

Medical Policy



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Title: **Ultraviolet Light Therapy for Skin Conditions**

Professional

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DESCRIPTION

Ultraviolet (UV) light therapy, including phototherapy, targeted phototherapy and photochemotherapy with psoralen plus ultraviolet A (PUVA), is used for the treatment of certain skin conditions. Phototherapy utilizes UVB light, categorized as either wide-band or narrow-band, which refers to the wavelengths included in the UV light source. Targeted phototherapy describes the use of ultraviolet light that can be focused on specific body areas or lesions. PUVA uses a psoralen derivative in conjunction with long wavelength ultraviolet A (UVA) light (sunlight or artificial) for photochemotherapy of skin conditions.

OBJECTIVE

The objective of this policy is to evaluate the evidence for the efficacy and safety of targeted phototherapy and psoralen plus ultraviolet A in patients with certain skin conditions.

BACKGROUND

Phototherapy

Phototherapy (eg, actinotherapy) is defined as exposure to non-ionizing, ultraviolet (UV) radiation for therapeutic benefit by inducing DNA damage. The therapy involves exposure to type A ultraviolet (UVA) radiation or type B ultraviolet (UVB) radiation or various combinations of UVA and UVB. The differences in these ultraviolet light forms are the length of the waves. UVA wavelength is 320-400 nanometers (NM), broadband (bb) UVB is 280-320 nm and narrowband (nb) UVB is 311-312 nm. UVA is further broken down into UVA1 (340-400nm) and UVA2 (320-340nm). The longer wavelengths emit a lower energy level. UVA bulbs, for example, are used in tanning beds for cosmetic effects because they promote tanning using lower energy with less erythema than UVB.

Psoralen Plus Ultraviolet A

PUVA uses a psoralen derivative in conjunction with long wavelength UVA light (sunlight or artificial) for photochemotherapy of skin conditions. Psoralens are tricyclic furocoumarins that occur in certain plants and can also be synthesized. They are available in oral and topical forms. Oral PUVA is generally given 1.5 hours before exposure to UVA radiation. Topical PUVA therapy refers to directly applying the psoralen to the skin with subsequent exposure to UVA light. Bath PUVA is used in some European countries for generalized psoriasis, but the agent used, trimethylpsoralen, is not approved by the U.S. Food and Drug Administration (FDA). Paint PUVA and soak PUVA are other forms of topical application of psoralen and are often used for psoriasis localized to the palms and soles. In paint PUVA, 8-methoxypsoralen (8-MOP) in an ointment or lotion form is put directly on the lesions. With soak PUVA, the affected areas of the body are placed in a basin of water containing psoralen. With topical PUVA, UVA exposure is generally administered within 30 minutes of psoralen application.

PUVA has most commonly been used to treat severe psoriasis, for which there is no generally accepted first-line treatment. Each treatment option (eg, systemic therapies such as methotrexate, phototherapy, biologic therapies) has associated benefits and risks. Common minor toxicities associated with PUVA include erythema, pruritus, irregular pigmentation, and gastrointestinal tract symptoms; these generally can be managed by altering the dose of psoralen or UV light. Potential long-term effects include photoaging and skin cancer, particularly squamous cell carcinoma and possibly malignant melanoma. PUVA is generally considered more effective than targeted phototherapy for the treatment of psoriasis. However, the requirement of systemic exposure and the higher risk of adverse reactions (including a higher carcinogenic risk) have generally limited PUVA therapy to patients with more severe disease.

Targeted Phototherapy

Potential advantages of targeted phototherapy include the ability to use higher treatment doses and to limit exposure to surrounding tissue. Broadband ultraviolet B (BB-UVB) devices, which emit wavelengths from 290 to 320 nm, have been largely replaced by narrowband (NB)-UVB devices. NB-UVB devices eliminate wavelengths below 296 nm, which are considered erythemogenic and carcinogenic but not therapeutic. NB-UVB is more effective than BB-UVB and approaches PUVA in efficacy. Original NB-UVB devices consisted of a Phillips TL-01 fluorescent bulb with a maximum wavelength (λ_{max}) at 311 nm. Subsequently, xenon chloride (XeCl) lasers and lamps were developed as targeted NB-UVB treatment devices; they generate monochromatic or very narrow band radiation with a λ_{max} of 308 nm. Targeted phototherapy devices are directed at specific lesions or affected areas, thus limiting exposure to the surrounding normal tissues. They may therefore allow higher dosages compared with a light box, which could result in fewer treatments to produce clearing.

The original indication of the excimer laser was for patients with mild to moderate psoriasis, defined as involvement of less than 10% of the skin. Newer XeCl laser devices are faster and more powerful than the original models, which may allow treatment of patients with more extensive skin involvement, 10%–20% of body surface area.

REGULATORY STATUS

In 2001, XTRAC™ (PhotoMedex, Willow Grove, PA), an XeCl excimer laser, was cleared for marketing by FDA through the 510(k) process for the treatment of mild-to-moderate psoriasis. The 510(k) clearance was subsequently obtained for a number of targeted UVB lamps and lasers, including newer versions of the XTRAC system (eg, XTRAC Ultra™), the VTRAC™ lamp (PhotoMedex), the BClear™ lamp (Lumenis, Israel), and the European manufactured Excilite™ and Excilite μ ™ XeCl lamps. FDA product code: FTC.

In 2010, the Levia Personal Targeted Phototherapy® UVB device (Daavlin, Bryan, OH; previously manufactured by Lerner Medical Devices, Los Angeles, CA) was cleared for marketing by FDA through the 510(k) process for home treatment of psoriasis.

The oral psoralen products Oxsoalene-Ultra® (methoxsalen soft gelatin capsules) and 8-MOP® (methoxsalen hard gelatin capsules) have been approved by FDA; both are made by Valeant Pharmaceuticals. Topical psoralen products have also received FDA approval (eg, Oxsoalene; Valeant Pharmaceuticals).

POLICY

A. Phototherapy/actinotherapy with UVA is considered **medically necessary** for the following conditions when moderate to severe and refractory to standard therapies:

1. Psoriasis
2. Eczema (atopic dermatitis)
3. Eosinophilic folliculitis and other skin eruptions of HIV
4. Lichen planus
5. Morphea
6. Parapsoriasis
7. Photodermatoses
8. Mycosis fungoides
9. Vitiligo

- For up to 24 weeks, 3 treatments per week until improvement or clearing is considered **medically necessary**.

B. PUVA for the treatment of severe, disabling psoriasis, which is not responsive to other forms of conservative therapy (eg, topical corticosteroids, coal/tar preparations, and ultraviolet light), may be considered **medically necessary**.

- For up to 24 weeks, 2-3 PUVA treatments per week (Monday, Wednesday, Friday or Tuesday, Thursday, Saturday) are considered **medically necessary** for psoriasis until improvement or clearing.
- Tapered treatments of twice a week then once a week upon improvement (after 24 weeks) may be considered **medically necessary**. Remissions may last between 3-6 months.
- Remission therapy of 1-4 treatments per month depending on the severity of the psoriasis may be considered **medically necessary**.

C. PUVA for the treatment of vitiligo which is not responsive to other forms of conservative therapy (eg, topical corticosteroids, coal/tar preparations, and ultraviolet light) may be considered **medically necessary**.

- D. Targeted phototherapy may be considered **medically necessary** for the treatment of moderate to severe localized psoriasis for which NB-UVB or PUVA are indicated.
- E. Targeted phototherapy may be considered **medically necessary** for the treatment of mild to moderate localized psoriasis that is unresponsive to conservative treatment.
- F. Targeted phototherapy is considered **experimental / investigational** for the treatment of:
 - 1. Generalized psoriasis
 - 2. Vitiligo
- G. Home phototherapy using ultraviolet A (UVA) light devices is considered **experimental / investigational**.

Policy Guidelines

1. Although disease severity is minimally defined by body surface area (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), lesion characteristics (eg, location and severity of erythema, scaling, induration, pruritus) and impact on quality of life are also taken into account.¹⁻³ For example, while 1 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. While the Psoriasis Area and Severity Index (PASI) may be used as an outcome measure in clinical research, clinical assessment of disease severity is qualitative.
2. Established treatments for psoriasis include use of topical ointments and ultraviolet light ("light lamp") treatments. Lasers and targeted ultraviolet B (UVB) lamps are considered equivalent devices; targeted UV devices are comparable with UV light panels for treatment purposes. First-line treatment of UV-sensitive lesions may involve around 6 to 10 office visits; treatment of recalcitrant lesions may involve around 24 to 30 office visits. Maintenance therapy or repeat courses of treatment may be required.
3. Phototherapy and PUVA are contraindicated in patients with xeroderma pigmentosum, disorders with significant light sensitivity (eg, albinism), and lupus erythematosus.
4. PUVA is contraindicated in patients who:
 - a. are breast-feeding
 - b. are pregnant
 - c. have a history of melanoma
 - d. have a past history of non-melanoma skin cancer
 - e. have extensive solar damage
 - f. have had previous treatment with ionizing arsenic

- g. have uremia and hepatic failure, but phototherapy may be used.
5. Phototherapy and PUVA should be used with caution in patients with one or more of the following:
 - a. Family history of melanoma
 - b. Pemphigus or pemphigoid
 - c. Immunosuppression
 - d. Cataracts and aphakia
 - e. Photosensitivity.
6. During a course of PUVA therapy, the patient needs to be assessed on a regular basis to determine the effectiveness of the therapy and the development of adverse effects. These evaluations are essential to ensure that the exposure dose of radiation is kept to the minimum compatible with adequate control of disease. Therefore, PUVA is generally not recommended for home therapy.

RATIONALE

Following is a summary of literature update performed through October 30, 2018.

Evidence reviews 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 patients 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, two domains are examined: the relevance, and quality and credibility. To be relevant, studies must represent one 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 some circumstances, nonrandomized studies may be adequate. RCTs 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.

The most appropriate comparator for targeted therapy is narrowband ultraviolet B (NB-UVB), which is an established treatment for psoriasis and can be administered in the home. The efficacy of psoralen plus ultraviolet A (PUVA) has been compared with NB-UVB, which has fewer side effects, or with ultraviolet A (UVA) with placebo.

Targeted Phototherapy for Mild Localized Psoriasis

Clinical Context and Therapy Purpose

The purpose of targeted phototherapy is to provide a treatment option that is an alternative to or an improvement on existing therapies in patients with mild localized psoriasis.

The question addressed in this evidence review is: Does the use of targeted phototherapy improve the net health outcome in patients with localized or generalized psoriasis?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest are individuals with mild localized psoriasis.

Interventions

The therapy being considered is targeted phototherapy.

Comparators

The following therapy is currently being used to treat localized or generalized psoriasis: topical medication.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, and treatment-related morbidity.

Timing

Though not completely standardized, follow-up for mild localized psoriasis symptoms would typically occur in the months to years after starting treatment.

Setting

Patients with mild localized psoriasis are actively managed by dermatologists and primary care providers in an outpatient setting.

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.

Evidence Base

The original indication of the excimer laser was mild-to-moderate psoriasis, defined as involvement of less than 10% of the skin. Typically, this patient population has not been considered for light box therapy, because the risks of exposing the entire skin to the carcinogenic effects of ultraviolet B (UVB) light may outweigh the benefits of treating a small number of

lesions. The American Academy of Dermatology does not recommend phototherapy for patients with mild localized psoriasis whose disease can be controlled with topical medications, including steroids, coal tar, vitamin D analogues (eg, calcipotriol, calcitriol), tazarotene, and anthralin.^[4]

Section Summary: Mild Localized Psoriasis

There is no evidence and no clinical recommendation for targeted phototherapy to treat patients with mild localized psoriasis whose disease can be controlled with topical medications.

Targeted Phototherapy for Treatment-Resistant Mild Psoriasis

Clinical Context and Therapy Purpose

The purpose of targeted phototherapy is to provide a treatment option that is an alternative to or an improvement on existing therapies in patients with mild psoriasis that is resistant to topical medications.

The question addressed in this evidence review is: Does the use of targeted phototherapy improve the net health outcome in patients with localized or generalized psoriasis?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest are individuals with mild psoriasis that is resistant to topical medications.

Interventions

The therapy being considered is targeted phototherapy.

Comparators

The following therapy is currently being used to treat mild psoriasis resistant to topical medications: ultraviolet B light box therapy.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, and treatment-related morbidity.

Timing

Though not completely standardized, follow-up for mild psoriasis that is resistant to topical medications symptoms would typically occur in the months to years after starting treatment.

Setting

Patients with mild psoriasis that is resistant to topical medications are actively managed by dermatologists and primary care providers in an outpatient setting.

Study Selection Criteria

Methodologically credible studies were selected using the principles outlined for indication 1.

Evidence Base

Several small studies have suggested that targeted phototherapy can be effective for treatment-resistant lesions. One 2003 patch comparison reported effective clearing (pre-Psoriasis Area and

Severity Index [PASI] score, 6.2; post-PASI score, 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.^[5]

In 2004, the same investigator group reported that 12 of 13 patients with “extensive and stubborn” scalp psoriasis (ie, unresponsive to class I topical steroids used in conjunction with tar and/or zinc pyrithione shampoos for at least 1 month) showed clearing following treatment with the 308-nm laser.^[6]

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 a single NB-UVB lamp treatment weekly for 8 weeks.^[7]

Section Summary: Treatment-Resistant Mild Psoriasis

Several nonrandomized studies have found that targeted phototherapy can improve health outcomes in patients with treatment-resistant psoriasis.

Targeted Phototherapy for Moderate-to-Severe Localized Psoriasis

Clinical Context and Therapy Purpose

The purpose of targeted phototherapy is to provide a treatment option that is an alternative to or an improvement on existing therapies in patients with moderate-to-severe localized psoriasis.

The question addressed in this evidence review is: Does the use of targeted phototherapy improve the net health outcome in patients with localized or generalized psoriasis?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest are individuals with moderate-to-severe localized psoriasis.

Interventions

The therapy being considered is targeted phototherapy.

Comparators

The following therapy is currently being used to treat moderate-to-severe localized psoriasis: ultraviolet B light box therapy.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, and treatment-related morbidity.

Timing

Though not completely standardized, follow-up for moderate-to-severe localized psoriasis symptoms would typically occur in the months to years after starting treatment.

Setting

Patients with moderate-to-severe localized psoriasis are actively managed by dermatologists and primary care providers in an outpatient setting.

Study Selection Criteria

Methodologically credible studies were selected using the principles outlined in indication 1.

Systematic Reviews

There are several systematic reviews of the literature on targeted phototherapy. Reviews differed in the type of study selected and the comparison interventions. A systematic review by Almutawa et al (2015) considered only RCTs; PUVA was the comparison intervention.^[8]

Reviewers identified three RCTs comparing the efficacy of targeted UVB phototherapy with PUVA for treatment of plaque psoriasis. Two of the 3 trials used an excimer laser (308 nm) as the source of targeted phototherapy, and the third used localized NB-UVB light. There was no statistically significant difference between the techniques in the proportion of patients with at least a 75% reduction in psoriasis. The pooled odds ratio was 3.48 (95% confidence interval, 0.56 to 22.84).

Mudigonda et al (2012) published a systematic review of controlled studies (RCTs and non-RCTs) on targeted vs nontargeted phototherapy for patients with localized psoriasis.^[9]

Reviewers identified 3 prospective nonrandomized studies comparing the 308-nm excimer laser with NB-UVB. Among these studies was a study by Goldinger et al (2006) that compared the excimer laser with full-body NB-UVB in 16 patients.^[10]

At the end of 20 treatments, PASI scores were equally reduced on the 2 sides, from a baseline of 11.8 to 6.3 for laser and from 11.8 to 6.9 for nontargeted NB-UVB. A study by Kollner et al (2005) included 15 patients with stable plaque psoriasis.^[11]

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 (ie, each patient received all three treatments). Investigators found no significant differences in the efficacy of the three treatments after ten weeks. The mean number of treatments to achieve clearance of lesions was 24.

Section Summary: Moderate-to-Severe Localized Psoriasis

Systematic reviews of small RCTs and 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 phototherapy, due to risks of exposing the entire skin to the carcinogenic effects of UVB light.

Psoralen Plus Ultraviolet A for Generalized Psoriasis

Clinical Context and Therapy Purpose

The purpose of PUVA is to provide a treatment option that is an alternative to or an improvement on existing therapies in patients with generalized psoriasis.

The question addressed in this evidence review is: Does the use of PUVA improve the net health outcome in patients with localized or generalized psoriasis?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest are individuals with generalized psoriasis.

Interventions

The therapy being considered is PUVA.

Comparators

The following therapies are currently being used to treat generalized psoriasis: topical medications and ultraviolet B light box therapy.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, and treatment-related morbidity.

Timing

Though not completely standardized, follow-up for generalized psoriasis symptoms would typically occur in the months to years after starting treatment.

Setting

Patients with generalized psoriasis are actively managed by dermatologists and primary care providers in an outpatient setting.

Study Selection Criteria

Methodologically credible studies were selected using the principles outlined in indication 1.

Systematic Reviews and Randomized Controlled Trials

A number of RCTs and systematic reviews of RCTs have compared PUVA with other light therapies or with placebo. A Cochrane review by Chen et al (2013) assessed light therapy for psoriasis.^[12]

However, that review is less useful for this evidence evaluation because reviewers combined results of studies using PUVA and broadband UVB, rather than reporting outcomes separately for these treatment modalities.

PUVA vs NB-UVB

An industry-sponsored systematic review by Archier et al (2012) focused on studies comparing PUVA with NB-UVB in patients who had chronic plaque psoriasis.^[13]

Pooled analysis of 3 RCTs found a significantly higher psoriasis clearance with PUVA than with NB-UVB (odds ratio=2.79; 95% confidence interval, 1.40 to 5.55). In addition, significantly more patients remained cleared at 6 months with PUVA than with NB-UVB (odds ratio=2.73; 95% confidence interval, 1.18 to 6.27).

PUVA vs Topical Steroids

Amirnia et al (2012) published a trial in which 88 patients with moderate plaque psoriasis were randomized to PUVA or topical steroids.^[14]

Treatment was continued for four months or until clearance was achieved. Clearance was defined as disappearance of at least 90% of baseline lesions. All patients in both groups achieved clearance within the four-month treatment period. Recurrence (defined as a resurgence of at least 50% of the baseline lesions) was reported significantly more often in the topical steroid group (9/44 [20.5%]) than in the PUVA group (3/44 [6.8%]; $p=0.007$) (see Table 1).

PUVA vs UVA Without Psoralens

El-Mofty et al (2014) published an RCT comparing PUVA with broadband-UVA in 61 patients who had psoriasis affecting at least 30% body surface area.^[15]

Clinical outcomes were significantly better in the PUVA group than in the broadband-UVA groups (see Table 1). For example, complete clearance was obtained by 23 (77%) of 30 patients in the PUVA group, 5 (31%) of 16 patients in the 10 J/cm² UVA group, and 5 (33%) of 15 patients in the 15 J/cm² UVA group ($p=0.020$).

Sivanesan et al (2009) published a double-blind RCT evaluating the efficacy of 8-methoxypsoralen PUVA treatment in patients with moderate-to-severe psoriasis affecting at least 10% body surface area.^[16]

The trial included 40 patients randomized to PUVA ($n=30$) and or UVA plus placebo psoralens ($n=10$). Patients were treated 3 times weekly for 12 weeks. The primary outcome was a 75% or greater improvement in PASI 75 score. At 12 weeks, 19 (63%) of 30 patients in the PUVA group and 0 (0%) of 10 patients in the UVA plus placebo group achieved the primary outcome measure ($p<0.001$) (see Table 1). There were no serious adverse events.

Table 1. Summary of Individual RCTs of PUVA vs Other Light Treatments

Study	Intervention Modality	No. of Participants	PUVA Effectiveness	p
El-Mofty et al (2014) ^[15]	PUVA vs UVA without psoralens	61	Complete clearance obtained by 77% of PUVA group vs 31% and 33% of UVA-only groups	0.020
Amirinia et al (2012) ^[14]	PUVA vs topical steroids	88	Recurrence reported significantly more often in topical steroid group than PUVA group	0.007
Sivanesan et al (2009) ^[16]	PUVA vs UVA without psoralens	40	63% of PUVA group had $\geq 75\%$ improvement in PASI 75 score at 12 wk vs 0% of UVA plus placebo group	<0.001

PASI: Psoriasis Area Severity Index; PUVA: psoralen plus ultraviolet A; RCT: randomized controlled trials; UVA: ultraviolet A.

Section Summary: Psoralen Plus UVA

RCTs and systematic reviews of RCTs have found that PUVA is more effective than NB-UVB, topical steroids, or UVA without psoralens in patients with moderate-to-severe psoriasis. Due to side effects, PUVA is typically restricted to more severe cases.

SUMMARY OF EVIDENCE

Evidence supports the safety and effectiveness of phototherapy and photochemotherapy for the treatment of certain dermatologic conditions that are unresponsive to conventional medical management including: psoriasis, eczema (atopic dermatitis), eosinophilic folliculitis and other skin eruptions of HIV, lichen planus, morphea, parapsoriasis, photodermatoses, mycosis fungoides, and vitiligo. Professional societies and evidence in the published peer-reviewed

scientific literature support excimer laser therapy for the treatment of patients with psoriasis who are unresponsive to topical agents and/or phototherapy.

Based on the available evidence and clinical guidelines, PUVA may be considered medically necessary in patients with vitiligo who have not responded adequately to conservative therapy.

There is a lack of evidence that home-based PUVA for treating psoriasis is as safe or effective as office-based treatment.

PRACTICE GUIDELINES AND POSITION STATEMENTS

American Academy of Dermatology

The American Academy of Dermatology (2010) guidelines on the management of psoriasis recommended that patients with psoriasis who are compliant could, under dermatologist supervision, be considered appropriate candidates for home ultraviolet B therapy.^[4]

Targeted phototherapy was recommended for patients with mild, moderate, or severe psoriasis with less than 10% involvement of the body surface area. Systemic psoralen plus ultraviolet A was indicated in adults with generalized psoriasis resistant to topical therapy.

National Psoriasis Foundation

In 2017, the National Psoriasis Foundation published a consensus guidance based on a task force review of the literature on the treatment for psoriasis involving skinfolds (inverse or intertriginous) psoriasis.¹⁷ The treatment guidance for intertriginous or genital psoriasis stated: "...there is anecdotal evidence demonstrating the strong clinical efficacy of biologic treatment; with limited knowledge on the effects of biologics on intertriginous or genital psoriasis." The guidance on inverse psoriasis is provided in Table 2.

Table 2. Recommendations on Treatment of Inverse Psoriasis

Line of Therapy	Recommendation
First-line therapy	Low potency topical steroids for periods less than 2-4 wk Other topical therapies to consider are tacrolimus, pimecrolimus, calcitriol, or calcipotriene to avoid steroid side effects with long-term treatment
Second- and third-line therapies	Antimicrobial therapy, emollients, and tar-based products Axillary involvement can be treated with botulinum toxin injection to reduce perspiration and inhibit inflammatory substance release Excimer laser therapy or systemic agents

In 2017, the National Psoriasis Foundation also published recommendations based on a review of the literature on the treatment for psoriasis in solid organ transplant patients.¹⁸ Because organ transplant patients are excluded from randomized controlled trials, there are limited data. The recommendations were based on case series (see Table 3).

Table 3. Recommendations on Treatment of Psoriasis for Solid Organ Transplant Patients

Line of Therapy	Recommendation
First-line therapy for mild-to-moderate psoriasis	Topical therapy
First-line therapy for moderate-to-severe psoriasis	<ul style="list-style-type: none"> • Acitretin with narrowband ultraviolet light or • Narrowband ultraviolet light or • Acitretin
Second-line therapy	Increasing the current anti-rejection drug dose
Severe psoriasis or refractory cases	Systemic or biologic therapies

U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATIONS

Not applicable.

ONGOING AND UNPUBLISHED CLINICAL TRIALS

Some currently unpublished trials that might influence this review are listed in Table 4.

Table 4. Summary of Key Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date
Ongoing			
NCT03180866a	Evaluation of Efficacy, Duration of Remission and Safety of a Light and Occlusive Patch Therapy for Plaque Psoriasis	32	Mar 2018 (ongoing)
NCT02999776a	An Observer Partially-blinded, Lesion-randomized, Intra-patient Controlled, 3-arm, Phase I Study to Assess Safety and Efficacy of Laser-assisted Topical Etanercept Administration in Patients With Mild to Moderate Plaque Psoriasis	30	Jun 2018 (ongoing)
Unpublished			
NCT02294981	A Randomized Clinical Trial to Determine Whether a Novel Plaque-based Dosimetry Strategy Can Improve the Speed of Response to Treatment in Patients With Plaque Psoriasis (Photos)	30	Jun 2017 (unknown)
NCT02735187a	Monocenter, Randomized, Blinded, Intraindividual Study Evaluating Efficacy and Safety of Blue Light (453 nm) Treatment for Mild Psoriasis Vulgaris Over Three Months Compared to Vitamin D	50	Aug 2016 (completed)

NCT: national clinical trial.

^a Denotes industry-sponsored or cosponsored trial.**CODING**

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

CPT/HCPCS

- 96900 Actinotherapy (ultraviolet light)
- 96912 Photochemotherapy; psoralens, and ultraviolet A (PUVA)
- 96920 Laser treatment for inflammatory skin disease (psoriasis); total area less than 250 sq cm
- 96921 Total area 250-500 sq cm
- 96922 Total area over 500 sq cm
- 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
- J8999 Prescription drug, oral, chemotherapeutic, not otherwise specified

- In 2002, CPT established separate codes (96920-96922) that describe ultraviolet light laser treatment for inflammatory disease (psoriasis) according to the surface area of skin treated (total area <250 cm², 250 cm²–500 cm², >500 cm²).
- The laser treatment codes are distinct from codes that describe the dermatologic use of ultraviolet light, also known as actinotherapy (96900), and photochemotherapy (96910-96913).

ICD-10 Diagnoses

B20	Human immunodeficiency virus (HIV) disease
C84.00	Mycosis fungoides, unspecified site
L30.9	Dermatitis, unspecified
L20.9	Atopic dermatitis, unspecified
L40.0	Psoriasis vulgaris
L40.1	Generalized pustular psoriasis
L40.4	Guttate psoriasis
L40.50	Arthropathic psoriasis, unspecified
L40.51	Distal interphalangeal psoriatic arthropathy
L40.52	Psoriatic arthritis mutilans
L40.53	Psoriatic spondylitis
L40.54	Psoriatic juvenile arthropathy
L40.59	Other psoriatic arthropathy
L40.8	Other psoriasis
L40.9	Psoriasis, unspecified
L41.8	Other parapsoriasis
L41.9	Parapsoriasis, unspecified
L43.0	Hypertrophic lichen planus
L43.1	Bullous lichen planus
L43.3	Subacute (active) lichen planus
L43.8	Other lichen planus
L43.9	Lichen planus, unspecified
L56.8	Other specified acute skin changes due to ultraviolet radiation
L56.9	Acute skin change due to ultraviolet radiation, unspecified
L73.9	Follicular disorder, unspecified
L80	Vitiligo
L94.0	Localized scleroderma (morphea)

REVISIONS

09-28-2014	Policy added to the bcbsks.com web site on 08-29-2014. Effective on 09-28-2014, 30 days after posting.
01-08-2015	In Coding section: <ul style="list-style-type: none"> ▪ Added codes E0691, E0692, E0693, and E0694.
02-04-2015	In Policy section: <ul style="list-style-type: none"> ▪ Added "using ultraviolet A (UVA) light devices" to read, "Home phototherapy using ultraviolet A (UVA) light devices is considered experimental / investigational."
04-28-2015	Updated Description section.
	Updated Rationale section.
	Updated References section.

05-28-2015	Corrected Revisions section: <ul style="list-style-type: none"> ▪ Removed "Added codes E0691, E0692, E0693, and E0694" from 02-04-2015 revision date and added under 01-08-2015 revision date.
10-01-2015	Published 11-10-2015. Effective 10-01-2015 with ICD-10 coding implementation. <ul style="list-style-type: none"> In coding section: <ul style="list-style-type: none"> ▪ Added ICD-10 code L20.9.
03-02-2016	Updated Description section.
	Updated Rationale section.
	Updated References section.
01-18-2017	Updated Description section.
	Updated Rationale section.
	Updated References section.
01-30-2018	Updated Description section.
	Updated Rationale section.
	In Coding section: <ul style="list-style-type: none"> ▪ Removed ICD-9 codes.
	Updated References section.
02-01-2019	Updated Rationale section.
	Updated References section.

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