MEDICAL POLICY

MEDICAL POLICY DETAILS	
Medical Policy Title	**Light and Laser Therapies for Dermatologic Conditions**
Policy Number	**8.01.21**
Category	**Technology Assessment**
Original Effective Date	**09/21/06**
Committee Approval Date	**09/20/07, 07/17/08, 09/17/09, 10/28/10, 09/15/11, 09/20/12, 09/19/13, 09/18/14, 09/17/15, 09/15/16, 09/21/17, 09/20/18, 08/15/19, 10/22/20, 08/19/21, 08/18/22, 08/17/23**
Current Effective Date	**08/17/23**
Archived Date	**N/A**
Archive Review Date	**N/A**
Product Disclaimer	• *If a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply.* • *If a commercial product (including an Essential Plan or Child Health Plus product), medical policy criteria apply to the benefit.* • *If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.* • *If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.* • *If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line*

POLICY STATEMENT

I. Based upon our criteria and assessment of the peer-reviewed literature, the following have been medically proven to be effective and, therefore, are considered **medically appropriate:**

A. Ultraviolet B (UVB) light, alone or in combination with other treatment modalities, for the following indications:

1. moderate to severe psoriasis that is not responsive to topical or systemic (e.g., methotrexate) drug therapies alone; or
2. eczema/atopic dermatitis that is not responsive to topical or systemic drug therapies alone or that interferes with an individual's normal functional capacity; or
3. cutaneous T-cell lymphoma (e.g., mycosis fungoides); or
4. vitiligo of sun-exposed regions (such as the face, neck, and dorsum of the hands) because the depigmented skin is sun-sensitive, is subject to severe sunburn, and may pose a risk for skin cancer; and
5. in the absence of:
   a. xeroderma pigmentosum
   b. disorders with significant light sensitivity (e.g., albinism), and
   c. lupus erythematosus.

B. Psoralen Ultraviolet A (PUVA) for the following indications:

1. severe, disabling psoriasis that is not responsive to conservative therapy or UVB therapy; or
2. severe, disabling eczema/atopic dermatitis that is not responsive to conservative therapy or UVA/UVB therapy; or
3. cutaneous T-cell lymphoma (e.g., mycosis fungoides); or
4. vitiligo of sun-exposed regions (such as the face, neck, and dorsum of the hands) because the depigmented skin is sun-sensitive, is subject to severe sunburn, and may pose a risk for skin cancer; and
5. in the absence of:
   a. xeroderma pigmentosum
   b. disorders with significant light sensitivity (e.g.' albinism)

c. lupus erythematosus
d. pregnancy
e. breast-feeding
f. uremia and hepatic failure

C. Ultraviolet A (UVA) light, alone or in combination with other treatment modalities, for the treatment of eczema/atopic dermatitis that is not responsive to topical or systemic drug therapies alone or that interferes with an individual's normal functional capacity in the absence of xeroderma pigmentosum, disorders with significant light sensitivity (e.g., albinism), and lupus erythematosus.
D. Targeted phototherapy using an excimer lamp or laser device that has received Section 510(k) approval from the U.S. Food and Drug Administration (FDA) (e.g., Fencer 308 Excimer Laser, XTRAC XL excimer laser and VTRAC excimer lamp system, BClear lamp, and European-manufactured Excilite and Excilite µ XeCL lamps) for the following indications:
1. moderate-to-severe localized psoriasis comprising less than 20% of the body area for which narrowband UVB or PUVA is indicated; or
2. mild-to-moderate psoriasis that is unresponsive to conservative treatment; and
3. in the absence of:
a. xeroderma pigmentosum;
b. disorders with significant light sensitivity (e.g., albinism)
c. lupus erythematosus

E. Home phototherapy utilizing UVB radiation for the treatment of moderate-to-severe psoriasis, comprising at least 3% of the body area, **OR** eczema/atopic dermatitis, that is not responsive to conservative therapies, when **ALL** of the following criteria have been met:
1. the patient's dermatologist has submitted a letter of medical necessity stating the reason that the home-based, rather than office-based, therapy is needed; and
2. the patient has had ineffective courses of treatment using topical or systemic drug therapy; and
3. the patient is motivated and reliable, ensuring that treatment is pursued correctly and consistently and that exposures are accurately recorded; and
4. in the absence of:
a. xeroderma pigmentosum
b. disorders with significant light sensitivity (e.g., albinism)
c. lupus erythematosus

F. Photodynamic Therapy (PDT) with 5-aminolevulinic acid (5-ALA) topical preparations, for the treatment of:
1. non-hyperkeratotic actinic keratoses of the face and scalp; or
2. non-hyperkeratotic actinic keratoses of the upper extremities; or
3. superficial basal cell skin cancer, only when surgery and/or radiation is contraindicated; or
4. Bowen's disease (squamous cell carcinoma in situ), only when surgery and/or radiation is contraindicated; and
5. in the absence of:
a. xeroderma pigmentosum
b. disorders with significant light sensitivity (e.g., albinism)
c. lupus erythematosus

II. Based upon our criteria and assessment of peer-reviewed literature, the following treatments have not been medically proven to be effective and, therefore, are considered **investigational**:
A. Targeted phototherapy (e.g., the XTRAC XL and VTRAC lamp, the BClear lamp, and the European-manufactured Excilite and Excilite µ XeCL lamps) for the following indications:
1. first-line treatment of mild psoriasis; and
2. treatment of generalized psoriasis or psoriatic arthritis; and
3. vitiligo.
B. PDT with topical preparations for the treatment of other dermatologic conditions, including, but not limited to, acne vulgaris, regional squamous cell carcinoma, and non-superficial basal cell carcinoma.

C. Treatment of acne with light or laser therapy, including pulsed dye or smooth beam laser.
D. Treatment of lichen planus with light or laser therapy, including UVB, PUVA, UVA, PDT, or targeted phototherapy.

Refer to Corporate Medical Policy #7.01.11 Cosmetic and Reconstructive Procedures

Refer to Corporate Medical Policy #8.01.01 Extracorporeal Photochemotherapy/Photopheresis

Refer to Corporate Medical Policy #8.01.06 Photodynamic Therapy (PDT) for Malignant Disease

Refer to Corporate Medical Policy #11.01.03 Experimental or Investigational Services

Refer to Administrative Policy #37 Laser Treatment of Psoriasis

POLICY GUIDELINES

I. The number of treatments required for clearance and remission for both UVB and PUVA therapy is based upon the severity of the disease and the individual response to treatment. The number of psoriatic flare-ups that a person experiences in a lifetime also varies by severity of the disease.

II. UVB therapy usually begins with three to five sessions per week until clearing is achieved, followed by maintenance therapy with a gradual reduction in sessions until sessions are no longer required. PUVA therapy begins with two to three sessions per week for initial clearing, then one to two times a month for maintenance. If no improvement in the psoriatic lesions is seen after four weeks of either UVB or PUVA therapy, treatment should be discontinued.

III. Medical necessity documentation, such as a treatment plan and/or photographs, is generally not required until after a threshold of 30 visits.

IV. The number of treatments required for clearance and remission for atopic dermatitis/eczema and for re-pigmentation in vitiligo for both UVB a PUVA therapy is based upon the severity of the disease and the individual response to treatment.

V. In general, a phototherapy home unit should be purchased only when there is anticipation of long-term use.

VI. Because of its potential long-term side effects, PUVA is rarely indicated for children or young adults.

VII. Treatment should be used with *caution* in the following circumstances:

1. history or family history of melanoma;
2. history of non-melanoma skin cancer, extensive solar damage, and previous treatment with ionizing arsenic;
3. pemphigus or pemphigoid;
4. immunosuppression;
5. cataracts and aphakia;
6. photosensitivity; and
7. uremia and hepatic failure.

DESCRIPTION

Ultraviolet light therapy is exposure to the skin with non-ionizing radiation for therapeutic benefit. It may involve exposure to UVB, UVA, or various combinations of UVB and UVA radiation.

Excimer laser, a xenon chloride (XeCl) laser (e.g., XTRAC, Ex-308 laser), emits a narrow beam of UVB light from a handheld unit which results in a much higher concentration of UVB exposure than in the standard phototherapy unit. The use of excimer laser may shorten the number of exposures necessary, and only specific areas of the body are treated with the laser, limiting the number of exposures and the area being treated, potentially reducing the harmful effects of UV radiation.

Photochemotherapy is the therapeutic use of radiation in combination with a photosensitizing chemical, currently PUVA. Psoralens makes the skin more sensitive and responsive to this wavelength of light. It can be taken orally, applied topically, or added to a bath via a solution for soaking into the skin.

PDT using 5-ALA has been investigated as a treatment of actinic keratoses (AK), skin cancers, and superficial dermatologic lesions such as Bowen's disease. Levulan Kerastick is one example of a topical preparation of 5-ALA. The Levulan Photodynamic system is a two-step treatment, involving application of Levulan Kerastick, then exposure of the area to blue light via the BLU-U Blue Light Photodynamic Therapy Illuminator.

Topical application of methyl aminolevulinate (Metvix, MAL), followed by exposure with the CureLight Broadband (Model CureLight 01), a proprietary red-light source, or the PhotoCure Aktilite CL128 lamp, an LED-based narrow band (630 nm) red light technology device, is another variant of photodynamic therapy for skin lesions. Although MAL is an approved photosensitizer for PDT, it is no longer produced in the United States (NCCN, 2020).

In 2016, Ameluz gel (aminolevulinic acid hydrochloride gel, 10%) was approved by the FDA for use in combination with PDT using BF-RhodoLED lamp, a narrowband, red light illumination source, for lesion-directed and field-directed treatment of mild-to-moderate AKs on the face and scalp.

In a 2021 Executive Summary, The American Academy of Dermatology published guidelines for the care and management of AK, which included conditional recommendations for the use of ALA red-light PDT or ALA blue-light PDT treatment for AKs and considered the associated risks of skin irritation, pain and cosmesis to represent a minimal potential for harm. They highlighted the conditional recommendation is based on limited quality of evidence, however, noted that there is evidence suggesting complete clearance of AK with repeated treatment of ALA-PDT.

The use of photodynamic therapy via the BLU-U Blue Light Photodynamic Therapy Illuminator and intense pulsed light has been investigated for the treatment of acne vulgaris and has received FDA approval for this indication.

Psoriasis disease severity is minimally defined by body surface area lesion characteristics (e.g., location and severity of erythema, scaling, induration, and pruritus); impact on quality of life is also taken into account. For example, while one handprint is equal to approximately 1% body surface area, lesions on the hands, feet, or genitalia that cause disability may be classified as moderate-to-severe. Mild psoriasis affects less than 5% of the body's surface area, moderate psoriasis affects 5% to 10%, and severe disease affects more than 10% body surface area.

RATIONALE

The published data has demonstrated that psoriasis has an excellent response rate when treated with either UVB or PUVA. The overall risk of complications from phototherapy and photochemotherapy are low, when compared to the thousands of patients treated with these therapies. Phototherapy and photochemotherapy have been standard treatment alternatives used by dermatologists for severe psoriasis and for vitiligo.

The National Institute for Health and Care Excellence (NICE) updated its Clinical Guideline for Psoriasis: Assessment and Management in 2017. The guidelines suggest offering narrowband ultraviolet B (UVB) phototherapy to people with plague or guttate-pattern psoriasis that cannot be controlled with topical treatments alone, to consider psoralen (oral or topical) with local ultraviolet A (PUVA) irradiation to treat palmoplantar pustulosis, and, when considering PUVA for psoriasis (plaque type or localized palmoplantar pustulosis), to discuss other treatment options and associated risk of increased skin cancer.

The National Psoriasis Foundation defines the classifications of psoriasis as: Mild < 3%; Moderate 3-10%, and Severe >10%. However, the severity of psoriasis is also measured by how psoriasis affects a person's quality of life. For example, psoriasis can have a serious impact on one's daily activities even if it involves a small area such as the palms of the hands or soles of the feet.

Published data have demonstrated that phototherapy in the form of UVA, UVB and PUVA have been proven to be safe and effective treatments, with a low overall risk of complications, for eczema/atopic dermatitis. The American Academy of Dermatology Association lists phototherapy and photochemotherapy as treatments for eczema in its most recently published Guidelines of Care for Phototherapy and Photochemotherapy, and Guidelines of Care for Atopic Dermatitis.

The peer-reviewed literature consists of small case series that indicate good outcomes when phototherapy in the form of PUVA and UVB is used for the treatment of mycosis fungoides, a very rare lymphoma of the skin.

PhotoMedex (XTRAC laser) and Surgilight (EX-308 laser) have received FDA Section 510(k) market approval for the use of excimer lasers in the treatment of psoriasis. Section 510(k) clearance has subsequently been issued for a number of targeted UVB lamps and lasers, including the XTRAC XL laser and VTRAC lamp (PhotoMedex), the BClear lamp (Lumenis), and the European-manufactured Excilite and Excilite µ XeCL lamps. The indicated use of these devices is targeted UVB phototherapy for treatment of skin conditions, including psoriasis, vitiligo, atopic dermatitis, and leukoderma. Peer-reviewed literature is limited; however, the published evidence supports the use of targeted phototherapy for the treatment of moderate-to-severe psoriasis comprising less than 20% of the body area for which NB-UVB or PUVA is indicated, and for the treatment of mild-to-moderate psoriasis that is unresponsive to conservative treatment. There is insufficient evidence to support the use of targeted phototherapy for the first-line treatment of mild psoriasis or for the treatment of generalized psoriasis or psoriatic arthritis.

A 2016 systematic review identified three studies that compared targeted phototherapy with a 308 nm excimer lamp to NB-UVB and three studies that compared the excimer lamp to the excimer laser. No differences between the excimer lamp and NB-UVB were identified for the outcome of 50% or greater re-pigmentation (RR=1.14; 95% CI, 0.88 to 1.48). For re-pigmentation of 75% or greater, only two small studies were identified, and the relative risk was 1.81 (95% CI, 0.11 to 29.52), showing a lack of precision in the estimate. For the three studies that compared the excimer lamp to the excimer laser, there were no significant differences between treatments for either 50% or greater re-pigmentation (RR=0.97; 95% CI, 0.84 to 1.11) or 75% or greater re-pigmentation (RR=0.96; 95% CI, 0.71 to 1.30). All treatments were most effective in lesions located on the face, with the worst response being lesions on the extremities. There was some evidence of an increase in adverse events such as blistering with targeted phototherapy.

A Cochrane review update addressing interventions for vitiligo included the review of 12 trials on laser light devices. Six trials evaluated the combination of laser light devices and a topical therapy, and two evaluated the combination of laser devices and surgical therapy. Three trials compared regimens of laser monotherapy. The remaining trial compared a helium neon laser and a 290 to 320 nm broadband ultraviolet B (UVB) fluorescent lamp. Due to heterogeneity across studies, the authors did not pool study findings. In most trials, all groups received laser light treatment, alone or as part of combination therapy, making the efficacy of targeted phototherapy unable to be determined. (Whitton et al., 2015).

Bae, J.M. et al. (2017) performed a systematic review and meta-analysis of patient response to narrowband UV-B (NBUVB) phototherapy and psoralen-UV-A (PUVA) phototherapy in the treatment of vitiligo. Inclusion criteria consisted of: (1) prospective studies; (2) participants with a diagnosis of generalized or symmetrical vitiligo; (3) at least one phototherapy group; (4) at least 10 participants in each treatment arm; (5) treatment duration of at least 12 weeks or 24 treatment sessions; (6) outcomes measured based on all vitiligo lesions on the participants whole or half body; and (7) degree of re-pigmentation based on a quartile scale. In the final analysis, 35 studies were included, with 29 studies of 1201 patients undergoing NBUVB phototherapy and nine studies of 227 patients undergoing PUVA phototherapy. A mild response (≥25%) to NBUVB phototherapy occurred in 62.1% of 130 patients in three studies at three months, 74.2% of 232 patients in 11 studies at six months, and 75.0% of 512 patients in eight studies at 12 months. A marked response, defined as ≥75%, was achieved in 13.0% of 106 patients in two studies at three months, 19.2% of 266 patients in 13 studies at six months, and 35.7% of 540 patients in nine studies at 12 months. For PUVA phototherapy, at least a mild response occurred in 51.4% of 103 patients in four studies at six months and 61.6% of 72 patients in three studies at 12 months. After at least six months of NBUVB phototherapy, at least a mild response occurred on the face and neck in 82.0% of 153 patients, and a marked response in 44.2%, while hands and feet received a mild response in 11.0% of 172 patients, and no marked responses of the same group. The authors could not determine the appropriate treatment duration of phototherapy but did verify treatment duration of at least one year to achieve maximal response and suggested at least six months of treatment to determine responsiveness to NBUVB phototherapy. Overall, treatment response to NBUVB phototherapy was better than PUVA therapy. The most responsive body sites were the face and neck, with hands and feet being the least responsive.

A 2015 systematic review was conducted of randomized, controlled trials (RCTs) that focused on treatment of vitiligo with the 308 nm excimer laser. Authors identified seven RCTs with a total of 390 patients. None of the studies was conducted in the United States. Three of the trials compared the excimer laser with an excimer lamp. Four studies compared the excimer laser with narrowband (NB)-UVB; however, two of these were not published in English, and one had a sample size of only 14 patients. The fourth study, published in 2010, did not report efficacy outcomes such as

clinical response rate or re-pigmentation rate; but reported on the proportion of patients with various types of re-pigmentation: perifollicular, marginal, diffuse, or combined. Re-pigmentation rates did not differ significantly between groups treated with the excimer laser versus NB-UVB. The authors conducted a meta-analysis of the two studies that were not published in English, so results cannot be verified, but they reported that the likelihood of a minimum 50% re-pigmentation rate was significantly higher with the excimer laser, compared with NB-UVB (risk ratio, 1.39, 95% confidence interval [CI], 1.05 to 1.85) and that, in qualitative analysis, neither of these studies showed significant benefit of the excimer laser for achieving a minimum 75% re-pigmentation rate. (Sun et al., 2015).

Studies addressing targeted phototherapy for treating vitiligo tended to have small sample sizes, few were designed to isolate the effect of laser therapy, and were heterogeneous (e.g., different interventions or combinations of interventions, and different comparison interventions), making it difficult to pool study findings or to draw conclusions about the efficacy of targeted phototherapy for vitiligo.

In 2018, the FDA-approved indications for Levulan Kerastick were expanded to include non-hyperkeratotic AKs of the upper extremities, in addition to the face and scalp. Studies demonstrate that photodynamic therapy with 5-ALA is an effective nonsurgical technique for treating non-hyperkeratotic AKs of the face and scalp, with an acceptable rate of recurrence of 19% over 12 months. In two placebo controlled RCTs, significantly more patients had complete clearance of AKs of the upper extremities with ALA and blue light, compared to placebo at 12 weeks (Schmieder et al., 2012; Jiang et al., 2019).

In 2007, the International Society for Photodynamic Therapy in Dermatology published consensus-based guidelines on the use of PDT for nonmelanoma skin cancer. Based on efficacy and cosmetic outcome, the authors recommended PDT as a first-line therapy for actinic keratosis. The guideline recommended photodynamic therapy for superficial basal cell carcinoma as “a viable alternative when surgery would be inappropriate, or the patient or physician wishes to maintain normal skin appearance” and concludes that photodynamic therapy is at least as effective as cryotherapy or 5-FU for Bowen’s disease. The authors found insufficient evidence to support the routine use of topical photodynamic therapy for squamous cell carcinoma. (Braathen L.R. et al.)

The 2023 National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines for basal cell skin cancer indicate, that while cure rates are approximately 10% lower than for surgical treatment modalities, topical therapies including topical imiquimod, topical 5-fluroruracil (5-FU), photodynamic therapy (e.g., aminolevulinic acid [ALA], porifimer sodium) or cryotherapy may be considered as well as recommended when surgery is contraindicated or impractical. The guidelines report that most studies have focused on the superficial and nodular histologic subtypes, and several have found higher cure rates for superficial versus nodular subtypes in both low- and high-risk locations. Compared to other superficial therapies, PDT has similar efficacy as cryotherapy but with much better cosmetic outcomes. The literature has demonstrated varied results in comparison of PDT and imiquimod.

Overall, the literature investigating the use of photodynamic therapy in the treatment of acne consists of very small studies in which the patient is also the control. These studies lack long-term data on effectiveness and safety. Due to the small sample sizes of the published trials, lack of long-term follow-up, small number of studies on any particular type of laser, and paucity of studies comparing light therapy to standard acne treatments, the evidence is insufficient to draw conclusions about the impact of laser treatments on health outcomes in patients with active acne.

Overall, the literature investigating the use of light or laser therapies in the treatment of lichen planus consists of very small studies. The evidence is insufficient to support long-term improvement in health outcomes.

CODES

- *Eligibility for reimbursement is based upon the benefits set forth in the member’s subscriber contract.*
- *CODES MAY NOT BE COVERED UNDER ALL CIRCUMSTANCES. PLEASE READ THE POLICY AND GUIDELINES STATEMENTS CAREFULLY.*
- *Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.*
- *Code Key: Experimental/Investigational = (E/I), Not medically necessary/ appropriate = (NMN).*

CPT Codes

Code	Description
96567	Photodynamic therapy by external application of light to destroy premalignant lesions of the skin and adjacent mucosa with application and illumination/activation of photosensitive drug(s), per day
96573	Photodynamic therapy by external application of light to destroy premalignant lesions of the skin and adjacent mucosa with application and illumination/activation of photosensitizing drug(s) provided by a physician or other qualified health care professional, per day
96574	Debridement of premalignant hyperkeratotic lesion(s) (i.e., targeted curettage, abrasion) followed with photodynamic therapy by external application of light to destroy premalignant lesions of the skin and adjacent mucosa with application and illumination/activation of photosensitizing drug(s) provided by a physician or other qualified health care professional, per day
96900	Actinotherapy (ultraviolet light)
96910	Photochemotherapy; tar and ultraviolet B (Goeckerman treatment) or petrolatum and ultraviolet B
96912	Photochemotherapy; psoralens and ultraviolet A (PUVA)
96913	Photochemotherapy (Goeckerman and/or PUVA) for severe photoresponsive dermatoses requiring at least 4-8 hours of care under direct supervision of the physician (includes application of medication and dressings)
96920	Laser treatment for inflammatory skin disease (psoriasis); total area less than 250 sq cm
96921	250 sq cm to 500 sq cm
96922	over 500 sq cm

HCPCS Codes

Code	Description
E0691	Ultraviolet light therapy system, includes bulbs/lamps, timer, and eye protection; treatment area 2 sq ft or less
E0692	Ultraviolet light therapy system panel, includes bulbs/lamps, timer and eye protection, 4 ft panel
E0693	Ultraviolet light therapy system panel, includes bulbs/lamps, timer and eye protection, 6 ft panel
E0694	Ultraviolet multidirectional light therapy system in 6 ft cabinet, includes bulbs/lamps, timer, and eye protection
J7308	Aminolevulinic acid HCl for topical administration, 20%, single unit dosage form (354 mg)
J7309	Methyl aminolevulinate (MAL) for topical administration, 16.8%, 1 gram (product no longer available in the U.S.)
J7345	Aminolevulinic acid HCl for topical administration, 10% gel, 10 mg

ICD10 Codes

Code	Description
C44.00-C44.99	Other and unspecified malignant neoplasm of skin (code range)

Code	Description
C80.0-C80.2	Malignant neoplasm without specification of site (code range)
C84.00-C84.09	Mycosis fungoides; code range
C84.10-C84.19	Sézary disease; code range
D04.0-D04.9	Carcinoma in situ of skin (code range)
L40.0-L40.9	Psoriasis (code range)
L43.0 -L43.9 **(E/I)**	Lichen planus (code range)
L57.0	Actinic keratosis
L70.0-L70.9 **(E/I)**	Acne (code range)
L73.0 **(E/I)**	Acne keloid
L80	Vitiligo

REFERENCES

Allam NM and Elshorbagy RT. Monopolar radiofrequency versus pulsed dye laser for treatment of acne scars: a randomized clinical trial. Physiotherapy Quarterly 2022; 30(1): 73-77.

Al-Maweri SA, et al. Efficacy of photodynamic therapy in the treatment of symptomatic oral lichen planus: A systematic review. J Oral Pathol Med 2018 Apr;47(4):326-332.

Ashraf AZ, et al. The effectiveness of home-based phototherapy for vitiligo: A systematic review of randomized controlled trials. Photodermatol Photoimmunol Photomed 2022; 11:1-9.

*Bae JM, et al. Phototherapy for vitiligo: a systematic review and meta-analysis. JAMA Dermatol 2017 July1;153(7):666-674.

*Barbaric J, Abbott R, Posadzki P, et al. Light therapies for acne. Cochrane Database Syst Rev Sep 27 2016;9:CD007917.

Batchelor JM, et al. Home-based narrowband UVB, topical corticosteroid or combination for children and adults with vitiligo: HI-Light Vitiligo three-arm RCT. Health Technology Assessment 2020 Nov; 24 (64):1-5.

*Braathen LR et al. Guidelines on the use of photodynamic therapy for nonmelanoma skin cancer: an international consensus. International Society for Photodynamic Therapy in Dermatology. J Am Acad Dermatol 2007 Jan;56(1):125-43.

Dawood M, et al. Narrowband ultraviolet B radiation for lichen planus: long-term follow-up of 192 patients. J Clin Aesthet Dermatol 2022 Apr;15(4):31-35.

Elmets CA, 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.

Fernández-Guarino M, et al. Generalized lichen planus treated with narrowband UV-B phototherapy: Results from 10 patients and a review of the literature. Actas Dermosifiliogr Jul-Aug 2019;110(6):490-493.

*Freeman M, et al. A comparison of photodynamic therapy using topical methyl aminolevulinate (Metvix®) with single cycle cryotherapy in patients with actinic keratosis: a prospective, randomized study. J Dermatol Treat 2003 Jun;14(2):99-106.

*Gerber W, et al. Ultraviolet B 308-nm excimer laser treatment of psoriasis: a new phototherapeutic approach. Br J Dermatol 2003 Dec;149(6):1250-8.

*Iraji F, et al. Comparison of the narrow band UVB versus systemic corticosteroids in the treatment of lichen planus: A randomized clinical trial. J Res Med Sci 2011 Dec;16(12):1578-82.

*Jiang SIB, et al. A randomized, vehicle-controlled phase 3 study of aminolevulinic acid photodynamic therapy for the treatment of actinic keratoses on the upper extremities. Dermatol Surg 2019 Jul;45(7):890-897.

Khandpur S, et al. Narrow-band ultraviolet B comb as an effective home-based phototherapy device for limited or localized non-segmental vitiligo: A pilot, open-label, single-arm clinical study. Indian Journal of Dermatology, Venereology, and Leprology 2020 May-Jun;86 (3): 298-301.

*Markham T, et al. Narrowband UV-B (TL-01) phototherapy vs. oral 8-methoxypsoralen psoralen-UV-A for the treatment of chronic plaque psoriasis. Arch Derm 2003;139(3):325-8.

Mirza S, et al. Efficacy of photodynamic therapy or low level laser therapy against steroid therapy in the treatment of erosive-atrophic oral lichen planus. Photodiagnosis Photodyn Ther 2018 Mar;21:404-408.

National Comprehensive Cancer Network. Basal cell skin cancers. NCCN Clinical Practice Guidelines in Oncology. Version 1.2023, March 10, 2023 [http://www.nccn.org/professionals/physician_gls/PDF/nmsc.pdf] accessed 07/07/23.

National Comprehensive Cancer Network. Squamous cell skin cancers. NCCN Clinical Practice Guidelines in Oncology. Version 1.2023, March 10, 2023 [http://www.nccn.org/professionals/physician_gls/pdf/squamous.pdf] accessed 07/07/23.

National Institute for Health and Clinical Excellence (NICE). Psoriasis: assessment and management. CG153. 2012 Oct, updated 2017 Sep [http://guidance.nice.org.uk/CG153] accessed 07/07/23.

National Psoriasis Foundation. About Psoriasis. [https://www.psoriasis.org/about-psoriasis] accessed 07/07/23.

Noe MH, et al. Patient-reported outcomes of adalimumab, phototherapy, and placebo in the Vascular Inflammation in Psoriasis Trial: A randomized controlled study. J Am Acad Dermatol 2019 Oct;81(4):923-930.

*Novak Z, et al. Xenon chloride ultraviolet B laser is more effective in treating psoriasis and in inducing T cell apoptosis than narrow-band ultraviolet B. J Photochem Photobiol B 2002 May;67(1):32-8.

Papp KA, et al. Rationale, objectives, and design of PURE, a prospective registry of patients with moderate to severe chronic plaque psoriasis in Canada and Latin America. BMC Dermatol 2019 Jun 21;19(1):9.

*Pariser DM, et al. Photodynamic therapy with topical methyl aminolevulinate for actinic keratosis: results of a prospective randomized multicenter trial. J Am Acad Dermatol 2003 Feb;48(2):227-32.

*Pavlotsky F, et al. Ultraviolet-B treatment for cutaneous lichen planus: our experience with 50 patients. Photodermatol Photoimmunol Photomed 2008 Apr;24(2):83-6.

*Product Information. Levulan Kerastick (aminolevulinic acid HCl) for topical solution, 20%. Dusa Pharmaceuticals, Inc. Valhalla, New York, NY, USA, 1999.

*Schmieder GJ, et al. A multicenter, randomized, vehicle-controlled phase 2 study of blue light photodynamic therapy with aminolevulinic acid HCl 20% topical solution for the treatment of actinic keratoses on the upper extremities: the effect of occlusion during the drug incubation period. J Drugs Dermatol 2012 Dec;11(12):1483-9.

*Strauss JS, et al. Guidelines of care for acne vulgaris management. J Amer Acad Derm 2007 Apr;56(4):651-63.

*Taub AF and Garretson CB. A randomized, blinded, bilateral intraindividual, vehicle-controlled trial of the use of photodynamic therapy with 5-aminolevulinic acid and blue light for the treatment of actinic keratoses of the upper extremities. J Drugs Dermatol 2011 Sep;10(9):1049-56.

Weber B, et al. Effectiveness of narrowband UVB phototherapy and psoralen plus UVA photochemotherapy in the treatment of generalized lichen planus: Results from a large retrospective analysis and an update of the literature. Photodermatol Photoimmunol Photomed 2022 Mar;38(2):104-111.

*Whitton ME, et al. Interventions for vitiligo. Cochrane Database Syst Rev 2015 Feb 24;2:CD003263.

*Yones SS et al. Randomized double-blind trial of the treatment of chronic plaque psoriasis: efficacy of psoralen-UV-A therapy vs narrowband UV-B therapy. Arch Dermatol 2006 Jul;142(7):836-42.

*Key Article

KEY WORDS

Aminolevulinic acid, BClear lamp, Excilite lamp, Levulan Kerastick, methyl aminolevulinate, Metvix, Narrow band ultraviolet B, Psoralens, PUVA, Ultraviolet light, UVA, UVB, xenon chloride laser, XeCL, XTRAC, VTRAC lamp.

CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS

There is currently a National Coverage Determination (NCD) for the Treatment of Psoriasis (250.1) Please refer to the following websites for Medicare Members:

https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=88&ncdver=1&CoverageSelection=Both&ArticleType=All&PolicyType=Final&s=New+York+-+Upstate&KeyWord=psoriasis&KeyWordLookUp=Title&KeyWordSearchType=And&ncd_id=250.1&ncd_version=1&basket=ncd%25253A250%25252E1%25253A1%25253ATreatment+of+Psoriasis&bc=gAAAABAAAAAA& Accessed 09/05/23.

There is currently a National Coverage Determination (NCD) for the Treatment of Actinic Keratosis (250.4). Please refer to the following websites for Medicare Members:

https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=129&ncdver=1&NCAId=1&ver=23&NcaName=Actinic+Keratoses&CoverageSelection=Both&ArticleType=All&PolicyType=Final&s=New+York+-+Upstate&KeyWord=actinic+keratoses&KeyWordLookUp=Title&KeyWordLookUp=Title&KeyWordSearchType=And&KeyWordSearchType=And&ncd_id=250.1&ncd_version=1&basket=ncd%25253A250%25252E1%25253A1%25253ATreatment+of+Psoriasis&bc=gAAAABAAIAAA& Accessed 09/05/23.