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Laser Therapy for Plaque Psoriasis

Policy Number: MM.02.027	**Current Effective Date:** November 17, 2023
Lines of Business: HMO; PPO; Quest Integration	**Original Effective Date:** April 01, 2016
Place of Service: Outpatient	**Precertification:** Not Required

I. Description

Laser therapy is a form of targeted light therapy used to treat specific areas of the body. It spares healthy tissue from possible long and short-term side effects of more generalized treatments that expose additional tissue to radiation.

Literature supports the use of excimer laser therapy for the treatment of mild-to-moderate localized psoriasis comprising less than 10% body surface area that is unresponsive to conservative treatment. Evidence is lacking for the use of laser therapy for first-line treatment or for the treatment of generalized psoriasis or psoriatic arthritis.

II. Policy Criteria

A. Excimer and pulsed dye laser treatment is covered (subject to Limitations and Administrative Guidelines) for individuals with mild-to-moderate localized plaque psoriasis affecting 10% or less of their body area who have failed to adequately respond to 3 or more months of topical treatments, including **AT LEAST 2** of the following:
   1. Anthralin.
   2. Corticosteroids (e.g., betamethasone dipropionate ointment and fluocinonide cream).
   3. Keratolytic agents (e.g., lactic acid, salicylic acid, urea).
   4. Retinoids (e.g., tazarotene).
   5. Tar preparations.
   6. Vitamin D derivatives (e.g., calcipotriene).

B. Up to 16 laser treatments per course and 3 courses per year are covered (subject to Limitations and Administrative Guidelines).

III. Limitations

A. Laser therapy is not covered as first-line treatment for plaque psoriasis.

B. If the individual fails to respond to an initial course of laser therapy, as documented by a reduction in Psoriasis Area and Severity Index (PASI) score or other objective response measurement, additional courses are not covered because they have not been shown to improve health outcomes.

C. Laser therapy is not covered in all situations other than the above because it is not known to be effective in improving health outcomes.

IV. Administrative Guidelines

A. Precertification is not required. HMSA reserves the right to perform retrospective review using the above criteria to validate if services rendered met payment determination criteria.

Documentation supporting that the payment determination criteria were met should be maintained in the patient's medical record and must be made available to HMSA upon request. The following documentation must be maintained in the medical record:

1. Clinical notes describing symptoms and physical findings including body surface area involvement.
2. Documentation of failure of conservative treatment.

B. Applicable codes

CPT Code	Description
96920	Laser treatment for inflammatory skin disease (psoriasis); total area less than 250 square centimeters
96921	Total area 250-500 square centimeters
96922	Total area over 500 square centimeters

V. Scientific Background

There are several systematic reviews of the literature on targeted phototherapy. Reviews differed in the type of study included and the comparison interventions. A 2013 systematic review by Almutawa, et. al. considered only RCTs; psoralen plus ultraviolet A (PUVA) was the comparison intervention. The authors identified three RCTs comparing the efficacy of targeted ultraviolet B (UVB) phototherapy with PUVA for treatment of plaque psoriasis. Two of the three studies used an excimer laser (308 nm) as the source of targeted phototherapy, and the third study used localized narrowband (NB)-UVB light. There was heterogeneity among studies, and thus a random effects meta-analysis model was used. Using the random effects model, there was not a statistically significant difference between the two techniques in the proportion of patients with at least a 75% reduction in psoriasis. The pooled odds ratio (OR) was 3.48 (95% confidence interval [CI], 0.56 to 22.84). (The wide confidence interval indicated a lack of precision in the efficacy estimate.) The trials in the systematic review included a 2006 study by Neumann et al in which 10 patients were treated with a NB-UVB lamp or cream PUVA.6 The UVB lamp and PUVA-treated sides showed similar gradual clearing over the course of 20 treatments, reaching 64% clearance at the end of the five-week treatment period. In another trial, Sezer, et. al. (2007) conducted a left-to-right comparison of local NB-UVB versus PUVA paint (3 times/week for 9 weeks) in a cohort of 25 patients. The mean severity index improved by 61% with local NB-UVB and 85% with PUVA paint; one patient dropped out of the study because of a phototoxic reaction in the PUVA-paint-treated side.

In 2012, Mudigonda et al published a systematic review of controlled studies (RCTs and non-RCTs) on targeted versus non-targeted phototherapy for patients with localized psoriasis. The authors identified three prospective nonrandomized studies comparing the 308 nm excimer laser with NB-UVB; no studies comparing the excimer laser with broadband (BB)-UVB or PUVA were identified. Among the three studies was a 2006 study by Goldinger et al that compared the excimer laser with full-body NB-UVB in 16 patients. At the end of 20 treatments, Psoriasis Area and Severity Index (PASI) scores were equally reduced on the two sides, from a baseline of 11.8 to 6.3 for laser and from 11.8 to 6.9 for non-targeted NBUVB. A 2005 study by Kollner et al included 15 patients with stable plaque psoriasis. The study compared the 308 nm laser, the 308 nm excimer lamp, and standard TL-01 lamps. One psoriatic lesion per patient was treated with each therapy (i.e., each patient received all three treatments). Investigators found no significant difference in the efficacy of

the three treatments after 10 weeks. The mean number of treatments to achieve clearance of lesions was twenty-four.

Another systematic review by Mudigonda, et. al., published in 2012, included non-controlled observational studies on targeted UVB phototherapy. This article was not limited to the 308 nm excimer laser as was the 2012 review, previously discussed. A total of 9 studies with at least seven patients were identified; sample sizes ranged from seven to 124. The authors concluded that the 308 nm excimer laser, 308 nm excimer non-laser, and non- excimer light devices were effective for treating localized psoriasis and were safer than whole body phototherapy because uninvolved skin is spared. The review did not pool study findings and did not evaluate separately studies of different psoriasis severity.

A small 2014 sham-controlled RCT by Levin et al evaluated the Levia targeted NB-UVB device. Although the device can be used at home, in the trial, treatments were provided by experienced phototherapists in a clinical setting. The study included patients with bilateral plaque-type psoriasis who had symmetric target lesions two to four centimeters in diameter. The minimum target lesion score (TLS) was six, indicating at least moderate severity. (TLS is a 12-point scale that incorporates erythema, lesion thickness, and scaling.) Patients received targeted phototherapy on a randomly selected side of the body and sham (visible light treatment) on the other side. Treatments were given three times weekly for 12 weeks. Seventeen (81%) of 21 randomized patients completed the study. The primary end point, percentage of lesions that were clear or almost clear (TLS ?3) at week 12 did not differ significantly between groups. The end point was attained on 10 treated lesions and seven sham lesions (p=0.118). Two of three prespecified secondary end points significantly favored active treatment. The percentage improvement in TLS was 43% on the treated side and 29% on the sham side (p=0.043). In addition, 12 lesions in the treated group and seven in the placebo group had at least 50% improvement, as measured by TLS (p=0.020). However, percentage improvement in pruritus visual analog scale score, 62% on the treated side and 27% on the sham side, did not differ significantly between groups. The study had a relatively high dropout rate but because patients served as their own controls, this is not likely to be a major source of bias.

Treatment-Resistant Psoriatic Lesions

Several small studies suggest that targeted phototherapy can be effective for treatment-resistant lesions. One patch comparison reported effective clearing (pre-PASI=6.2; post-PASI=1.0) of treatment-resistant psoriatic lesions; six of the patients had previously received topical treatment, five had received conventional phototherapy, and three had received combined treatments including phototherapy. The same investigator group reported that 12 of 13 patients with “extensive and stubborn” scalp psoriasis (i.e., unresponsive to class I topical steroids used in conjunction with tar and/or zinc pyrithione shampoos for at least one month) showed clearing following treatment with the 308 nm laser. In a 2006 open trial from Europe, 44 (81%) of 54 patients with palmoplantar psoriasis resistant to combined phototherapy and systemic treatments were cleared of lesions with only 1 NB-UVB lamp treatment weekly for 8 weeks.

Excimer laser is a treatment option for patients who have failed topical therapy. Clinical studies show that response increases with up to 13 treatments and the typical duration of response is four to six months. Treatment is often limited to less than ten percent body surface area so exposure to the laser in a small area is minimized.

In summary, the excimer laser is more effective than the pulsed dye laser for psoriasis (Taibjee et al, 2005). The pulsed dye laser requires fewer treatments and has fewer side effects. It targets the abnormal microvasculature of psoriatic plaques. Because of this, it has been suggested that the pulsed dye laser may be useful in excimer-laser–resistant cases as has been shown in the 2005 Hruza study. (Ros et al, 1996; Zelickson et al, 1996; Lanigan et al, 1997; Erceg et al, 2006; Ilknur et al, 2006; de Leeuw et al, 2006; Bovenschen et al, 2007).

Several small RCTs and other small non-RCTs in patients with moderate-to-severe psoriasis have found that targeted phototherapy has efficacy similar to whole body phototherapy or PUVA. Targeted phototherapy is presumed to be safer or at least no riskier than whole body photo-therapy. Several nonrandomized studies have found that targeted phototherapy can improve health outcomes in patients with treatment-resistant psoriasis. One small sham controlled RCT evaluating a targeted NB-UVB device had mixed findings; the primary outcome was statistically nonsignificant.

VI. Important Reminders

The purpose of this Medical Policy is to provide a guide to coverage. This Medical Policy is not intended to dictate to providers how to practice medicine. Nothing in this Medical Policy is intended to discourage or prohibit providing other medical advice or treatment deemed appropriate by the treating physician.

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This Medical Policy has been developed through consideration of the medical necessity criteria under Hawaii's Patients' Bill of Rights and Responsibilities Act (Hawaii Revised Statutes §432E-1.4) or for QUEST members under Hawaii Administrative Rules (HAR 1700.1-42), generally accepted standards of medical practice and review of medical literature and government approval status. Medicare defines medical necessity as health care services or supplies needed to diagnose or treat an illness, injury, condition, disease, or its symptoms and that meet accepted standards of medicine. This definition applies only to Medicare Advantage (PPO and HMO) plans.

HMSA has determined that services not covered under this Medical Policy will not be medically necessary under Hawaii law in most cases. If a treating physician disagrees with HMSA's determination as to medical necessity in a given case, the physician may request that HMSA reconsider the application of the medical necessity criteria to the case at issue in light of any supporting documentation.

VII. References

1. Aetna Clinical Policy Bulletin: Laser treatment for psoriasis and other selected skin conditions. Number 0577. August 10, 2021.
2. Almutawa F, Thalib L, Heckman D, et al. Efficacy of localized phototherapy and photodynamic therapy for psoriasis: a systematic review and meta-analysis. Photodermatol Photoimmunol Photomed. November 28, 2013.
3. Blue Cross Blue Shield Medical Policy Reference Manual. Light therapy for psoriasis. Number 2.01.47. Archived February 2021.
4. Callen JP, Krueger GG, Lebwohl M, et al. AAD consensus statement on psoriasis therapies. J Am Acad Dermatol. Nov 2003; 49(5):897-899.

5. Kollner K, Wimmershoff MB, Hintz C, et al. Comparison of the 308-nm excimer laser and a 308-nm excimer lamp with 311-nm narrowband ultraviolet B in the treatment of psoriasis. Br J Dermatol. 2005; 152(4):750-754.
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8. Nistico SP, Saraceno R, Stefanescu S, et al. A 308-nm monochromatic excimer light in the treatment of palmoplantar psoriasis. J Eur Acad Dermatol Venereol. 2006; 20(5):523-526.
9. Taneja A, Trehan M, Taylor CR. 308-nm excimer laser for the treatment of psoriasis: induration-based dosimetry. Arch Dermatol. 2003; 139(6):759-764.
10. Taylor CR, Racette AL. A 308-nm excimer laser for the treatment of scalp psoriasis. Lasers Surg Med. 2004; 34(2):136-140.
11. Elmets CA, Lim HW, Stoff B, Connor C, Cordoro KM, Lebwohl M, et.al.. Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management and treatment of psoriasis with phototherapy. J Am Acad Dermatol. 2019 Sep;81(3):775-804. doi: 10.1016/j.jaad.2019.04.042. Epub 2019 Jul 25. Erratum in: J Am Acad Dermatol. 2020 Mar;82(3):780. PMID: 31351884.

VIII. Policy History

Action Date	Action
June 2, 2015	Policy reviewed by Medical Director Mark Mugiishi, M.D.
June 16, 2015	Policy approved by Medical Directors
June 26, 2015	Policy approved by UMC
April 1, 2016	Policy effective date following notification period
April 13, 2017	Policy reviewed by Medical Director John Baleix, M.D.
May 2, 2017	Policy approved by Medical Directors
May 26, 2017	Policy approved by UMC
January 3, 2018	Policy reviewed by Medical Director John Baleix, M.D.
February 6, 2018	Policy approved by Medical Directors
February 23, 2018	Policy approved by UMC
March 25, 2019	Policy reviewed by Medical Director Rae Seitz, M.D.
June 03, 2019	Policy approved by Medical Directors
June 28, 2019	Policy approved by UMC
November 01, 2019	Policy effective date following notification period
December 8, 2020	Policy reviewed by Medical Director David Percy, M.D.
December 15, 2020	Policy approved by Medical Directors
December 18, 2020	Policy approved by UMC
November 30, 2021	Policy reviewed by Medical Director David Percy, M.D.
December 7, 2021	Policy approved by Medical Directors
December 17, 2021	Policy approved by UMC
October 25, 2022	Policy reviewed by Medical Director David Percy, M.D.
November 1, 2022	Policy approved by Medical Directors
November 18, 2022	Policy approved by UMC
October 27, 2023	Policy reviewed by Medical Director David Percy, M.D.
November 7, 2023	Policy approved by Medical Directors
November 17, 2023	Policy approved by UMC