Keystone First
Family of Health Plans

Percutaneous Peripheral Nerve Stimulators for Chronic Nerve Pain

Clinical Policy ID: CCP.1512

Recent review date: 4/2026

Next review date: 8/2027

Policy contains: Chronic pain; neuromodulation; neuropathic pain; peripheral nerve stimulation.

Keystone First VIP Choice has developed clinical policies to assist with making coverage determinations. Keystone First VIP 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 Keystone First VIP Choice, on a case by case basis, 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. Keystone First VIP Choice's clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Keystone First VIP Choice's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Keystone First VIP Choice will update its clinical policies as necessary. Keystone First VIP Choice's clinical policies are not guarantees of payment.

Coverage policy

Temporary 60-day percutaneous peripheral nerve stimulation is clinically proven and, therefore, may be medically necessary when all of the following criteria are met (American Society of Interventional Pain Physicians [Manchikanti, 2025]):

- Documented function-limiting moderate to severe pain persisting for at least three months, with average pain scores ≥ 5 on a validated pain assessment scale.
- Documented failure of less invasive treatment modalities and pharmacologic therapies for a minimum of four weeks.
- Absence of surgical contraindications, including active infections or significant medical risks.
- Completion of patient education with thorough discussion and disclosure of potential risks and benefits.
- No evidence of active substance abuse.
- Formal psychological evaluation by a qualified mental health professional to assess suitability for neuromodulation.

- For trialing or treatment for any of the following etiologies of pain (American Society of Pain and Neuroscience [Gill, 2025]):
    - Chronic low back pain after facet radiofrequency ablation.
    - Chronic low back pain with or without centralized contributions.
    - Inoperable or post-operative refractory shoulder pain.
    - Neuropathic pain.
    - Occipital neuralgia.
    - Phantom and residual limb pain.
    - Post-amputation pain.
    - Post-operative refractory foot and ankle pain.
    - Post-operative refractory knee pain.
    - Chronic neck pain.
    - Chronic shoulder pain.
    - Inoperable knee pain.

Limitations

All other uses of a temporary 60-day percutaneous peripheral nerve stimulator are investigational/not clinically proven and, therefore, not medically necessary.

Contraindications to temporary 60-day percutaneous peripheral nerve stimulation include (SPR Therapeutics, 2026):

- Lead placement over the heart, across the thoracic volume, on the front or side of the neck, or on top of the head.
- Presence of a deep brain stimulation system.
- Presence of an active cardiac implant (e.g., pacemaker or defibrillator).
- Presence of any other implantable neurostimulator that may interfere with the temporary percutaneous system.
- Magnetic resonance imaging, unless the stimulator components are removed from the body beforehand.
- Diagnosis of epilepsy, if the leads are intended to be placed near the head or neck.
- Tape or adhesive allergy.

Alternative covered services

Guideline-directed treatment, including, but not limited to:

- Physical medicine and rehabilitation.
- Transcutaneous electric nerve stimulation.
- Non-opioid medications (e.g., prescribed non-steroidal anti-inflammatory drugs, acetaminophen, steroids, antidepressants, anticonvulsants, and topical medications).
- Joint injections.

- Peripheral nerve blocks.
- Trigger point injections.
- Epidural steroid injections.
- Radiofrequency ablation.
- Sympathetic nerve blocks.
- Spinal cord stimulation.
- Behavioral therapy.

Background

According to the Centers for Disease Control and Prevention, in adult populations, the prevalences of chronic pain and high impact chronic pain, defined as pain that limits work or life activities, in the past three months were 20.4% and 7.4%, respectively. Chronic pain and chronic high-impact pain occur more often in women than men, in those aged 65 and older, and in non-Hispanic whites (Zelaya, 2020).

There are many definitions to what constitutes chronic pain but, in general, it is pain that persists longer than three to six months and beyond the usual recovery time period; it may be constant or intermittent in nature. The original causes may be illness or injury or sometimes idiopathic. It is affected by environmental and psychological factors (Trent, 2023).

Managing chronic non-malignant pain remains a clinical challenge. The increasing use of opioids for pain relief and subsequent risk of opioid dependency, misuse, overdoses, and deaths has led to the increased interest in non-opioid alternatives. Neuromodulation in pain medicine is a non-pharmacologic option that applies an electrical stimulus to a specific nerve to alter pain signals and reduce the perception of pain. Neuromodulators encompass an array of non-invasive, minimally invasive, and surgical options that target the spinal cord or peripheral nerves (Trent, 2023).

Peripheral nerve stimulation involves imaging-guided surgical placement of a wire-like electrode next to a target peripheral nerve and a generator to deliver rapid electrical pulses. The patient controls the stimulation parameters as needed. The technical characteristics of peripheral nerve stimulators are similar to those of vagus, phrenic, and sacral nerve stimulators used for other conditions. The leads can be placed via an open surgical or percutaneous approach. Peripheral nerve stimulators may provide lasting pain relief without the potential risks associated with pain medications. They may be preferred to peripheral local anesthetic nerve blocks to avoid their undesirable motor weakness effects and in patients for whom spinal cord stimulators are contraindicated. Potential indications for peripheral nerve stimulation include conditions that have neuropathic pain transmission located along a dermatomal distribution of a nerve (Trent, 2023).

The U.S. Food and Drug Administration has cleared several peripheral nerve stimulators for commercial distribution, each with specific pain indications that may include chronic intractable pain. Percutaneous options temporarily stimulate subcutaneous nerves, are minimally invasive, and do not require surgical incision. Percutaneous options may be applied for either temporary 30- or 60-day use or permanent use (U.S. Food and Drug Administration, 2026). The SPRINT® Peripheral Nerve Stimulation System (SPR Therapeutics, Inc., Cleveland, Ohio) has been cleared for temporary (up to 60 days) symptomatic relief of chronic, intractable pain, post-surgical and post-traumatic acute pain; post-traumatic pain; and post-operative pain (SPR Therapeutics, 2026).

Findings

Peripheral nerve stimulation systems are evolving from highly invasive open neurosurgical procedures to minimally invasive, regulatory-cleared devices. Advances in imaging guidance, surgical techniques, and both temporary and permanent devices have expanded the ability to target peripheral nerves in many regions of the body. Current guidelines reflect these technical advancements and are expanding potential treatment options for patients with chronic intractable pain, although evidence from randomized controlled trials supporting the efficacy of percutaneous systems remains limited.

Guidelines

The American Society of Pain and Neuroscience developed evidence-based consensus recommendations on the use of 60-day percutaneous peripheral nerve stimulation therapy. Conventional neurostimulator trials are a means of identifying presumed responders and nonresponders to treatment but are limited to seven to 10 days due to the risk of infection associated with conventional cylindrical leads. In randomized controlled trials and other trials, percutaneous devices mitigated infection risk and achieved durable therapeutic benefits after lead removal. There was consensus that temporary percutaneous 60-day peripheral nerve stimulation should replace conventional trialing before permanent implantation. A 60-day use period with a percutaneous device may improve detection of both true responders who may benefit from permanent implantation and nonresponders who are unlikely to benefit from permanent implantation. In addition, the temporary device may act as a definitive course of treatment and possibly decrease the need for permanent systems in some patients (Gill, 2025).

Percutaneous 60-day peripheral nerve stimulation may be offered in cases of chronic neck pain, inoperable knee pain, or chronic shoulder pain for members in whom surgery either is not appropriate due to medical comorbidities or can be postponed, depending on individual circumstances (weak recommendation). Strong or moderate recommendations were issued for trialing or treating the following pain etiologies (Gill, 2025):

- Chronic low back pain after facet radiofrequency ablation.
- Chronic low back pain with or without centralized contributions.
- Inoperable or post-operative refractory shoulder pain.
- Neuropathic pain.
- Occipital neuralgia.
- Phantom and residual limb pain.
- Post-amputation pain.
- Post-operative refractory foot and ankle pain.
- Post-operative refractory knee pain.

The American Society of Interventional Pain Physicians issued recommendations for peripheral nerve stimulation based on nine randomized controlled trials of patients whose chronic pain has not responded to conservative therapies. Three trials addressed percutaneous options, including two trials of temporary 60-day stimulation and one trial of a permanent percutaneous implant. For all indications, the evidence was graded as Level III or fair with moderate certainty, and the strength of each recommendation was moderate. To ensure appropriate use, patients undergoing stimulation trials or permanent implants should meet the following criteria (Manchikanti, 2025):

- Documented function-limiting moderate to severe pain persisting for at least three months, with average pain scores ≥ 5.

- Documented failure of less invasive treatment modalities and pharmacologic therapies for a minimum of four weeks.
- Absence of surgical contraindications, including active infections or significant medical risks.
- Completion of patient education with thorough discussion and disclosure of potential risks and benefits.
- No evidence of active substance abuse.
- Formal psychological evaluation by a qualified mental health professional to assess suitability for neuromodulation.
- Successful stimulation trial demonstrating ≥ 50% reduction in pain intensity prior to permanent implantation.

Evidence review

The published evidence for peripheral nerve stimulation consists of retrospective reviews, case reports, small case series, and a limited number of small, randomized controlled trials of variable quality. For available peripheral nerve stimulation systems, systematic reviews of randomized controlled trials provide conflicting conclusions, even when using the same quality appraisal framework on the same trials (Chou, 2021; Helm, 2021; Xu, 2021). Attempting to combine the results of small individual studies with high heterogeneity, in terms of using different peripheral nerve stimulators and outcome measures for several chronic pain conditions, poses significant challenges to the validity of the findings (D'Souza, 2026). Prospective, comparative, and well-powered studies are needed to identify the best candidates for treatment.

Three small, randomized controlled trials of moderate quality provide the best evidence supporting percutaneous systems. Percutaneous peripheral nerve stimulation appears to be safe with few serious adverse effects. The scarring, concomitant nerve damage, migration, infection, and pain found with earlier systems have been reduced with current percutaneous technology. The main reason for explantation appears to be lack of efficacy, but this has not been systematically documented. Studies generally show favorable pain reduction using objective pain scales in the short-term, but comparisons to existing neuromodulation technology, long-term data, and data on functional improvement for some chronic pain conditions are lacking.

Manchikanti (2025) conducted a systematic review and meta-analysis to inform guideline recommendations of the American Society of Interventional Pain Physicians 2025 guideline update. Nine randomized controlled trials assessed the effectiveness of implantable temporary or permanent peripheral nerve stimulators for chronic pain. The quality of the evidence was graded as Level III (fair) with moderate certainty and a moderate strength of recommendation for all devices. Three trials used percutaneous devices. Two trials assessed a 60-day temporary stimulator — one enrolled 28 participants with post-amputation pain (Gilmore, 2019) and the other enrolled 40 participants with persistent post-operative pain (Goree, 2024). In both trials, 60% or more of the participants in the intervention group achieved at least 50% reduction depending on length of follow up. In another trial (n = 94), compared to sham, percutaneous peripheral nerve stimulation produced a greater percent change from baseline in pain intensity at three months, but the estimate was imprecise and not statistically significant (mean difference -19.8%, 95% confidence interval -44.6 to 5.0) (Deer, 2016). Two other systematic reviews confirmed the low-quality evidence supporting temporary percutaneous peripheral nerve stimulation for treating post-amputation pain (Char, 2022; Smith, 2023).

Harris (2025) summarized the current evidence on the use of temporary peripheral nerve stimulation for both acute and chronic post-operative pain following orthopedic surgery. Six randomized trials and three articles from three case series were included. Seven studies addressed acute post-operative pain, and four addressed chronic post-operative pain. This emerging treatment may reduce post-operative pain and opioid consumption. Larger and more robust trials are warranted to further assess treatment efficacy.

A systematic review by D'Souza (2023) identified one case series in which 13 of 15 participants experienced ≥ 30% improvement of chronic low back pain after using 60-day percutaneous peripheral nerve stimulation. At the two-month follow-up, Brief Pain Inventory Short Form Question 5 scores decreased from 6.3/10 to 2.4/10, but then increased to 3.1/10 at five months, demonstrating potential loss of efficacy over time (Deer, 2021).

A health technology assessment analyzed two randomized controlled trials and 12 nonrandomized studies of peripheral nerve stimulation for adults with chronic neuropathic pain in the trunk and the upper and lower extremities that was refractory to conventional medical management. Permanent and temporary peripheral nerve stimulation likely improves pain outcomes, functional outcomes, and health-related quality of life, and may reduce the use of pain medications. The procedure is reasonably safe, and most adverse events were localized and mild in intensity. The overall quality of the evidence was graded as low to moderate (Ontario Health, 2024).

In 2024, we updated the references. No policy changes were warranted.

In 2025, we updated the references with no policy changes warranted.

In 2026, we updated the references and changed the coverage to medically necessary based on new guideline recommendations supporting temporary 60-day use for trialing and treatment.

References

On February 27, 2026, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were "Peripheral nerve stim*," "fibromyalgia," "CRPS," "reflex sympathetic dystrophy," "chronic pain," "radiculopathy," and "neuropathic pain." We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

4/2022: initial review date and clinical policy effective date: 5/2022

4/2023: Policy references updated.

4/2024: Policy references updated.

4/2025: Policy references updated.

4/2026: Policy references updated. Coverage modified.

Related codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy CCP.1512. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

Code	Code description
64555	Percutaneous implantation of neurostimulator electrode array; peripheral nerve (excludes sacral nerve)
64596	Insertion or replacement of percutaneous electrode array, peripheral nerve, with integrated neurostimulator, including imaging guidance, when performed; initial electrode array
64597	Insertion or replacement of percutaneous electrode array, peripheral nerve, with integrated neurostimulator, including imaging guidance, when performed; each additional electrode array (List separately in addition to code for primary procedure)
64585	Revision or removal of peripheral neurostimulator electrode array