Corneal Collagen Cross-Linking

DESCRIPTION

Corneal collagen cross-linking (CXL) is a procedure performed in the outpatient setting using topical anesthesia with the photosensitizer riboflavin (vitamin B2) and ultraviolet-A (UVA) irradiation done to increase corneal rigidity and stability. CXL is being evaluated primarily for corneal stabilization in patients with progressive corneal thinning, such as keratoconus. CXL may also have anti-edematous and antimicrobial properties.

According to the National Institute for Health and Care Excellence (NICE, there are two (2) different methods of cross-linking the collagen in the cornea:\(^1\)

- **Epithelium-off** CXL (also known as “epi-off”): the epithelium is first removed or weakened, typically by abrasion, to allow penetration of riboflavin into the corneal tissue. Riboflavin eye drops are applied to the corneal surface before the procedure and intermittently during the procedure. The corneal surface is exposed to UVA radiation: precise timings and treatment protocols vary. Postoperatively, topical antibiotics and anti-inflammatory drops are normally prescribed, with topical steroids if necessary.
some cases, a bandage contact lens may also be used for a few days. The procedure is done on 1 eye at a time and may also be repeated if needed.

- **Epithelium-on** (also known as “epi-on” or transepithelial) CXL: the corneal epithelial surface is left intact (or may be partially disrupted) and a longer riboflavin loading time is needed.

### MEDICARE ADVANTAGE POLICY CRITERIA

<table>
<thead>
<tr>
<th>CMS Coverage Manuals*</th>
<th>None</th>
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<tbody>
<tr>
<td>National Coverage Determinations (NCDs)*</td>
<td>See References[^2]</td>
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</table>

**Corneal collagen cross-linking (CXL)** is a procedure performed to increase corneal rigidity and stability for a number of corneal conditions. It is performed using topical anesthesia with the photosensitizer riboflavin (vitamin B2) and ultraviolet-A (UVA) irradiation. The collagen crosslink testing services addressed in the NCD 190.19 are specifically related to testing for bone markers and osteoporosis. Therefore, the NCD is not applicable to the CXL.

**Noridian Healthcare Solutions (Noridian) Local Coverage Determinations (LCDs) and Articles (LCAs)***

Non-Covered Services ([L35008](#))

**Scroll to the “Public Version(s)” section at the bottom of the LCD for links to prior versions if necessary.**

### POLICY GUIDELINES

### REGULATORY STATUS

Currently, the only CXL treatment approved by the U.S. Food and Drug Administration (FDA) is the epithelium-off method. There are no FDA-approved CXL treatments using the epithelium-on method. CXL is being evaluated primarily for corneal stabilization in patients with progressive corneal thinning, such as keratoconus and corneal ectasia following refractive surgery. CXL may also have anti-edematous and antimicrobial properties.

In 2016, riboflavin 5’-phosphate in 20% dextran ophthalmic solution (Photrex Viscous®; Avedro) and riboflavin 5’-phosphate ophthalmic solution (Photrex®; Avedro) were approved by the FDA for use with the company’s UVA irradiation device, marketed as the KXL System in corneal CXL for the treatment of progressive keratoconus and corneal ectasia after refractive surgery.
Of note, the fact a service or procedure has been “FDA approved for a specific indication does not, in itself, make the procedure medically reasonable and necessary.” Medicare contractors evaluate services, procedures, drugs or technology to determine if they may be considered Medicare covered services. (Noridian LCD L35008) The FDA determines safety and effectiveness of a device or drug, but does not establish medical necessity. While Medicare may adopt FDA determinations regarding safety and effectiveness, CMS or Medicare contractors evaluate whether or not the drug or device is reasonable and necessary for the Medicare population under §1862(a)(1)(A).

CROSS REFERENCES
None

REFERENCES
2. NCD for Collagen Crosslinks, any Method (190.19)

CODING

NOTES:
- Category III code 0402T is the correct code to use when reporting for this service. However, if an unlisted code is used instead of 0402T, it also will be considered non-covered under the LCD.
- For dates of service on or after January 1, 2019, a specific HCPCS code (J2787) is available for riboflavin 5’-phosphate ophthalmic solutions (Photrexa® and Photrexa Viscous®) and should be used when reporting for the drug. For services rendered prior to January 1, 2019, the HCPCS code J3490 was used.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
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<tbody>
<tr>
<td>CPT</td>
<td>0402T</td>
<td>Collagen cross-linking of cornea (including removal of the corneal epithelium and intraoperative pachymetry when performed)</td>
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<td>66999</td>
<td>Unlisted procedure, anterior segment of eye</td>
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<tr>
<td>HCPCS</td>
<td>J2787</td>
<td>Riboflavin 5’-phosphate, ophthalmic solution, up to 3 mL</td>
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*IMPORTANT NOTE: Medicare Advantage medical policies use the most current Medicare references available at the time the policy was developed. Links to Medicare references will take viewers to external websites outside of the health plan’s web control as these sites are not maintained by the health plan.