A separate copy of this form must accompany each policy submitted for review. Policies submitted without this form will not be considered for review.

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<th>Plan: Aetna Better Health</th>
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<tr>
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<td>Effective Date: 08/15/2019</td>
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<td>Policy Name: Pulsed Dye Laser Treatment</td>
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Type of Submission – **Check all that apply:**

- [ ] New Policy
- [x] Revised Policy*
- [ ] Annual Review – No Revisions
- [ ] Statewide PDL

*All revisions to the policy must be highlighted using track changes throughout the document.

Please provide any clarifying information for the policy below:

**CPB 0559 Pulsed Dye Laser Treatment**

This CPB has been revised to state that the use of the pulsed dye laser for post-filler bruises is considered cosmetic.

Name of Authorized Individual (Please type or print):  
Signature of Authorized Individual:
Pulsed Dye Laser Treatment

Policy

*Please see amendment for Pennsylvania Medicaid at the end of this CPB.*

I. Aetna considers pulsed dye laser treatment medically necessary for any of the following conditions:

   A. Actinic keratoses if member has failed to adequately respond to topical imiquimod or 5-FU, or to cryosurgery; or

   B. Genital warts when home therapy with either podophyllotoxin or imiquimod has failed; or

   C. Granuloma faciale; or

   D. Infantile hemangiomas (see CPB 0817 - Lymphangioma and Infantile Hemangioma (../../../800_899/0817.html))

   or

   E. Keloids or other hypertrophic scars which are secondary to an injury or surgical procedure and either criterion below is met (see CPB 0031 - Cosmetic Surgery (../../../1_99/0031.html)):

   - Causes significant pain requiring chronic analgesic medication; or
   - Results in significant functional impairment; or
F. Mild-to-moderate localized plaque psoriasis when criteria are met
   CPB 0577 - Laser Treatment for Psoriasis and Other Select Skin
   in Conditions (0577.html)
   ; or

G. Multiple, superficially located glomangiomas in the face and neck, where
   surgical excision is not practical; or

H. Port wine stains and other hemangiomas when lesions are located on the
   face and neck (see CPB 0031 - Cosmetic Surgery (../1_99/0031.html)); or

I. Pyogenic granuloma in the face and neck; or

J. Verrucae (warts) after at least two of the following conventional
   therapies have been tried and failed: topical chemotherapy, curettage,
   electrodesiccation and cryotherapy.

II. Aetna considers the use of the pulsed dye laser cosmetic for any of the
    following conditions (not an all-inclusive list) (see CPB 0031 - Cosmetic Surgery (../1_99/0031.html)):

   ▪ Dyschromia (caused by cafe au lait spots, rashes, sun burn/sun tan); or
   ▪ Post-filler bruises; or
   ▪ Removal of hair for pseudofolliculitis barbae or follicular cysts; or
   ▪ Removal of spider angiomata; or
   ▪ Removal of telangiectasias; or
   ▪ Rosacea (see CPB 0547 - Rosacea (0547.html))
   ▪ Striae distensae (stretch marks)

III. Aetna considers the use of the pulsed dye laser experimental and
     investigational for all other indications because of insufficient evidence in
     the peer-reviewed literature, including any of the following conditions (not
     an all-inclusive list):

   ▪ Active acne
   ▪ Angiokeratoma of the lower extremities
   ▪ Balanitis xerotica obliterans
   ▪ Basal cell carcinoma
   ▪ Cutaneous amyloidosis
   ▪ Cutaneous angiokeratomas
   ▪ Cutaneous leishmaniasis
- Cutaneous sarcoidosis
- Darier disease (also known as Darier-White disease or keratosis follicularis)
- Dyshidrotic eczema
- Dysphonia
- Glottic leukoplakia
- Granulation tissue
- Granuloma annulare
- Hailey-Hailey disease
- Hereditary hemorrhagic telangiectasia
- Hidradenitis suppurativa
- Hyper-vascularity of the perineum and genitalia
- Lymphangioma
- Microcystic lymphatic malformations
- Molluscum contagiosum
- Morphea (scleroderma of the skin)
- Nail psoriasis
- Onychomycosis
- Peri-implantitis
- Pilonidal disease
- Pityriasis rubra pilaris
- Xanthelasma palpebrum.

Background

Laser therapy provides intense UVB light to a limited area of skin, providing the potential benefit of more rapid clinical response from targeted therapy while avoiding the side effects of ultraviolet light exposure to unaffected skin. The pulsed dye lasers emit short bursts of high-intensity yellow light (wavelength of 585 nm) that destroy the targeted tissue.

The pulsed dye laser (PDL) delivers energy at a wavelength and duration that has been optimized for the selective treatment of vascular lesions. It has been used in the treatment of warts, port wine stains, hemangiomas, hypertrophic scars, and telangiectasias. Pulsed dye lasers have been used as an alternative to surgical
excision or carbon dioxide lasers. Examples of pulsed dye laser include, but may not be limited to, C-beam Pulsed Dye Laser System, PhotoGenica V Star and PhotoGenica V lasers.

The Food and Drug Administration (FDA) has cleared the PDL for use in treatment of warts, port-wine stains, hemangiomas, hypertrophic scars, and telangiectasias. The PDL has been shown to be effective in treating glomangiomas in the face and neck, as surgical excision may not be practical in these cosmetically sensitive areas. It has also shown to be effective in removing pyogenic granulomas in cosmetically sensitive areas of the face and neck.

Rosacea is a chronic inflammatory disorder involving especially the skin of the nose, forehead and cheeks that is characterized by congestion, flushing, telangiectasia (abnormal dilation of superficial blood vessels) and marked nodular swelling of tissues, especially of the nose. Goldberg (2005) stated that pharmacological agents remain the mainstay for initial and maintenance treatment of rosacea. However, monochromatic (i.e., laser) and polychromatic light-based therapies are increasingly being used for the treatment of certain signs of rosacea. The author noted that despite the increased use of lasers and other light-based therapies, few well-controlled studies have been conducted on their use for the treatment of rosacea. Furthermore, a Cochrane review on interventions for rosacea (van Zuuren et al, 2005) concluded that the quality of studies evaluating rosacea treatments was generally poor. The assessment found that there is evidence that topical metronidazole and azelaic acid are effective (van Zuuren et al, 2005). The assessment found some evidence that oral metronidazole and tetracycline are effective. The assessment stated that there is insufficient evidence concerning the effectiveness of other treatments. The assessment concluded that good randomized controlled trials looking at these treatments are urgently needed.

Maw (2004) stated that a variety of treatment options are available for the treatment of genital warts; but few have been assessed in large-scale, randomized, placebo-controlled trials. Provider-applied surgical and non-surgical treatments have traditionally been the therapies of choice. Surgical therapies, including cryotherapy, electrotherapy, laser surgery and surgical excision, are generally equivalent in terms of wart clearance rates, but are associated with high rates of wart recurrence. Trichloroacetic acid is a widely used non-surgical therapy, but little is known about its efficacy, and it is associated with unpleasant side-effects. The patient-applied treatments imiquimod and podophyllotoxin are newer therapy choices which are
more acceptable to both patients and practitioners. The wart clearance rates for these 2 treatments are similar, although imiquimod is associated with lower recurrence rates. In the face of increasing pressures on genitourinary clinic services, patient-applied home therapy represents an attractive option for the treatment of genital warts.

O'Mahony (2005) noted that commonly used physical treatment methods for genital warts include cryotherapy, trichloroacetic acid, laser, and electrocautery. However, many patients respond extremely well to home therapies with either podophyllotoxin or imiquimod. Patients prefer the comfort and dignity of home treatment, and this should be the first-line of treatment for the majority of patients. A routine screen for sexually transmitted infections is appropriate in most cases. Detailed explanation and reassurance are of paramount importance in reducing the psychological distress associated with this unpleasant genital condition.

Komericki et al (2006) stated that flashlamp-pumped PDL (FPDL) represents one of many treatment options for the management of viral warts (verrucae vulgaris), its effectiveness being comparable with that of conventional therapies. These researchers evaluated the effectiveness of FPDL light for the treatment of genital warts ($n = 22$). All patients showed complete remission after 1.59 (1 to 5) laser sessions and no scarring was observed. The authors concluded that the findings of this study demonstrate that FPDL is a simple and safe, cost- and time-saving alternative treatment option for genital warts and should be listed in genital warts treatment guidelines. Ockenfels and Hammes (2008) explained that FPDL had advantages over carbon dioxide laser in that the former is a nonablative approach to treatment of genital warts that appears to be associated with fewer side effects than the latter.

Scheinfeld and Lehman (2006) stated that genital human papillomavirus (HPV) infection is the most common sexually transmitted disease. Each year 1 million new cases of genital warts are diagnosed, 2/3 of which are in women. The estimated prevalence rate in the U.S. population is 15%. Human papillomavirus infects keratinocytes. Such infection can manifest clinically as warts. Treatment options for genital warts are numerous, well-established, and effective. Topical treatments include podophyllin resin, imiquimod, trichloroacetic acid, and podophyllotoxin. Surgical or destructive therapies include carbon dioxide laser, surgical excision, loop excision, cryotherapy, and electrodesiccation. Interferon can be injected locally or administered systemically to treat genital warts. Evidence of
efficacy in the treatment of genital warts is drawn from randomized blind-controlled trials, prospective studies, and retrospective cohort studies. Evidence of efficacy appears to be good, but more head-to-head studies and comparisons of combination therapies versus monotherapy need to be done. Treatment of choice depends on the number, size, and location of lesions. There is little certainty that any approach is more effective than another, however costs differ. It would seem that the first line destructive treatment is cryotherapy, but surgery and electro-desiccation are more effective. The first line topical treatments appear to be podophyllotoxin and imiquimod. Interferon is too expensive and trichloroacetic acid is too inconsistent to be recommended as primary treatment. It is unclear if combinations of therapies are more effective than monotherapy. Side effect profile, cost, effectiveness and convenience (ability to attend physician's office or to undertake protracted home treatment) define the choice of therapy.

Granuloma faciale (GF) is a rare, chronic benign vasculitis of unknown origin with characteristic clinicopathological features. It generally affects the skin of the face. Numerous medical and surgical treatments have been used with varying degrees of success. Several single-patient case reports have demonstrated the successful use of the pulsed dye laser in treating GF. Chatrath and Rohrer (2002) used long-pulsed tunable dye laser for the treatment of GF to target the vessels and minimize scarring. Confirmation of the diagnosis by a punch biopsy of the lesion was followed by 3 treatments on separate occasions 6 weeks apart with the long-pulsed tunable dye laser. There was significant flattening of the lesions after 2 treatments, with complete clearing after the 3rd. No scarring was detectable and there was no recurrence in the 9-month follow-up. The authors concluded that GF may be successfully treated with the long-pulsed tunable dye laser with minimal risk of scarring, especially in cosmetically sensitive areas.

Cheung and Lanigan (2005) evaluated the results of 4 patients with facial GF from one dermatological laser center that were treated with the Candela Vbeam PDL at 595 nm. Resolution of the GF was achieved in 2 of the 4 patients (50 %). This study provided further evidence that the PDL can help some patients with GF. Thus, it is still a valuable treatment option for GF, especially as it is safe, well-tolerated and quick. Furthermore, Wiederkehr and Schwartz (2008) stated that PDL is the preferred treatment for GF.
Cooper and Burge (2003) noted that Darier's disease (also known as Darier-White disease or keratosis follicularis) is a rare cutaneous disease with an autosomal dominant mode of inheritance. Greasy papules and plaques arise on the seborrheic areas and in the flexures and almost all patients have nail abnormalities. Acantholysis and dyskeratosis are the typical histological findings. The underlying defect is a result of mutations in the ATP2A2 gene on chromosome 12q23-24 that encodes for a sarco/endoplasmic reticulum calcium ATPase (SERCA 2). Acantholysis is thought to result from desmosome breakdown. Darier's disease is an example of a dominantly inherited disease caused by haplo-insufficiency.

Oral retinoids are the most effective treatment, but their adverse effects are troublesome. Topical retinoids, topical corticosteroids, surgery, and laser surgery have their advocates, but evidence for their effectiveness is sparse.

Schmitt and colleagues (2009) stated that Darier disease is often associated with pruritus and an unpleasant odor, causing medical and emotional problems. Ablative laser therapy has proven effective in ameliorating these symptoms. Side effects of this approach include permanent hypo-pigmentation and a risk of scarring. These investigators presented 2 cases where non-ablative therapy with pulsed dye lasers proved a safe and effective way to manage the intertriginous lesions. Although the mechanism of action is unclear, the success in this small case series study indicates that PDL therapy is an option in Darier disease. The authors concluded that larger numbers of patients, ideally in multi-center studies, must be treated in this way to confirm the results of this study.

In a preliminary study, Mortensen and colleagues (2008) evaluated the use of the PDL in the management of patients with established vocal fold scar. This was an Institutional Review Board-approved prospective study involving 11 patients. The causes of scarring were phonosurgery (n = 7), radiation (n = 2), and partial laryngectomy (n = 2). The subjects were evaluated pre- and post-procedure using the voice handicap index (VHI), laryngeal stroboscopy rating, voice recordings with acoustic and aerodynamic analysis, and self-evaluation. The PDL was applied with the fiberoptic delivery system by 3 treatments at 1-month intervals in the office setting. Each treatment end-point was blanching of the treatment site. There were 3 women and 8 men in the study group. Ten of 11 patients subjectively improved by self-rating. No patients were worse; VHI improved from 48.44 pre-treatment to 35.55 at 6 months post-treatment (p < 0.05). The jitter at 6 months improved from 2.2 % to 1.7 % (p = NS) and shimmer improved from 3.7 % to 3.2 % (p = NS). The noise to harmonic ratio improved from 0.143 to 0.132 (p = NS). The mean
phonotory flow went from 0.177 to 0.254 L/S (p < 0.05). Three raters blinded to treatment sequence rated the post-treatment stroboscopy findings as better than pre-treatment in a forced choice comparison, kappa score 0.903. The authors concluded that PDL is a safe and potentially promising treatment for established vocal fold scar. Subjectively, no patients were worse and 10 of 11 patients reported improved voice. There was improvement in the VHI, acoustic measures of shimmer and jitter, and stroboscopy findings. They stated that further study using this approach in a larger cohort seems to be warranted.

Bernstein and co-workers (2011) noted that due to the hemoglobin-selective wavelength of the 595-nm PDL, it is a device of choice for treating cutaneous vascular lesions. However, it is less effective and removing dyschromia, which along with hyper-vascularity is a cardinal sign of cutaneous photodamage. A novel 607-nm dye laser was developed as a first step in creating a dual-wavelength PDL. A total of 25 subjects with dyschromia on the chest due to chronic photodamage were enrolled into an open-label study to explore the safety and efficacy of a 607-nm PDL, with 22 completing the study. Two treatments were administered to the chest, 1 month apart, with fluences ranging from 3 to 6 J/cm² using a 10-mm diameter spot and pulse duration of 1.5 msec. Cross-polarized digital photographs were taken before and 2 months following the final treatment and rated for improvement by physicians in a blinded fashion. Improvement was rated on a 5-point scale with no subjects rated as poor (less than 25 %) clearance, 3 subjects (13.6 %) demonstrating fair (26 to 50 %) improvement, 7 subjects (31.8 %) rated as good (51 to 75 %) improvement, 12 (54.5 %) were rated as excellent (76 to 95 %) improvement, while none was rated as outstanding improvement (greater than 95 %). The authors concluded that this is the first study of the 607-nm PDL that showed it to be safe and effective for treating dyschromia of the chest due to chronic photodamage, and may in the future expand the ability of the PDL to treat photodamaged skin.

Onychomycosis is a common fungal condition of the fingernails or toenails which can be present for years without symptoms. The nail may become thicker and change to a yellowish-brown color. Hochman et al (2010) evaluated the treatment of onychomycosis using a novel 0.65-millisecond (ms) pulsed 1,064-nm laser. A total of 8 subjects were treated over 2 to 3 sessions spaced at least 3 weeks apart. Of the 8 subjects evaluated, 7 had negative post-treatment cultures after the 2nd or 3rd session. Treatments were well-tolerated by all subjects. These data suggested that treatment of onychomycosis with a 0.65-ms pulsed neodymium yttrium
aluminum garnet (Nd:YAG) 1,064-nm laser should be studied further to determine the long-term clinical and microbiologic effect. The optimal number of treatment sessions for each patient needs to be determined.

Xanthelasma palpebrarum (XP), also known as xanthelasma, is often classified as a subtype of xanthoma. It is a sharply demarcated yellowish subcutaneous deposit of cholesterol, usually on or around the eyelids. Xanthelasma is common among individuals of Asian descent and those from the Mediterranean region. Because of the hereditary component, XP may or may not indicate high blood levels of cholesterol. Where there is no family history of XP, they usually indicate high cholesterol and may correlate with a risk of atheromatous disease. Although not harmful or painful, XP may be disfiguring and can be removed.

Karsai and colleagues (2010) noted that several studies have reported positive results of non-ablative laser treatment of XP, but the published evidence is weak and inconclusive. These researchers evaluated the effect of PDL for the treatment of XP. A total of 20 female Caucasian patients with 38 lesions (less than or equal to 1 mm above skin level) were enrolled in this study. They received up to 5 treatment sessions with a PDL (wavelength, 585 nm; energy fluence, 7 J/cm²; pulse duration, 0.5 ms; spot size, 10 mm; number of passes, 2) at 2- to 3-week intervals. Photographs were taken before each treatment session and 4 weeks after the last treatment. Two independent examiners categorized clearance into 4 groups (no clearance [less than 25 % xanthelasma area(s) cleared], moderate [25 to 50 %], good [51 to 75 %], and excellent [greater than 75 %]). Patient satisfaction was assessed on a verbal rating scale. Approximately 2/3 of the lesions showed clearance greater than 50 %, and 1/4 had clearance greater than 75 %. Inter-rater reliability was excellent (contingency coefficient greater than 0.7 at all visits). Treatments were well-tolerated and had no major side effects. Patient satisfaction was generally high. The authors concluded that PDL is a promising approach for treating XP, especially when multiple sessions are performed. These findings need to be validated by well-designed studies.

Minars et al (2012) stated that basal cell carcinoma (BCC) is the most prevalent skin cancer. Because of its highly vascular characteristic, it is amendable to treatment with PDL (595nm). These researchers examined the safety and effectiveness of PDL for mostly facial BCCs. A total of 29 patients (16 men and 13 women) with 39 biopsy-proven BCCs were treated with 1 to 4 PDL therapies at 2- to 4-week intervals. The treatment parameters included pulse energy of 15 J/cm²,
pulse-length of 3 ms; with no dynamic cooling, and 7-mm spot size. The age of the patients was 30 to 90 years (mean of 73 years). Response rates were evaluated by the clinical assessments with mean follow-up of 11 months. Twenty-four patients with 32 tumors reached at least 3 months follow-up: 24/32 (75 %) tumors with complete resolution (mean 3 treatment sessions); 5/32 (16 %) tumors recurred; 3/32 (9 %) tumors with incomplete responses after 4 treatments. Minimal side effects and discomfort were experienced by the patients with PDL therapy. The authors concluded that PDL is a safe, tolerable, and moderately effective method of treating various BCCs. Moreover, they stated that the ideal niche and standardized settings for PDL treatment of BCCs are yet to be determined.

Jalian et al (2014) examined the effect of repeated treatment with a combined 585-nm PDL and 1,064-nm Nd:YAG laser on BCCs of superficial and nodular subtypes of varying diameters. A total of 10 subjects with 13 biopsy-proven BCCs received 4 combined PDL and Nd:YAG at treatments 2 to 4 week intervals. None of the BCCs met the criteria for Mohs micrographic surgery. The tumor and 4 mm of peripheral skin were treated using standardized parameters delivered with a 7-mm spot with 10 % overlap. The treated area was excised and evaluated histologically for residual tumor. The primary study end-point was histologic clearance of tumor. The secondary study end-point was blinded investigator assessment of clinical end-point and adverse effects. Approximately 50 % of all tumors showed a complete response to 4 combined PDL and Nd:YAG treatments (n = 7/12, 58 %). When stratified by size, 75 % of all tumors less than 1 cm in diameter (n = 6/8) showed complete response. Tumor histologic types among the complete responders included superficial and nodular BCCs. All subjects with incompletely responding BCCs were on various forms of anti-coagulation, which these researchers hypothesized, may inhibit laser-mediated thrombosis necessary for the clinical effect. Blinded investigator assessment suggested that biopsy related erythema improves with subsequent laser treatments. The authors concluded that combined PDL and Nd:YAG laser is an effective means of reducing tumor burden in patients with BCC and may be a promising, emerging alternative therapy. Factors influencing treatment response includes the concomitant use of anti-coagulation. Moreover, they stated that further studies are needed to investigate and optimize the utility of this treatment protocol.

An UpToDate review on “Treatment and prognosis of basal cell carcinoma” (Chartier and Aasi, 2014) states that “Approaches to enhance the efficacy of PDT have included administering multiple treatment sessions; combining...
ALA with dimethylsulfoxide (DMSO, a drug penetration enhancer), hyperthermia, or deferoxamine; extending the ALA application time; applying the photosensitizer with an occlusive dressing; combining ALA with curettage of the lesion or carbon dioxide laser; and administering ALA by intralesional rather than topical application. None of these approaches has an established role in the treatment of BCCs". The review does not mention PDL as a therapeutic option. Furthermore, the National Comprehensive Cancer Network’s clinical practice guideline on “Basal cell and squamous cell skin cancers” (Version 2.2014) does not mention PDL as a therapeutic option.

Park et al (2014) evaluated vocal cord mucosectomy using PDL for its ability to completely remove lesions without deterioration of vocal quality in cases of vocal cord leukoplakia. To confirm the validity of a PDL, these researchers retrospectively analyzed the treatment outcomes of patients who received surgery preceded by PDL and compared these with the outcomes of patients who received vocal cord mucosectomy using carbon dioxide (CO2) laser. Between February 2007 and June 2012, a total of 36 patients were enrolled -- 17 received vocal cord treatment with a CO2 laser and 19 received operation with a PDL. To evaluate voice status, acoustic wave form analysis and electro-glottography were done, and voice handicap index was measured before and after the operation. The entire lesion was removed in all patients. Compared to pre-operative vocal parameters, the post-operative values for jitter were only improved in the PDL group. On stroboscopic findings, a diminution or lack of mucosal wave was observed in more CO2 laser cases than PDL cases. Significant improvement in voice handicap index results was only observed in the PDL group. The authors concluded that although long-term results with more patients are needed to establish the validity of PDL, this study confirmed the merits of PDL for the en-bloc removal of vocal cord leukoplakia and improved voice outcome.

Furthermore, an UpToDate review on “Oral lesions” (Goldstein and Goldstein, 2015) states that “There is no curative treatment for OPVL [oral proliferative verrucous leukoplakia]. Multiple therapies have been tried for temporary control of the disease, including surgical excision, CO2 and Nd:YAG laser ablation, cryotherapy, radiation therapy, photodynamic therapy, topical bleomycin, and oral retinoids. Recurrence rates of up to 90 % have been reported for all treatment modalities”. This review does not mention PDL as a therapeutic option.
In a systematic review, Kotsakis et al (2014) addressed the following question: Is laser therapy, as a monotherapy or as an adjunctive therapy, an effective treatment modality for patients with peri-implantitis? The PubMed database of the U.S. National Library of Medicine and the Cochrane Central Register of Controlled Trials were electronically searched, complemented by manual searches up to June 2013. The search yielded 137 titles and abstracts. After initial screening, 15 of 137 publications were scrutinized during the second phase of the review. In the second phase, 9 articles were excluded from the analysis and 6 controlled, clinical studies were selected. Narrative synthesis of the results revealed that non-surgical laser treatment with a single application of either an erbium:yttrium-aluminum-garnet (Er:YAG) (2,940-nm) laser or a diode (660-nm) laser in combination with a phenothiazine chloride dye is efficient in controlling inflammation around treated implants for at least 6 months following intervention, whereas it has only a mild effect on reduction in probing depth (PD) and gain in clinical attachment level (CAL). There is limited information regarding the clinical application of the CO2 laser (10.6-µm) in the surgical treatment of peri-implantitis; however, its use may be promising. A meta-analysis could be performed only for the effectiveness of Er:YAG laser due to the heterogeneity of the studies and the limited amount of data available. Meta-analysis did not reveal statistically significant evidence for treatment effects in reducing PD and CAL levels in comparison to controls. The authors concluded that based on the limited information currently available, any superiority of laser treatment in comparison to conventional treatment of peri-implantitis could not be identified. Considering the high heterogeneity and the low number of included studies, the authors concluded that non-surgical laser therapy may be investigated as phase I therapy for the treatment of peri-implantitis. They stated that future research should emphasize detailed description of the specific laser characteristics and power settings in clinical studies.

Natto et al (2015) evaluated the effectiveness of various types of lasers (neodymium-doped yttrium-aluminum-garnet [Nd:YAG], CO2, diode, erbium/chromium-doped yttrium-scandium-gallium-garnet [Er,Cr:YSGG], and erbium-doped yttrium-aluminum-garnet [Er:YAG]) in the treatment of peri-implantitis and their use in surgical and non-surgical procedures. Human studies for the treatment of peri-implantitis with laser therapy, published between 2002 and January 2014, were collected utilizing the electronic databases PubMed, Ovid, MEDLINE, Cochrane, and Google Scholar. Two reviewers conducted the study selection, data collection, and validity assessment. A total of 812 studies were selected in the initial title search; 13 studies were then chosen for this review. No
human studies evaluated the effect of the Nd:YAG laser on peri-implantitis. The CO2 laser is reported to be safe and able to enhance bone regeneration. The diode laser (980-nm) seems to be effective in its bactericidal effect without changing the implant surface pattern. The Er,Cr:YSGG laser was reported to obtain bone regeneration around a failing implant in 1 case, while the Er:YAG laser exhibited a strong bactericidal effect against peri-odontopathic bacteria at a low energy level. The authors concluded that although lasers have shown promising results in reducing clinical signs of peri-implantitis, because of the limited sample sizes and short follow-up periods, no firm conclusion can be drawn at this moment. They stated that there is a need for well-designed, longitudinal, randomized controlled clinical trials.

Hailey-Hailey Disease

Hailey-Hailey disease, also known as familial benign pemphigus/benign familial pemphigus, is a hereditary (autosomal-dominant) acantholytic disorder affecting the inter-triginous areas of the body. Available evidence for the use of PDL for this condition is limited to case reports.

Falto-Aizpurua and colleagues (2015) noted that benign familial chronic pemphigus, or HHD, is a recurrent bullous dermatitis that tends to have a chronic course with frequent relapses. Long-term treatment options include surgery with skin grafting or dermabrasion. Both are highly invasive and carry significant risks and complications. More recently, 'laser-abrasion' has been described as a less invasive option with a better side-effect profile. These investigators systematically reviewed the safety and effectiveness of CO2 laser therapy as a long-term treatment option for HHD, as well as provided a review of other lasers that have been reported with this goal. A total of 23 patients who had been treated with a CO2 laser were identified. After treatment, 10 patients (43 %) had had no recurrence, 10 (43 %) had greater than 50 % improvement, 2 (8 %) had less than 50 % improvement and 1 (4 %) patient had no improvement at all (follow-up period ranged from 4 to 144 months). Laser parameter variability was wide and adverse effects were minimal, including dyspigmentation and scarring. The authors concluded that reviewed evidence indicated this therapy offers a safe, effective treatment alternative for HHD with minimal risk of side-effects. Moreover, they stated that larger, well-designed studies are necessary to determine the optimal treatment parameters.
Cutaneous Amyloidosis

Al Yahya (2016) noted that primary cutaneous amyloidosis (PCA) is a condition characterized by tissue deposition of misfolded proteins; it can present in different forms (e.g., macular, lichen, and nodular amyloidosis). These lesions can be of cosmetic concern and are difficult to treat. Many therapeutic modalities have been suggested for the treatment of PCA, with variable efficacy, including topical and systemic medications, phototherapy, electro-dessication, dermabrasion, cryosurgery, and lasers. Over the past 10 years, several studies have reported successful treatment of PCA with different types of lasers; however, a review of these studies has never been reported in the dermatologic literature. These investigators reviewed the safety and effectiveness of lasers in the treatment of PCA. A search of the National Library of Medicine's PubMed Database was performed. Studies were considered for inclusion based on their relevance, and specific data were extracted from all included studies. A total of 11 studies, comprising 64 patients, were included in this review. Significant improvements were observed in macular and lichen amyloidosis patients treated with CO2 laser in 2 studies, while a number of case series and case reports showed good results with other types of laser in the treatment of PCA. The authors concluded that this review was limited by the lack of large double-blinded randomized controlled trials (RCTs) and the overall small sample size. They stated that laser treatment is a promising option in the treatment of PCA; and future RCTs are needed to compare the effectiveness of different types of lasers and to select the best parameters for different types of PCA.

Granuloma Annulare

Verne and associates (2016) stated that granuloma annulare (GA) is a benign asymptomatic dermatosis that typically manifests in papules arrayed in annular arrangements. Many methods of treatment have been used with variable degrees of success, but finding a consistent and long-term treatment has proven a challenge. These investigators evaluated the latest published research on the use of lasers in the treatment of GA. A systematic search of the National Library of Medicine's PubMed database was performed to identify relevant articles; 7 reports met the inclusion criteria for the review. Evidence for the use of PDL, fractional photo-thermolysis, and Excimer laser in the treatment of GA was found. However, findings were limited by a lack of well-designed clinical trials objectively evaluating the use of lasers in the treatment of GA. The literature review found a number of
case reports and case series that reported successful outcomes of the use of lasers in the treatment of GA. The authors concluded that the promising results reported in the literature, coupled with the lack of a well-designed review on this topic, reflect the importance of the need for larger and better-designed studies on the use of lasers to treat GA.

Infantile Hemangiomas

Shen and co-workers (2015) noted that infantile hemangiomas (IH) are common pediatric tumors. This meta-analysis was performed to review the safety and effectiveness of PDL in the treatment of IH. A total of 7 databases were searched, including PubMed, OvidSP, Karger, Elsevier, EMBASE, Web of Science and Wiley Online Library. The review collected the characteristics of year of publication, hemangiomas cases, prior treatment, laser parameters, adverse side, pre-treatment symptom, and number of response from all articles. A total of 1,580 studies were identified, the first round search retrieved 39 articles that met inclusion criteria. Of those, only 13 articles with 1,529 hemangiomas were included in the meta-analysis. This meta-analysis demonstrated an overall resolution rate of 89.1 % with 6.28 % incidence of adverse effect. The authors concluded that PDL may be the effective modality to decrease the proliferative phase and accelerate rates of involution and resolution with few adverse events.

Acne

Charakida and colleagues (2004) reported that low-energy PDL therapy has been used, and seems to be a promising alternative that would allow the simultaneous treatment of active acne and acne scarring. However, the authors concluded that further studies are needed to clarify the role of phototherapy as a monotherapy or an adjuvant treatment in the current management of acne vulgaris.

In a randomized, controlled, clinical trial, Orringer and co-workers (2010) examined the effectiveness of photodynamic therapy (PDT) using 5-aminolevulinic acid (ALA) and PDL therapy in the treatment of facial acne (n = 44). Patients were randomized to receive 3 PDL treatments to one side of the face after a 60 to 90-min ALA application time, while the contralateral side remained untreated and served as a control. Serial blinded lesion counts and global acne severity ratings were performed. Global acne severity ratings improved bilaterally with the improvement noted to be statistically significantly greater in treated skin than in untreated skin.
Erythematous macules (remnants of previously active inflammatory lesions) decreased in number in treated skin when compared with control skin and there was a transient but significant decrease in inflammatory papules in treated skin when compared with untreated skin. There were no other statistically significant differences between treated and untreated sides of the face in terms of counts of any subtype of acne lesion. Thirty percent of patients were deemed responders to this treatment with respect to improvement in their inflammatory lesion counts, while only 7% of patients responded in terms of non-inflammatory lesion counts. The authors concluded that PDT with the treatment regimen employed here may be beneficial for a subgroup of patients with inflammatory acne.

In a randomized, controlled, single-blinded trial, Karsai and associates (2010) evaluated the effectiveness of an adjuvant PDL treatment when combined with a proven topical treatment [fixed-combination clindamycin 1% - benzoyl peroxide 5% hydrating gel (C/BPO)] for acne vulgaris. A total of 80 patients (38 males and 42 females, mean +/- SD age of 19.7 +/- 5.9 years) were randomized in a 1:2 ratio to receive C/BPO alone or in combination with PDL treatment (wavelength 585 nm, energy fluence 3 J cm(-2), pulse duration 0.35 ms, spot size 7 mm). Patients were evaluated at baseline and at 2 and 4 weeks after initial treatment. The primary end points were the Investigator’s Static Global Assessment (ISGA) score and lesion count; the secondary end point was the Dermatology Life Quality Index (DLQI). Both groups showed a significant improvement during observation [ISGA 27.1% (C/BPO) and 24.6% (C/BPO + laser), total lesion count 9.2% and 9.0%, inflammatory lesion count 36.3% and 36.9%, DLQI 54.5% and 42.5%], but there was no significant or otherwise appreciable difference between treatment modalities as far as the extent of improvement was concerned. Patients with more severe findings at baseline had a greater benefit from either therapy regimen. The authors concluded that these findings do not support the concept of a substantial benefit of PDL treatment in acne vulgaris.

Barbaric and colleagues (2018) undertook a Cochrane review of RCTs evaluating the effects of light-based interventions for acne vulgaris. They searched the Cochrane Skin Specialized Register, CENTRAL, Medline, Embase, LILACS, ISI Web of Science, and grey literature sources (September 2015). They used the Grading of Recommendations Assessment, Development and Evaluation Working Group approach to assess the quality of evidence (QE). These researchers included 71 RCTs (4,211 participants, median sample size = 31). Results from a
single study (n = 266, low QE) showed little or no difference in effectiveness on participants' assessment of improvement between 20 % aminolevulinic acid (ALA) photodynamic therapy (PDT), activated by blue light, versus vehicle plus blue light, whereas another study (n = 180) of a comparison of ALA-PDT (red light) concentrations showed 20 % ALA-PDT was no more effective than 15 %, but better than 10 % and 5 % ALA-PDT. Pooled data from 3 studies, (n = 360, moderate QE) showed that methyl animolevulinate (MAL)-PDT, activated by red light, had a similar effect on changes in lesion counts, compared with placebo cream with red light. Several studies compared yellow light to placebo or no treatment, infrared light to no treatment, gold-microparticle suspension to vehicle, and clindamycin/benzoyl peroxide (C/BPO) combined with PDL to C/BPO alone. None of these showed any clinically significant effects. Most studies reported adverse effects, but inadequately, with scarring reported as absent, and blistering only in studies on intense pulsed light, infrared light and PDT (very low QE). The authors concluded that carefully planned studies, using standardized outcome measures, and common acne treatments as comparators are needed.

In a systematic review, de Vries and colleagues (2018) evaluated the safety and efficacy of several non-pharmacological therapies in the treatment of acne vulgaris. A systematic literature review, including a best-evidence synthesis, was performed to identify literature; 3 electronic databases were accessed and searched for studies published between January 2000 and May 2017. A total of 33 eligible studies were included in this systematic review; 3 main types of non-pharmacological therapies were identified: laser- and light-based therapies, chemical peels and fractional micro-needling radiofrequency. The majority of the included studies demonstrated a significant reduction in acne lesions. However, only 7 studies had a high methodologic quality. Based on these 7 trials, a best-evidence synthesis was conducted. Strong evidence was found for glycolic acid (10 to 40 %). Moderate evidence was found for amino fruit acid (20 to 60 %), intense pulsed light (400 to 700 and 870 to 1,200 nm) and the diode laser (1,450 nm). Initially, conflicting evidence was found for PDL (585 to 595 nm). The most frequently reported side-effects for non-pharmacological therapies included erythema, tolerable pain, purpura, edema and a few cases of hyper-pigmentation, which were in most cases mild and transient. The authors concluded that circumstantial evidence was found for non-pharmacological therapies in the treatment of acne vulgaris. However, the lack of high methodological quality among included studies prevented the rendering of a clear conclusions, regarding a
step-wise approach. Moreover, the y stated that this systematic review including a best-evidence synthesis created order and structure in resulting outcomes in which a first-step towards future research is generated.

Nail Psoriasis

Maranda and colleagues (2016) noted that psoriatic involvement of the nail is notoriously refractory to conventional therapy. Nail psoriasis has a high incidence among patients with psoriasis. It remains a significant cosmetic problem and thus, has a significant impact on quality of life. More recently, light and laser therapies have emerged as modalities for treatment of nail psoriasis. In this study, the effectiveness of light and laser therapies were systematically reviewed. Light therapies involve ultraviolet light (with or without photosensitizers) or intense pulsed light. Alternatively, laser therapy in nail psoriasis was primarily administered using a 595-nm PDL. These modalities have demonstrated significant improvement in psoriatic nail lesions, and even complete resolution in some cases. Both laser and light modalities have also been tested in combination with other systemic or topical therapeutics, with variable improvement in effectiveness. Both laser and light therapies were generally well-tolerated. Side-effects of light therapies included hyperpigmentation, itching and erythema; whereas, side-effects of laser therapy were more frequent and included pain, purpura/petechiae and hyper-pigmentation. Patterns of response to therapy were also seen based on presenting characteristics of the nail lesions: subungual hyperkeratosis and onycholysis appeared to be the most responsive to therapy, while nail pitting was the most resistant. The authors concluded that light or laser therapies have the potential to be an efficient and cost-effective in-office based treatment for nail psoriasis. However, they stated that more large-scale clinical trials are needed to evaluate their effectiveness, especially in combination with other therapeutic modalities.

Striae Distensae (Stretch Marks)

Gungor and colleagues (2014) noted that striae distensae (SD) or stretch marks are atrophic linear dermal scars with epidermal atrophy. There are many therapeutic options for management, but no consistently effective modality is available yet. These researchers compared the effectiveness of 1,064-nm long pulse (LP) Nd: YAG laser and 2,940-nm variable square pulse (VSP) erbium: YAG laser in the treatment of SD. A total of 20 female volunteers (Fitzpatrick skin types II to V) aged between 20 and 40 years with striae (3 patients with the rubra type and 17 with the
The duration of striae ranged from 4 months to 12 years. Lesions were located on the abdomen in all patients except 1 patient who had striae on the arms and 2 patients with striae in the lumbar region. Treatments were randomly allocated to both sides of the body in each patient, one side being treated with VSP erbium: YAG laser and the opposite side with LP Nd: YAG laser. All subjects were treated monthly for a total of 3 treatments. Two 3-mm punch biopsies were obtained from 6 subjects, both of the same striae, one before the first treatment and one 4 weeks after the last session. Response was evaluated clinically by photographic comparison and was found to be poor in 17 subjects, both on the LP Nd: YAG laser treated side and VSP erbium YAG laser treated side. All these patients had mature lesions (SD alba); 3 subjects had a moderate response on both sides; these patients’ striae were immature (SD rubra). Histologically, elastic fibers were slightly increased in post-treatment samples compared with pre-treatment skin biopsies. The authors concluded that they observed no satisfactory clinical improvement in SD alba lesions although histopathological changes were seen. They suggested that variable square pulse Er: YAG and long pulse Nd: YAG lasers are not useful in the treatment of SD alba.

Al-Himdani and associates (2014) presented a clinical review of the current literature concerning SD and their prevention and treatment. A systematic review of the literature was undertaken using Medline, Embase and Google Scholar. Articles in English, Spanish, Portuguese, Turkish and French were included. Striae distensae occur in pregnancy, puberty and obesity as well as in numerous medical conditions and following therapeutic interventions. Proposed etiological mechanisms relate to hormones, physical stretch and structural alterations to the integument. Assessment methods include subjective visual scoring and various imaging modalities. Treatments that these investigators have evaluated include topical agents, used prophylactically or therapeutically, as well as light and laser therapies, which have shown improvements in the appearance of SD. The authors concluded that few high level evidence-based RCTs evaluating treatments for SD exist; topical therapeutic agents appeared to lack effectiveness in the prevention of SD.

Aldahan and co-workers (2016) stated that SD are common dermatologic lesions that often arise as a result of rapid weight change, certain endocrine conditions, or prolonged exposure to steroids. Striae distensae initially present as raised edematous plaques (striae rubra), after which they become white and atrophic (striae alba) owing to local breakdown and reorganization of collagen and elastin.
There currently exists no reliable treatment option, though numerous topical applications have been attempted. Lasers and light represent emerging non-invasive therapies that have demonstrated some success targeting vascular chromophores in striae rubra and stimulating collagen and elastin production in striae alba. An extensive literature review was performed to gather all available articles studying laser and light treatments for SD. Lasers and light can significantly improve the appearance of both striae rubra and striae alba. Generally, striae rubra are more responsive to therapy and can be treated successfully with a variety of lasers without major adverse effects. Fractional lasers exhibit the strongest results for striae alba re-pigmentation and collagen induction, and several other lasers produce temporary re-pigmentation. Lasers in combination with other modalities such as topical agents and additional energy devices have also demonstrated promising preliminary results; however, large comparative studies are needed to validate these outcomes.

Ross and colleagues (2017) comprehensively reviewed the literature pertaining to the history, pathogenesis, clinical presentation, clinical rating scales, and laboratory, imaging, and histologic features of SD. A review of PubMed, Medline, Scopus, Embase, and Google scholar was conducted, including literature published from 1973 to August 6, 2016. The authors identified 68 articles that met inclusion and exclusion criteria. There are few RCTs evaluating the long-term safety and effectiveness of various topical and energy-based devices. Based on clinical and anecdotal experience, both non-ablative and ablative fractionated lasers have shown modest SD improvement compared with other treatment modalities (including Excimer laser, CuBr laser, PDL, and 1,064-nm Nd:YAG laser). In the authors' experience, 1,540-nm non-ablative fractionated laser is a worthy first-line modality for the treatment of SD. Moreover, they stated that future researchers may consider greater focus on enhanced study design, including larger, long-term split-body, or split-SD head-to-head randomized comparative trials with objective outcome measures and end-points, such as biopsy and molecular studies demonstrating increased collagen and elastic fibers that correlate to clinical improvement.

Furthermore, and UpToDate review on “Striae distensae (stretch marks)” (MacGregor and Wesley, 2017) states that “Treatment of striae distensae is optional. A paucity of high-quality trials has led to uncertainty about the best approach to therapy”.

http://www.aetna.com/cpb/medical/data/500_599/0559.html
Cutaneous Angiokeratomas

Nguyen and associates (2017) stated that angiokeratomas can present therapeutic challenges, especially in cases of extensive lesions, where traditional surgical methods carry high risks of scarring and hemorrhage. Argon, PDL, Nd:YAG, copper vapor, potassium titanyl phosphate, CO2, and Er:YAG lasers have emerged as alternative options. These investigators reviewed the use and efficacy of lasers in treating angiokeratomas. A PubMed search identified randomized clinical trials, cohort studies, case series, and case reports involving laser treatment of cutaneous angiokeratomas. A total of 25 studies were included. Quality ratings were assigned using the Oxford Centre for Evidence-Based Medicine scheme. Several laser modalities are effective in treating multiple variants of angiokeratomas. Vascular lasers like PDL, Nd:YAG, and argon are the most studied and of these, PDL offered the safest side effect profile; Nd:YAG may be more effective for hyperkeratotic angiokeratomas. Combination treatment with multiple laser modalities had also demonstrated some success. The authors concluded that lasers are a promising therapeutic option for angiokeratomas, but current use is limited by the lack of treatment guidelines. Moreover, they stated that there are limited high quality studies comparing laser treatments to each other and to non-laser options; additional studies are needed to establish guidelines and to optimize laser parameters.

Cutaneous Leishmaniasis

Slaoui et al (2015) stated that cutaneous leishmaniasis (CL) caused by Leishmania tropica can leave troublesome and unsightly lesions. Treatment of these scars remains difficult; PDL is one therapeutic approach that may improve the clinical appearance of erythematous lesions. These researchers evaluated the effectiveness of PDL on the residual red lesions of erythematous facial leishmaniasis in 3 patients. Case 1: a 14-year old girl presented an ulcerative and erythematous nodular lesion on her left cheek. One month after treatment, an erythematous lesion measuring 3 cm persisted on the patient's cheek, without atrophy or hyper-pigmentation. Pulsed dye laser (595-nm) was used at the following settings: duration: 3 ms; spot size: 7 mm; energy: 8 J/cm(2). Case 2: a 43-year old woman presented an erythematous papular lesion on her right cheek. Following treatment, a 4-cm hypertrophic, red telangiectasic lesion remained. Pulsed dye laser was used with the following settings: pulse duration: 3 ms; spot-size: 10 mm; energy: 8 J/cm(2). Case 3: a 60-year old woman presented an
erythematous papular lesion on her cheek. After treatment, an infiltrated erythematous macule with surface telangiectasia measuring 3.5 cm remained. Pulsed dye laser was also given using the following settings: pulse duration: 3 ms; spot size: 10 mm; energy: 8 J/cm(2). All 3 patients underwent 3 sessions of PDL. The erythematous and telangiectasic lesions showed improvement after the initial session and had completely disappeared after the 3rd session. Post-laser purpura subsided within around 10 days. Therapeutic response was assessed clinically by comparing photographs taken before and after treatment and follow-up lasted 12 months. The authors concluded that a number of treatments are available for red residual lesions but PDL has been shown to provide the most reproducibly good results and is the laser method of choice for this type of scar. A recent study of the dermoscopic features of CL identified the presence of vascular patterns in 100 % of cases in this infection, which may account for the efficacy of PDL. The use of PDL resulted in selective thermolysis that destroys small vessels. They stated that the findings of this study showed improvement with PDL regarding scar size, pliability, erythema and texture; further larger-scale studies could better determine the place of PDL in treating the sequelae of CL.

Elsaie and Ibrahim (2018) evaluated the efficacy of 595-nm PDL in the treatment of CL lesions and interpreted its impact on the quality of life (QOL) of affected patients as measured by the DLQI. A total of 25 lesions from 12 patients were treated with a single pass of PDL over the whole lesions to develop a purpuric end-point. Parameters used for this treatment were 7 J/cm2 fluence, 10-mm spot size, and 0.45-ms pulse duration. The laser settings were maintained in all subsequent treatments. Excellent response was noted in 13 of the 25 lesions after 3 sessions, while 12 of the remaining 25 lesions required 4 sessions toward complete recovery. The mean DLQI scores pre- and post-laser treatments were 12.67 and 4.25, respectively. All patients experienced a statistically significant improvement in their QOL (p < 0.05, paired t-test). The authors concluded that PDL is a new safe modality for treating cases of CL; further larger-scale studies are needed to better determine its role.

Cutaneous Sarcoidosis

Lima and colleagues (2018) noted that sarcoidosis is a systemic non-caseating granulomatous disease of unknown etiology. Cutaneous manifestations are present in approximately 10 to 30 % of the patients with the systemic form. Therapy is indicated in case of disabling symptoms, organ dysfunction or
cosmetically distressing manifestation. Despite different therapeutic possibilities, cutaneous sarcoidosis remains exceptionally difficult to treat. Light and laser therapy may be a promising alternative. In this systematic review, these researchers summarized the available treatments according to the literature concerning light and laser therapy for cutaneous sarcoidosis. Publications written in English and German, published between January 1990 and July 2016 in the database PubMed, Medline, Embase, and Scopus were analyzed. Light therapy with intense pulsed light, PDT, and ultraviolet A (UVA) light therapy, as well as laser therapy with pulsed dye laser, YAG laser, and Q-switched ruby laser were described. The results were based on individual case reports and small case series; RCTs are lacking.

Post-Filler Bruises

Jeong and colleagues (2018) stated that fillers have become popular worldwide as the demand for enhancements in rejuvenating effects and esthetic improvements is continually increasing. With broader applications and the increasing number of cosmetic procedures using fillers, more filler-related complications are being reported. These filler-related complications range from mild bruising to severe vascular complications. Because of the severe and irreversible outcomes of vascular complications, therapeutic protocols for such complications are being examined and updated actively. However, not much attention is paid to mild bruises that develop after filler injections. Simple observation is the treatment of choice for bruises in current filler complication protocols. In the present study, the possible effect of a PDL on bruises was reported, with a case report of a female patient who received PDL treatment for a bruise that developed after a filler injection.

CPT Codes / HCPCS Codes / ICD-10 Codes

Information in the [brackets] below has been added for clarification purposes. Codes requiring a 7th character are represented by "+":

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verruca warts and pyogenic granuloma:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPT codes covered if selection criteria are met:</td>
</tr>
<tr>
<td>Code</td>
<td>Code Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17110</td>
<td>Destruction (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettage), of benign lesions other than skin tags or cutaneous vascular proliferative lesions; up to 14 lesions</td>
</tr>
<tr>
<td>17111</td>
<td>15 or more lesions</td>
</tr>
</tbody>
</table>

ICD-10 codes covered if selection criteria are met:

- **B08.1** Molluscum contagiosum
- **B07.0 - B07.9** Viral warts [verruca]
- **B08.1** Molluscum contagiosum
- **L98.0** Pyogenic granuloma [face and neck]

Port wine stains, other hemangiomas, and glomangiomas:

CPT codes covered if selection criteria are met:

- **17106** Destruction of cutaneous vascular proliferative lesions (e.g., laser techniques); less than 10 sq cm
- **17107** 10.0 to 50.0 sq cm
- **17108** over 50.0 sq cm

ICD-10 codes covered if selection criteria are met:

- **D18.01** Hemangioma of skin and subcutaneous tissue [face and neck]
- **Q82.5** Congenital non-neoplastic nevus (e.g., Port-wine stain, strawberry nevus and birthmarks) [face and neck]

Benign lesions:

CPT codes covered if selection criteria are met:

- **17110** Destruction (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettage), of benign lesions other than skin tags or cutaneous vascular proliferative lesions; up to 14 lesions
- **17111** 15 or more lesions

ICD-10 codes not covered for indications listed in the CPB:

- **B55.1** Cutaneous leishmaniasis
- **D23.0 - D23.9** Other benign neoplasms of skin [cutaneous angiokeratomas]
- **D86.3** Sarcoïdosis of skin [cutaneous sarcoidosis]
- **E85.4** Organ limited amyloidosis
- **L90.6** Striae atrophicae
- **L92.0** Granuloma annulare
Pre-malignant lesions:

CPT codes covered if selection criteria are met:

<table>
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<th>Code</th>
<th>Code Description</th>
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<td>Destruction (eg, laser surgery, electrosurgery, cryosurgery,</td>
</tr>
<tr>
<td></td>
<td>chemosurgery, surgical curettement), premalignant lesions (eg,</td>
</tr>
<tr>
<td></td>
<td>actinic keratoses); first lesion</td>
</tr>
<tr>
<td>17003</td>
<td>second through 14 lesions, each (List separately in addition to code for first lesion)</td>
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<tr>
<td>17004</td>
<td>15 or more lesions</td>
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ICD-10 codes covered if selection criteria are met:

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<th>Code</th>
<th>Code Description</th>
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ICD-10 codes not covered for indications listed in the CPB:

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<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K13.21</td>
<td>Leukoplakia of oral mucosa, including tongue</td>
</tr>
</tbody>
</table>

Plaque psoriasis:

CPT codes covered if selection criteria are met:

<table>
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<tr>
<th>Code</th>
<th>Code Description</th>
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</thead>
<tbody>
<tr>
<td>96920</td>
<td>Laser treatment for inflammatory skin disease (psoriasis); total area less than 250 sq cm</td>
</tr>
<tr>
<td>96921</td>
<td>250 sq cm to 500 sq cm</td>
</tr>
<tr>
<td>96922</td>
<td>over 500 sq cm</td>
</tr>
</tbody>
</table>

ICD-10 codes covered if selection criteria are met:

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<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L40.0</td>
<td>Psoriasis vulgaris[plaque]</td>
</tr>
</tbody>
</table>

ICD-10 codes not covered for indications listed in the CPB (not all-inclusive):

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B08.1</td>
<td>Molluscum contagiosum</td>
</tr>
<tr>
<td>B35.1</td>
<td>Tinea unguium[onychomycosis]</td>
</tr>
<tr>
<td>D18.1</td>
<td>Lymphangioma, any site</td>
</tr>
<tr>
<td>D22.70</td>
<td>Benign neoplasm of skin of lower limb, including hip [angiokeratoma]</td>
</tr>
<tr>
<td>D22.72</td>
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</tr>
<tr>
<td>D23.70</td>
<td></td>
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<tr>
<td>. 23.72</td>
<td></td>
</tr>
<tr>
<td>H02.60</td>
<td>Xanthelasma [palpebrum]</td>
</tr>
<tr>
<td>H95.121</td>
<td>Granulation of postmastoidectomy cavity</td>
</tr>
<tr>
<td>H95.129</td>
<td></td>
</tr>
<tr>
<td>I78.0</td>
<td>Diseases of capillaries</td>
</tr>
<tr>
<td>I78.9</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Code Description</td>
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<tr>
<td>----------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I89.8-I89.9</td>
<td>Other and unspecified noninfective disorders of lymphatic vessels and lymph nodes [microcystic lymphatic malformations]</td>
</tr>
<tr>
<td>L05.01-L05.92</td>
<td>Pilonidal cyst and sinus</td>
</tr>
<tr>
<td>L30.1</td>
<td>Dyshidrosis [pompholyx]</td>
</tr>
<tr>
<td>L44.0</td>
<td>Pityriasis rubra pilaris</td>
</tr>
<tr>
<td>L70.0</td>
<td>Acne vulgaris</td>
</tr>
<tr>
<td>L71.0-L71.9</td>
<td>Rosacea</td>
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<tr>
<td>L73.1</td>
<td>Pseudofolliculitis barbae</td>
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<td>L73.2</td>
<td>Hidradenitis suppurativa</td>
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<td>L73.8</td>
<td>Other specified follicular disorders [sycosis barbae]</td>
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<tr>
<td>L81.0-L81.9</td>
<td>Other disorders of pigmentation</td>
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<tr>
<td>L94.0</td>
<td>Localized scleroderma [morphea] [circumscribed]</td>
</tr>
<tr>
<td>Q82.8</td>
<td>Other specified congenital malformations of skin [Darier disease] [Hailey-Hailey disease]</td>
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<tr>
<td>R49.0</td>
<td>Dysphonia</td>
</tr>
</tbody>
</table>

**Basal Cell Carcinoma:**

CPT codes covered for indications listed in the CPB:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17260</td>
<td>Destruction, malignant lesion (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 0.5 cm or less</td>
</tr>
<tr>
<td>17261</td>
<td>lesion diameter 0.6 to 1.0 cm</td>
</tr>
<tr>
<td>17262</td>
<td>lesion diameter 1.1 to 2.0 cm</td>
</tr>
<tr>
<td>17263</td>
<td>lesion diameter 2.1 to 3.0 cm</td>
</tr>
<tr>
<td>17264</td>
<td>lesion diameter 3.1 to 4.0 cm</td>
</tr>
<tr>
<td>17266</td>
<td>lesion diameter over 4.0 cm</td>
</tr>
<tr>
<td>17270</td>
<td>Destruction, malignant lesion (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 0.5 cm or less</td>
</tr>
<tr>
<td>17271</td>
<td>lesion diameter 0.6 to 1.0 cm</td>
</tr>
<tr>
<td>17272</td>
<td>lesion diameter 1.1 to 2.0 cm</td>
</tr>
<tr>
<td>17273</td>
<td>lesion diameter 2.1 to 3.0 cm</td>
</tr>
<tr>
<td>Code</td>
<td>Code Description</td>
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<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17274</td>
<td>lesion diameter 3.1 to 4.0 cm</td>
</tr>
<tr>
<td>17276</td>
<td>lesion diameter over 4.0 cm</td>
</tr>
<tr>
<td>17280</td>
<td>Destruction, malignant lesion (e.g., laser surgery, electrosurgery, cryosurgery,</td>
</tr>
<tr>
<td></td>
<td>chemosurgery, surgical curettage), face, ears, eyelids, nose, lips, mucous</td>
</tr>
<tr>
<td></td>
<td>membrane; lesion diameter 0.5 cm or less</td>
</tr>
<tr>
<td>17281</td>
<td>lesion diameter 0.6 to 1.0 cm</td>
</tr>
<tr>
<td>17282</td>
<td>lesion diameter 1.1 to 2.0 cm</td>
</tr>
<tr>
<td>17283</td>
<td>lesion diameter 2.1 to 3.0 cm</td>
</tr>
<tr>
<td>17284</td>
<td>lesion diameter 3.1 to 4.0 cm</td>
</tr>
<tr>
<td>17286</td>
<td>lesion diameter over 4.0 cm</td>
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</table>

ICD-10 codes not covered for indications listed in the CPB:

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>C44.01</td>
<td>Basal cell carcinoma of</td>
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<tr>
<td></td>
<td>skin</td>
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<td>C44.11</td>
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<td>C44.81</td>
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</table>

The above policy is based on the following references:


35. Foerster V, Murtagh J, Fiander M. Pulsed dye laser therapy of port wine stains. Technology Report No. 78. Ottawa, ON: Canadian Agency for Drugs and Technologies in Health (CADTH); 2007.


62. Chartier TK, Aasi SZ. Treatment and prognosis of basal cell carcinoma. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed April, 2014.


67. Goldstein BG, Goldstein AO. Oral lesions. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed April 2015.


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Amendment to
Aetna Clinical Policy Bulletin Number: 0559 Pulsed Dye Laser Treatment

There are no amendments for Medicaid.