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

**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 evidence review 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. Psorals 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 (lambda 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 lambda 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, an XeCl excimer laser (XTRAC™ by PhotoMedex) received 510(k) clearance from the FDA for the treatment of skin conditions such as mild to moderate psoriasis and vitiligo. The 510(k) clearance has subsequently been obtained for a number of targeted UVB lamps and lasers, including newer versions of the XTRAC system including the XTRAC Ultra™, the VTRAC™ lamp (PhotoMedex), the BClear™ lamp (Lumenis), 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 Oxsoralen-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, Oxsoralen; 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 (e.g., 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 (e.g., 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 (e.g., 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 (e.g., 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 the literature to October 19, 2016.

Assessment of efficacy for therapeutic interventions involves a determination of whether the intervention improves health outcomes. The optimal study design for a therapeutic intervention is a randomized controlled trial (RCT) that includes clinically relevant measures of health outcomes. Intermediate outcome measures, also known as surrogate outcome measures, may also be adequate if there is an established link between the intermediate outcome and true health outcomes. Nonrandomized comparative studies and uncontrolled studies can sometimes provide useful information on health outcomes, but are prone to biases such as selection bias (eg, noncomparability of treatment groups) and observation bias (eg, placebo effect).

Targeted Phototherapy
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.

Several small studies have suggested that targeted phototherapy can be effective for treatment-resistant lesions. One 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; 6 of the patients had previously received topical treatment, 5 had received conventional phototherapy, and 3 had received combined treatments including phototherapy. 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. 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.

There are several systematic reviews of the literature on targeted phototherapy. Reviews differed in the type of study selected and the comparison interventions. A 2014 systematic review by Almutawa et al considered only RCTs; PUVA was the comparison intervention. Reviewers identified 3 RCTs comparing the efficacy of targeted ultraviolet B (UVB) phototherapy to 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 2 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).

In 2012, Mudigonda et al published a systematic review of controlled studies (RCTs and non-RCTs) on targeted versus nontargeted phototherapy for patients with localized psoriasis. Reviewers identified 3 prospective nonrandomized studies comparing the 308 nm excimer laser with NB-UVB. Among the 3 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, PASI scores...
Ultraviolet Light Therapy for Skin Conditions

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 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 (ie, each patient received all 3 treatments). Investigators found no significant differences in the efficacy of the 3 treatments after 10 weeks. The mean number of treatments to achieve clearance of lesions was 24.

In 2015, Whitton et al updated a Cochrane review of randomized controlled trials (RCTs) on treatments for vitiligo. Reviewers identified 12 trials on laser light devices. Six trials evaluated the combination of laser light devices and a topical therapy and 2 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 UVB fluorescent lamp. Due to heterogeneity across studies, reviewers did not pool study findings. In most trials, all groups received laser light treatment, alone or as part of combination therapy, and thus the effect of targeted phototherapy could not be isolated.

In 2015, Sun et al published a systematic review of RCTs that focused on treatment of vitiligo with the 308 nm excimer laser. Reviewers identified 7 RCTs (total N=390 patients). None of the studies was conducted in the United States; 5 were from Asia. Three trials compared the excimer laser with an excimer lamp, and 4 compared the excimer laser with NB-UVB. The 4 studies that evaluated NB-UVB are of greatest interest to us. However, 2 were not published in English, and 1 had a sample size of only 14 patients. The fourth study, published by Yang et al in 2010, did not report efficacy outcomes such as clinical response rates or repigmentation rates. Instead, the investigators reported on the proportion of patients with various types of repigmentation: perifollicular, marginal, diffuse, or combined. Repigmentation rates did not differ significantly between groups treated with the excimer laser versus NB-UVB. Reviewers conducted a meta-analysis of the 2 studies not published in English; thus, results cannot be verified. They reported that the likelihood of a minimum 50% repigmentation rate was significantly higher with the excimer laser than with NB-UVB (relative risk [RR], 1.39, 95% confidence interval [CI], 1.05 to 1.85). Reviewers also stated that, in qualitative analysis, neither study showed significant benefit of the excimer laser for achieving a minimum 75% repigmentation rate.

A 2016 systematic review identified 3 studies that compared targeted phototherapy with a 308 nm excimer lamp to NB-UVB and 3 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 repigmentation (RR=1.14; 95% CI, 0.88 to 1.48). For repigmentation of 75% or greater, only 2 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 3 studies that compared the excimer lamp to the excimer laser, there were no significant differences between treatments for either 50% or greater repigmentation (RR=0.97; 95% CI, 0.84 to 1.11) or 75% or greater repigmentation (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.

One of the few trials comparing laser therapy to an alternative treatment was published in 2012 by Nistico et al. This nonblinded RCT included 53 patients with localized and generalized vitiligo. Patients were randomized to 1 of 3 treatments for 12 weeks: (1) excimer laser plus vitamin E (n=20); (2) excimer laser plus topical tacrolimus ointment 0.1% and vitamin E (n=20); and (3)
vitamin E only (control group, n=13). All patients in the 2 excimer laser groups completed treatment; 1 patient in the control group dropped out. Before and after treatment, 2 independent clinicians rated clinical response; 51% to 75% repigmentation was considered a “good” response and more than 75% repigmentation was considered an “excellent” response. The proportion of patients with a good or excellent responses was 11 (55%) of 20 in the laser plus vitamin E group, 14 (70%) of 20 in the laser plus tacrolimus plus vitamin E group, and 0 in the control group. The rate of good or excellent responses did not differ significantly between groups that received excimer laser therapy with and without topical treatment (p=0.36). Response rates were significantly better in both groups receiving laser treatment than in the control group (p<0.001).

Section Summary: Targeted Phototherapy
AAD does not recommend phototherapy for patients with mild localized psoriasis whose disease can be controlled with topical medications, although several nonrandomized studies have found that targeted phototherapy can improve health outcomes in patients with treatment-resistant 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.

A number of RCTs have evaluated targeted phototherapy for treating vitiligo. However, studies tended to have small sample sizes, and few were designed to isolate the effect of laser therapy. Moreover, studies were heterogeneous (eg, different interventions or combinations of interventions and different comparison interventions). These characteristics made it difficult to pool study findings or to draw conclusions about the efficacy of targeted phototherapy for vitiligo. In addition, studies have suggested a potential for blistering with targeted phototherapy; larger studies are needed to evaluate this adverse outcome.

Psoralen Plus Ultraviolet A
Several systematic reviews have been published. Almutawa et al (2015) conducted a pooled analysis of 3 RCTs, 2 of which used an excimer laser, and did not find a statistically significant difference in the efficacy of PUVA and targeted phototherapy in patients with plaque psoriasis.14 A 2012 industry-sponsored systematic review by Archier et al focused on studies comparing PUVA with NB-UVB in patients with chronic plaque psoriasis.15 Pooled analysis of 3 RCTs found a significantly higher psoriasis clearance with PUVA compared with NB-UVB (OR=2.79; 95% CI, 1.40 to 5.55). In addition, significantly more patients remained cleared at 6 months with PUVA compared with NB-UVB (OR=2.73: 95% CI, 1.18 to 6.27).

The 2015 Cochrane review of trials on treatments for vitiligo (previously discussed), identified 12 RCTs evaluating PUVA.4 Four trials assessed oral PUVA alone and 8 assessed PUVA in combination with other treatments (eg, calcipotriol, azathioprine, polypodium leucotomos, khellin, or surgical treatment). Seven of the 8 studies used 9-methoxypsoralen. Due to differences across studies, results from trials of oral PUVA and of oral PUVA plus sunlight were not pooled.

A 2013 systematic review by Almutawa et al identified 8 RCTs that evaluated oral PUVA and reported PASI-75 as an outcome measure.16 The mean percentage of patients achieving PASI-75 was 73% (95% CI, 56% to 88%). The mean clearance rate in 10 trials of PUVA monotherapy was 79% (95% CI, 68% to 88%). In 4 trials with bath PUVA monotherapy, the mean proportion of patients achieving PASI-75 was 47% (95% CI, 30% to 65%). The authors did not report
outcomes in the control groups and thus conclusions cannot be drawn from this analysis on the relative efficacy of PUVA and other psoriasis treatments. A 2013 Cochrane review assessed light therapy for psoriasis. However, that review is less useful for the analysis at hand because the authors combined results of studies using PUVA and BBUVB, rather than reporting outcomes separately for these two treatment modalities.

Representative recent RCTs evaluating PUVA for treating psoriasis are described next:

In 2014, El-Mofty et al in Egypt published an RCT comparing PUVA and BB-UVA in 61 patients with psoriasis affecting at least 30% body surface area. Patients in the BB-UVA group were further randomized to 1 of 2 fixed doses: 10 or 15 J/cm² per session. A maximum of 48 treatment sessions were provided. Clinical outcomes were significantly better in the PUVA group than the BB-UVA groups. 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).

In 2011, Amirnia et al published a study from Iran in which 88 patients with moderate plaque psoriasis were randomized to receive PUVA or topical steroids. Treatment was continued for 4 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 4-month treatment period. Recurrence (defined as a resurgence of at least 50% of the baseline lesions) occurred significantly more often in the topical steroid group (9 of 44, 20.5%) than in the PUVA group (3 of 44, 6.8%), (p=0.007).

In 2009, Sivanesan et al published a double-blind RCT evaluating the efficacy of 8-MOP PUVA treatment in patients 18 years and older with moderate to severe psoriasis affecting at least 10% of their body surface area. The study included 40 patients, 30 randomly assigned to receive PUVA and 10 to receive UVA plus placebo psoralens. After a washout period of 2 weeks for topical psoriasis medications and 4 weeks for phototherapy and systemic therapies, patients were treated 3 times a week for 12 weeks. A total of 28 patients completed the study, 21 in the PUVA group and 7 in the UVA plus placebo group. The primary outcome was at least a 75% improvement in the Psoriasis Area and Severity Index score (PASI 75). In an intention-to-treat analysis with the last observation carried forward to analysis at 12 weeks, 19 of 30 (63%) in the PUVA group and 0 of 10 (0%) in the UVA with placebo group achieved at least a 75% improvement in the PASI 7 score (p<0.001). In the per protocol analysis, 18 of 21 (86%) in the PUVA group and 0 of 7 (0%) in the placebo group achieved PASI 75. There were no serious adverse effects. The study found a dramatic treatment benefit with PUVA compared with UVA plus placebo; however, there was substantial drop-out and no long-term follow-up.

Two RCTs from India compared outcomes after treatment with oral methoxsalen PUVA and NB-UVB. In 2011, Chauhan et al included 51 patients with plaque psoriasis involving greater than 20% of their body surface area. Patients received treatment with NB-UVB or PUVA 3 times a week. Treatment continued until greater than 75% clearance was attained or for a maximum of 16 weeks. A total of 43 of 51 (84%) patients completed the study. Marked improvement (>75% clearance) was seen in 17 of 21 (90.9%) study completers in the NB-UVB group and 18 of 22 (81.8%) in the PUVA group; p>0.05. The mean time to achieve results was also similar in the 2 groups, a mean of 9.9 weeks with each treatment. A 2010 study by Dayal et al randomly weekly NB-UVB phototherapy (n=30). After the 3-month treatment period, all patients in both groups...
had at least 75% clearance of psoriasis or complete clearance. The PASI score did not differ significantly between groups (mean of 1.39 in the PUVA group and 1.61 in the NB-UVB group). The mean number of treatments to achieve clearance, however, was significantly higher in the NB-UVB group than the PUVA group, 16.4 and 12.7, respectively.

Section Summary: Psoralen Plus Ultraviolet A
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.

There is some evidence from randomized studies, published mainly before 1985, that PUVA is more effective than placebo for treating vitiligo. The limited number of studies comparing PUVA with NB-UVB have had mixed findings.

Home Treatment
No studies were identified that compared home-based PUVA with office-based PUVA. A 2010 review of various types of home phototherapies for psoriasis did not discuss any studies on PUVA delivered at home.23

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
The American Academy of Dermatology 2010 guideline on the management of psoriasis recommended targeted phototherapy for patients with mild, moderate, or severe psoriasis with less than 10% involvement of the body surface area.4 Systemic PUVA with ultraviolet A is indicated in adults with generalized psoriasis who are resistant to topical therapy.

U.S. Preventive Services Task Force Recommendations
Not applicable.

Ongoing and Unpublished Clinical Trials
A search of ClinicalTrials.gov in November 2016 did not identify any ongoing or unpublished trials that would likely influence this review.
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-9 Diagnoses

042  Human immunodeficiency virus [HIV] disease
202.10  Mycosis fungoides, unspecified site, extranodal and solid organ sites
202.11  Mycosis fungoides of lymph nodes of head, face, and neck
202.12  Mycosis fungoides of intrathoracic lymph nodes
202.13  Mycosis fungoides of intra-abdominal lymph nodes
202.14  Mycosis fungoides of lymph nodes of axilla and upper limb
202.15  Mycosis fungoides of lymph nodes of inguinal region and lower limb
202.16  Mycosis fungoides of intrapelvic lymph nodes
202.17  Mycosis fungoides of spleen
202.18  Mycosis fungoides of lymph nodes of multiple sites
691.8  Other atopic dermatitis and related conditions
692.72  Acute dermatitis due to solar radiation
692.82  Dermatitis due to other radiation
696.1  Other psoriasis
696.2  Parapsoriasis
697.0  Lichen planus
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<tr>
<td>701.0</td>
<td>Circumscribed scleroderma</td>
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<td>704.8</td>
<td>Other specified diseases of hair and hair follicles</td>
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<td>709.01</td>
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**ICD-10 Diagnoses (Effective October 1, 2015)**

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<td>Dermatitis, unspecified</td>
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<td>Lichen planus, unspecified</td>
</tr>
<tr>
<td>L56.8</td>
<td>Other specified acute skin changes due to ultraviolet radiation</td>
</tr>
<tr>
<td>L56.9</td>
<td>Acute skin change due to ultraviolet radiation, unspecified</td>
</tr>
<tr>
<td>L73.9</td>
<td>Follicular disorder, unspecified</td>
</tr>
<tr>
<td>L80</td>
<td>Vitiligo</td>
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<tr>
<td>L94.0</td>
<td>Localized scleroderma (morphea)</td>
</tr>
</tbody>
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**REVISIONS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tr>
<td>09-28-2014</td>
<td>Policy added to the bcbsks.com web site on 08-29-2014. Effective on 09-28-2014, 30 days after posting.</td>
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<tr>
<td>01-08-2015</td>
<td>In Coding section:</td>
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<td>▪ Added codes E0691, E0692, E0693, and E0694.</td>
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<tr>
<td>02-04-2015</td>
<td>In Policy section:</td>
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<td>▪ Added &quot;using ultraviolet A (UVA) light devices&quot; to read, &quot;Home phototherapy using ultraviolet A (UVA) light devices is considered experimental / investigational.&quot;</td>
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<tr>
<td>04-28-2015</td>
<td>Updated Description section.</td>
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<td>Updated Rationale section.</td>
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<tr>
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<td>Updated References section.</td>
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<tr>
<td>05-28-2015</td>
<td>Corrected Revisions section:</td>
</tr>
<tr>
<td></td>
<td>▪ Removed &quot;Added codes E0691, E0692, E0693, and E0694&quot; from 02-04-2015 revision date and added under 01-08-2015 revision date.</td>
</tr>
</tbody>
</table>
REFERENCES


