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Interferential Current Stimulation

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Related Policies (if applicable)
None

Disclaimer

Carefully check state regulations and/or the member contract.
Each benefit plan, summary plan description or contract defines which services are covered, which services are excluded, and which services are subject to dollar caps or other limitations, conditions or exclusions. Members and their providers have the responsibility for consulting the member's benefit plan, summary plan description or contract to determine if there are any exclusions or other benefit limitations applicable to this service or supply. **If there is a discrepancy between a Medical Policy and a member's benefit plan, summary plan description or contract, the benefit plan, summary plan description or contract will govern.**

Coverage

Interferential current stimulation **is considered experimental, investigational and/or unproven**.

Policy Guidelines

None.

Description

Interferential current stimulation (IFS) is a type of electrical stimulation used to reduce pain. The technique has been proposed to decrease pain and increase function in individuals with osteoarthritis and to treat other conditions such as constipation, irritable bowel syndrome, dyspepsia, and spasticity.

Background

Interferential current stimulation is a type of electrical stimulation that has been investigated as a technique to reduce pain, improve function and range of motion, and treat gastrointestinal disorders.

This stimulation uses paired electrodes of 2 independent circuits carrying high-frequency and medium-frequency alternating currents. The superficial electrodes are aligned on the skin around the affected area. It is believed that IFS permeates tissues more effectively, with less unwanted stimulation of cutaneous nerves, and is more comfortable than transcutaneous electrical nerve stimulation. There are no standardized protocols for the use of IFS; IFS may vary by the frequency of stimulation, the pulse duration, treatment time, and electrode-placement technique.

Regulatory Status

A number of IFS devices have been cleared for marketing by the U.S. Food and Drug Administration through the 510(k) process, including the Medstar™ 100 (MedNet Services) and the RS-4i® (RS Medical). Interferential current stimulation may be included in multimodal electrotherapy devices such as transcutaneous electrical nerve stimulation and functional electrostimulation.

Rationale

Medical policies assess the clinical evidence to determine whether the use of technology improves the net health outcome. Broadly defined, health outcomes are the length of life, quality of life, and ability to function including benefits and harms. Every clinical condition has specific outcomes that are important to individuals and managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of technology, 2 domains are examined: the relevance, and quality and credibility. To be relevant, studies must represent 1 or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in certain circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Musculoskeletal Conditions

Randomized controlled trials with placebo are extremely important to assess treatments of painful conditions, due to the expected placebo effect, the subjective nature of pain assessment in general, and the variable natural history of pain that often responds to conservative care. Therefore, to establish whether an intervention for pain is effective, a placebo comparison is needed.

Clinical Context and Therapy Purpose

The purpose of using interferential current stimulation (IFS) in individuals who have musculoskeletal conditions is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The following PICO was used to select literature to inform this policy.

Population

The population of interest is individuals with musculoskeletal conditions.

Interventions

The therapy being considered is IFS.

Comparators

The following therapies are currently being used: physical therapy, medication, and other types of electrical stimulation.

Outcomes

The specific outcomes of interest are pain control, increased functional capacity, and improved quality of life. Interferential current stimulation would be used as adjunctive treatment with observed effects to be expected within 6 months.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Systematic Reviews

Hussein et al. (2021) included 19 trials in a meta-analysis of patients (N=1167) with musculoskeletal pain. (1) Two trials compared IFS with placebo and the pooled mean difference in pain was significantly reduced with IFS versus placebo (-0.98; 95% confidence interval [CI], -1.42 to -0.54; p<.0001), but not in the 6 trials comparing IFS to other interventions (-0.04; 95% CI, -0.20 to 0.12; p<.65). When used as an adjunct to other pain interventions, IFS did not significantly improve pain compared with placebo in 4 studies (-0.06; 95% CI, -0.6 to 0.48; p=.82) or compared with active treatment in 8 studies (0.02; 95% CI, -0.88 to 0.92; p=not reported). The authors concluded that IFS reduced musculoskeletal pain when used as a single agent compared with placebo, but this is limited by the small number of trials (n=2) and patients enrolled (n=91) in these trials.

A network meta-analysis by Zeng et al. (2015) identified 27 RCTs on 5 types of electrical stimulation therapies used to treat pain in patients with knee osteoarthritis (OA). (2) Reviewers found that IFS was significantly more effective than control interventions for pain relief (standardized mean difference, 2.06; 95% credible interval, 1.10 to 3.19) and pain intensity (standard mean difference, -0.92; 95% credible interval, -1.72 to -0.05). The validity of these conclusions is uncertain due to the limitations of the network meta-analysis, which used indirect comparisons to make conclusions. A further limitation is that the findings of placebo-controlled studies were not reported separately; rather, they were pooled in the analysis of usual care comparators.

The National Institute of Health and Care Excellence (NICE) (2016) published an evidence review on non-invasive treatments for low back pain. (3) This review included 4 non-U.S. RCTs published between 1999 and 2014 that compared IFS to sham (n=117), usual care (n=60), or manual therapies (n=387). NICE reported that compared to sham or traction, IFS did not demonstrate a clinically important improvement in pain. No studies evaluated impact on quality of life, nor did any studies include people with sciatica. NICE concluded that the evidence does not support IFS for low back pain.

Fuentes et al. (2010) published a systematic review and meta-analysis of RCTs evaluating the effectiveness of IFS for treating musculoskeletal pain. (4) Twenty RCTs met the following inclusion criteria: adults diagnosed with a painful musculoskeletal condition (e.g., knee, back, joint, shoulder, or OA pain); compared IFS alone or as a co-intervention with placebo, no treatment, or an alternative intervention; and assessed pain using a numeric rating scale. Fourteen of the trials reported data that could be pooled. Interferential current stimulation as a stand-alone intervention was not found to be more effective than placebo or an alternative intervention at reducing pain. For example, a pooled analysis of 2 studies comparing IFS alone with placebo did not find a statistically significant difference in pain intensity at discharge; the pooled mean difference (MD) was 1.17 (95% CI, -1.70 to 4.05). Also, a pooled analysis of 2 studies comparing IFS alone with an alternative intervention (e.g., traction or massage) did not find a significant difference in pain intensity at discharge; the pooled MD was -0.16 (95% CI, -0.62 to 0.31). Moreover, in a pooled analysis of 5 studies comparing IFS as a co-intervention with a placebo, there was a nonsignificant finding in pain intensity at discharge (MD=1.60; 95% CI, -0.13 to 3.34; p=.07). The meta-analysis found IFS plus another intervention to be superior to a control group (e.g., no treatment) for pain intensity at day 1 and 4 weeks; a pooled analysis of 3 studies found an MD of 2.45 (95% CI, 1.69 to 3.22; p<.001). However, that analysis did not distinguish the specific effects of IFS from the co-intervention, nor did it control for potential placebo effects.

Randomized Controlled Trials

This section includes RCTs not included in the systematic reviews discussed above.

To evaluate IFS after arthroscopic knee surgery, Kadi et al. (2019) conducted a double blind, placebo controlled RCT in 98 individuals. (5) Interferential current stimulation or sham treatment (pads applied with no current) was delivered for 30 minutes, twice a day for 5 days postoperatively. Although IFS significantly reduced the amount of paracetamol used by day 5, no significant difference was found between the groups with respect to pain, range of motion, or edema at days 0 through 30.

Alqualo-Costa et al. (2021) conducted a placebo-controlled RCT of ICS and photobiomodulation in 168 adults with knee osteoarthritis. (6) Participants were randomized to 1 of 4 groups: active IFS plus placebo photobiomodulation, placebo IFS plus active photobiomodulation, active IFS plus active photobiomodulation, and placebo IFS plus placebo photobiomodulation. Patients received treatments 3 times a week for 4 weeks, totaling 12 sessions. Both patients and outcome assessors were blinded to treatment allocation. The combination of active IFS plus active photobiomodulation significantly reduced pain intensity at rest and during movement compared to the IFS alone and placebo groups. Similar improvements were not shown in the group that received IFS alone. This study was limited by its small sample size and multiple statistical comparisons.

Artuc et al. (2023) conducted an RCT to evaluate whether transcutaneous electrical nerve stimulation (TENS) and IFS treatments have any effect in patients with knee osteoarthritis. (7) Eighty patients were randomized into 4 treatment groups: IFS, placebo IFS, TENS, and placebo TENS; interventions were done 5 times per week for a total of 2 weeks. The study found that all quality-of-life assessment parameters (such as pain level, functional capacity, and depressive symptoms) were improved among all groups without any significant difference amongst groups. The primary outcome of pressure pain threshold was significantly improved in both the TENS and IFS groups when compared with their placebo counterpart groups at both 2 weeks and 3 months. There was a more pronounced improvement effect in the TENS group compared to the IFS group.

Varapirom et al. (2024) compared IFS to sham IFS in 144 patients with knee osteoarthritis. (8) IFS was administered over 20 minutes 5 times per week for 3 weeks. Both groups received 10 minutes of exercise after treatment. Numeric pain rating scale scores were statistically lower with IFS compared to sham (MD, 0.65; 95% CI, 0.09 to 1.21; p=.023) at 3 weeks but the difference between groups was not considered clinically significant. The Western Ontario and McMaster Universities Index (WOMAC) score was not significantly different between groups (MD, 0.39; 95% CI, -0.08 to 0.86; p=.1) at 3 weeks. By 6 weeks there were no significant differences between groups. The authors concluded that IFS was not effective for pain reduction in patients with mild to moderate knee osteoarthritis.

Section Summary: Musculoskeletal Conditions

Placebo-controlled randomized trials of IFS for treating musculoskeletal pain and impaired function have mostly found that IFS does not significantly improve outcomes. Meta-analyses for IFS in musculoskeletal conditions have generally found IFS to be no more effective than other therapies. One network meta-analysis did find improvement with IFS compared with control, but the analysis is limited by indirect comparisons.

Gastrointestinal Disorders

Clinical Context and Therapy Purpose

The purpose of using IFS in individuals who have gastrointestinal disorders (e.g., constipation, irritable bowel syndrome, and dyspepsia) is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The following PICO was used to select literature to inform this policy.

Population

The population of interest is individuals with a gastrointestinal disorder such as constipation, irritable bowel syndrome, or dyspepsia.

Interventions

The therapy being considered is IFS.

Comparators

The following therapies are currently being used: dietary changes, medication, and other types of electrical stimulation.

Outcomes

The specific outcomes of interest are pain control, increased functional capacity, and improved quality of life. The safety and efficacy of IFS would be evaluated at 1 month following a 4-week treatment.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Constipation

No large RCTs have adequately evaluated the comparative effects of using IFS to treat constipation versus the comparators of interest. Ideally, an RCT would compare IFS to another treatment of interest such as dietary changes, medication, or different types of electrical stimulation and include an IFS sham-control group to rule out a potential placebo effect.

Several sham-controlled RCTs evaluating IFS for treating children with constipation and/or other lower gastrointestinal symptoms were identified. The RCTs had small sample sizes and did not consistently find a benefit of IFS.

A systematic review of neuromodulation approaches for constipation and fecal incontinence in children by Iacona et al. (2019) included 2 RCTs, as well as 1 prospective study, and 2 pilot studies (N=126). (9) Study follow-up times ranged from 1 to 6 months. The authors reported that all of the studies reported an improvement in symptoms including defecation frequency, soiling episodes, and abdominal pain. This systematic review included the RCT by Kajbafzadeh et al. (2012) in Iran that randomized 30 children with intractable constipation to IFS or sham stimulation. (10) Children ranged in age from 3 to 12 years and had failed 6 months of conventional therapy (e.g., dietary changes, laxatives). Patients received 15 IFS sessions (20 minutes long), 3 times a week for 5 weeks. Over 6 months, the mean frequency of defecation increased from 2.5 times a week to 4.7 times a week in the treatment group and from 2.8 times a week to 2.9 times a week in the control group. The mean pain during defecation score decreased from 0.35 to 0.20 in the treatment group and from 0.29 to 0.22 in the control group. The authors reported a statistically significant between-group difference in constipation symptoms. Overall, however, the systematic review authors concluded additional evidence including longer length of follow-up is needed to consider neuromodulation as an established therapy for the management of constipation and fecal incontinence.

Additionally, another RCT, published by Clarke et al. (2009) from Australia, and not included in the systematic review by Iacona et al. (2019), did not find a benefit of IFS. (11) Thirty-three children with slow transit time constipation (mean age, 12 years) were randomized to IFS or sham treatment. They received twelve 20-minute sessions over 4 weeks; the primary outcome was health-related quality of life, and the main assessment instrument used was the Pediatric Quality of Life Inventory. The authors only reported within-group changes; they did not compare the treatment and control groups. There was no statistically significant change in quality of life, as perceived by the parent group. The mean parent-reported quality of life scores changed from 70.3 to 70.1 in the active treatment group and from 69.8 to 70.2 in the control group. There was also no significant difference in quality of life, as perceived by the child after sham treatment. The Pediatric Quality of Life Inventory score, as perceived by the child, did increase significantly in the active treatment group (mean, 72.9 pretreatment vs. 81.1 posttreatment, p=.005).

In adults, 1 small, single-blind, sham-controlled RCT conducted in Australia was identified. (12) Thirty-three women (mean age, 45 years) with functional constipation were randomized to IFS (N=17) or sham treatment (N=16). The IFS was self-delivered by the participants in their homes for 1 hour per day for 6 weeks. The participants were trained by an unblinded study coordinator in the placement of the 4 electrodes as either crossed for active IFS or uncrossed for sham IFS. The primary outcome was the number of patients with ≥3 spontaneous bowel movements per week. Although active IFS significantly increased the primary outcome (53% vs. 12%; p=.02), there were no between-group differences on numerous other secondary outcomes, such as quality of life and the more clinically meaningful and guideline-recommended outcome of spontaneous complete bowel movement.

Irritable Bowel Disease

An RCT by Coban et al. (2012) randomized 67 adults with irritable bowel syndrome to active or placebo IFS. (13) Patients with functional dyspepsia were excluded. Patients received four 15-minute IFS sessions over 4 weeks. Fifty-eight (87%) of 67 patients completed the trial. One month after treatment, primary outcome measures did not differ significantly between treatment and control groups. For example, for abdominal discomfort, the response rate (i.e., >50% improvement) was 68% in the treatment group and 44% in the control group. For bloating and discomfort, the response rate was 48% in the treatment group and 46% in the placebo group. Using a visual analog scale (VAS), 72% of the treatment group and 69% of the control group reported improvement in abdominal discomfort.

Dyspepsia

One RCT, by Koklu et al. (2010) in Turkey, has evaluated IFS for treating dyspepsia. (14) The trial randomized adults to active IFS (n=25) or sham treatment (n=25); patients were unaware of their treatment allocation. Patients received 12 treatment sessions over 4 weeks; each session lasted 15 minutes. Forty-four (88%) of 50 randomized patients completed the therapy session and follow-up questionnaires at 2 and 4 weeks. The trialists did not specify primary outcome variables; rather, they measured the frequency of 10 gastrointestinal symptoms. In an intention-to-treat analysis at 4 weeks, IFS was superior to placebo for the symptoms of early satiation and heartburn, but not for the other 8 symptoms. For example, before treatment, 16 (64%) of 25 patients in each group reported experiencing heartburn. At 4 weeks, 9 (36%) patients in the treatment group and 13 (52%) patients in the sham group reported heartburn (p=.02). Among symptoms that did not differ between groups at follow-up, 24 (96%) of 25 patients in each group reported epigastric discomfort before treatment. In the intention-to-treat analysis, 5 (20%) of 25 patients in the treatment group and 6 (24%) of 25 patients in the placebo group reported epigastric discomfort.

Section Summary: Gastrointestinal Disorders

Interferential current stimulation has been tested as a treatment option for a variety of gastrointestinal conditions, with a small number of trials completed for each condition. Trial results were mixed, with some reporting benefit and others not. This body of evidence is inconclusive on whether IFS is an efficacious treatment for gastrointestinal conditions.

Poststroke Spasticity

Clinical Context and Therapy Purpose

The purpose of using IFS in individuals who have poststroke spasticity is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The following PICO was used to select literature to inform this policy.

Population
The population of interest is individuals with poststroke spasticity.

Interventions
The therapy being considered is IFS.

Comparators
The following therapy is currently being used: standard stroke rehabilitation.

Outcomes
The specific outcomes of interest are improved function and quality of life. Effect of IFS would be assessed 1 hour after a single treatment.

Study Selection Criteria
Methodologically credible studies were selected using the following principles:
- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought;
- Studies with duplicative or overlapping populations were excluded.

Randomized Controlled Trials
A single-blind RCT evaluating IFS as a treatment of poststroke spasticity was published by Suh et al. (2014). (15) Forty-two inpatient stroke patients with plantar flexor spasticity were randomized to a single 60-minute session with IFS or placebo IFS treatment following 30 minutes of standard rehabilitation. In the placebo treatment, electrodes were attached; however, the current was not applied. Outcomes were measured immediately before and 1 hour after the intervention. The primary outcomes were gastrocnemius spasticity (measured on a 0 to 5 Modified Ashworth Scale) and 2 balance-related measures: the Functional Reach Test and the Berg Balance Scale. Also, gait speed was measured using a 10-meter walk test, and gait function was assessed with the Timed Up & Go Test. The IFS group performed significantly better than the placebo group on all outcomes ($p<.05$ for each comparison). For example, the mean (standard deviation) difference in Modified Ashworth Scale score was 1.55 (0.76) in the IFS group and 0.40 (0.50) in the placebo group. A major limitation of the trial was that outcomes were only measured 1 hour after the intervention and no data were available on longer-term impacts of the intervention.

Additionally, an RCT comparing IFS (n=20) to electrical acupuncture (EAC) (n=20) in individuals with hemiplegic shoulder pain after stroke was published by Eslamian et al. (2020). (16) The interventions were added to standard care and delivered twice a week for a total of 10 sessions. The primary outcome was reduction in pain intensity at 5 weeks compared to baseline as measured using a 10 cm VAS. Results were mixed across outcomes. For example, rates of clinically significant improvement of at least 13 on the Shoulder Pain and Disability Index (SPADI) questionnaire were similar between groups (75% vs. 65%). However, the rate of clinically significant improvement in pain intensity (defined as 1.4 points on the VAS at 5 weeks) was lower in the IFS group (35.0% vs. 70.0%). Additionally, this study had several limitations, including lack of a sham control group, a very small sample size, and a short follow-up interval.

Section Summary: Poststroke Spasticity

Data from small RCTs with very short follow-up provide insufficient evidence on the impact of IFS on health outcomes in patients with post-stroke spasticity.

Summary of Evidence

For individuals who have musculoskeletal conditions who receive interferential current stimulation (IFS), the evidence includes randomized controlled trials (RCTs) and meta-analyses. Relevant outcomes are symptoms, functional outcomes, quality of life, medication use, and treatment-related morbidity. Placebo-controlled randomized trial(s) have found that IFS when used to treat musculoskeletal pain and impaired function(s), does not significantly improve outcomes. Meta-analyses for IFS in musculoskeletal conditions have generally found IFS to be no more effective than other therapies. One network meta-analysis did find improvement with IFS compared with control, but the analysis is limited by indirect comparisons. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have gastrointestinal disorders who receive IFS, the evidence includes RCTs. Relevant outcomes are symptoms, functional outcomes, quality of life, medication use, and treatment-related morbidity. Interferential current stimulation has been tested for a variety of gastrointestinal conditions, with a small number of trials completed for each condition. The results of the trials are mixed, with some reporting benefit and others not. This body of evidence is inconclusive on whether IFS is an efficacious treatment for gastrointestinal conditions. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have poststroke spasticity who receive IFS, the evidence includes RCTs. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The RCTs had small sample sizes and very short follow-up (immediately posttreatment to 5 weeks). The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Practice Guidelines and Position Statements

American College of Occupational and Environmental Medicine

The American College of Occupational and Environmental Medicine published several relevant guidelines. For shoulder disorders, guidelines found the evidence on interferential current stimulation (IFS) to be insufficient and, depending on the specific disorder, either did not recommend IFS or were neutral on whether to recommend it. (17) For low back disorders, guidelines found the evidence on IFS to be insufficient and did not recommend it. (18) For knee disorders, guidelines recommended IFS for postoperative anterior cruciate ligament reconstruction, meniscectomy, and knee chondroplasty immediately postoperatively in the elderly. (19) This was a level C recommendation.

American College of Physicians and the American Pain Society
In 2009, the clinical practice guidelines from the American College of Physicians and the American Pain Society concluded that there was insufficient evidence to recommend IFS for the treatment of low back pain. (20) An update of these guidelines by the American College of Physicians (2017) confirmed the 2009 findings that there was insufficient evidence to determine the effectiveness of IFS for the treatment of low back pain. (21)

National Institute for Health and Care Excellence
In 2016, the National Institute for Health and Care Excellence published a guideline (NG59) on assessment and management of low back pain and sciatica in people aged 16 and over. (3) The guideline states, "Do not offer interferential therapy for managing low back pain with or without sciatica."

Ongoing and Unpublished Clinical Trials
A search of ClinicalTrials.gov in April 2025 did not identify any ongoing or unpublished trials that would likely influence this policy.

Coding
Procedure codes on Medical Policy documents are included **only** as a general reference tool for each policy. **They may not be all-inclusive.**

The presence or absence of procedure, service, supply, or device codes in a Medical Policy document has no relevance for determination of benefit coverage for members or reimbursement for providers. **Only the written coverage position in a Medical Policy should be used for such determinations.**

Benefit coverage determinations based on written Medical Policy coverage positions must include review of the member's benefit contract or Summary Plan Description (SPD) for defined coverage vs. non-coverage, benefit exclusions, and benefit limitations such as dollar or duration caps.

CPT Codes	97014, 97032, 97139
HCPCS Codes	E1399, G0283, S8130, S8131

References

1. Hussein HM, Alshammari RS, Al-Barak SS, et al. A Systematic Review and Meta-analysis Investigating the Pain-Relieving Effect of Interferential Current on Musculoskeletal Pain. Am J Phys Med Rehabil. Jul 01 2022; 101(7):624-633. PMID 34469914

2. Zeng C, Li H, Yang T, et al. Electrical stimulation for pain relief in knee osteoarthritis: systematic review and network meta-analysis. Osteoarthritis Cartilage. Feb 2015; 23(2):189-202. PMID 25497083
3. National Institute for Health and Care Excellence (NICE). Low back pain and sciatica in over 16s: assessment and management [NG59] (2016). Available at <https://www.nice.org.uk> (accessed April 15, 2025).
4. Fuentes JP, Armijo Olivo S, Magee DJ, et al. Effectiveness of interferential current therapy in the management of musculoskeletal pain: a systematic review and meta-analysis. Phys Ther. Sep 2010; 90(9):1219-1238. PMID 20651012
5. Kadı MR, Hepgüler S, Atamaz FC, et al. Is interferential current effective in the management of pain, range of motion, and edema following total knee arthroplasty surgery? A randomized double-blind controlled trial. Clin Rehabil. Jun 2019; 33(6):1027-1034. PMID 30764635
6. Alqualo-Costa R, Rampazo ÉP, Thome GR, et al. Interferential current and photobiomodulation in knee osteoarthritis: A randomized, placebo-controlled, double-blind clinical trial. Clin Rehabil. Oct 2021; 35(10):1413-1427. PMID 33896234
7. Artuç ŞE, Uçkun AÇ, Sivas FA, et al. Comparison of the effects of transcutaneous electrical nerve stimulation and interferential current therapies in central sensitization in patients with knee osteoarthritis. Korean J Pain. Jul 01 2023; 36(3):392-403. PMID 37394276
8. Varapirom C, Kuptniratsaikul V, Yamthed R, et al. Efficacy of interferential current therapy plus exercise compared to sham interferential current plus exercise for pain relief in patients with knee osteoarthritis: A randomised controlled trial. Clin Rehabil. Dec 2024; 38(12):1622-1632. PMID 39257067
9. Iacona R, Ramage L, Malakounides G. Current State of Neuromodulation for Constipation and Fecal Incontinence in Children: A Systematic Review. Eur J Pediatr Surg. Dec 2019; 29(6):495-503. PMID 30650450
10. Kajbafzadeh AM, Sharifi-Rad L, Nejat F, et al. Transcutaneous interferential electrical stimulation for management of neurogenic bowel dysfunction in children with myelomeningocele. Int J Colorectal Dis. Apr 2012; 27(4):453-458. PMID 22065105
11. Clarke MC, Chase JW, Gibb S, et al. Improvement of quality of life in children with slow transit constipation after treatment with transcutaneous electrical stimulation. J Pediatr Surg. Jun 2009; 44(6):1268-1272; discussion 1272. PMID 19524752
12. Moore JS, Gibson PR, Burgell RE. Randomised clinical trial: transabdominal interferential electrical stimulation vs sham stimulation in women with functional constipation. Aliment Pharmacol Ther. Apr 2020; 51(8):760-769. PMID 32128859
13. Coban Ş, Akbal E, Köklü S, et al. Clinical trial: transcutaneous interferential electrical stimulation in individuals with irritable bowel syndrome - a prospective double-blind randomized study. Digestion. 2012; 86(2):86-93. PMID 22846190
14. Köklü S, Köklü G, Ozgüçlü E, et al. Clinical trial: interferential electric stimulation in functional dyspepsia patients - a prospective randomized study. Aliment Pharmacol Ther. May 2010; 31(9):961-968. PMID 20136803
15. Suh HR, Han HC, Cho HY. Immediate therapeutic effect of interferential current therapy on spasticity, balance, and gait function in chronic stroke patients: a randomized control trial. Clin Rehabil. Sep 2014; 28(9):885-891. PMID 24607801

16. Eslamian F, Farhoudi M, Jahanjoo F, et al. Electrical interferential current stimulation versus electrical acupuncture in management of hemiplegic shoulder pain and disability following ischemic stroke-a randomized clinical trial. Arch Physiother. 2020; 10:2. PMID 31938571
17. American College of Occupational and Environmental Medicine (ACOEM). Shoulder Disorders Guideline (2016). Available at <https://www.dir.ca.gov> (accessed April 15, 2025).
18. Hegmann KT, Travis R, Andersson GBJ, et al. Non-Invasive and Minimally Invasive Management of Low Back Disorders. J Occup Environ Med. Mar 2020; 62(3):e111-e138. PMID 31977923
19. American College of Occupational and Environmental Medicine (ACOEM). Knee disorders. In: Hegmann KT, ed. Occupational medicine practice guidelines. Evaluation and management of common health problems and functional recovery in workers. 3rd ed. Elk Grove Village, IL: ACOEM; 2011:1-297.
20. Chou R, Atlas SJ, Stanos SP, et al. Nonsurgical interventional therapies for low back pain: a review of the evidence for an American Pain Society clinical practice guideline. Spine (Phila Pa 1976). May 01 2009; 34(10):1078-1093. PMID 19363456
21. 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

Centers for Medicare and Medicaid Services (CMS)

The information contained in this section is for informational purposes only. HCSC makes no representation as to the accuracy of this information. It is not to be used for claims adjudication for HCSC Plans.

The Centers for Medicare and Medicaid Services (CMS) does not have a national Medicare coverage position. Coverage may be subject to local carrier discretion.

A national coverage position for Medicare may have been developed since this medical policy document was written. See Medicare's National Coverage at <https://www.cms.hhs.gov>.

Policy History/Revision

Date	Description of Change
10/15/2025	Document updated with literature review. Coverage unchanged. Added the following new reference: 8.
09/15/2024	Document updated with literature review. Coverage unchanged. Added the following new reference: 7.
11/15/2023	Document updated with literature review. Coverage unchanged. No new references added; reference 15 updated.
08/15/2022	Document updated with literature review. Coverage unchanged. Added references 1, 6, and 16; others removed.
09/15/2021	Reviewed. No changes.

09/15/2020	Document updated with literature review. Coverage unchanged. Added references 2-3, 9, 15-16, 19, 23, and 25.
09/15/2019	Reviewed. No changes.
08/15/2018	Document updated with literature review. Coverage unchanged. Added references 17, 22-30.
10/15/2017	Reviewed. No changes.
11/01/2016	Document updated with literature review. Coverage unchanged.
04/15/2015	Reviewed. No changes.
06/01/2014	New medical document. Coverage is unchanged: Interferential current stimulation is considered experimental, investigational and/or unproven. This topic was previously addressed on MED201.026 Surface Electrical Stimulation.