

# Clinical Policy: Recurrent Corneal Erosion and Phototherapeutic Keratectomy

Reference Number: OC.UM.CP.0049  
Last Review Date: 11/2022

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[Revision Log](#)

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## Description

This policy describes the medical necessity requirements for phototherapeutic keratectomy (PTK) as a treatment option for recurrent corneal erosion.

## Policy/Criteria

- I. It is the policy of health plans affiliated with Envolve Vision, Inc.<sup>®</sup> (Envolve) that PTK is **medically necessary** for the following indications:
  - A. Recurrent corneal erosion and one of the following:
    1. Following injury or surgery;
    2. Secondary to corneal dystrophy that persists following conservative treatment failure, including consideration of all of the following:
      - a. Frequent artificial tears;
      - b. Hypertonic saline drops or ointment;
      - c. Antibiotics and pain relievers;
      - d. Punctal occlusion;
      - e. Bandage contact lens;
      - f. Combination therapy of topical lubrication, oral tetracyclines, and a topical corticosteroid;
      - g. Debridement and superficial keratectomy with either a number 15 scalpel or diamond burr.
- II. It is the policy of health plans affiliated with Envolve that PTK is **not medically necessary** for the following indications:
  - A. Primary treatment modality for recurrent corneal erosion;
  - B. Desired correction of refractive error.

## Background

The corneal epithelium is bound to the stroma by basement membrane adhesion complexes. Any traumatic, dystrophic, or degenerative disturbance to these adhesion complexes can result in the faulty attachment of the epithelial cells and subsequent recurrent erosions. This problem most commonly occurs after a corneal abrasion, usually a superficial shearing injury (e.g., fingernail, tree/plant branch, hairbrush, etc.) or as a result of anterior basement membrane dystrophy (ABMD). In general, approximately 50% of patients with recurrent erosion syndrome have ABMD, whereas only 10% of patients with ABMD develop recurrent erosion syndrome. Recurrent erosions can also be associated with less common corneal dystrophies such as granular, lattice, Reis-Buckler's, and Fuchs', and they may rarely develop after ocular surgery (i.e., cataract or corneal refractive).

In traumatic cases, the first erosion may develop weeks, months, or even years after the initial injury. Erosions usually occur in the inferior third of the cornea upon waking when the eyelids open. This is

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presumably due to mechanical rubbing of the lids over the cornea. During sleep, the lids may adhere to dry epithelium. Also, the corneal epithelium swells slightly overnight when the lids are closed, which may further weaken the already loose attachments. Patients sometimes state that their lid feels stuck to the eye or the eye feels dry, and they may rub the eye when they awake. The friction of the lid's sliding over the abnormal area of epithelium dislodges it. This problem can also occur with rapid eye movements during sleep.

Depending on their size and location, erosions cause varying degrees of pain, redness, blurred vision, tearing, and photophobia. Sometimes, the symptoms are mild and transient, consisting only of a faint foreign body sensation that resolves within an hour. Other episodes produce intense pain and reduced vision that can persist for days. Some patients experience erosion just once during their lives, whereas others can have them on a daily basis. For those with frequent, severe episodes, recurrent erosion syndrome can be debilitating.

There are various treatment strategies for recurrent erosion syndrome. Generally, conservative therapy precedes surgical intervention, but the type and order of treatment should be tailored to the individual according to the characteristics of the erosions (etiology, frequency, and location with respect to the visual axis), the patient's compliance with the prescribed treatment regimen, probability for success, availability of equipment, etc. For infrequent and traumatic erosions, a medical treatment is usually administered first. For frequent dystrophic erosions, a surgical option is typically required and may be considered initially.

The acute treatment of an erosion is similar to that for a corneal abrasion: topical antibiotic, cycloplegia, analgesia (topical nonsteroidal anti-inflammatory drug or stronger oral medication as needed), and pressure patching or a bandage contact lens. The bandage contact lens may be left in place for several weeks to protect the corneal surface and allow the epithelium to heal better. Medical prophylaxis consists of lubricating eye drops and 5% sodium chloride ointment at bedtime for up to 1 year. This therapy reduces physiologic nocturnal epithelial edema and the friction between the eyelid and cornea. Autologous serum drops have proven beneficial but are infrequently prescribed because of the inconvenience of obtaining them. Another reported topical treatment is P-derived peptide and insulin-like growth factor I drops. A course of topical corticosteroid drops or ointment and oral tetracycline may also be effective, and this therapy should be considered prior to the more invasive options. These matrix metalloproteinase-9 inhibitors appear to work best for traumatic erosions.

Surgical procedures include superficial keratectomy (epithelial debridement), superficial keratectomy with diamond burr polishing of the underlying corneal surface, anterior stromal puncture (epithelial reinforcement) with a needle or Nd:YAG laser, and PTK. Various methods of epithelial debridement have been reported, including mechanical (Weck-Cel sponge [Medtronic ENT, Jacksonville, FL], disposable blade, blunt spatula, Amoils brush) and alcohol-assisted. During manual debridement, the weakly adherent epithelium may be readily apparent as a loose, freely mobile sheet of tissue that can be easily wiped away in one large piece. The epithelium may also be multilaminar and fragment irregularly in different areas. Regardless, it is important to remove all of the abnormal epithelium. Simple debridement and a bandage contact lens may be successful for traumatic erosions but are rarely effective for dystrophic ones.

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Recurrent corneal erosion syndrome is a chronic relapsing disease of the corneal epithelium characterized by repeated episodes of sudden onset of pain usually at night or upon first awakening, accompanied by redness, photophobia, and watering of the eyes. Individual episodes may vary in severity and duration. These symptoms are related to corneal de-epithelialization in an area in which the epithelium is weakly adhered.

In the majority of cases, the acute episode is managed by patching, and cycloplegic and topical antibiotic ointment, with prophylactic application of gels during daytime and ointment at night to prevent further erosion. In a minority of cases these measures are insufficient and may need alternative treatment modalities including therapeutic contact lens wear, anterior stromal puncture, superficial keratectomy, Nd:YAG, and most effectively, excimer laser therapy (phototherapeutic keratectomy). It should be noted that anterior stromal puncture has fallen out of favor as a surgical treatment for recurrent corneal erosion in many practices, as it can cause scarring, glare, and blurred vision, and has a high failure rate in preventing further erosions. PTK may be considered for patients for whom all other treatments have failed. PTK is also indicated in patients with macroerosions, which are often associated with nondystrophic recurrent corneal erosion following ocular trauma. In PTK, an excimer laser is used to ablate 5 to 10 µm of Bowman’s layer after mechanical debridement of the overlying corneal epithelium.

#### Coding Implications

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CPT® Codes	Description
65400	Excision of lesion, cornea (keratectomy, lamellar, partial), except pterygium

#### ICD-10-CM Diagnosis Codes that Support Coverage Criteria

+ Indicates a code requiring an additional character

ICD-10-CM Code	Description
H18.831	Recurrent erosion of cornea, right eye
H18.832	Recurrent erosion of cornea, left eye
H18.833	Recurrent erosion of cornea, bilateral

Reviews, Revisions, and Approvals	Date	Approval Date
Annual Review	12/2019	12/2019
Converted to new template	07/2020	10/2020

Reviews, Revisions, and Approvals	Date	Approval Date
Annual Review; Added ICD-10 diagnosis codes	12/2020	12/2020
Annual Review	12/2021	12/2021
Annual Review	11/2022	11/2022

**References**

1. Raj Thakrar, MS, and Houman D. Hemmati, MD, PhD, Treatment of Recurrent Corneal Erosions. EyeNet Magazine. March 2013
2. Das S., Seitz, B., Recurrent Corneal Erosion Syndrome, Survey of Ophthalmology, 2008 Jan-Feb; 53(1):3-15. doi: 10.1016/j.survophthal.2007. 10.011.
3. Neil J. Friedman, Treating Recurrent Erosion Syndrome, Advanced Ocular Care, August 2010.
4. American Academy of Ophthalmology, External Disease and Cornea, Section 08: Basic and Clinical Science Course.

**Important Reminder**

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. “Health Plan” means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Envolve Vision, Inc., or any of such health plan’s affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

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This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the

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medical advice and treatment of members. This clinical policy is not intended to recommend treatment for members. Members should consult with their treating physician in connection with diagnosis and treatment decisions.

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**Note: For Medicaid members,** when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

**Note: For Medicare members,** to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at <http://www.cms.gov> for additional information.

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