b>	External recharging system for battery (internal) for use with implantable neurostimulator, replacement only
<b>L8695</b>	External recharging system for battery (external) for use with implantable neurostimulator, replacement only

### Non-Covered HCPCS Codes

**C9807**

**Nerve stimulator, percutaneous, peripheral (e.g., sprint peripheral nerve stimulation system), including electrode and all disposable system components, nonopioid medical device**

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