MEDICAL POLICY

POLICY TITLE	EYE CARE
POLICY NUMBER	MP-2.028

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I. POLICY

Corneal Pachymetry

Corneal Pachymetry may be considered **medically necessary** when used as part of the medical management for any one of the following:

- Assessing progression of disease in patients with endothelial dystrophies;
- Aiding in early diagnoses and treatment of graft failure and the need for regrafting in corneal transplant recipients;
- To determine the response to the treatment of corneal transplant rejection;
- Assisting in the diagnosis of corneal thinning disorders; and
- To determine the influence of corneal thickness on intraocular pressure measurements for a glaucoma diagnosis, to include both glaucoma suspect and established glaucoma patients.

Note: For the above indications, corneal pachymetry may be considered medically necessary only once per lifetime per eye except for those patients undergoing corneal surgery, corneal transplant, and those being followed for ongoing corneal endothelial dystrophies and status-post corneal transplant.

Corneal Pachymetry is considered **not medically necessary** for the following:

- Performed as part of an evaluation for refractive surgery;
- Assessing the risk of corneal decompensation pre- and post-cataract surgery;
- Assisting in selection of appropriate cataract surgical techniques for patients with prior intraocular surgery or established corneal diseases;
- Performed solely as a screening (e.g., no evidence to support diagnosis of glaucoma);
- Pre-operative evaluation (unless a corneal transplant is scheduled);
- Performed postoperatively (unless test is performed following corneal transplant)

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Corneal endothelial microscopy (also known as endothelial cell photography, endothelial microscopy or anterior segment photography)

Corneal endothelial microscopy may be considered **medically necessary** for any one of the following indications:

- As a pre-operative test before intraocular surgery (e.g., cataract surgery) to identify patients at risk for postsurgical corneal decompensation.
- In the diagnosis and management of patients with corneal dystrophies or other corneal abnormalities
- Are about to undergo a secondary intraocular lens implantation,
- Have had previous intraocular surgery and require cataract surgery,
- Are about to be fitted with extended wear contact lenses after intraocular surgery.

Transciliary Fistulization

Transciliary fistulization for the treatment of glaucoma is considered **investigational,** as there is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with these procedures:

Corneal Collagen Cross-Linking

Corneal collagen cross-linking using riboflavin and ultraviolet A may be considered **medically necessary** as a treatment of progressive keratoconus (see policy guidelines for definition) or corneal ectasia after refractive surgery in patients who have failed conservative treatment (eg spectacle correction, rigid contact lens).

Corneal collagen cross-linking using riboflavin and ultraviolet A is considered **investigational** for all other indications as there is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with these procedures.

POLICY GUIDELINES

Progressive keratoconus or corneal ectasia is defined as 1 or more of the following:

- An increase of 1 D in the steepest keratometry value
- An increase of 1 D in regular astigmatism evaluated by subjective manifest refraction
- A myopic shift (decrease in the spherical equivalent) of 0.50 D on subjective manifest refraction
- A decrease ≥0.1 mm in the back optical zone radius in rigid contact lens wearers where other information was not available.

Cross-references:

MP-2.054 Visual Field Testing
MP-4.007 Vision Therapy
MP-9.011 Corneal Transplant, Endothelial Keratoplasty and Keratoprostheses

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MP-1.044 Corneal Surgery, Implantation of Intrastromal Corneal Ring Segment and Corneal Topography/Photokeratoscopy
MP-4.042 Amniotic Membrane and Amniotic Fluid Injections

II. PRODUCT VARIATIONS

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This policy is only applicable to certain programs and products administered by Capital BlueCross and subject to benefit variations as discussed in Section VI. Please see additional information below.

FEP PPO-The FEP program dictates that all drugs, devices or biological products approved by the U.S. Food and Drug Administration (FDA) may not be considered investigational. Therefore, FDA-approved drugs, devices or biological products may be assessed on the basis of medical necessity.

III. DESCRIPTION/BACKGROUND

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Corneal pachymetry

Corneal pachymetry using ultrasound is a specialized, noninvasive, ophthalmologic procedure that uses a pachymeter to measure corneal thickness. Measurements of central corneal thickness are performed by applying a topical anesthetic to the eye and placing an ultrasound probe on the central cornea where ultrasonic wave energy is passed into the eye.

Corneal pachymetry using ultrasound is primarily used to assist with the diagnosis, assessment, and/or monitoring of corneal diseases and to assess suspected or established glaucoma. For example, corneal pachymetry using ultrasound is used to assist with the diagnosis of corneal thinning disorders (e.g., keratoconus, keratoglobus, keratotorus, posterior keratoconus, pellucid marginal degeneration). Corneal pachymetry using ultrasound is also included in the assessment and/or monitoring of disease progression of many conditions or injury affecting the cornea such as Fuchs' endothelial dystrophy, posterior polymorphous dystrophy, corneal edema, endothelial disease from any etiology, bullous keratopathy, corneal ectasia, and corneal trauma.

Corneal pachymetry using ultrasound is an important component of the assessment and management of intraocular pressure and glaucoma. Corneal thickness is important because it can mask an accurate reading of intraocular pressure in glaucoma. Actual intraocular pressure may be underestimated in individuals with thinner central corneal thickness or overestimated in individuals with thicker central corneal thickness. Because intraocular pressure is reportedly the most important and only variable risk factor for glaucoma progression, knowledge of the central corneal thickness is important in managing individuals with either suspected or established glaucoma. Repeat measurements of central corneal thickness for suspect or established glaucoma

is not indicated unless the individual has corneal disease or has had surgery affecting corneal thickness. Corneal pachymetry for suspected or established glaucoma only needs to be performed once to obtain baseline glaucoma risk information.

In addition to assisting with the diagnosis, assessment, and/or the monitoring of corneal diseases and assessing suspected or established glaucoma, corneal pachymetry using ultrasound is valuable in the selection of appropriate surgical techniques and assessment of the individual's risk and response to certain ophthalmologic surgical procedures (eg, corneal transplant surgery, cataract surgery). Corneal pachymetry using ultrasound is effective in aiding the early diagnosis and/or treatment of corneal transplant rejection, as well as assessing the response to treatment of corneal graft rejection. The procedure may be used to assess corneal graft health. Corneal pachymetry using ultrasound is also considered for assessing the risk of corneal decompensation before and after cataract surgery for individuals with endothelial disease

Corneal Endothelial Microscopy

The cornea is the transparent structure that forms the anterior one sixth of the outer coat of the eye and is responsible for more than two thirds of its refractive power. The cornea consists of several layers, including the epithelium, stroma, and single-celled endothelium. The endothelium is the most posterior layer, interfacing with the aqueous humor of the anterior chamber of the eye. Corneal clarity is dependent on a relatively dehydrated state. The endothelium plays a key role in maintaining dehydration by both preventing aqueous humor from entering the cornea and by pumping fluid from the corneal stroma into the anterior chamber. The corneal endothelial cells do not replicate. When destroyed by disease or surgery, the remaining cells enlarge and spread out to cover the posterior corneal surface, thus decreasing the cell density (cell count). Corneas with extremely low endothelial cell densities can no longer maintain a dehydrated state. The corneas may decompensate, swell, and become cloudy over time, with an associated loss of visual acuity.

The slit lamp (or biomicroscope) is commonly used to assess the status of the cornea and corneal endothelium. However, the specular microscope provides a magnified view of a small area of corneal endothelial cells to measure and record endothelial cell counts of the cornea. This technique is also known as corneal endothelial microscopy. Images of the endothelium seen with specular microscopy can be recorded on videotape or photographic film to facilitate estimates of endothelial cell density and configuration. The cell density of an individual’s cornea can then be compared to a previously documented normal range, allowing for a rough estimation of the ability of that cornea to withstand damage from surgical or other trauma.

Corneal endothelial microscopy has been frequently used as a pre-operative test before intraocular surgery to identify patients at risk for corneal decompensation after surgery. In this setting, the most common application has been cataract surgery. In addition, corneal endothelial microscopy has been used in patients with corneal endothelial dystrophies, including Fuchs’

endothelial dystrophy, posterior polymorphous dystrophy, and iridocorneal endothelial syndromes. Finally, specular microscopy has been widely used in the evaluation of donor tissue for corneal transplantation.

Transciliary Fistulization for the Treatment of Glaucoma
Transciliary fistulization, also known as transciliary filtration or Singh filtration, uses a thermocauterization device called the Fugo blade to create a pore in the posterior chamber of the eye from the sclera through the ciliary body. This procedure reduces intraocular pressure (IOP) in patients with glaucoma by allowing aqueous fluid to seep into the subconjunctival lymphatic system.

Glaucoma is a disease characterized by degeneration of the optic disc. Elevated intraocular pressure (IOP) has long been thought to be the primary etiology, but the relationship between IOP and optic nerve damage varies among patients, suggesting a multifactorial origin. For example, some patients with clearly elevated IOP will show no damage to the optic nerve, while other patients with marginal or no pressure elevation will, nonetheless, show optic nerve damage. The association between glaucoma and other vascular disorders, such as diabetes or hypertension, suggests vascular factors may play a role in glaucoma. Specifically, it has been hypothesized that reductions in blood flow to the optic nerve may contribute to the visual field defects associated with glaucoma.

For primary-open angle glaucoma (POAG) associated with IOP, a decrease in aqueous outflow through the trabecular meshwork is believed to cause the IOP. However, there are many theories on what causes the decrease in aqueous outflow such as foreign body obstruction, trabecular endothelial cell loss, reduced trabecular pore density, disturbances in neurofeedback mechanisms, or normal phagocytic activity.

IOPs above 21 mm Hg have been shown to increase rates of visual field loss, and conventional management of the patient principally involves drug therapy to control elevated IOP to prevent or delay glaucomatous loss of vision. For POAG, drug therapy may include alpha-agonist, beta-blockers, carbonic-anhydrase inhibitors, miotic agents, and prostaglandin analogs. When the maximum tolerated medical therapy fails to control optic neuropathy, surgical care is considered the next treatment option. Surgical procedures include laser trabeculoplasty, incisional or filtering surgery, such as trabeculectomy or drainage implants, and as a last resort, ablation of the ciliary body.

Transciliary fistulization for the treatment of glaucoma, also known as transciliary filtration or Singh filtration, is a recent approach to filtering surgery. This procedure uses a thermocauterization device called the Fugo blade to create a plasma-ablated pore or filter track from the sclera through the ciliary body to allow aqueous fluid to ooze into the subconjunctival lymphatics from the posterior chamber (behind the iris) of the eye. Plasma ablation with the Fugo blade allows the highly vascular ciliary body to be penetrated with little or no bleeding.

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Transciliary fistulization allows aqueous fluid to drain from the posterior chamber of the eye and differs from conventional filtering surgeries, such as trabeculoplasty, trabeculectomy, and drainage implant surgery, in which aqueous fluid is filtered from the anterior chamber of the eye. In the trabeculoplasty procedure, a laser is used to burn small areas of the trabecular meshwork, where normal drainage of the eye occurs, to increase aqueous fluid outflow, thereby lowering IOP. In trabeculectomy (or glaucoma filtration procedure), a portion of trabecular meshwork is surgically removed through a superficial flap of sclera to lower IOP by creating an alternate pathway for the aqueous fluid to flow from the anterior chamber to a bleb created in the subconjunctival space. If trabeculectomy has failed to reduce IOP sufficiently or a patient is considered to be at high risk for trabeculectomy failure, drainage implant surgery may be considered in which a tube is placed in the anterior chamber to shunt aqueous fluid to the subconjunctival space and lower IOP. Both trabeculectomy and drainage implant surgery often result in flat or collapsed anterior chambers and usually require that an iridectomy (placement of a hole in the iris) also be performed. Transciliary fistulization rarely requires an iridectomy and is thought to reduce tissue damage and risk of scarring and other complications associated with trabeculectomy and drainage implant surgery.

Corneal Collagen Cross-Linking

Keratoconus and Ectasia

Keratoconus is a bilateral dystrophy characterized by progressive ectasia (paracentral steepening and stromal thinning) that impairs visual acuity. While frequently diagnosed at a young age, the progression of keratoconus is variable. Results from a longitudinal study with 7 years of follow-up showed that, over the study period, there was a decrease of 2 high- and 4 low-contrast letters in best-corrected visual acuity (BCVA). 1,2 About 1 in 5 patients showed a decrease of 10 or more letters in high-contrast visual acuity and one-third of patients showed a decrease of 10 or more letters in low-contrast visual acuity. Over 8 years of follow-up, there was a mean increase of 1.44 diopters (D) in First Definite Apical Clearance Lens (a rigid contact lens to measure corneal curvature) and 1.6 D in flatter keratometric reading.

Ectasia (also known as keratectasia, iatrogenic keratoconus, or secondary keratoconus) is a serious long term complication of laser in situ keratomileusis (LASIK) surgery and photorefractive keratectomy. It is similar to keratoconus, but occurs postoperatively and primarily affects older populations. It may result from unrecognized preoperative keratoconus or, less frequently, from the surgery itself. Similar to keratoconus, it is characterized by progressive thinning and steepening of the cornea, resulting in corneal optical irregularities and loss of visual acuity.

Treatment
The initial treatment for keratoconus often consists of hard contact lenses. A variety of keratorefractive procedures have also been attempted, broadly divided into subtractive and

additive techniques. Subtractive techniques include photorefractive keratectomy or laser in situ keratomileusis (LASIK), although generally, results of these techniques have been poor. Implantation of intrastromal corneal ring segments is an additive technique in which the implants are intended to reinforce the cornea, prevent further deterioration, and potentially obviate the need for penetrating keratoplasty. Penetrating keratoplasty (i.e., corneal grafting) is the last line of treatment. About 20% of patients with keratoconus will require corneal transplantation. All of these treatments attempt to improve the refractive errors, but are not disease-modifying.

Treatment options for ectasia include intraocular pressure-lowering drugs, and intracorneal ring segments. Frequently, a penetrating keratoplasty is required.

None of the currently available treatment options for keratoconus and corneal ectasia halt the progression of disease and corneal transplantation is the only option available when functional vision can no longer be achieved.

Corneal collagen cross-linking (CXL) has the potential to slow the progression of disease. It is performed with the photosensitizer riboflavin (vitamin B2) and ultraviolet A (UVA) irradiation. There are 2 protocols for CXL.

1. Epithelium-off CXL (also known as "epi-off"): In this method, about 8 mm of the central corneal epithelium is removed under topical anesthesia to allow better diffusion of the photosensitizer riboflavin into the stroma. Following de-epithelialization, a solution with riboflavin is applied to the cornea (every 1-3 minutes for 30 minutes) until the stroma is completely penetrated. The cornea is then irradiated for 30 minutes with ultraviolet A 370 nm, a maximal wavelength for absorption by riboflavin, while the riboflavin continues to be applied. The interaction of riboflavin and UVA causes the formation of reactive oxygen species, leading to additional covalent bonds (crosslinking) between collagen molecules, resulting in stiffening of the cornea. Theoretically, by using a homogeneous light source and absorption by riboflavin, the structures beyond a 400-micron thick stroma (endothelium, anterior chamber, iris, lens, retina) are not exposed to an ultraviolet dose that is above the cytotoxic threshold.
2. Epithelium-on CXL (also known as "epi-on" or transepithelial): In this method, the corneal epithelial surface is left intact (or may be partially disrupted) and a longer riboflavin loading time is needed.

Currently, the only CXL treatment approved by the 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.

REGULATORY STATUS

In 2016, riboflavin 5'-phosphate in 20% dextran ophthalmic solution (Photrexa Viscous®; Avedro) and riboflavin 5'-phosphate ophthalmic solution (Photrexa®; Avedro) were approved by the U.S. Food and Drug Administration for use with KXL System in corneal collagen cross-linking for the treatment of progressive keratoconus and corneal ectasia after refractive surgery.

IV. RATIONALE

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Tranciliary Filtration

The limited literature suggests poor acceptance of this procedure by the ophthalmologic community; the reasons for this are not clear. While this procedure is similar to other filtration procedures commonly performed for the surgical treatment of glaucoma, further studies with longer term follow-up are needed. Overall, the data are insufficient to determine the long-term health outcomes of transciliary fistulization for the treatment of glaucoma.

Corneal Collagen Cross-Linking

Summary of Evidence

For individuals who have progressive keratoconus who receive CXL using riboflavin and ultraviolet A, the evidence includes multiple RCTs, systematic reviews, and nonrandomized studies. Relevant outcomes are change in disease status, functional outcomes, and treatment-related morbidity. In both pivotal RCTs, the primary end point (an intermediate outcome) of reducing maximum corneal curvature (Kmax) by 1 D was achieved at month 3 and maintained at months 6 and 12 in CXL-treated patients compared with sham controls. In both RCTs, the difference in mean change in Kmax from baseline to 12 months was 1.9 D and 2.3 D, respectively, favoring the CXL-treated patients. Long-term follow-up for visual acuity outcomes are needed. The adverse events associated with CXL include corneal opacity (haze), corneal epithelial defects, and other ocular findings. Most adverse events resolved in the first month but continued in a few (1%-6%) patients for 6 to 12 months. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have corneal ectasia after refractive surgery who receive CXL using riboflavin and ultraviolet A, the evidence includes multiple RCTs, systematic reviews, and nonrandomized studies. Relevant outcomes are change in disease status, functional outcomes, and treatment-related morbidity. In both pivotal RCTs, the primary end point (an intermediate outcome) of reducing Kmax by 1 D was achieved at month 3 and maintained at months 6 and 12 in the CXL-treated patients compared with sham controls. In both RCTs, the difference in mean change in Kmax from baseline to 12 months was 2.0 D and 1.1 D, respectively, favoring CXL-treated patients. Long-term follow-up for visual acuity outcomes are needed. The adverse events associated with CXL include corneal opacity (haze), corneal epithelial defects, and other ocular findings. Most adverse events resolved in the first month but continued in a few (1%-6%)

patients for 6 to 12 months. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

V. DEFINITIONS

TOP

APHAKIA refers to the absence of the lens of an eye, occurring congenitally or as a result of trauma or surgery.

AMBLYOPIA refers to reduced vision in an eye not correctable by a manifest refraction and with no obvious pathologic or structural cause.

CORNEA refers to the transparent anterior portion of the sclera (the fibrous outer layer of the eyeball), about one sixth of its surface: the first part of the eye that refracts light.

CORNEAL PACHYMETRY is a measurement of the thickness of the cornea. A pachymeter is most often used to measure the central cornea.

ENDOTHELIUM refers to the layer of simple squamous epithelial cells that line the heart, the blood and the lymph vessels, and the serous cavities of the body.

EYE EXAMINATION is a medical examination (e.g., office visit) performed by a physician when the reported symptom/diagnosis is, or could be, related to the eye.

INTRAOCULAR LENS is a mechanical transplant used in ophthalmology to replace the natural lens of the eye that has ceased to function due to disease (e.g., cataract) or otherwise functionally disrupted.

ORTHOPTICS is the science of correcting defects in binocular vision resulting from defects in optic musculature.

PSEUDOPHAKIA is a condition in which the natural lens of the eye is replaced with an intraocular lens.

REFRACTION is a routine test used by eye specialists to measure refractive errors of the eye.

REFRACTIVE ERRORS are eye conditions correctable with eyeglasses (e.g., myopia, astigmatism).

ROUTINE EYE CARE consists of eye examinations or refractions reported without a symptomatic condition, disease, injury or defect related to the eye.

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ROUTINE VISION SCREENINGS are periodic examinations to detect eye or vision problems and conditions such as macular degeneration, cataracts and glaucoma, which can cause blindness if left untreated.

VI. BENEFIT VARIATIONS

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The existence of this medical policy does not mean that this service is a covered benefit under the member's health benefit plan. Benefit determinations should be based in all cases on the applicable health benefit plan language. Medical policies do not constitute a description of benefits. A member's health benefit plan governs which services are covered, which are excluded, which are subject to benefit limits and which require preauthorization. There are different benefit plan designs in each product administered by Capital BlueCross. Members and providers should consult the member's health benefit plan for information or contact Capital BlueCross for benefit information.

VII. DISCLAIMER

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Capital BlueCross's medical policies are developed to assist in administering a member's benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member's benefit information, the benefit information will govern. If a provider or a member has a question concerning the application of this medical policy to a specific member's plan of benefits, please contact Capital BlueCross' Provider Services or Member Services. Capital BlueCross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

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Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Investigational; therefore, not covered when used for transciliary fistulization for the treatment of glaucoma:

CPT Codes ®							
66999							

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Covered when medically necessary; corneal pachymetry for the following indications. All other indications are considered not medically necessary:

***Considered medically necessary only once per lifetime per eye except for those patients undergoing corneal surgery, corneal transplant, and those being followed for ongoing corneal endothelial dystrophies and status-post corneal transplant.*

CPT Codes ®							
76514							

ICD-10-CM Diagnosis Codes	Description
H18.51	Endothelial corneal dystrophy
H18.52	Epithelial (juvenile) corneal dystrophy
H18.53	Granular corneal dystrophy
H18.54	Lattice corneal dystrophy
H18.55	Macular corneal dystrophy
H18.59	Other hereditary corneal dystrophies
H18.891	Other specified disorders of cornea, right eye
H18.892	Other specified disorders of cornea, left eye
H18.893	Other specified disorders of cornea, bilateral
H40.011	Open angle with borderline findings, low risk, right eye
H40.012	Open angle with borderline findings, low risk, left eye
H40.013	Open angle with borderline findings, low risk, bilateral
H40.021	Open angle with borderline findings, high risk, right eye
H40.022	Open angle with borderline findings, high risk, left eye
H40.023	Open angle with borderline findings, high risk, bilateral
H40.031	Anatomical narrow angle, right eye
H40.032	Anatomical narrow angle, left eye
H40.033	Anatomical narrow angle, bilateral
H40.041	Steroid responder, right eye
H40.042	Steroid responder, left eye
H40.043	Steroid responder, bilateral
H40.051	Ocular hypertension, right eye
H40.052	Ocular hypertension, left eye
H40.053	Ocular hypertension, bilateral
H40.061	Primary angle closure without glaucoma damage, right eye
H40.062	Primary angle closure without glaucoma damage, left eye
H40.063	Primary angle closure without glaucoma damage, bilateral
H40.1111	Primary open-angle glaucoma, right eye, mild stage

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ICD-10-CM Diagnosis Codes	Description
H40.1112	Primary open-angle glaucoma, right eye, moderate stage
H40.1113	Primary open-angle glaucoma, right eye, severe stage
H40.1114	Primary open-angle glaucoma, right eye, indeterminate stage
H40.1121	Primary open-angle glaucoma, left eye, mild stage
H40.1122	Primary open-angle glaucoma, left eye, moderate stage
H40.1123	Primary open-angle glaucoma, left eye, severe stage
H40.1124	Primary open-angle glaucoma, left eye, indeterminate stage
H40.1131	Primary open-angle glaucoma, bilateral, mild stage
H40.1132	Primary open-angle glaucoma, bilateral, moderate stage
H40.1133	Primary open-angle glaucoma, bilateral, severe stage
H40.1134	Primary open-angle glaucoma, bilateral, indeterminate stage
H40.1211	Low-tension glaucoma, right eye, mild stage
H40.1212	Low-tension glaucoma, right eye, moderate stage
H40.1213	Low-tension glaucoma, right eye, severe stage
H40.1214	Low-tension glaucoma, right eye, indeterminate stage
H40.1221	Low-tension glaucoma, left eye, mild stage
H40.1222	Low-tension glaucoma, left eye, moderate stage
H40.1223	Low-tension glaucoma, left eye, severe stage
H40.1224	Low-tension glaucoma, left eye, indeterminate stage
H40.1231	Low-tension glaucoma, bilateral, mild stage
H40.1232	Low-tension glaucoma, bilateral, moderate stage
H40.1233	Low-tension glaucoma, bilateral, severe stage
H40.1234	Low-tension glaucoma, bilateral, indeterminate stage
H40.1311	Pigmentary glaucoma, right eye, mild stage
H40.1312	Pigmentary glaucoma, right eye, moderate stage
H40.1313	Pigmentary glaucoma, right eye, severe stage
H40.1314	Pigmentary glaucoma, right eye, indeterminate stage
H40.1321	Pigmentary glaucoma, left eye, mild stage
H40.1322	Pigmentary glaucoma, left eye, moderate stage
H40.1323	Pigmentary glaucoma, left eye, severe stage
H40.1324	Pigmentary glaucoma, left eye, indeterminate stage
H40.1331	Pigmentary glaucoma, bilateral, mild stage
H40.1332	Pigmentary glaucoma, bilateral, moderate stage
H40.1333	Pigmentary glaucoma, bilateral, severe stage
H40.1334	Pigmentary glaucoma, bilateral, indeterminate stage
H40.1411	Capsular glaucoma with pseudoexfoliation of lens, right eye, mild stage
H40.1412	Capsular glaucoma with pseudoexfoliation of lens, right eye, moderate stage
H40.1413	Capsular glaucoma with pseudoexfoliation of lens, right eye, severe stage
H40.1414	Capsular glaucoma with pseudoexfoliation of lens, right eye, indeterminate stage
H40.1421	Capsular glaucoma with pseudoexfoliation of lens, left eye, mild stage
H40.1422	Capsular glaucoma with pseudoexfoliation of lens, left eye, moderate stage

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ICD-10-CM Diagnosis Codes	Description
H40.1423	Capsular glaucoma with pseudoexfoliation of lens, left eye, severe stage
H40.1424	Capsular glaucoma with pseudoexfoliation of lens, left eye, indeterminate stage
H40.1431	Capsular glaucoma with pseudoexfoliation of lens, bilateral, mild stage
H40.1432	Capsular glaucoma with pseudoexfoliation of lens, bilateral, moderate stage
H40.1433	Capsular glaucoma with pseudoexfoliation of lens, bilateral, severe stage
H40.1434	Capsular glaucoma with pseudoexfoliation of lens, bilateral, indeterminate stage
H40.151	Residual stage of open-angle glaucoma, right eye
H40.152	Residual stage of open-angle glaucoma, left eye
H40.153	Residual stage of open-angle glaucoma, bilateral
H40.211	Acute angle-closure glaucoma, right eye
H40.212	Acute angle-closure glaucoma, left eye
H40.213	Acute angle-closure glaucoma, bilateral
H40.2211	Chronic angle-closure glaucoma, right eye, mild stage
H40.2212	Chronic angle-closure glaucoma, right eye, moderate stage
H40.2213	Chronic angle-closure glaucoma, right eye, severe stage
H40.2214	Chronic angle-closure glaucoma, right eye, indeterminate stage
H40.2221	Chronic angle-closure glaucoma, left eye, mild stage
H40.2222	Chronic angle-closure glaucoma, left eye, moderate stage
H40.2223	Chronic angle-closure glaucoma, left eye, severe stage
H40.2224	Chronic angle-closure glaucoma, left eye, indeterminate stage
H40.2231	Chronic angle-closure glaucoma, bilateral, mild stage
H40.2232	Chronic angle-closure glaucoma, bilateral, moderate stage
H40.2233	Chronic angle-closure glaucoma, bilateral, severe stage
H40.2234	Chronic angle-closure glaucoma, bilateral, indeterminate stage
H40.231	Intermittent angle-closure glaucoma, right eye
H40.232	Intermittent angle-closure glaucoma, left eye
H40.233	Intermittent angle-closure glaucoma, bilateral
H40.241	Residual stage of angle-closure glaucoma, right eye
H40.242	Residual stage of angle-closure glaucoma, left eye
H40.243	Residual stage of angle-closure glaucoma, bilateral
H40.31X1	Glaucoma secondary to eye trauma, right eye, mild stage
H40.31X2	Glaucoma secondary to eye trauma, right eye, moderate stage
H40.31X3	Glaucoma secondary to eye trauma, right eye, severe stage
H40.31X4	Glaucoma secondary to eye trauma, right eye, indeterminate stage
H40.32X1	Glaucoma secondary to eye trauma, left eye, mild stage
H40.32X2	Glaucoma secondary to eye trauma, left eye, moderate stage
H40.32X3	Glaucoma secondary to eye trauma, left eye, severe stage
H40.32X4	Glaucoma secondary to eye trauma, left eye, indeterminate stage
H40.33X1	Glaucoma secondary to eye trauma, bilateral, mild stage
H40.33X2	Glaucoma secondary to eye trauma, bilateral, moderate stage
H40.33X3	Glaucoma secondary to eye trauma, bilateral, severe stage

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ICD-10-CM Diagnosis Codes	Description
H40.33X4	Glaucoma secondary to eye trauma, bilateral, indeterminate stage
H40.41X1	Glaucoma secondary to eye inflammation, right eye, mild stage
H40.41X2	Glaucoma secondary to eye inflammation, right eye, moderate stage
H40.41X3	Glaucoma secondary to eye inflammation, right eye, severe stage
H40.41X4	Glaucoma secondary to eye inflammation, right eye, indeterminate stage
H40.42X1	Glaucoma secondary to eye inflammation, left eye, mild stage
H40.42X2	Glaucoma secondary to eye inflammation, left eye, moderate stage
H40.42X3	Glaucoma secondary to eye inflammation, left eye, severe stage
H40.42X4	Glaucoma secondary to eye inflammation, left eye, indeterminate stage
H40.43X1	Glaucoma secondary to eye inflammation, bilateral, mild stage
H40.43X2	Glaucoma secondary to eye inflammation, bilateral, moderate stage
H40.43X3	Glaucoma secondary to eye inflammation, bilateral, severe stage
H40.43X4	Glaucoma secondary to eye inflammation, bilateral, indeterminate stage
H40.51X1	Glaucoma secondary to other eye disorders, right eye, mild stage
H40.51X2	Glaucoma secondary to other eye disorders, right eye, moderate stage
H40.51X3	Glaucoma secondary to other eye disorders, right eye, severe stage
H40.51X4	Glaucoma secondary to other eye disorders, right eye, indeterminate stage
H40.52X1	Glaucoma secondary to other eye disorders, left eye, mild stage
H40.52X2	Glaucoma secondary to other eye disorders, left eye, moderate stage
H40.52X3	Glaucoma secondary to other eye disorders, left eye, severe stage
H40.52X4	Glaucoma secondary to other eye disorders, left eye, indeterminate stage
H40.53X1	Glaucoma secondary to other eye disorders, bilateral, mild stage
H40.53X2	Glaucoma secondary to other eye disorders, bilateral, moderate stage
H40.53X3	Glaucoma secondary to other eye disorders, bilateral, severe stage
H40.53X4	Glaucoma secondary to other eye disorders, bilateral, indeterminate stage
H40.61X1	Glaucoma secondary to drugs, right eye, mild stage
H40.61X2	Glaucoma secondary to drugs, right eye, moderate stage
H40.61X3	Glaucoma secondary to drugs, right eye, severe stage
H40.61X4	Glaucoma secondary to drugs, right eye, indeterminate stage
H40.62X1	Glaucoma secondary to drugs, left eye, mild stage
H40.62X2	Glaucoma secondary to drugs, left eye, moderate stage
H40.62X3	Glaucoma secondary to drugs, left eye, severe stage
H40.62X4	Glaucoma secondary to drugs, left eye, indeterminate stage
H40.63X1	Glaucoma secondary to drugs, bilateral, mild stage
H40.63X2	Glaucoma secondary to drugs, bilateral, moderate stage
H40.63X3	Glaucoma secondary to drugs, bilateral, severe stage
H40.63X4	Glaucoma secondary to drugs, bilateral, indeterminate stage
H40.811	Glaucoma with increased episcleral venous pressure, right eye
H40.812	Glaucoma with increased episcleral venous pressure, left eye
H40.813	Glaucoma with increased episcleral venous pressure, bilateral
H40.821	Hypersecretion glaucoma, right eye

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ICD-10-CM Diagnosis Codes	Description
H40.822	Hypersecretion glaucoma, left eye
H40.823	Hypersecretion glaucoma, bilateral
H40.831	Aqueous misdirection, right eye
H40.832	Aqueous misdirection, left eye
H40.833	Aqueous misdirection, bilateral
H40.89	Other specified glaucoma
H42	Glaucoma in diseases classified elsewhere
H44.511	Absolute glaucoma, right eye
H44.512	Absolute glaucoma, left eye
H44.513	Absolute glaucoma, bilateral
T86.840	Corneal transplant rejection
T86.841	Corneal transplant failure
Z94.7	Corneal transplant status

Covered when medically necessary, corneal endothelial microscopy (also known as endothelial cell photography, endothelial microscopy or anterior segment photography):

CPT Codes ®							
92286							

ICD-10-CM Diagnosis Codes	Description
H17.11	Central corneal opacity, right eye
H17.12	Central corneal opacity, left eye
H17.13	Central corneal opacity, bilateral
H18.011	Anterior corneal pigmentations, right eye
H18.012	Anterior corneal pigmentations, left eye
H18.013	Anterior corneal pigmentations, bilateral
H18.051	Posterior corneal pigmentations, right eye
H18.052	Posterior corneal pigmentations, left eye
H18.053	Posterior corneal pigmentations, bilateral
H18.061	Stromal corneal pigmentations, right eye
H18.062	Stromal corneal pigmentations, left eye
H18.063	Stromal corneal pigmentations, bilateral
H18.51	Endothelial corneal dystrophy
H18.52	Epithelial (juvenile) corneal dystrophy
H18.53	Granular corneal dystrophy

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ICD-10-CM Diagnosis Codes	Description
H18.54	Lattice corneal dystrophy
H18.55	Macular corneal dystrophy
H18.59	Other hereditary corneal dystrophies
H18.891	Other specified disorders of cornea, right eye
H18.892	Other specified disorders of cornea, left eye
H18.893	Other specified disorders of cornea, bilateral
L12.0	Bullous pemphigoid
L12.1	Cicatricial pemphigoid
L12.2	Chronic bullous disease of childhood
L12.31	Epidermolysis bullosa due to drug
L12.35	Other acquired epidermolysis bullosa
L12.8	Other pemphigoid
Z01.818	Encounter for other preprocedural examination
Z46.0	Encounter for fitting and adjustment of spectacles and contact lenses
Z94.7	Corneal transplant status
Z96.1	Presence of intraocular lens

Covered when medically necessary, corneal collagen cross linking:

CPT Codes ®							
0402T							

HCPCS Codes	Description
J2787	Riboflavin 5'-phosphate, ophthalmic solution, up to 3 mL

ICD-10-CM Diagnosis Codes	Description
H18.611	Keratoconus, stable, right eye
H18.612	Keratoconus, stable, left eye
H18.613	Keratoconus, stable, bilateral
H18.621	Keratoconus, unstable, right eye
H18.622	Keratoconus, unstable, left eye
H18.623	Keratoconus, unstable, bilateral
H18.711	Corneal ectasia, right eye

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ICD-10-CM Diagnosis Codes	Description
H18.712	Corneal ectasia, left eye
H18.713	Corneal ectasia, bilateral

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X. POLICY HISTORY

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MP 2.028	**CAC 12/14/04**
	CAC 2/22/05
	CAC 9/13/05
	CAC 11/29/05
	CAC 7/25/06
	CAC 2/27/07
	CAC 4/24/07
	CAC 7/31/07
	CAC 7/29/08
	CAC 9/29/09 Consensus
	CAC 11/30/10 Consensus.
	CAC 1/26/11 Minor revision. Ocular photography of the external eye considered not medically necessary was removed from the policy.
	CAC 6/26/12 Consensus, no change to policy statements
	Admin review complete 7/18/13
	CAC 9/24/13 Consensus review. No change to policy statements; references updated.
	CAC 3/25/14 Medicare variation revised to refer to new combined LCD L34344 Cataract Extraction including Complex Cataract Surgery). References updated. No changes to the policy statements.
	CAC 3/24/15 Consensus review. No change to policy statements. References updated.
	11/2/15 Administrative change. LCD number changed from L34344 to L35091 due to Novitas update to ICD-10.
	Administrative 1/21/16: Added new 2016 code 99177.
	Administrative 5/24/16: Removed 99177; added in error
	CAC 3/29/16 Minor review. Changes include the following • Removed information on ocular exercises (orthoptics). Addressed in MP 4.007 Vision Therapy • Deleted policy statement "surgery for medical condition (e.g. glaucoma, cataracts, diabetes) symptomatic conditions (e.g. blurred vision, headaches, possible retinopathy), or trauma of the eye (e.g. injury due to an accident)". • Removed statement on prosthetic appliances • Removed statement on ocular photoscreening.

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	• Added additional indications for corneal endothelial microscopy
	• Updated references for Medicare variations
	• Added the following indications for amniotic membrane transplant
	  o Pemphigoid,
	  o Severe non healing ptygerium
	  o Alkali burns
	  o Stevens-Johnson syndrome.
	Coding reviewed/updated

	Admin update 1/1/17: Product variation section reformatted. New Diagnosis codes added effective 10/1/16
	1/1/18 Admin Update: Medicare variations removed from Commercial Policies
	12/29/17 Minor revision. Criteria for amniotic membrane transplants removed and moved to MP-4.042 Amniotic Membrane and Amniotic Fluid Injections. BCBSA medical necessity criteria and information for corneal collagen cross-linking adopted and added to the policy. Corneal collagen cross-linking using riboflavin and ultraviolet A may be considered medically necessary as a treatment of progressive keratoconus or corneal ectasia after refractive surgery in patients who have failed conservative treatment. References reviewed. Coding reviewed. Effective 4/1/18.
	10/12/18 Consensus. No changes to the policy statements. Background and references updated. Rationale revised. Added new code J2787 to policy effective 1/1/19.
	7/22/19 Consensus review. No change to policy statements. Background, references and rationale reviewed.

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