

MEDICAL POLICY

POLICY TITLE	LOW-LEVEL LASER THERAPY
POLICY NUMBER	MP 1.097

CLINICAL BENEFIT	<input checked="" type="checkbox"/> MINIMIZE SAFETY RISK OR CONCERN. <input checked="" type="checkbox"/> MINIMIZE HARMFUL OR INEFFECTIVE INTERVENTIONS. <input type="checkbox"/> ASSURE APPROPRIATE LEVEL OF CARE. <input type="checkbox"/> ASSURE APPROPRIATE DURATION OF SERVICE FOR INTERVENTIONS. <input type="checkbox"/> ASSURE THAT RECOMMENDED MEDICAL PREREQUISITES HAVE BEEN MET. <input type="checkbox"/> ASSURE APPROPRIATE SITE OF TREATMENT OR SERVICE.
Effective date:	7/1/2026

POLICY

Low-level laser therapy may be considered **medically necessary** for prevention of oral mucositis in patients undergoing cancer treatment associated with increased risk of oral mucositis, including chemotherapy and/or radiotherapy, and/or hematopoietic stem cell transplantation (see Policy Guidelines).

Low-level laser therapy is considered **investigational** for all other indications including but not limited to:

- Carpal tunnel syndrome
- Neck pain
- Subacromial impingement
- Adhesive capsulitis
- Temporomandibular joint pain
- Low back pain
- Osteoarthritis knee pain
- Heel pain (i.e., Achilles tendinopathy, plantar fasciitis)
- Rheumatoid arthritis
- Bell palsy
- Fibromyalgia
- Wound healing
- Lymphedema

There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure for these indications.

Policy Guidelines

In the meta-analysis of eighteen trials comparing low-level laser therapy (LLLTT) to chemotherapy or chemoradiation for prevention of oral mucositis (Oberoi et al, [2014]), the course of LLLTT was generally from day 0 through treatment. In studies of hematopoietic cell transplant (HCT), the course of LLLTT began between day -7 and day 0 and continued as long as

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day 14 to 15. In studies that began LLLT at day -7 to day -5 before HCT, the course of laser therapy ended at day -1 to day 0.

Other protocols have used low-level laser energy applied to acupuncture points on the fingers and hand. This technique may be referred to as "laser acupuncture." Laser acupuncture is not reviewed in this herein.

Cross-Reference:

MP 1.094 Skin Contact Monochromatic Infrared Energy for the Treatment of Cutaneous Ulcers, Diabetic Neuropathy, and Other Miscellaneous Musculoskeletal Conditions

PRODUCT VARIATIONS

This policy is only applicable to certain programs and products administered by Capital Blue Cross and subject to benefit variations. Please see additional information below.

FEP PPO - Refer to FEP Medical Policy Manual. The FEP Medical Policy manual can be found at:

<https://www.fepblue.org/benefit-plans/medical-policies-and-utilization-management-guidelines/medical-policies>.

DESCRIPTION/BACKGROUND

Low-level laser therapy (LLLT), also called photobiomodulation, is being evaluated to treat various conditions, including, among others, oral mucositis, myofascial pain, joint pain, lymphedema, and chronic wounds.

Oral Mucositis

Oral mucositis describes inflammation of the oral mucosa and typically manifests as erythema or ulcerations that appear seven to ten days after initiation of high-dose cancer therapy. Oral mucositis can cause significant pain and increased risk of systemic infection, dependency on total parenteral nutrition, and use of narcotic analgesics.

Treatment

Treatment planning may also need to be modified due to dose-limiting toxicity. There are a number of interventions for oral mucositis that may partially control symptoms, but none is considered a criterion standard treatment. When uncomplicated by infection, oral mucositis is self-limited and usually heals within two to four weeks after cessation of cytotoxic chemotherapy. Low-level laser therapy (LLLT) has been used in cancer therapy–induced oral mucositis in individual`s treated with radiotherapy and/or chemotherapy and hematopoietic cell transplantation.

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Musculoskeletal and Neurologic Disorders

Musculoskeletal disorder describes a variety of conditions leading to chronic pain and decreased quality of life. Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy and the most commonly performed surgery of the hand. The syndrome is related to the bony anatomy of the wrist. The carpal tunnel is bound dorsally and laterally by the carpal bones and ventrally by the transverse carpal ligament. Through this contained space run the nine flexor tendons and the median nerve. Therefore, any space occupying lesion can compress the median nerve and produce the typical symptoms of CTS - pain, numbness, and tingling in the distribution of the median nerve. Symptoms of more severe cases include hypesthesia, clumsiness, loss of dexterity, and weakness of pinch. In the most severe cases, individuals experience marked sensory loss and significant functional impairment with thenar atrophy.

Treatment

Several modalities of treatment are used in the management of musculoskeletal pain including medications, immobilization, and physical therapy. The use of LLLT has been investigated for use in musculoskeletal pain conditions. In the case of CTS, mild-to-moderate cases are usually first treated conservatively with splinting and cessation of aggravating activities. Other conservative therapies include oral steroids, diuretics, nonsteroidal anti-inflammatory drugs, and steroid injections into the carpal tunnel itself. Individuals who do not respond to conservative therapy or who present with severe CTS with thenar atrophy may be considered candidates for surgical release of the carpal ligament, using either an open or endoscopic approach. LLLT is also used to treat CTS.

Wound Care and Lymphedema

Chronic wounds are wounds that do not improve after 4 weeks or heal within 8 weeks. These include diabetic foot ulcers, venous-related ulcerations, non-healing surgical wounds, and pressure ulcers. They are often found on the feet, ankles, heels, calves, and on the hips, thighs, and buttocks of those who cannot walk.

Lymphedema is described as swelling in at least 1 leg and/or arm. It is commonly caused by the removal of a lymph node. The resulting blockage of the lymphatic system prevents lymph fluid from draining well, leading to fluid build-up and swelling. Other symptoms can include heaviness or tightness in the affected limb, restricted range of motion, aching or discomfort, recurring infections, and dermal fibrosis. Risk factors for developing lymphedema after cancer from cancer treatment or from other secondary causes can include older age, obesity, and rheumatoid or psoriatic arthritis.

Treatment

Chronic wound management involves ensuring adequate blood flow to the area, preventing the wound from drying, controlling infections, debriding scarred and necrotic tissue, and managing pain. The standard of care for diabetic foot ulcers includes debridement, dressings, offloading of pressure, infection management, and glycemic control. Lymphedema is typically managed with

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pneumatic compression, exercise, or complete decompression therapy. Use of LLLT has been investigated for the management of both chronic wounds and lymphedema.

Low-Level Laser Therapy

Low-level laser therapy is the use of red-beam or near-infrared lasers with a wavelength between 600 and 1000 nm and power between 5 and 500 MW. By comparison, lasers used in surgery typically use 300 W. When applied to the skin, LLLT produces no sensation and does not burn the skin. Because of the low absorption by human skin, it is hypothesized that the laser light can penetrate deeply into the tissues where it has a photobiostimulative effect. The exact mechanism of its effect on tissue healing is unknown; hypotheses have included improved cellular repair and stimulation of the immune, lymphatic, and vascular systems.

Low-level laser therapy is being evaluated to treat a wide variety of conditions, including soft tissue injuries, myofascial pain, tendinopathies, nerve injuries, joint pain, and lymphedema.

REGULATORY STATUS

Table 1. Selected Low-Level Laser Therapy Devices Cleared by the U.S. Food and Drug Administration

Device	Manufacturer	Date Cleared	510(k) No.	Indication
FX-635	Erchonia Corporation	6/01/2019	K190572	For adjunctive use in whole body musculoskeletal pain therapy
Super Pulsed Laser Technology	Multi Radiance Medical	01/13/2018	K171354	Providing temporary relief of minor chronic neck and shoulder pain of musculoskeletal origin
Lightstream Low-Level Laser	SOLICA CORPORATION	04/03/2009	K081166	For adjunctive use in the temporary relief of pain associated with knee disorders with standard chiropractic practice
GRT LITE, MODEL 8-A	GRT SOLUTIONS, INC.	02/03/2006	K050668	Use in providing temporary relief of minor chronic neck and shoulder pain of musculoskeletal origin
MICROLIGHT 830 LASER SYSTEM	MICROLIGHT CORPORATION OF AMERICA	02/06/2002	K010175	Use in pain therapy or related indication

A number of low-level lasers have been cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process for the treatment of pain (Table 1). Data

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submitted for the MicroLight 830® Laser consisted of application of the laser over the carpal tunnel 3 times a week for 5 weeks. The labeling states that the “MicroLight 830 Laser is indicated for adjunctive use in the temporary relief of hand and wrist pain associated with Carpal Tunnel Syndrome.” In 2006, GRT LITE™ was cleared for marketing, listing the TUCO Erchonia PL3000, the Excalibur System, the MicroLight 830® Laser, and the Acculaser Pro as predicate devices. Indications of the GRT LITE™ for CTS are similar to the predicate devices: “adjunctive use in providing temporary relief of minor chronic pain.” In 2009, the LightStream™ LLL device was cleared for marketing by the FDA through the 510(k) process for adjunctive use in the temporary relief of pain associated with knee disorders treated in standard chiropractic practice. A number of clinical trials of LLLT are underway in the United States, including studies of wound healing. Since 2009, many more similar LLLT devices have received 510(k) clearance from the FDA.

RATIONALE

Summary of Evidence

Oral Mucositis

For individuals who have an increased risk of oral mucositis due to some cancer treatments (e.g., chemotherapy, radiotherapy) and/or hematopoietic cell transplantation (HCT) who receive low-level laser therapy (LLLT), the evidence includes systematic reviews and 1 RCT in leukemic children. Relevant outcomes are symptoms, morbid events, quality of life (QOL), and treatment-related morbidity. Several systematic reviews of RCTs have found better outcomes with LLLT used to prevent oral mucositis than with control treatments. Results have consistently supported a reduction in severe oral mucositis in patients undergoing chemotherapy, HCT, radiotherapy, and chemoradiotherapy. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

Musculoskeletal and Neurologic Disorders

For individuals who have carpal tunnel syndrome who receive LLLT, the evidence includes randomized controlled trials (RCTs) and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment related morbidity. Both a 2016 systematic review and a TEC Assessment (2010) did not find sufficient evidence from RCTs that LLLT improves outcomes. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have neck pain who receive LLLT, the evidence includes RCTs and systematic reviews. The relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. A 2013 systematic review identified 17 trials, most of which were considered low quality. Only two trials were considered moderate quality, and they found that LLLT led to better outcomes than placebo for chronic neck pain. A TEC Assessment (2010) found conflicting evidence. Additionally, laser types, application dosages, and treatment schedules vary in the available evidence and require further study. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

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For individuals who have subacromial impingement syndrome who receive LLLT, the evidence includes RCTs. The relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Most trials did not show a significant benefit of LLLT compared with sham treatment or with an alternative intervention (e.g., exercise). The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have adhesive capsulitis who receive LLLT, the evidence includes RCTs and a systematic review. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment related morbidity. A Cochrane review evaluating treatments for adhesive capsulitis identified two RCTs assessing LLLT. Due to the small number of trials and study limitations, reviewers concluded that the evidence was insufficient to permit conclusions about the effectiveness of LLLT for adhesive capsulitis. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have temporomandibular joint pain who receive LLLT, the evidence includes RCTs and several systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Meta-analyses of RCTs had mixed findings. A 2021 meta-analysis, which included 33 placebo-controlled randomized trials, found a statistically significant impact of LLLT on pain scores and improved functional outcomes (e.g., mouth opening); however, heterogeneity was high among included trials. Furthermore, RCTs have not compared the impact of LLLT with physical therapy. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome..

For individuals who have low back pain who receive LLLT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Meta-analyses of RCTs found that LLLT resulted in a significantly greater reduction in pain scores and global assessment scores than a placebo control in the immediate posttreatment setting. Meta-analyses have found conflicting evidence regarding other outcomes (e.g., disability index, range of motion). The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have osteoarthritic knee pain who receive LLLT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment related morbidity. A 2020 systematic review, which pooled study findings, did not find that LLLT significantly reduced pain or improved function outcomes compared with a sham intervention; however, the study was limited by high heterogeneity and inconsistency between regimens and follow-up duration. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have heel pain (i.e., Achilles tendinopathy, plantar fasciitis) who receive LLLT, the evidence includes RCTs and two systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Findings of

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sham-controlled randomized trials were inconsistent, and RCTs lacked long-term follow-up. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have rheumatoid arthritis (RA) who receive LLLT, the evidence includes RCTs and a systematic review. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. A systematic review of RCTs found an inconsistent benefit of LLLT for a range of outcomes. A 2010 RCT, published after the systematic review, did not find that LLLT was significantly better than a placebo treatment on most outcomes. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have Bell palsy who receive LLLT, the evidence includes 2 RCTs and 1 nonrandomized controlled trial. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. One RCT found a significant short-term benefit of LLLT over exercise. Longer-term outcomes (>6 weeks) were not available. Because Bell palsy often improves within weeks and may completely resolve within months, it is difficult to isolate specific improvements from laser therapy over the natural resolution of the illness. Also, no sham-controlled trials are available. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have fibromyalgia who receive LLLT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The RCTs evaluating LLLT for treatment of fibromyalgia are small. One RCT (N=20 patients) found significantly better outcomes with LLLT than with sham, while another (N=20 patients) did not find statistically significant between-group differences for similar outcomes. A larger (N=42) study found improved pain and quality of life with LLLT; however, the trial was conducted at a single center with strict inclusion criteria. Additional RCTs with sufficient numbers of patients are needed to establish the efficacy of LLLT for fibromyalgia. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Wound Care and Lymphedema

For individuals who have chronic nonhealing wounds who receive LLLT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment related morbidity. The few existing RCTs tend to have small sample sizes and potential risk of bias. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have lymphedema who receive LLLT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Multiple systematic reviews detected methodologic flaws in the available studies and did not consistently find better outcomes for patients receiving LLLT than

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those receiving a control condition for the treatment of lymphedema. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

DEFINITIONS

CARPAL TUNNEL SYNDROME is a condition of pain or numbness that affects some part of the median nerve distribution of the hand (the palmar side of the thumb, the index finger, the radial half of the ring finger, and the radial half of the palm) and may radiate into the arm.

EPICONDYLITIS is the inflammation of the epicondyle of the humerus and surrounding tissues.

FIBROMYALGIA is chronic and frequently difficult to manage pain in muscles and soft tissues surrounding joints.

RHEUMATOID ARTHRITIS is a chronic systemic disease marked by inflammation of multiple synovial joints.

TENDINITIS is an inflammation of a tendon.

TMJ SYNDROME is severe pain in and about the temporomandibular joint, made worse by chewing.

DISCLAIMER

Capital Blue Cross' medical policies are used to determine coverage for specific medical technologies, procedures, equipment, and services. These medical policies do not constitute medical advice and are subject to change as permitted by law or applicable clinical evidence from independent treatment guidelines. Treating providers are solely responsible for medical advice and treatment of members. These policies are not a guarantee of coverage or payment. Payment of claims is subject to a determination regarding the member's benefit program and eligibility on the date of service, and a determination that the services are medically necessary and appropriate. Final processing of a claim is based upon the terms of contract that applies to the members' benefit program, including benefit limitations and exclusions. If a provider or a member has a question concerning this medical policy, please contact Capital Blue Cross' Provider Services or Member Services.

CODING INFORMATION

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

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Investigational; therefore, not covered for low level laser therapy used for pain:

Procedure codes							
0552T	1026T	97037	D9128	D9129	S8948		

Covered when medically necessary for low-level laser therapy for prevention of oral mucositis in patients undergoing cancer treatment:

Procedure codes							
0552T	1011T	D9128	D9129	S8948			

ICD-10 CM Diagnosis Codes	Description
K12.31	Oral mucositis (ulcerative) due to antineoplastic therapy
K12.33	Oral mucositis (ulcerative) due to radiation
K12.39	Other oral mucositis (ulcerative)

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POLICY HISTORY

MP 1.097	04/14/2020 Administrative Update. Correct procedure code 0052T to read 0552T
	05/08/2020 Consensus Review. Background, Rationale, and coding reviewed. References added. No change to policy statement.

MEDICAL POLICY

POLICY TITLE	LOW-LEVEL LASER THERAPY
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	10/07/2021 Consensus Review. No change to policy statement. References, description/background, and summary of evidence updated. FEP language updated.
	07/20/2022 Consensus Review. No change to policy statement. Code 97026 removed. 0552T added to MN if meets criteria. References and rationale updated
	07/05/2023 Consensus Review. No change to policy statement. Background And Rationale updated. References added.
	12/12/2023 Administrative Update. Added New Code 97037. Effective 01/01/2024.
	07/05/2024 Consensus Review. No change to policy statement. Rationale updated. References added.
	04/17/2025 Consensus Review. No change to policy statement. NCCN statement removed. Benefit Variation and Disclaimer updated.
	09/03/2025 Administrative Update. Removed Benefit Variations Section and updated Disclaimer.
	12/11/2025 Administrative Update. Added new codes 1011T, D9128 and D9129. Effective 01/01/2026.
	06/09/2026 Administrative Update. Added new code 1026T. Effective 07/01/2026.

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