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# Dermabrasion and chemical peel

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Recent review date: 8/2021

Next review date: 12/2022

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

*This policy is a Sandhills Center Clinical Coverage Policy adopted from AmeriHealth Caritas of North Carolina. These clinical policies are used to assist with making coverage determinations. Sandhills Center'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 by Sandhills Center 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. Sandhills Center 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. Sandhills Center's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Sandhills Center will update its clinical policies as necessary. Sandhills Center clinical policies are not guarantees of payment.*

## Coverage policy

Dermabrasion is clinically proven and therefore medically necessary to remove superficial basal cell carcinoma or pre-cancerous actinic keratosis, when conventional methods are not effective due to the large number of lesions, and treatment with non-contraindicated 5-fluorouracil (Efudex) or imiquimod (Aldara) has failed (Russo, 2005).

Medium and deep chemical peels is clinically proven and, therefore, medically necessary for the treatment of actinic keratosis and other pre-malignant skin conditions, when multiple lesions are present (Martin, 2011; Russo, 2005).

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; tendency to keloid formation; facial dermatitis; current use of photosensitizing medications; and unrealistic expectations (American Society of Plastic Surgeons, 2020; Khunger, 2008).

### Alternative covered services

- Topical therapies.

- Systemic antibiotics.
- Hormonal agents.
- Physical modalities, e.g., intra-lesional steroids (Zaenglein, 2016).

## Background

Dermabrasion is a procedure that 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.

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 into the face using a hand-held device. Frequently, this is performed for cosmetic purposes (Karimipour, 2010). Another less invasive method is laser dermabrasion, using an argon laser, ultrapulse carbon dioxide (CO<sub>2</sub>) laser, or flash lamp-pumped pulsed dye laser to re-surface the face (Cole, 2020).

Chemical peels involve applying a solution to the skin, causing 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, 2020):

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 – 21 days to heal.

Acne vulgaris is a common condition for which superficial chemical peels and microdermabrasion are employed (Kempiak, 2008). Skin cancer reconstruction using dermabrasion, chemical peels, and related approaches often results in a gradual healing process that may proceed in stages. Secondary procedures to remove scars and local flaps are often needed (Brenner, 2009).

Actinic keratosis is a skin disease caused by long-term sun exposure, and their lesions have the potential to develop into squamous cell carcinoma. Treatments are sought for cosmetic reasons, relief of associated symptoms, or the prevention of skin cancer and are often associated with alteration of the surrounding skin area where subclinical lesions might also be present (Gupta, 2012).

Many procedures in these categories are performed for cosmetic purposes. Others are performed to address functional impairments in the skin.

## Findings

Understanding efficacy of dermabrasion and chemical peels is hampered by the lack of controlled trials in the literature, along with a lack of professional guidelines that specifically address these treatments.

The American Academy of Dermatology produced a recent guideline for managing acne. The Academy's work group of 17 experts reviewed 242 articles and noted that while studies of chemical peels exist, large multicenter double-blinded control trials are lacking (Zaenglein, 2016). Another guideline determined that chemical peels are indicated for pigmentary disorders, superficial acne scars, aging skin changes, and benign epidermal growths.

A 2011 literature review found only 13 trials addressing chemical peels of acne; and while they generally showed favorable results, these studies generally included small numbers of patients and were not controlled (Dréno,

2011). However, chemical peels and dermabrasion have long been considered standard methods of treating actinic keratosis, basal cell carcinoma, and squamous cell carcinoma (Russo, 2005). An article analyzing whether laser or topical therapies are effective for skin cancers other than melanoma have “various degrees of efficacy” (Brightman, 2011).

A review of indications for dermabrasion and microdermabrasion determined that these are still effective tools, and that safety is established based on evidence of low complication rates, mostly pigment changes, hypertrophic scarring, and infection (Kim, 2011).

There is some controversy regarding the best treatment standard for actinic keratosis. A European expert guideline on actinic keratosis did not address dermabrasion or chemical peels (Werner, 2015). A French guideline included surgical treatment as one acceptable option to actinic keratosis (Dréno, 2014). A Canadian guideline concluded actinic keratosis should be treated using surgical, topical, or photodynamic therapies; and combined therapies can be used when initial treatment is not successful (Poulin, 2015). A review of treatments for actinic keratosis mentions chemical peels as a treatment option, but not dermabrasion (McIntyre, 2007).

The science behind chemical peeling over the last 30 years has increased our understanding of the role of the different peeling uses and treatment indications (Lee, 2018). A recent review of actinic keratosis indicated that dermabrasion is not often used, but is indicated when progression to carcinoma is suspected (Peris, 2015). Another review concluded that new methods of treating actinic keratosis, including chemical peels, are being used successfully, as the condition is now considered the start of the actual continuum leading to squamous cell carcinoma (Martin, 2011).

Common uses of dermabrasion include the treatment of acne and injury induced scarring, sun damaged and wrinkled skin, rhinophyma and precancerous skin lesions using surgical instrumentation to achieve results. Chemical peels are used as an alternative way to remove the top layer of skin by using a caustic substance applied to the intended areas without the use of surgical instruments. They can be used in combination or alone depending on the individual need (American Society of Plastic Surgeons, 2020).

## References

On May 12, 2021, 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.

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## Policy updates

7/2017: initial review date and clinical policy effective date: 8/2017

8/2018: Policy references updated.

8/2019: Policy references updated. Policy ID changed from 16.02.09 to CCP.1323.

8/2020: Policy references updated. Contraindications added to limitations section.

8/2021: Policy references updated.