

Dermatologic Applications of Photodynamic Therapy

Policy # 00098

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Applies to all products administered or underwritten by Blue Cross and Blue Shield of Louisiana and its subsidiary, HMO Louisiana, Inc. (collectively referred to as the "Company"), unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

Investigational or experimental services are not covered. This includes any drug, device, procedure, or service provided under the investigational arm of a clinical trial or clinical study. These services are excluded from coverage under benefits.

Note: Light Therapy for Psoriasis is addressed separately in medical policy 00131.

Note: Oncologic Applications of Photodynamic Therapy, Including Barrett's Esophagus is addressed separately in medical policy 00234.

Note: Photodynamic Therapy for Choroidal Neovascularization is addressed separately in medical policy 00097.

When Services May Be Eligible for Coverage

Coverage for eligible medical treatments or procedures, drugs, devices or biological products may be provided only if:

- *Benefits are available in the member's contract/certificate, and*
- *Medical necessity criteria and guidelines are met.*

Based on review of available data, the Company may consider photodynamic therapy (PDT) to be **eligible for coverage**** for **any** of the following conditions:

- Actinic keratosis; **OR**
- Low-risk (e.g., superficial and nodular) basal cell skin cancer only when surgery and radiation are contraindicated; **OR**
- Cutaneous squamous cell carcinoma in situ (Bowen disease) only when surgery and radiation are contraindicated.

When Services Are Considered Not Medically Necessary

The use of photodynamic therapy (PDT) when coverage criteria are not met including but not limited to treatment of high-risk basal cell skin cancer, is considered to be **not medically necessary.****

When Services Are Considered Investigational

Note: Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

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Based on review of available data, the Company considers photodynamic therapy (PDT) for other dermatologic applications, including, but not limited to the following to be **investigational**:*

- Acne vulgaris
- Hidradenitis suppurativa
- Mycoses

When Services Are Not Covered

The use of photodynamic therapy (PDT) as a technique of skin rejuvenation, hair removal, or other cosmetic indications is **not covered**. **

Policy Guidelines

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

Photodynamic therapy typically involves 2 office visits: 1 to apply the topical aminolevulinic acid and a second visit to expose the individual 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 2 treatments spaced a week apart; more than 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.

Background/Overview

Photodynamic Therapy

Photodynamic therapy refers to light activation of a photosensitizer to generate highly reactive intermediaries, which ultimately cause tissue injury and necrosis. Two common photosensitizing agents are 5-aminolevulinic acid (ALA) and its methyl ester, methyl aminolevulinate. When applied topically, these agents pass readily through abnormal keratin overlying the lesion and accumulate preferentially in dysplastic cells. The agents ALA and methyl aminolevulinate 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 (AKs).

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FDA or Other Governmental Regulatory Approval

U.S. Food and Drug Administration (FDA)

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 AKs 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^{®†} or RhodoLED XL lamp, to be used for the lesion-directed and field-directed treatment of AKs of mild-to-moderate severity on the face and scalp. The treatment is to be administered by a healthcare provider.

ALApatch technology is available outside of the US through an agreement between Intendis (now Bayer HealthCare) and Photonamic. The ALA patch is not approved by the FDA.

Another variant of PDT for skin lesions is Metvixia^{®†} used with the Aktelite CL128 lamp, each of which received the FDA approval in 2004. Metvixia^{®†} (Galderma; Photocure) consists of the topical application of methyl aminolevulinate (in contrast to ALA used in the Kerastick procedure), followed by exposure with the Aktelite 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 AKs 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. There are currently no methyl aminolevulinate products available in the US.

FDA product codes: GEX and LNK.

Rationale/Source

This medical policy was developed through consideration of peer-reviewed medical literature generally recognized by the relevant medical community, U.S. Food and Drug Administration approval status, nationally accepted standards of medical practice and accepted standards of medical practice in this community, technology evaluation centers, reference to regulations, other plan medical policies, and accredited national guidelines.

Photodynamic therapy (PDT) refers to light activation of a photosensitizer to generate highly reactive intermediaries, which ultimately cause tissue injury and necrosis. Photosensitizing agents are being proposed for use with dermatologic conditions such as actinic keratoses (AKs) and nonmelanoma skin cancers.

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Summary of Evidence

For individuals who have nonhyperkeratotic actinic keratoses (AKs) on the face or scalp who receive photodynamic therapy (PDT), the evidence includes meta-analyses and randomized controlled trials (RCTs). Relevant outcomes are symptoms, change in disease status, quality of life (QOL), and treatment-related morbidity. Evidence from multiple RCTs has found that PDT improves the net health outcome as measured by complete clinical clearance of lesions in patients with nonhyperkeratotic AKs on the face or scalp compared with placebo or other active interventions. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have nonhyperkeratotic AKs on the upper extremities who receive PDT, the evidence includes a systematic review and RCTs. Relevant outcomes are symptoms, change in disease status, QOL, and treatment-related morbidity. A systematic review of interventions for nonface and nonscalp AKs found PDT to be superior to placebo for complete clearance, but found a significant increase in complete clearance with cryotherapy versus PDT. In 2 placebo-controlled RCTs, significantly more patients had a complete clearance of AKs with 5-aminolevulinic acid (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 (5-FU) and found similar efficacy between the active treatment groups after 6 months of follow-up. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

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

For individuals who have squamous cell carcinoma in situ who receive PDT, the evidence includes meta-analyses and RCTs. The relevant outcomes are symptoms, change in disease status, QOL, and treatment-related morbidity. Meta-analyses and RCTs have found that PDT has similar or greater efficacy compared with cryotherapy and 5-FU. 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. Current guidance from the National Comprehensive Cancer Network notes that topical modalities, including PDT, may have lower cure rates than with surgical treatment. The evidence is sufficient to determine that the technology results in an 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. The relevant outcomes are overall survival, symptoms, change in disease status, QOL, and treatment-

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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 that the technology results in an improvement in the net health outcome.

For individuals who have acne who receive PDT, the evidence includes RCTs and systematic reviews. Relevant outcomes are symptoms, change in disease status, QOL, and treatment-related morbidity. The available RCTs have not consistently found significantly better outcomes with PDT compared with other interventions, and meta-analyses 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 tended to have relatively small sample sizes and used a variety of comparison interventions. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have noncancerous dermatologic skin conditions (eg, hidradenitis suppurativa, mycoses, port-wine stain) who receive PDT, the evidence includes case series, systematic reviews of uncontrolled series, and an RCT for port-wine stain. Relevant outcomes are symptoms, change in disease status, QOL, and treatment-related morbidity. RCTs are needed to determine the safety and efficacy of PDT for these conditions. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Supplemental Information

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in ‘Supplemental Information’ if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Academy of Dermatology

The American Academy of Dermatology has guidelines addressing use of photodynamic therapy (PDT) in actinic keratosis (AK), basal cell carcinoma, and acne:

- Actinic keratosis (2021): PDT is included in the following recommendations for patients with AK:
 - 5-aminolevulinic acid (ALA)-red light PDT is conditionally recommended (low quality of evidence)
 - ALA-daylight PDT is conditionally recommended as less painful than but equally effective as ALA-red light PDT (moderate quality of evidence)
 - ALA-blue light PDT is conditionally recommended (moderate quality of evidence)
 - ALA-red light PDT is conditionally recommended over cryosurgery alone (low quality of evidence)
- Basal cell carcinoma (2018): Use of topical therapies, including PDT, is most appropriate for low-risk basal cell carcinoma when surgery is impractical or declined by the patient. Discussions of the relative effectiveness of topical therapies should be discussed

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with the patient. The guideline further notes that "Cure rates after surgical excision are 10% to 20% higher than those for topical therapies, including PDT, with excision associated with recurrence rates of less than 5%. Surgical excision may also be less painful and better tolerated."

- Acne (2024): PDT is one of several physical modalities to have insufficient evidence to develop a recommendation.

National Comprehensive Cancer Network

For treatment of precancers (diffuse actinic keratoses, field cancerization, and superficial (in situ) squamous cell carcinoma), the National Comprehensive Cancer Network (NCCN) (squamous cell skin cancer, v.1.2026) made the following recommendations: Primary treatments listed are topical (calcipotriene/fluorouracil; fluorouracil; imiquimod; tirbanifbulin; diclofenac) and destructive (ablative laser or electrosurgical destruction; ablative skin resurfacing; chemical peels; cryotherapy; curettage and electrodesiccation). Photodynamic therapy was regarded as an "other modality that may be considered."

For squamous cell skin cancers, the NCCN (squamous cell skin cancer, v.1.2026) made the following recommendations: "In patients with CSCC [cutaneous squamous cell carcinoma] in situ (Bowen's disease), therapies such as topical 5-fluorouracil, topical imiquimod, and photodynamic therapy (eg, ALA, porfimer sodium) may be considered."

For basal cell skin cancer, the NCCN (v.1.2026) made the following recommendations: "In patients with superficial BCC [basal cell skin cancer], therapies such as topical imiquimod, topical 5-fluorouracil (5-FU), or photodynamic therapy (PDT) may be considered, although cure rates are approximately 10% lower than with surgical treatment modalities."

United States and Canadian Hidradenitis Suppurativa Foundations

A joint guideline from the United States and Canadian Hidradenitis Suppurativa Foundations (2019) provides guidance on diagnosis and complementary and procedural management of hidradenitis suppurativa. The guideline recommends PDT at a level C (based on consensus, opinion, case studies, or disease-oriented evidence). The authors state that PDT has a limited role in managing hidradenitis suppurativa, mainly due to a lack of large, well-controlled studies.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

The Centers for Medicare & Medicaid Services' 2001 coverage policy on the treatment of AKs noted:

"Various options exist on treating AKs. Clinicians should select an appropriate treatment based on the patient's history, the lesion's characteristics, and the patient's preference for specific treatment.... Less commonly performed treatments for AKs include dermabrasion, excision, chemical peels, laser therapy, and photodynamic therapy...

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Medicare covers the destruction of AKs without restrictions based on lesion or patient characteristics.”

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review are listed in Table 1.

Table 1. Summary of Key Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date
<i>Ongoing</i>			
NCT03642535	Aminolevulinic Acid-photodynamic Therapy for Facial Actinic Keratosis Treatment and Prevention: A Long-term (3 Years) Follow-up of Prospective, Randomized, Multicenter-clinical Trial	300	Jun 2025
NCT02367547 ^a	Superficial Basal Cell Cancer's Photodynamic Therapy: Comparing Three Photosensitisers: Hexylaminolevulinate and Aminolevulinic Acid Nano Emulsion Versus Methylaminolevulinate	117	Dec 2025
NCT03573401 ^a	A Randomized, Double-Blind, Vehicle-controlled Multicenter Phase III Study to Evaluate the Safety and Efficacy of BF-200 ALA (Ameluz [®]) [‡] and BF-RhodoLED [®] [‡] in the Treatment of Superficial Basal Cell Carcinoma (sBCC) With Photodynamic Therapy (PDT)	187	Feb 2029
NCT05662202 ^a	Study to Evaluate the Safety, Tolerability and Efficacy of BF-200 ALA (Ameluz [®]) [‡] in the Field-directed Treatment of Actinic Keratosis (AK) on the Extremities and Neck/Trunk with Photodynamic Therapy (PDT) Using a RhodoLED Lamp	172	Jun 2026
NCT06577311	An Investigator Initiated Study to Evaluate the Safety and Efficacy of Aminolevulinic Acid Hydrochloride Topical Gel, 10% (Ameluz [®]) [‡] With RhodoLED-XL [®] [‡] Red Light in the Treatment of Facial Cutaneous Squamous Cell Carcinoma in Situ (SCCis)	20	Aug 2025
<i>Unpublished</i>			

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NCT No.	Trial Name	Planned Enrollment	Completion Date
NCT03909646	Surgical Excision Versus Photodynamic Therapy and Topical 5-fluorouracil in Treatment of Bowen's Disease: a Multicenter Randomized Controlled Trial	250	Dec 2024

NCT: national clinical trial.

^a Denotes industry-sponsored or cosponsored trial.

References

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. Ezzedine K, Painchault C, Brignone M. Systematic Literature Review and Network Meta-analysis of the Efficacy and Acceptability of Interventions in Actinic Keratoses. *Acta Derm Venereol.* Jan 04 2021; 101(1): adv00358. PMID 33170301
4. 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.* Feb 2021; 141(2): 345-354.e8. PMID 32645365
5. 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
6. 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
7. 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
8. 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
9. 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
10. Serra-Guillén 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

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11. 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
12. 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
13. 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
14. 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[®]) vs. placebo in the field-directed treatment of mild-to-moderate actinic keratosis with photodynamic therapy (PDT) when using the BF-RhodoLED[®] lamp. *Br J Dermatol*. Oct 2016; 175(4): 696-705. PMID 26921093
15. Reinhold U, Philipp-Dormston WG, Dirschka T, et al. Long-term follow-up of a randomized, double-blind, phase III, multi-centre study to evaluate the safety and efficacy of field-directed photodynamic therapy (PDT) of mild to moderate actinic keratosis using BF-200 ALA versus placebo and the BF-RhodoLED[®] lamp. *J Eur Acad Dermatol Venereol*. Aug 2025; 39(8): 1449-1459. PMID 39666443
16. Karrer S, Szeimies RM, Philipp-Dormston WG, et al. Repetitive Daylight Photodynamic Therapy versus Cryosurgery for Prevention of Actinic Keratoses in Photodamaged Facial Skin: A Prospective, Randomized Controlled Multicentre Two-armed Study. *Acta Derm Venereol*. Jan 04 2021; 101(1): adv00355. PMID 33313936
17. Cortelazzi C, Odorici G, Castagnetti E, et al. Comparative study of imiquimod 3.75% vs. photodynamic therapy for actinic keratosis of the scalp. *Photodermatol Photoimmunol Photomed*. Sep 2021; 37(5): 404-409. PMID 33566432
18. 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
19. 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
20. 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
21. 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

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22. 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
23. 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
24. 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.* Nov 2020; 33(6): e13881. PMID 32558087
25. 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
26. 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
27. 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
28. 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
29. Rhodes LE, de Rie M, Enström 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
30. 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
31. Bath-Hextall FJ, Matin RN, Wilkinson D, et al. Interventions for cutaneous Bowen's disease. *Cochrane Database Syst Rev.* Jun 24 2013; 2013(6): CD007281. PMID 23794286
32. Xue WL, Ruan JQ, Liu HY, et al. Efficacy of Photodynamic Therapy for the Treatment of Bowen's Disease: A Meta-Analysis of Randomized Controlled Trials. *Dermatology.* 2022; 238(3): 542-550. PMID 34657035
33. Yongpisarn T, Rigo R, Minkis K. Durable Clearance Rate of Photodynamic Therapy for Bowen Disease and Cutaneous Squamous Cell Carcinoma: A Systematic Review and Meta-Analysis. *Dermatol Surg.* Apr 01 2022; 48(4): 395-400. PMID 35143444
34. Zhong S, Zhang R, Mei X, et al. Efficacy of photodynamic therapy for the treatment of Bowen's disease: An updated systematic review and meta-analysis of randomized controlled trials. *Photodiagnosis Photodyn Ther.* Dec 2020; 32: 102037. PMID 33011394
35. 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

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36. 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
37. 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
38. Barbaric J, Abbott R, Posadzki P, et al. Light therapies for acne. *Cochrane Database Syst Rev*. Sep 27 2016; 9(9): CD007917. PMID 27670126
39. Wu Y, Deng Y, Huang P. Application of red light therapy for moderate-to-severe acne vulgaris: A systematic review and meta-analysis. *J Cosmet Dermatol*. Nov 2021; 20(11): 3498-3508. PMID 34363730
40. Zhang L, Yang Y, Wang B, et al. Modified red light 5-aminolevulinic acid photodynamic therapy versus low-dose isotretinoin therapy for moderate to severe acne vulgaris: A prospective, randomized, multicenter study. *J Am Acad Dermatol*. Dec 2023; 89(6): 1141-1148. PMID 37558093
41. Wojewoda K, Gillstedt M, Tovi J, et al. Optimizing treatment of acne with photodynamic therapy (PDT) to achieve long-term remission and reduce side effects. A prospective randomized controlled trial. *J Photochem Photobiol B*. Oct 2021; 223: 112299. PMID 34500216
42. Nicklas C, Rubio R, Cárdenas 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
43. 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
44. 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
45. 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
46. 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
47. Nguyen L, Sorbe C, Schoen G, et al. Laser and light-based treatments for port-wine birthmarks - a systematic review and network meta-analysis. *J Dtsch Dermatol Ges*. Mar 2025; 23(3): 293-301. PMID 39668417
48. Reshetylo S, Narla S, Bakker C, et al. Systematic review of photodynamic therapy for the treatment of hidradenitis suppurativa. *Photodermatol Photoimmunol Photomed*. Jan 2023; 39(1): 39-50. PMID 35713108
49. Yang Y, Shen S, Wang P, et al. Efficacy of photodynamic therapy in actinic cheilitis: A systematic review. *Photodiagnosis Photodyn Ther*. Jun 2022; 38: 102782. PMID 35218940

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50. 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
51. Wu Q, Tu P, Zhou G, et al. A dose-finding study for hemoporphin 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
52. Gold M, Bridges TM, Bradshaw VL, et al. ALA-PDT and blue light therapy for hidradenitis suppurativa. *J Drugs Dermatol*. 2004; 3(1 Suppl): S32-5. PMID 14964759
53. 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
54. Calzavara-Pinton PG, Venturini M, Capezzer 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
55. Mostafa D, Tarakji B. Photodynamic therapy in treatment of oral lichen planus. *J Clin Med Res*. Jun 2015; 7(6): 393-9. PMID 25883701
56. 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
57. 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
58. Chun-Hua T, Li-Qiang G, Hua W, et al. Efficacy and safety of hemoporphin photodynamic therapy for port-wine stains in paediatric patients: A retrospective study of 439 cases at a single centre. *Photodiagnosis Photodyn Ther*. Dec 2021; 36: 102568. PMID 34614424
59. Zhang LC, Yang J, Huang YB, et al. Efficacy of hemoporphin photodynamic therapy for pulsed dye laser-resistant facial port-wine stains in 107 children: A retrospective study. *Indian J Dermatol Venereol Leprol*. 2022; 88(2): 275. PMID 34672476
60. 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
61. 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
62. Reynolds RV, Yeung H, Cheng CE, et al. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol*. May 2024; 90(5): 1006.e1-1006.e30. PMID 38300170
63. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Squamous Cell Skin Cancer. Version 1.2026. https://www.nccn.org/professionals/physician_gls/pdf/squamous.pdf.
64. National Comprehensive Cancer Network (NCCN). NCCN Practice Guidelines in Oncology: Basal cell skin cancer. Version 1.2026. https://www.nccn.org/professionals/physician_gls/pdf/nmsc.pdf.
65. Alikhan A, Sayed C, Alavi A, et al. North American clinical management guidelines for hidradenitis suppurativa: A publication from the United States and Canadian Hidradenitis Suppurativa Foundations: Part I: Diagnosis, evaluation, and the use of complementary and procedural management. *J Am Acad Dermatol*. Jul 2019; 81(1): 76-90. PMID 30872156

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66. Centers for Medicare and Medicaid Services. National Coverage Determination (NCD) for Treatment of Actinic Keratosis (250.4). 2001; <https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=129&ncdver=1&bc=AAAAIAAAAA&>.

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05/16/2002	Medical Policy Committee review
06/05/2002	Managed Care Advisory Council approval
05/04/2004	Medical Director review
05/18/2004	Medical Policy Committee review. Format revision. No substance change to policy.
06/28/2004	Managed Care Advisory Council approval
06/07/2005	Medical Director review
06/21/2005	Medical Policy Committee review. Clinical criteria revision. Added coverage eligibility and investigational statement for Metvixia. Added acne, mycoses, and hidradenitis suppurativa as investigational indications for aminolevulinic acid.
07/15/2005	Managed Care Advisory Council approval
06/05/2006	Medical Director review
06/21/2006	Medical Policy Committee approval. Format revisions, FDA/Governmental, No change in policy statement.
11/07/2007	Medical Director review
11/15/2007	Medical Policy Committee approval. Title changed and policy replaced.
12/03/2008	Medical Director review
12/17/2008	Medical Policy Committee approval. No change to coverage eligibility.
12/04/2009	Medical Policy Committee approval
12/16/2009	Medical Policy Implementation Committee approval. No change to coverage eligibility
11/04/2010	Medical Policy Committee approval
11/16/2010	Medical Policy Implementation Committee approval. Removed the restriction of face and scalp from the criteria for treatment of non-hyperkeratotic actinic keratoses.
12/08/2011	Medical Policy Committee review
12/21/2011	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
12/06/2012	Medical Policy Committee review
12/19/2012	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
01/23/2013	Updated coverage eligibility statement when patient selection criteria not met
12/12/2013	Medical Policy Committee review
12/18/2013	Medical Policy Implementation Committee approval. No change to coverage.
12/04/2014	Medical Policy Committee review

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12/17/2014	Medical Policy Implementation Committee approval. “for other dermatologic applications, including, but not limited to the following” was added to the investigational statement.
08/03/2015	Coding update: ICD10 Diagnosis code section added; ICD9 Procedure code section removed.
12/03/2015	Medical Policy Committee review
12/16/2015	Medical Policy Implementation Committee approval. No change to coverage.
12/01/2016	Medical Policy Committee review
12/21/2016	Medical Policy Implementation Committee approval. Changes to language in policy statements: Superficial or nodular changed to Low-risk and non-superficial changed to high-risk.
01/01/2017	Coding update: Removing ICD-9 Diagnosis Codes
12/07/2017	Medical Policy Committee review
12/20/2017	Medical Policy Implementation Committee approval. No change to coverage.
01/01/2018	Coding update
12/06/2018	Medical Policy Committee review
12/19/2018	Medical Policy Implementation Committee approval. Removed the word non hyperkeratotic from coverage statement. Added policy guidelines.
12/05/2019	Medical Policy Committee review
12/11/2019	Medical Policy Implementation Committee approval. Deleted the specification of face and scalp from eligible for coverage requirement in the statement for actinic keratosis.
02/06/2020	Medical Policy Committee review
02/12/2020	Medical Policy Implementation Committee approval. No change to coverage.
05/07/2020	Medical Policy Committee review
05/13/2020	Medical Policy Implementation Committee approval. No change to coverage.
05/06/2021	Medical Policy Committee review
05/12/2021	Medical Policy Implementation Committee approval. No change to coverage.
05/05/2022	Medical Policy Committee review
05/11/2022	Medical Policy Implementation Committee approval. No change to coverage.
05/04/2023	Medical Policy Committee review
05/10/2023	Medical Policy Implementation Committee approval. No change to coverage.
05/02/2024	Medical Policy Committee review
05/08/2024	Medical Policy Implementation Committee approval. No change to coverage.
05/01/2025	Medical Policy Committee review
05/13/2025	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
01/01/2026	Coding update
05/07/2026	Medical Policy Committee review
05/13/2026	Medical Policy Implementation Committee approval. Added “When Services Are Considered Not Medically Necessary” to the policy. The following statement were changed from investigational to not medically necessary: “The use of photodynamic therapy (PDT) when coverage criteria are not met including but not

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limited to treatment of high-risk basal cell skin cancer, is considered to be not medically necessary.”

Next Scheduled Review Date: 05/2027

Coding

The five character codes included in the Louisiana Blue Medical Policy Coverage Guidelines are obtained from Current Procedural Terminology (CPT®)†, copyright 2025 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures performed by physician.

The responsibility for the content of Louisiana Blue Medical Policy Coverage Guidelines is with Louisiana Blue and no endorsement by the AMA is intended or should be implied. The AMA disclaims responsibility for any consequences or liability attributable or related to any use, nonuse or interpretation of information contained in Louisiana Blue Medical Policy Coverage Guidelines. Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein. Any use of CPT outside of Louisiana Blue Medical Policy Coverage Guidelines should refer to the most current Current Procedural Terminology which contains the complete and most current listing of CPT codes and descriptive terms. Applicable FARS/DFARS apply.

CPT is a registered trademark of the American Medical Association.

Codes used to identify services associated with this policy may include (but may not be limited to) the following:

Code Type	Code
CPT	96567, 96573, 96574
HCPCS	J7308, J7345 Delete code effective 01/01/2026: J7309
ICD-10 Diagnosis	All Related Diagnoses

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

- A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or

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- B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
1. Consultation with technology evaluation center(s);
 2. Credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community; or
 3. Reference to federal regulations.

****Medically Necessary (or “Medical Necessity”)** - Health care services, treatment, procedures, equipment, drugs, devices, items or supplies that a Provider, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury, disease or its symptoms, and that are:

- A. In accordance with nationally accepted standards of medical practice;
- B. Clinically appropriate, in terms of type, frequency, extent, level of care, site and duration, and considered effective for the patient's illness, injury or disease; and
- C. Not primarily for the personal comfort or convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.

For these purposes, “nationally accepted standards of medical practice” means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community, Physician Specialty Society recommendations and the views of Physicians practicing in relevant clinical areas and any other relevant factors.

‡ Indicated trademarks are the registered trademarks of their respective owners.

NOTICE: If the Patient’s health insurance contract contains language that differs from the BCBSLA Medical Policy definition noted above, the definition in the health insurance contract will be relied upon for specific coverage determinations.

NOTICE: Medical Policies are scientific based opinions, provided solely for coverage and informational purposes. Medical Policies should not be construed to suggest that the Company recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service, or any particular course of treatment, procedure, or service.

NOTICE: Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage.

NOTICE: If an authorization for an ongoing course of treatment has been provided to a member and the member changes from one health plan to another health plan (e.g., a member moves from carrier A to Louisiana Blue), Louisiana Blue may honor the previous health plan’s authorization for

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the same service under the same type of in-network benefit for a 90-day transition period. Documentation of the authorization for the ongoing course of treatment from the previous health plan must be provided to us by the member or their provider and the services provided for the course of treatment must otherwise be a covered service under the Louisiana Blue health plan. This provision does not apply to medications covered under the plan's pharmacy benefit.