MEDICAL POLICY

POLICY TITLE	DERMATOLOGIC APPLICATIONS OF PHOTODYNAMIC THERAPY
POLICY NUMBER	MP 4.018

CLINICAL BENEFIT	☐ MINIMIZE SAFETY RISK OR CONCERN. ☒ MINIMIZE HARMFUL OR INEFFECTIVE INTERVENTIONS. ☐ ASSURE APPROPRIATE LEVEL OF CARE. ☐ ASSURE APPROPRIATE DURATION OF SERVICE FOR INTERVENTIONS. ☐ ASSURE THAT RECOMMENDED MEDICAL PREREQUISITES HAVE BEEN MET. ☐ ASSURE APPROPRIATE SITE OF TREATMENT OR SERVICE.
Effective Date:	**7/1/2025**

I. POLICY

Photodynamic therapy may be considered **medically necessary** as a treatment of:

- Nonhyperkeratotic actinic keratoses of the face, and scalp
- Nonhyperkeratotic actinic keratoses of the upper extremities.
- Low-risk (e.g., superficial and nodular) basal cell skin cancer only when surgery and radiation are contraindicated.
- Cutaneous squamous cell carcinoma in situ (Bowen disease) only when surgery and radiation are contraindicated.

Photodynamic therapy is considered **investigational** for other dermatologic applications, including, but not limited to, acne vulgaris, high-risk basal cell carcinomas, hidradenitis suppurativa, and mycoses. There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure.

Photodynamic therapy as a technique of skin rejuvenation, hair removal, or other cosmetic indications is considered **investigational**. There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure.

Policy Guidelines

Surgery and radiation are the preferred treatments for low-risk basal cell cancer and Bowen disease. If photodynamic therapy is selected for these indications because of contraindications to surgery or radiation, patients and physicians need to be aware that it may have a lower cure rate compared with surgery or radiation.

Photodynamic therapy typically involves two (2) office visits: one to apply the topical aminolevulinic acid and a second visit to expose the patient to blue light. The second physician office visit, performed solely to administer blue light, should not warrant a separate Evaluation

and Management CPT code. Photodynamic protocols typically involve two (2) treatments spaced a week apart; more than one (1) treatment series may be required.

Based on characteristics of individuals enrolled in randomized controlled trials, 4 or more lesions per site (face, scalp, or upper extremities) is an appropriate threshold for use of photodynamic therapy for individuals with nonhyperkeratotic actinic keratosis.

Cross-References:

MP 2.046 Light Therapies
MP 4.008 Photodynamic Therapy for Choroidal Neovascularization
MP 4.019 Oncological Applications of Photodynamic Therapy including Barrett's Esophagus

II. PRODUCT VARIATIONS

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This policy is only applicable to certain programs and products administered by Capital Blue Cross and subject to benefit variations as discussed in Section VI. Please see additional information below.

FEP PPO - Refer to FEP Medical Policy Manual. The FEP Medical Policy manual can be found at:
https://www.fepblue.org/benefit-plans/medical-policies-and-utilization-management-guidelines/medical-policies

III. DESCRIPTION/BACKGROUND

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Photodynamic Therapy

Photodynamic therapy (PDT) relies on the interaction between a photosensitizer, the appropriate activating wavelength of light, and oxygen. The reaction generates reactive oxygen species (ROS) in cells that either take up an exogenous photosensitizer or produce its own endogenously, causing cell death by necrosis or apoptosis, but minimally affects the surrounding tissue. Initially, PDT relied on systemic administration of the photosensitizer, but the advent of topical application revolutionized the field. Two common photosensitizing agents are 5-aminolevulinic acid (5-ALA) and its methyl ester, methyl aminolevulinate (MAL). MAL is no longer produced in the United States. When applied topically, these agents pass readily through abnormal keratin overlying the lesion and accumulate preferentially in dysplastic cells. The agent's 5-ALA and MAL are metabolized by underlying cells to photosensitizing concentrations of porphyrins. Subsequent exposure to photoactivation (maximum absorption at 404 to 420 nm and 635 nm) generates reactive oxygen species that are cytotoxic, ultimately destroying the lesion. PDT can cause erythema, burning, and pain. Healing occurs within 10 to 14 days, with generally acceptable cosmetic results. PDT with topical ALA has been investigated primarily as a treatment of actinic keratoses.

Regulatory Status

In 1999, Levulan® Kerastick™, a topical preparation of ALA, in conjunction with illumination with the BLU-U™ Blue Light Photodynamic Therapy Illuminator, was approved by the U.S. Food and Drug Administration (FDA) for the treatment of nonhyperkeratotic actinic keratoses of the face and scalp. In 2018, the indication was expanded to include nonhyperkeratotic AKs of the upper extremities. The product is applied in the physician's office. FDA product code: MVF.

In 2016, the FDA approved Ameluz® (aminolevulinic acid hydrochloride) gel, 10% (BF-200 ALA; Biofrontera AG) in combination with PDT using BF-RhodoLED lamp, to be used for the lesion-directed and field-directed treatment of actinic keratoses of mild-to-moderate severity on the face and scalp. The treatment is to be administered by a health care provider.

A 5-ALA patch technology is available outside of the United States through an agreement between Intendis (now Bayer HealthCare) and Photonamic. The 5-ALA patch is not approved by the FDA.

Another variant of PDT for skin lesions is Metvixia® used with the Aktilite CL128 lamp, each of which received FDA approval in 2004. Metvixia® (Galderma, Switzerland; Photocure, Norway) consists of the topical application of MAL (in contrast to ALA used in the Kerastick™ procedure), followed by exposure with the Aktilite CL128 lamp, a red-light source (in contrast to the blue light source in the Kerastick™ procedure). Broadband light sources (containing the appropriate wavelengths), intense pulsed light (FDA product code: ONF), pulsed dye lasers, and potassium-titanyl-phosphate lasers have also been used. Metvixia® is indicated for the treatment of nonhyperkeratotic actinic keratoses of the face and scalp in immunocompetent patients when used with lesion preparation (debridement using a sharp dermal curette) in the physician's office when other therapies are unacceptable or considered medically less appropriate. **Metvixia® is no longer available in the United States.** FDA product codes: GEX and LNK.

IV. RATIONALE

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Summary of Evidence

For individuals who have nonhyperkeratotic actinic keratoses on the face or scalp who receive PDT, the evidence includes RCTs. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. Evidence from multiple RCTs has found that PDT improves the net health outcome in patients with nonhyperkeratotic actinic keratoses on the face or scalp compared with placebo or other active interventions. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have nonhyperkeratotic AKs on the upper extremities who receive PDT, the evidence includes RCTs. The relevant outcomes are symptoms, change in disease status, QOL, and treatment-related morbidity. In two placebo controlled RCTs, significantly more patients had a complete clearance of AKs with ALA/PDT with blue light compared to placebo at 12 weeks, and a third found a significantly greater reduction in mean lesion count at 4 weeks. Two small RCTs compared ALA/PDT using red light to imiquimod or 5-fluorouracil and found similar efficacy between the active treatment groups after six months of follow-up. The evidence

is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have low-risk basal cell carcinoma who receive PDT, the evidence includes RCTs and systematic reviews of RCTs. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. Systematic reviews of RCTs have found that PDT may not be as effective as surgery for superficial and nodular basal cell carcinoma. In the small number of trials available, PDT was more effective than placebo. The available evidence from RCTs has suggested that PDT has better cosmetic outcomes than surgery. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have squamous cell carcinoma in situ who receive PDT, the evidence includes RCTs. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. RCTs have found that PDT has similar or greater efficacy compared with cryotherapy and 5-fluorouracil. Additionally, adverse events and cosmetic outcomes appear to be better after PDT. Few RCTs have compared PDT with surgery or radiotherapy; as a result, conclusions cannot be drawn about PDT compared with these other standard treatments. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have nonmetastatic invasive squamous cell carcinoma who receive PDT, the evidence includes observational studies and a systematic review of observational studies. Relevant outcomes are overall survival, symptoms, change in disease status, quality of life, and treatment-related morbidity. Conclusions cannot be drawn from small, uncontrolled studies. RCTs are needed to determine the safety and efficacy of PDT for this condition. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have acne who receive PDT, the evidence includes RCTs and a systematic review. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. The available RCTs have not consistently found significantly better outcomes with PDT compared with other interventions, and a meta-analysis did not find significantly better results with PDT versus placebo. Several trials have found that PDT is associated with high rates of adverse events leading to the cessation of treatment. Trials have tended to have relatively small sample sizes and used a variety of comparison interventions. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have noncancerous dermatologic skin conditions (e.g., hidradenitis suppurativa, mycoses, port wine stain) who receive PDT, the evidence includes case series and systematic reviews of uncontrolled series. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. Further studies are needed to determine the safety and efficacy of PDT for these conditions. The evidence is insufficient to determine the effects of the technology on health outcomes.

V. DEFINITIONS

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CHEMOSURGERY is the destruction of tissue by the use of chemical compounds.

CRYOSURGERY is the use of extremely cold probes to destroy unwanted, cancerous, or infected tissue.

ELECTRODESSICATION is the destruction of cells by application of electrical energy similar to, but to a lesser intensity than, electrocoagulation.

HYPERKERATOSIS refers to hypertrophy of the corneous layer of the skin.

VI. BENEFIT VARIATIONS

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The existence of this medical policy does not mean that this service is a covered benefit under the member's health benefit plan. Benefit determinations are based on the applicable health benefit plan language. Medical policies do not constitute a description of benefits. Members and providers should consult the member's health benefit plan for information or contact Capital Blue Cross for benefit information.

VII. DISCLAIMER

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Capital Blue Cross' medical policies are developed to assist in administering a member's benefits. These medical policies do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member's benefit information, the benefit information will govern. If a provider or a member has a question concerning the application of this medical policy to a specific member's plan of benefits, please contact Capital Blue Cross' Provider Services or Member Services. Capital Blue Cross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

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Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Covered when medically necessary:

Procedure Codes								
J7308	J7309	J7345	96567	96573	96574			

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ICD-10-CM Diagnosis Codes	Description
C44.01	Basal cell carcinoma of skin of lip
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus
C44.1121	Basal cell carcinoma of skin of right upper eyelid, including canthus
C44.1122	Basal cell carcinoma of skin of right lower eyelid, including canthus
C44.1191	Basal cell carcinoma of skin of left upper eyelid, including canthus
C44.1192	Basal cell carcinoma of skin of left lower eyelid, including canthus
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal
C44.310	Basal cell carcinoma of skin of unspecified parts of face
C44.311	Basal cell carcinoma of skin of nose
C44.319	Basal cell carcinoma of skin of other parts of face
C44.41	Basal cell carcinoma of skin of scalp and neck
C44.510	Basal cell carcinoma of anal skin
C44.511	Basal cell carcinoma of skin of breast
C44.519	Basal cell carcinoma of skin of other part of trunk
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip
C44.712	Basal cell carcinoma of skin of right lower limb, including hip
C44.719	Basal cell carcinoma of skin of left lower limb, including hip
C44.81	Basal cell carcinoma of overlapping sites of skin
D04.0	Carcinoma in situ of skin of lip
D04.10	Carcinoma in situ of skin of unspecified eyelid, including canthus
D04.11	Carcinoma in situ of skin of right eyelid, including canthus
D04.121	Carcinoma in situ of the skin of left upper eyelid, including canthus
D04.122	Carcinoma in situ of skin of left lower eyelid, including canthus
D04.20	Carcinoma in situ of skin of unspecified ear and external auricular canal
D04.21	Carcinoma in situ of skin of right ear and external auricular canal
D04.22	Carcinoma in situ of skin of left ear and external auricular canal
D04.30	Carcinoma in situ of skin of unspecified part of face
D04.39	Carcinoma in situ of skin of other parts of face
D04.4	Carcinoma in situ of skin of scalp and neck
D04.5	Carcinoma in situ of skin of trunk

ICD-10-CM Diagnosis Codes	Description
D04.60	Carcinoma in situ of skin of unspecified upper limb, including shoulder
D04.61	Carcinoma in situ of skin of right upper limb, including shoulder
D04.62	Carcinoma in situ of skin of left upper limb, including shoulder
D04.70	Carcinoma in situ of skin of unspecified lower limb, including hip
D04.71	Carcinoma in situ of skin of right lower limb, including hip
D04.72	Carcinoma in situ of skin of left lower limb, including hip
D04.8	Carcinoma in situ of skin of other sites
D04.9	Carcinoma in situ of skin, unspecified
L57.0	Actinic keratosis

IX. REFERENCES

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1. *Reynolds KA, Schlessinger DI, Vasic J, et al. Core Outcome Set for Actinic Keratosis Clinical Trials. JAMA Dermatol. Mar 01 2020; 156(3): 326-333. PMID 31939999*
2. *Patel G, Armstrong AW, Eisen DB. Efficacy of photodynamic therapy vs other interventions in randomized clinical trials for the treatment of actinic keratoses: a systematic review and meta-analysis. JAMA Dermatol. Dec 2014; 150(12): 1281-8. PMID 25162181*
3. *Pariser DM, Lowe NJ, Stewart DM, et al. Photodynamic therapy with topical methyl aminolevulinate for actinic keratosis: results of a prospective randomized multicenter trial. J Am Acad Dermatol. Feb 2003; 48(2): 227-32. PMID 12582393*
4. *Morton C, Campbell S, Gupta G, et al. Intraindividual, right-left comparison of topical methyl aminolaevulinate-photodynamic therapy and cryotherapy in subjects with actinic keratoses: a multicentre, randomized controlled study. Br J Dermatol. Nov 2006; 155(5): 1029-36. PMID 17034536*
5. *Hauschild A, Stockfleth E, Popp G, et al. Optimization of photodynamic therapy with a novel self-adhesive 5-aminolaevulinic acid patch: results of two randomized controlled phase III studies. Br J Dermatol. May 2009; 160(5): 1066-74. PMID 19222455*
6. *Szeimies RM, Radny P, Sebastian M, et al. Photodynamic therapy with BF-200 ALA for the treatment of actinic keratosis: results of a prospective, randomized, double-blind, placebo-controlled phase III study. Br J Dermatol. Aug 2010; 163(2): 386-94. PMID 20518784*
7. *Szeimies RM, Stockfleth E, Popp G, et al. Long-term follow-up of photodynamic therapy with a self-adhesive 5-aminolaevulinic acid patch: 12 months data. Br J Dermatol. Feb 01 2010; 162(2): 410-4. PMID 19804593*
8. *Serra-Guillen C, Nagore E, Hueso L, et al. A randomized pilot comparative study of topical methyl aminolevulinate photodynamic therapy versus imiquimod 5% versus sequential application of both therapies in immunocompetent patients with actinic keratosis: clinical and histologic outcomes. J Am Acad Dermatol. Apr 2012; 66(4): e131-7. PMID 22226430*

9. *Dirschka T, Radny P, Dominicus R, et al. Photodynamic therapy with BF-200 ALA for the treatment of actinic keratosis: results of a multicentre, randomized, observer-blind phase III study in comparison with a registered methyl-5-aminolaevulinate cream and placebo. Br J Dermatol. Jan 2012; 166(1): 137-46. PMID 21910711*
10. *Dirschka T, Radny P, Dominicus R, et al. Long-term (6 and 12 months) follow-up of two prospective, randomized, controlled phase III trials of photodynamic therapy with BF-200 ALA and methyl aminolaevulinate for the treatment of actinic keratosis. Br J Dermatol. Apr 2013; 168(4): 825-36. PMID 23252768*
11. *Zane C, Facchinetti E, Rossi MT, et al. A randomized clinical trial of photodynamic therapy with methyl aminolaevulinate vs. diclofenac 3% plus hyaluronic acid gel for the treatment of multiple actinic keratoses of the face and scalp. Br J Dermatol. May 2014; 170(5): 1143-50. PMID 24506666*
12. *Reinhold U, Dirschka T, Ostendorf R, et al. A randomized, double-blind, phase III, multicentre study to evaluate the safety and efficacy of BF-200 ALA (Ameluz((R))) vs. placebo in the field-directed treatment of mild-to-moderate actinic keratosis with photodynamic therapy (PDT) when using the BF-RhodoLED((R)) lamp. Br J Dermatol. Oct 2016; 175(4): 696-705. PMID 26921093*
13. *Steeb T, Wessely A, Schmitz L, et al. Interventions for Actinic Keratosis in Nonscalp and Nonface Localizations: Results from a Systematic Review with Network Meta-Analysis. J Invest Dermatol. Jul 06 2020. PMID 32645365*
14. *Brian Jiang SI, Kempers S, Rich P, et al. A Randomized, Vehicle-Controlled Phase 3 Study of Aminolevulinic Acid Photodynamic Therapy for the Treatment of Actinic Keratoses on the Upper Extremities. Dermatol Surg. Jul 2019; 45(7): 890-897. PMID 30640777*
15. *Schmieder GJ, Huang EY, Jarratt M. A multicenter, randomized, vehicle-controlled phase 2 study of blue light photodynamic therapy with aminolevulinic acid HCl 20% topical solution for the treatment of actinic keratoses on the upper extremities: the effect of occlusion during the drug incubation period. J Drugs Dermatol. Dec 2012; 11(12): 1483-9. PMID 23377520*
16. *Taub AF, Garretson CB. A randomized, blinded, bilateral intraindividual, vehicle-controlled trial of the use of photodynamic therapy with 5-aminolevulinic acid and blue light for the treatment of actinic keratoses of the upper extremities. J Drugs Dermatol. Sep 2011; 10(9): 1049-56. PMID 22052276*
17. *Sotiriou E, Apalla Z, Maliamani F, et al. Intraindividual, right-left comparison of topical 5-aminolevulinic acid photodynamic therapy vs. 5% imiquimod cream for actinic keratoses on the upper extremities. J Eur Acad Dermatol Venereol. Sep 2009; 23(9): 1061-5. PMID 19470041*
18. *Kurwa HA, Yong-Gee SA, Seed PT, et al. A randomized paired comparison of photodynamic therapy and topical 5-fluorouracil in the treatment of actinic keratoses. J Am Acad Dermatol. Sep 1999; 41(3 Pt 1): 414-8. PMID 10459115*
19. *Wang H, Xu Y, Shi J, et al. Photodynamic therapy in the treatment of basal cell carcinoma: a systematic review and meta-analysis. Photodermatol Photoimmunol Photomed. Jan 2015; 31(1): 44-53. PMID 25377432*
20. *Mpourazanis G, Mpourazanis P, Stogiannidis G, et al. The effectiveness of photodynamic therapy and cryotherapy on patients with basal cell carcinoma: A*

systematic review and meta-analysis. Dermatol Ther. Jun 19 2020: e13881. PMID 32558087

21. *Zou Y, Zhao Y, Yu J, et al. Photodynamic therapy versus surgical excision to basal cell carcinoma: meta-analysis. J Cosmet Dermatol. Dec 2016; 15(4): 374-382. PMID 27363535*
22. *Bath-Hextall FJ, Perkins W, Bong J, et al. Interventions for basal cell carcinoma of the skin. Cochrane Database Syst Rev. Jan 24 2007; (1): CD003412. PMID 17253489*
23. *Roozeboom MH, Arits AHMM, Mosterd K, et al. Three-Year Follow-Up Results of Photodynamic Therapy vs. Imiquimod vs. Fluorouracil for Treatment of Superficial Basal Cell Carcinoma: A Single-Blind, Noninferiority, Randomized Controlled Trial. J Invest Dermatol. Aug 2016; 136(8): 1568-1574. PMID 27113429*
24. *Szeimies RM, Ibbotson S, Murrell DF, et al. A clinical study comparing methyl aminolevulinate photodynamic therapy and surgery in small superficial basal cell carcinoma (8-20 mm), with a 12-month follow-up. J Eur Acad Dermatol Venereol. Nov 2008; 22(11): 1302-11. PMID 18624836*
25. *Rhodes LE, de Rie M, Enstrom Y, et al. Photodynamic therapy using topical methyl aminolevulinate vs surgery for nodular basal cell carcinoma: results of a multicenter randomized prospective trial. Arch Dermatol. Jan 2004; 140(1): 17-23. PMID 14732655*
26. *Rhodes LE, de Rie MA, Leifsdottir R, et al. Five-year follow-up of a randomized, prospective trial of topical methyl aminolevulinate photodynamic therapy vs surgery for nodular basal cell carcinoma. Arch Dermatol. Sep 2007; 143(9): 1131-6. PMID 17875873*
27. *Bath-Hextall FJ, Matin RN, Wilkinson D, et al. Interventions for cutaneous Bowen's disease. Cochrane Database Syst Rev. Jun 24 2013; (6): CD007281. PMID 23794286*
28. *Morton C, Horn M, Leman J, et al. Comparison of topical methyl aminolevulinate photodynamic therapy with cryotherapy or Fluorouracil for treatment of squamous cell carcinoma in situ: Results of a multicenter randomized trial. Arch Dermatol. Jun 2006; 142(6): 729-35. PMID 16785375*
29. *Salim A, Leman JA, McColl JH, et al. Randomized comparison of photodynamic therapy with topical 5-fluorouracil in Bowen's disease. Br J Dermatol. Mar 2003; 148(3): 539-43. PMID 12653747*
30. *Lansbury L, Bath-Hextall F, Perkins W, et al. Interventions for non-metastatic squamous cell carcinoma of the skin: systematic review and pooled analysis of observational studies. BMJ. Nov 04 2013; 347: f6153. PMID 24191270*
31. *Barbaric J, Abbott R, Posadzki P, et al. Light therapies for acne. Cochrane Database Syst Rev. Sep 27 2016; 9: CD007917. PMID 27670126*
32. *Nicklas C, Rubio R, Cardenas C, et al. Comparison of efficacy of aminolaevulinic acid photodynamic therapy vs. adapalene gel plus oral doxycycline for treatment of moderate acne vulgaris-A simple, blind, randomized, and controlled trial. Photodermatol Photoimmunol Photomed. Jan 2019; 35(1): 3-10. PMID 29993146*
33. *Xu X, Zheng Y, Zhao Z, et al. Efficacy of photodynamic therapy combined with minocycline for treatment of moderate to severe facial acne vulgaris and influence on quality of life. Medicine (Baltimore). Dec 2017; 96(51): e9366. PMID 29390528*

34. Pariser DM, Eichenfield LF, Bukhalo M, et al. Photodynamic therapy with methyl aminolaevulinate 80 mg g(-1) for severe facial acne vulgaris: a randomized vehicle-controlled study. Br J Dermatol. Apr 2016; 174(4): 770-7. PMID 26663215
35. Orringer JS, Sachs DL, Bailey E, et al. Photodynamic therapy for acne vulgaris: a randomized, controlled, split-face clinical trial of topical aminolevulinic acid and pulsed dye laser therapy. J Cosmet Dermatol. Mar 2010; 9(1): 28-34. PMID 20367670
36. Wiegell SR, Wulf HC. Photodynamic therapy of acne vulgaris using methyl aminolaevulinate: a blinded, randomized, controlled trial. Br J Dermatol. May 2006; 154(5): 969-76. PMID 16634903
37. Shen JJ, Jemec GBE, Arendrup MC, et al. Photodynamic therapy treatment of superficial fungal infections: A systematic review. Photodiagnosis Photodyn Ther. Sep 2020; 31: 101774. PMID 32339671
38. Wu Q, Tu P, Zhou G, et al. A dose-finding study for hemoporfin in photodynamic therapy for port-wine stain: A multicenter randomized double-blind phase IIb trial. Photodermatol Photoimmunol Photomed. Sep 2018; 34(5): 314-321. PMID 29533491
39. Gold M, Bridges TM, Bradshaw VL, et al. ALA-PDT and blue light therapy for hidradenitis suppurativa. J Drugs Dermatol. Jan-Feb 2004; 3(1 Suppl): S32-5. PMID 14964759
40. Schweiger ES, Riddle CC, Aires DJ. Treatment of hidradenitis suppurativa by photodynamic therapy with aminolevulinic acid: preliminary results. J Drugs Dermatol. Apr 2011; 10(4): 381-6. PMID 21455548
41. Calzavara-Pinton PG, Venturini M, Capezzera R, et al. Photodynamic therapy of interdigital mycoses of the feet with topical application of 5-aminolevulinic acid. Photodermatol Photoimmunol Photomed. Jun 2004; 20(3): 144-7. PMID 15144392
42. Mostafa D, Tarakji B. Photodynamic therapy in treatment of oral lichen planus. J Clin Med Res. Jun 2015; 7(6): 393-9. PMID 25883701
43. Yazdani Abyaneh MA, Falto-Aizpurua L, Griffith RD, et al. Photodynamic therapy for actinic cheilitis: a systematic review. Dermatol Surg. Feb 2015; 41(2): 189-98. PMID 25627629
44. Xiao Q, Li Q, Yuan KH, et al. Photodynamic therapy of port-wine stains: long-term efficacy and complication in Chinese patients. J Dermatol. Dec 2011; 38(12): 1146-52. PMID 22032688
45. Kim JYS, Kozlow JH, Mittal B, et al. Guidelines of care for the management of basal cell carcinoma. J Am Acad Dermatol. Mar 2018; 78(3): 540-559. PMID 29331385
46. Zaenglein AL, Pathy AL, Schlosser BJ, et al. Guidelines of care for the management of acne vulgaris. J Am Acad Dermatol. May 2016; 74(5): 945-73.e33. PMID 26897386
47. Zloty D, Guenther LC, Sapijaszko M, et al. Non-melanoma Skin Cancer in Canada Chapter 4: Management of Basal Cell Carcinoma. J Cutan Med Surg. May-Jun 2015; 19(3): 239-48. PMID 25986316
48. Poulin Y, Lynde CW, Barber K, et al. Non-melanoma Skin Cancer in Canada Chapter 3: Management of Actinic Keratoses. J Cutan Med Surg. May-Jun 2015; 19(3): 227-38. PMID 25926621
49. National Comprehensive Cancer Network (NCCN), NCCN Clinical Practice Guidelines in Oncology: Squamous Cell Skin Cancer. Version 1.2024.

50. *National Comprehensive Cancer Network (NCCN). NCCN Practice Guidelines in Oncology: Basal cell skin cancer. Version 2.2024.*
51. *Centers for Medicare and Medicaid Services. National Coverage Determination (NCD) for Treatment of Actinic Keratosis (250.4). 2011*
52. *Maytin EV and Warren, CB. Photodynamic Therapy. In: UpToDate Online Journal [serial online]. Waltham, MA: UpToDate; updated October 20, 2022. Literature review current through Dec 2022.*
53. *Morton C, Szeimies R-M, Basset-Seguin N, et al. European Dermatology Forum guidelines on topical photodynamic therapy 2019 Part 1: treatment delivery and established indications – actinic keratoses, Bowen's disease and basal cell carcinomas. J Eur Acad Dermatol Venereol, 2019; 33: 2225-2238.*
54. *Ozog DM, Rkein AM, Fabi SG, et al. Photodynamic Therapy: A Clinical Consensus Guide [published correction appears in Dermatol Surg. 2017 Feb;43(2):319]. Dermatol Surg. 2016;42(7):804-827. doi:10.1097/DSS.0000000000000800 PMID 27336945*
55. *Work Group; Invited Reviewers, Kim JYS, et al. Guidelines of care for the management of cutaneous squamous cell carcinoma. J Am Acad Dermatol. 2018;78(3):560-578. doi:10.1016/j.jaad.2017.10.007 PMID 29331386*
56. *Johnston LA, Alhusayen R, Bourcier M, et al. Practical Guidelines for Managing Patients With Hidradenitis Suppurativa: An Update. J Cutan Med Surg. 2022;26(2_suppl):2S-24S. doi:10.1177/12034754221116115 PMID 36000460*
57. *Eisen DB, Asgari MM, Bennett DD, et al. Guidelines of care for the management of actinic keratosis. J Am Acad Dermatol. Oct 2021; 85(4): e209-e233. PMID 33820677*
58. *Na-Young Kang, C., Shah, M., Lynde, C., & Fleming, P. (2021, September 10). Hair removal practices: A literature review. Skin Therapy Letter. https://www.skintherapyletter.com/dermatology/hair-removal-practices/*
59. *Blue Cross Blue Shield Association Medical Policy Reference Manual. 2.01.44, Dermatologic Applications of Photodynamic Therapy. January 2025.*

X. POLICY HISTORY

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MP 4.018	**01/14/2019 Consensus Review**. Minor edits to the policy statement do not change intent. Background and references updated. Rationale condensed.
	02/03/2020 Minor Review. Criteria updated to include nonhyperkeratitic actinic keratoses of the upper extremities. Updated Regulatory Status (FDA indications), summary of evidence and added FEP PPO note. Coding reviewed, removed diagnosis code D04.12 and added D04.121 and D04.112. Effective 06/01/2020.
	06/01/2020 Minor Review. Revised medically necessary criteria: requirement that actinic keratosis be “non-hyperkeratotic” was removed.
	03/02/2021 Consensus Review. Updated cross-references and references. No coding changes.
	01/07/2022 Consensus Review. No change to policy statement. Product Variations updated. References reviewed and updated.

POLICY TITLE	DERMATOLOGIC APPLICATIONS OF PHOTODYNAMIC THERAPY
POLICY NUMBER	MP 4.018

	01/25/2023 Consensus Review. No change to policy statement. Added NCCN statement. Updates to policy guidelines and background. Updated references.
	01/30/2024 Minor Review. Changed stance on hair removal, skin rejuvenation, and cosmetic purposes from NMN to INV and condensed into INV statement. Updated regulatory status, references. Coding reviewed, no changes.
	11/20/2024 Administrative Update. Removed NCCN statement.
	02/10/2025 Consensus Review. Minor editorial updates to policy statement, intent unchanged. Coding reviewed, no changes.

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