Dermabrasion and chemical peel

Clinical Policy ID: CCP.1323

Recent review date: 8/2025

Next review date: 12/2026

Policy contains: Acne vulgaris, actinic keratosis; chemical peels; dermabrasion; skin cancer.

Select Health of South Carolina has developed clinical policies to assist with making coverage determinations. Select Health of South Carolina's clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered, on a case by case basis, by Select Health of South Carolina when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Select Health of South Carolina's clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Select Health of South Carolina's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Select Health of South Carolina will update its clinical policies as necessary. Select Health of South Carolina's clinical policies are not guarantees of payment.

Coverage policy

Dermabrasion (laser) is clinically proven and, therefore, may be medically necessary to remove pre-cancerous actinic keratosis, when conventional methods (e.g., 5-fluorouracil, imiquimod, or cryotherapy) are not effective due to the large number of lesions, being contraindicated, or refusal by the patient (National Comprehensive Cancer Network, 2025b).

Chemical peels are clinically proven and, therefore, may be medically necessary to remove pre-cancerous actinic keratosis and other pre-malignant skin conditions, when conventional methods (e.g., 5-fluorouracil, imiquimod, or cryotherapy) are not effective due to the large number of lesions, being contraindicated, or refusal by the patient (Eisen, 2021; National Comprehensive Cancer Network, 2025b).

For medical necessity determinations of medications, refer to the applicable state approved pharmacy policy.

Limitations

Other uses of dermabrasion and chemical peels, including those performed for cosmetic purposes, are considered investigational/not clinically proven and, therefore, not medically necessary.

Contraindications to dermabrasion and chemical peels include: active bacterial, viral, or fungal infections; active stages of acne; tendency to keloid formation; facial dermatitis; current use of photosensitizing medications; previous radiation treatments; and unrealistic expectations (American Society of Plastic Surgeons, 2023).

Alternative covered services

- Topical therapies.
- Cryotherapy.
- Photodynamic therapy.
- Combination of above therapies (Eisen, 2021).

Background

Dermabrasion employs a hand-held, rapidly rotating wire brush or diamond fraise (steel wheel) that planes or sands the skin on the face, removing the epidermis and superficial dermis. Traditional dermabrasion has been used less often in recent years, due to the availability of less invasive procedures (American Society of Plastic Surgeons, 2023).

Microdermabrasion is a less invasive, non-surgical procedure that exfoliates or removes the top layer of skin (stratum corneum), after aluminum oxide crystals or other abrasive substances are blown onto the face using a hand-held device. Another less invasive method employs laser to resurface the skin (American Society of Plastic Surgeons, 2023).

Chemical peels involve applying a solution to the skin that causes exfoliation and eventual peeling, leaving the skin smoother and less wrinkled than before the procedure. Peels are divided into three levels (American Society for Dermatologic Surgery, 2023):

1. Superficial peels, which gently exfoliates the outer layer of skin, and take one to seven days to heal.
2. Medium peels, which involve application of glycolic or trichloroacetic acid to remove damaged skin cells in the outer and middle layers of skin, and take seven to 14 days to heal.
3. Deep peels, which involve application of trichloroacetic acid or phenol to deeply penetrate the middle layer of skin, and remove damaged skin cells, and take 14 to 21 days to heal.

Many procedures in these categories are performed for cosmetic purposes. Others are performed to address functional impairments of the skin. Common uses of dermabrasion may include the treatment of acne and injury-induced scarring, sun damaged and wrinkled skin, rhinophyma, and precancerous skin lesions. Chemical peels may be used in combination or alone depending on individual need (American Society for Dermatologic Surgery, 2023; American Society of Plastic Surgeons, 2023).

Findings

Guidelines

Treatment Recommendations for Actinic Keratosis

The American Academy of Dermatology Association strongly recommends topical agents and cryosurgery as primary treatments for actinic keratoses. The organization conditionally recommends photodynamic therapy over trichloroacetic acid peel and certain combination therapies, though they issued no specific recommendation statement for dermabrasion skin resurfacing options (Eisen, 2021). The National Comprehensive Cancer Network states that chemical peels using trichloroacetic acid and ablative skin resurfacing techniques, including dermabrasion and laser treatments, may be considered for treating actinic keratosis due to their ability to reduce lesion numbers (National Comprehensive Cancer Network, 2025a; 2025b). However, the organization acknowledges that high-quality data supporting the efficacy and safety of these treatments remains limited.

Comprehensive International Treatment Recommendations

Based on the comprehensive review of actinic keratosis treatments, laser therapy including ablative methods such as carbon dioxide and erbium lasers is supported by multiple international guidelines as an effective treatment option with efficacy rates ranging from 72.4% to 91.91%, though the European guidelines note it is not superior to cryotherapy or 5-fluorouracil treatment with strength of recommendation B and level of evidence 2. Chemical peels using trichloroacetic acid, alpha-hydroxy acids, and glycolic acid are specifically recommended by the German Dermatological Society for single or multiple actinic keratoses and field cancerization with strength of recommendation C and level of evidence 3, with studies demonstrating greater efficacy when combined with 5-fluorouracil compared to 5-fluorouracil alone. Both modalities are particularly valuable when conventional first-line treatments including cryotherapy, topical 5-fluorouracil, or imiquimod are contraindicated, ineffective due to extensive disease burden, or refused by patients, supporting their medical necessity as alternative therapeutic options for pre-cancerous actinic keratosis management (Ceryn, 2025).

International Perspectives on Actinic Keratosis Management

European expert guidelines on actinic keratosis notably did not address dermabrasion or chemical peels as treatment options (Werner, 2015). French guidelines took a different approach by including surgical treatment as one acceptable option for managing actinic keratosis (Dréno, 2014). Canadian guidelines concluded that actinic keratosis should be treated using surgical, topical, or photodynamic therapies, with combined therapies recommended when initial treatment proves unsuccessful (Poulin, 2015). This variation in international guidelines reflects ongoing controversy regarding the best treatment standard for actinic keratosis.

Standards for Carcinoma Treatment

For basal cell carcinoma and cutaneous squamous cell carcinoma, clinical guidelines consistently recommend surgical excision as the primary treatment modality. Topical therapies may be considered for patients with low-risk disease when surgery is impractical or declined by the patient, though cure rates for these alternative options may be lower. Notably, chemical peel and conventional dermabrasion are not mentioned as treatment options once carcinoma is diagnosed, indicating these modalities are reserved for precancerous conditions rather than established malignancies (Kim, 2018a; Kim, 2018b; National Comprehensive Cancer Network, 2025a; 2025 b).

Acne Vulgaris Management Challenges

The American Academy of Dermatology produced guidelines for managing acne vulgaris based on a work group of seventeen experts who reviewed two hundred forty-two articles. The experts noted that while studies of chemical peels exist, large multicenter double-blinded controlled trials are lacking, highlighting a significant gap in the evidence base for this common condition (Zaenglein, 2016).

Systematic Reviews

Chemical Peel Efficacy for Actinic Keratosis

A systematic review examining chemical peels for actinic keratosis found that four of the five included studies confirmed the efficacy of chemical peels in reducing lesion count with minimal adverse effects. However, the ability of chemical peels to prevent additional lesion formation and development of keratinocyte carcinomas remains less clear, indicating a need for longer-term follow-up studies to assess preventive benefits (Jiang, 2021).

Trichloroacetic Acid Treatment Outcomes

A systematic review identified three randomized controlled trials evaluating trichloroacetic acid treatment for actinic keratosis. The concentrations ranged between thirty and fifty percent and were applied as single treatments to individual lesions. The mean percent clearance post-treatment was 65.6% at one to three months, 68.0% at three to six months, and 27% at twelve months. Only the three to six month timepoint showed statistical significance compared to placebo. While the results suggest trichloroacetic acid elicits a delayed, short-lived

treatment response, the recurrence rate after twelve months was remarkably low at 5.4%, representing one of the lowest recurrence rates among all treatment options. The review found no correlation between trichloroacetic acid concentration and the degree of clinical response (Worley, 2023).

Actinic Cheilitis Treatment Comparison

A systematic review of 18 mostly low-quality case series involving 411 patients examined treatments for actinic cheilitis, a precancerous skin condition affecting the lips. Carbon dioxide laser ablation and vermilionectomy were associated with the most favorable outcomes with fewest recurrences, while chemical peel and photodynamic therapy were associated with higher recurrence rates. For all treatments, adverse effects generally resolved quickly with favorable cosmesis. The review emphasized that high-quality comparative studies are needed to determine the relative efficacy of treatment options and patient preferences (Trager, 2021).

Reconstructive Surgery Adjunctive Techniques

A systematic review examined fibrin glue and tissue sealants in reconstructive rhytidectomy, finding these adjunctive techniques significantly improved wound healing outcomes. A randomized controlled trial demonstrated autologous fibrin glue was 68.1% more effective than traditional suction drainage in preventing hematoma and seroma, reducing fluid accumulation from 3.21 milliliters to 1.02 milliliters. While forty-seven percent of practitioners reported reduced complications and simplified postoperative care, implementation barriers included increased costs, as reported by ninety percent of respondents, risks of infection or allergic reactions, noted by thirty-three percent, and specialized training requirements, cited by thirty-three percent. The review concludes that despite superior fluid collection prevention, successful implementation requires careful customization to individual patient anatomy and balancing clinical benefits against practical constraints of cost, training, and potential complications (Meretsky, 2024).

Cochrane Review of Actinic Keratosis Treatments

A Cochrane review of treatments concluded that carbon dioxide laser and erbium-doped yttrium aluminum garnet laser resurfacing, 5-fluorouracil, and trichloroacetic acid peel were similarly efficacious for reducing the number of actinic keratoses, based on three randomized controlled trials involving 87 participants. The ability of carbon dioxide laser resurfacing to prevent short-term recurrence of actinic keratoses within twelve months remains unclear. Notably, no studies of conventional dermabrasion met the review's inclusion criteria (Gupta, 2012).

Early Literature on Dermabrasion and Chemical Peels

Early literature reviews of dermabrasion and chemical peel skin resurfacing for acne vulgaris generally showed favorable efficacy with low risk of complications. However, the evidence comprised uncontrolled studies enrolling small numbers of patients, limiting the strength of conclusions that can be drawn from these early investigations (Dréno, 2011; Kim, 2011).

Meta-Analysis

Network Meta-Analysis of Acne Vulgaris Treatments

A network meta-analysis examined 179 randomized controlled trials with approximately 35,000 observations across 49 treatment classes for acne vulgaris. Low-quality evidence suggests that chemical peels, including salicylic or mandelic acid treatments, are one of the most effective treatment options for mild-to-moderate acne, with a mean difference of 39.70% and a 95% credible interval ranging from 12.54% to 66.78% based on 128 observations. However, the uncertainty in the findings was high, and the authors emphasized that further research is warranted to confirm these promising results (Mavranezouli, 2022).

Other Evidence Types

Evolution of Chemical Peel Science

The science behind chemical peeling has expanded significantly over the last thirty years, broadening the potential role of different skin resurfacing procedures and treatment indications. Currently, the relative treatment efficacy of dermabrasion and chemical peels is hampered by the lack of controlled trials and professional guidelines that specifically address these treatments and their clinical purpose (Lee, 2018).

Risk Factors for Squamous Cell Carcinoma Development

Prospective longitudinal studies have identified pre-existing actinic keratosis and large actinic keratoses exceeding one square centimeter in diameter as features associated with the development of squamous cell carcinoma. These findings underscore the importance of treating actinic keratosis to prevent progression to malignancy (Balcere, 2022).

In 2025, we reorganized the findings section by theme and evidence type. We added a new systematic review (Meretsky, 2024) and a new guideline (Ceryn, 2025).

References

On July 21, 2025, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “dermabrasion (MeSH),” “chemexfoliation (MeSH)”, “neoplasm (MeSH),” “chemical peel,” “acne vulgaris,” “actinic keratosis,” “lesions,” and “carcinoma.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

American Society for Dermatologic Surgery. Chemical peels. https://www.asds.net/ChemicalPeelsInformation.aspx. Published 2023.

American Society of Plastic Surgeons. Dermabrasion. Minimally invasive procedure. https://www.plasticsurgery.org/cosmetic-procedures/dermabrasion. Published 2023.

Balcere A, Konrāde-Jilmaza L, Pauliņa LA, Čēma I, Krūmiņa A. Clinical characteristics of actinic keratosis associated with the risk of progression to invasive squamous cell carcinoma: A systematic review. *J Clin Med*. 2022;11(19):5899. Doi: 10.3390/jcm11195899.

Ceryn J, Lesiak A, Sobolewska-Sztychny D et al. Actinic keratosis: comprehensive review of current treatments and emerging therapeutic innovations. *Postepy Dermatol Alergol*. 2025;42(3):221-231. Doi:10.5114/ada.2024.147331.

Dréno B, Amici JM, Basset-Sequin N, et al. Management of actinic keratosis: A practical report and treatment algorithm from AKTEAM™ expert clinicians. *J Eur Acad Dermatol Venereol*. 2014;28(9):1141–1149. Doi: 10.1111/jdv.12434.

Dréno B, Fischer TC, Perosino E, et al. Expert opinion: Efficacy of superficial chemical peels in active acne management – what can we learn from the literature today? Evidence-based recommendations. *J Eur Acad Dermatol Venereol*. 2011;25(6):695-704. Doi: 10.1111/j.1468-3083.2010.03852.x.

Eisen DB, Asgari MM, Bennett DD, et al. Guidelines of care for the management of actinic keratosis. *J Am Acad Dermatol.* 2021;85(4):e209-e233. Doi: 10.1016/j.jaad.2021.02.082.

Gupta AK, Paquet M, Villanueva E, Brintnell W. Interventions for actinic keratosis. *Cochrane Database Syst Rev 2012*;12(12):CD004415. Doi: 10.1002/14651858.CD004415.pub2.

Jiang AJ, Soon SL, Rullan P, et al. Chemical peels as field therapy for actinic keratoses: A systematic review. *Dermatol Surg.* 2021;47(10):1343-1346. Doi: 10.1097/dss.0000000000003144.

Kim JYS, Kozlow JH, Mittal B, et al. Guidelines of care for the management of basal cell carcinoma. *J Am Acad Dermatol.* 2018;78(3):540-559. Doi: 10.1016/j.jaad.2017.10.006.(a)

Kim JYS, Kozlow JH, Mittal B, 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.(b)

Kim EK, Hovsepian RV, Methew P, Paul MD. Dermabrasion. *Clin Past Surg*. 2011;38(3):391-395. Doi: 10.1016/j.cps.2011.05.001.

Lee KC, Wambier CG, Soon SL, et al. Basic chemical peeling: Superficial and medium-depth peels. *J Am Acad Dermatol*. 2019;81(2):313-324. Doi: 10.1016/j.jaad.2018.10.079.

Mavranezouli I, Daly CH, Welton NJ, et al. A systematic review and network meta-analysis of topical pharmacological, oral pharmacological, physical and combined treatments for acne vulgaris. *Br J Dermatol*. 2022;187(5):639-649. Doi: 10.1111/bjd.21739.

Meretsky CR, Hausner P, Flynn BP, Schiuma AT. A systematic review and comparative analysis of reconstructive rhytidectomy: advantages, disadvantages, and patient outcomes. *Cureus*. 2024;16(10):e71006. Doi:10.7759/cureus.71006.

National Comprehensive Cancer Network. NCCN clinical practice guidelines in oncology (NCCN guidelines®). Basal cell skin cancer. Version 2.2025. www.nccn.org. Published February 7, 2025.(a)

National Comprehensive Cancer Network. NCCN clinical practice guidelines in oncology (NCCN guidelines®). Squamous cell skin cancer. Version 2.2025. www.nccn.org. Published February 7, 2025(b)

Poulin Y, Lynde CW, Barber K, Canadian non-melanoma skin cancer guidelines. Non-melanoma skin cancer in Canada Chapter 3: Management of actinic keratosis. *J Cutan Med Surg*. 2015;19(3):227-238. Doi: 10.1177/1203475415583414.

Trager MH, Farmer K, Ulrich C, et al. Actinic cheilitis: A systematic review of treatment options. *J Eur Acad Dermatol Venereol.* 2021;35(4):815-823. Doi: 10.1111/jdv.16995.

Werner RN, Jacobs A, Rosumeck S, Erdmann R, Sporbeck B, Nast A. Methods and results report – evidence and consensus-based (S3) guidelines for the treatment of actinic keratosis – International League of Dermatological Societies in cooperation with the European Dermatology Forum. *J Eur Acad Dermatol Venereol*. 2015;29(11):e1-66. Doi: 10.1111/jdv.13180.

Worley B, Harikumar V, Reynolds K, et al. Treatment of actinic keratosis: A systematic review. *Arch Dermatol Res*. 2023 Jul;315(5):1099-1108. Doi: 10.1007/s00403-022-02490-5.

Zaenglein AL, Pathy AL, Schlosser BJ, et al. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol*. 2016;74(5):945-973. Doi: 10.1016/j.jaad.2015.12.037.

Policy updates

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8/2018: Policy references updated.

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