

# Geisinger Health Plan Policies and Procedure Manual

Policy: MP023

**Section: Medical Benefit Policy** 

Subject: Keratoplasty

Applicable line of business:

- pp. 104.010 mile 0. 104.011000.				
Commercial	x	Medicaid	X	
Medicare	X	ACA	X	
CHIP	X			

I. Policy: Keratoplasty

## II. Purpose/Objective:

To provide a policy of coverage regarding Keratoplasty

### III. Responsibility:

A. Medical Directors

B. Medical Management

# **IV. Required Definitions**

- 1. Attachment a supporting document that is developed and maintained by the policy writer or department requiring/authoring the policy.
- 2. Exhibit a supporting document developed and maintained in a department other than the department requiring/authoring the policy.
- 3. Devised the date the policy was implemented.
- 4. Revised the date of every revision to the policy, including typographical and grammatical changes.
- 5. Reviewed the date documenting the annual review if the policy has no revisions necessary.

#### Commercial

Geisinger Health Plan may refer collectively to health care coverage sponsors Geisinger Health Plan, Geisinger Quality Options, Inc., and Geisinger Indemnity Insurance Company, unless otherwise noted. Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

#### Medicare

Geisinger Gold Medicare Advantage HMO, PPO, and HMO D-SNP plans are offered by Geisinger Health Plan/Geisinger Indemnity Insurance Company, health plans with a Medicare contract. Continued enrollment in Geisinger Gold depends on contract renewal. Geisinger Health Plan/Geisinger Indemnity Insurance Company are part of Geisinger, an integrated health care delivery and coverage organization.

#### CHIP

Geisinger Health Plan Kids (GHP Kids) is a Children's Health Insurance Program (CHIP) offered by Geisinger Health Plan in conjunction with the Pennsylvania Department of Human Services (DHS). Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

#### Medicaid

Geisinger Health Plan Family (GHP Family) is a Medical Assistance (Medicaid) insurance program offered by Geisinger Health Plan in conjunction with the Pennsylvania Department of Human Services (DHS). Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization

#### V. Additional Definitions

Medical Necessity or Medically Necessary means Covered Services rendered by a Health Care Provider that the Plan determines are:

- a. appropriate for the symptoms and diagnosis or treatment of the Member's condition, illness, disease or injury;
- provided for the diagnosis, and the direct care and treatment of the Member's condition, illness disease or injury;
- in accordance with current standards of good medical treatment practiced by the general medical community.
- d. not primarily for the convenience of the Member, or the Member's Health Care Provider; and
- e. the most appropriate source or level of service that can safely be provided to the Member. When applied to hospitalization, this further means that the Member requires acute care as an inpatient due to the nature of the services rendered or the Member's condition, and the Member cannot receive safe or adequate care as an outpatient.

# **Medicaid Business Segment**

Medically Necessary — A service, item, procedure, or level of care that is necessary for the proper treatment or management of an illness, injury, or disability is one that:

- Will, or is reasonably expected to, prevent the onset of an illness, condition, injury or disability.
- Will, or is reasonably expected to, reduce or ameliorate the physical, mental or developmental effects of an illness, condition, injury or disability.
- Will assist the Member to achieve or maintain maximum functional capacity in performing daily activities, taking
  into account both the functional capacity of the Member and those functional capacities that are appropriate for
  Members of the same age.

#### **DESCRIPTION:**

Keratoplasty is a surgical procedure in which all or part of the cornea is replaced by healthy corneal tissue from a donor.

#### **INDICATIONS:**

Corneal opacification
Keratoconus
Corneal scarring
Chemical injury or mechanical trauma of the cornea
Corneal degeneration
Corneal dystrophy

Arcuate keratotomy is covered when performed for the correction of surgically induced astigmatism following medically indicated cataract removal or corneal transplant surgery. All other applications to correct refractive error are considered **NOT COVERED**.

**Intrastromal corneal ring segments (INTACS)** are a flexible silastic ring implanted beneath the surface of the cornea to elevate the edge the cornea. This flattens the front of the cornea, decreasing myopic refractive error. Intrastromal corneal ring segments for the treatment of keratoconus may be considered medically necessary when **All** of the following criteria apply:

- 1. Documented evidence of a progressive deterioration in their vision, such that member can no longer achieve adequate functional vision on a daily basis with contacts or spectacles; **AND**
- 2. The member is twenty-one years of age or older; AND
- 3. The member has clear central cornea; AND
- 4. The member has a corneal thickness of 450 microns or greater at the proposed incision site; AND
- 5. Corneal transplantation is the only other remaining option to improve functional vision.

Endothelial Keratoplasty (Descemet's stripping endothelial Keratoplasty (DSEK), Descemet's membrane endothelial keratoplasty (DMEK), Descemet's stripping automated endothelial keratoplasty (DSAEK) and Descemet's membrane automated endothelial keratoplasty (DMAEK) may be considered medically necessary for the treatment of endothelial dysfunction including but not limited to Fuch's endothelial dystrophy, failed previous corneal transplant, Aphakic and pseudophakic bullous keratopathy, corneal edema caused by endothelial failure, and rupture in Descemet membrane.

# Keratoprosthetic

An FDA-approved corneal prosthetic may be considered medically necessary when all of the following criteria are met:

- · The cornea is severely opacified; and
- Best corrected visual acuity is 20/400 or less in the affected eye, and 20/40 or worse in the opposite eye; and
- No evidence of end-stage glaucoma or limited visual potential due to current or chronic retinal detachment; and
- At least one of the following:
  - o Documentation of one or more failed corneal transplant
  - Ocular condition unlikely to be resolved by corneal transplant
  - o Autoimmune condition with rare ocular involvement
  - Stevens-Johnson syndrome
  - o Ocular cicatricial pemphigoid
  - Ocular chemical injury

**Corneal Collagen Cross-Linking (CXL) -** Epithelium-off corneal collagen cross-linking (e.g., Photrexa {Riboflavin 5'-Phosphate}) is considered **medically necessary** if **ALL** of the following are met:

- Treatment is indicated for either of the following conditions:
  - Progressive keratoconus
  - Post keratotomy corneal ectasia

#### and

o Documentation of failure of conservative treatment (e.g., spectacle lens correction, rigid contact lens)

#### **EXCLUSIONS:**

Keratoplasty or corneal remodeling procedures for the sole purpose of correcting refractive error is specifically **excluded** in the applicable benefit documents for all lines of business.

Corneal collagen cross-linking for the treatment of other conditions/diseases not specifically listed is considered experimental, investigational or unproven and is NOT COVERED for any indication.

Epithelium-on (epi-on or transepithelial) corneal collagen crosslinking is considered experimental, investigational or unproven and is NOT COVERED for any indication.

Femtosecond Laser-Assisted Corneal Endothelial Keratoplasty (FLEK or FLAK) or Femtosecond and Excimer Lasers-Assisted Endothelial Keratoplasty (FELEK) is considered experimental, investigational or unproven and is NOT COVERED for any indication.

**Note:** A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in **MP 15 - Experimental Investigational or Unproven Services or Treatment** 

Accommodating Intraocular Lens. Presbyopic reduction surgery utilizing an accommodating intaocular lens (IOL) as an alternative to LASIK to eliminate the need for bifocal lenses or reading glasses is **NOT COVERED.** The use of an accommodating IOL (including, but not limited to Crystalens™) implant as an alternative IOL during the surgical repair of cataracts to correct refractive error and eliminate the need for spectacle lenses is covered only to the extent of the standard fixed focal length intraocular lens as outlined below:

**Toric Intraocular Lens -** The use of a toric intraocular lens (including but not limited to the STARR® Toric IOL) implant as an alternative IOL during the surgical repair of cataracts to correct astigmatism and eliminate the need for contact lenses or spectacle lenses is covered only to the extent of the standard fixed focal length intraocular lens as outlined below:

**NOTE:** To be consistent with a CMS directive, the Plan has implemented the following approach to the use of these lenses:

- 1. Coverage for post cataract lens implants will be limited to the standard fixed focal length IOL.
- 2. A member may request these accommodating focal length lenses through their Ophthalmology provider, but the member will be responsible for any cost over and above that of the standard fixed focal length IOL.
- 3. Providers wishing to implant the accommodating lens are advised to have the member sign a waiver prior to the surgery stating that the member understands their financial liability. The provider may then balance bill the member directly.

This approach is consistent with the current CMS policies and will apply to all lines of business unless there is specific language in the applicable benefit documents.

**Intrastromal corneal ring segments** as an alternative to or in conjunction with LASIK to correct refractive error, astigmatism, or to eliminate the need for bifocal lenses or reading glasses is **NOT COVERED.** The use of refractive surgery and associated implanted devices to correct refractive error and eliminate the need for spectacle lenses is an **EXCLUSION** and is **NOT COVERED** per the applicable benefit documents.

# **Medicaid Business Segment:**

Any requests for services, that do not meet criteria set in the PARP, may be evaluated on a case by case basis.

Note: A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in MP 15 - Experimental Investigational or Unproven Services or Treatment.

# **CODING ASSOCIATED WITH: keratoplasty**

The following codes are included below for informational purposes and may not be all inclusive. Inclusion of a procedure or device code(s) does not constitute or imply coverage nor does it imply or guarantee provider reimbursement. Coverage is determined by the member specific benefit plan document and any applicable laws regarding coverage of specific services. Please note that per Medicare coverage rules, only specific CPT/HCPCS Codes may be covered for the Medicare Business Segment. Please consult the CMS website at <a href="https://www.cms.gov">www.cms.gov</a> or the local Medicare Administrative Carrier (MAC) for more information on Medicare coverage and coding requirements.

- 65710 Keratoplasty (corneal transplant); lamellar
- 65730 penetrating (except in aphakia) to correct the condition of keratoconus (Dx code 371.60-
  - 371.62;743.41)
- 65750 penetrating (in aphakia)
- 65755 penetrating (in pseudoaphakia)
- 65756 Keratoplasty (corneal transplant); endothelial
- 65757 Backbench preparation of corneal endothelial allograft prior to transplantation
- 65760 keratomileusis
- 65765 epikeratophakia
- 65770 Keratoprosthesis
- 65771 radial keratotomy
- 65772 corneal relaxing incision for correction of surgically induced astigmatism
- 65775 corneal wedge resection for correction of surgically induced astigmatism
- S0812 Phototherapy Keratectomy (PTK)
- 66999 Unlisted corneal procedure (keratoplasty to treat specific lesions of the cornea, i.e., phototherapeutic keratectomy to remove scar tissue from the visual field)
- V2787 Astigmatism correcting function of intraocular lens
- V2788 Presbyopia correcting function of intraocular lens
- L8610 Ocular Implant
- 0402T Collagen cross-linking of cornea, including removal of the corneal epithelium, when performed, and intraoperative pachymetry, when performed
- J2787 riboflavin 5'-phosphate ophthalmic solution up to 3 mL
- 0616T Insertion of iris prosthesis, including suture fixation and repair or removal of iris, when performed; without removal of crystalline lens or intraocular lens, without insertion of intraocular lens
- 0617T Insertion of iris prosthesis, including suture fixation and repair or removal of iris, when performed; with removal of crystalline lens and insertion of intraocular lens
- 0618T Insertion of iris prosthesis, including suture fixation and repair or removal of iris, when performed; with secondary intraocular lens placement or intraocular lens exchange

Current Procedural Terminology (CPT®) © American Medical Association: Chicago, IL

## **LINE OF BUSINESS:**

Eligibility and contract specific benefits, limitations and/or exclusions will apply. Coverage statements found in the line of business specific benefit document will supersede this policy. For Medicare, applicable LCD's and NCD's will supercede this policy. For PA Medicaid Business segment, this policy applies as written.

# **REFERENCES:**

Lim L, Pesudovs K, Coster DJ, "Penetrating keratoplasty for keratoconuc: visual outcome and success", Ophthalmology 107(6):1125-1131. June 2000.

HGSA Medical Policy S-41 Corneal surgery to Correct Refractive Errors. <a href="http://www.hgsa.com/professionals/policy/s41d.html">http://www.hgsa.com/professionals/policy/s41d.html</a>

Thompson RW, Price MO, Bowers PJ, Price FW, "Long-term graft survival after penetrating keratoplasty. Ophthalmology 110(7): 1396-1402. July 2003.

Colin J, Velou S, "Current surgical options for keratoconus". Journal of Cataract and Refractive Surgery. 29(2):379-386. February 2003.

Merck Manual of Diagnosis and Therapy, Section 8, Chapter 96 Corneal Disorders. http://www.merck.com/mrkshared/mmanual/section8/chapter96/961.jsp

Crystalens™ Model AT-45 Accommodating Posterior Chamber Intraocular Lens (IOL) - P030002 http://www.fda.gov/cdrh/pdf3/p030002.html

Cumming JS, Slade SG, Chayet A. Clinical evaluation of the model AT-45 silicone accommodating intraocular lens: results of feasibility and the initial phase of a Food and Drug Administration clinical trial. Ophthalmology Nov. 2001; 108(11):2005-2009.

Mamalis N, Spencer TS. Accomodating action of CrystaLens IOL observed in human eye model. Ocular Surgery News. 9/15/01.

Covard M. Moving Forward With the CrystaLens. Review of Ophthalmology. Jan. 2004:1-6.

Hjortdal JO, Ehlers N. Paired arcuate keratotomy for congenital and post-keratoplasty astigmatism. Acta Ophthalmol. Scand. 1998;76:138-141.

Refractive targeting in cataract surgery. Focus. Royal College of Ophthalmologists. Issue 28. Winter 2003.

Price FW, Grene RB, Marks RG, Gonzales JS. Astgmatism reduction clinical trial: a multicenter prospective evaluation of the predictability of arcuate keratotomy. Evaluation of surgical nomogram predictability. ARC-T Study Group. Archives of Ophthalmology March 1995. 113(3).

Kanellopoulos AJ, Pe LH, Perry HD, Donnenfeld ED. Modified intracorneal ring segment implantations (INTACS) for the management of moderate to advanced keratoconus: efficacy and complications. Cornea 2006 Jan;25(1):29-33.

HTAIS Custom Hotline Response. Intrastromal corneal ring segments (Intacs prescription inserts) for Keratoconus. (online) ECRI: Lansdale, PA

Levinger, S. and Pokroy, R. Keratoconus managed with intacs: one-year results. Arch Ophthalmol. 2005;123(10):1308-14

Hellstedt, T., Makela, J., Uusitalo, R., Emre, S., and Uusitalo, R. Treating keratoconus with intacs corneal ring segments. J Refract Surg. 2005;21(3):236-46.

Dept. of Health and Human Services. Centers for Medicare & Medicaid Services. CMS Ruling CMS-1536-R, January 27, 2007. <a href="http://www.cms.hhs.gov/Rulings/downloads/CMS1536R.pdf">http://www.cms.hhs.gov/Rulings/downloads/CMS1536R.pdf</a>

Terry MA, Chen ES, Shamie N, et al. Endothelial cell loss after Descemet's stripping endothelial keratoplasty in a large prospective series. Ophthalmology. 2008; 115(3):488-496

Suh LH, Yoo SH, DeoBhakta A, et al. Complications of Descemet's stripping with automated endothelial keratoplasty: survey of 118 eyes at one institute. Ophthalmology. 2008; 115(9):1517-1524.

Price MO, Price FW. Endothelial cell loss after Descemet stripping with endothelial keratoplasty influencing factors and 2-year trend. Ophthalmology. 2008; 115(5):857-865.

Price MO, Gorovoy M, Benetz BA, et al. Descemet's stripping automated endothelial keratoplasty outcomes compared with penetrating keratoplasty from the Cornea Donor Study. Ophthalmology. 2010; 117(3):438-444.

Price FW, Price MO. Descemet's stripping with endothelial keratoplasty in 200 eyes: early challenges and techniques to enhance donor adherence. J Cataract Refract Surg 2006: 32:411-418.

Price MO, Price FW. Descemet's stripping endothelial keratoplasty. Curr Opin Ophthalmol. 2007; 18(4):290-294.

Chamberlain WD, Rush SW, Mathers WD, et al. Comparison of femtosecond laser-assisted keratoplasty versus conventional penetrating keratoplasty. Ophthalmology. 2011; 118(3):486-491.

Cheng YY, Schouten JS, Tahzib NG, et al. Efficacy and safety of femtosecond laser-assisted corneal endothelial keratoplasty: a randomized multicenter clinical trial. Transplantation. 2009; 88(11):1294-1302.

Cheng YY, van den Berg TJ, Schouten JS, et al. Quality of vision after femtosecond laser-assisted descemet stripping endothelial keratoplasty and penetrating keratoplasty: a randomized, multicenter clinical trial. Am J Ophthalmol. 2011; 152(4):556-566

Price MO, Giebel AW, Fairchild KM, Price FW Jr. Descemet's membrane endothelial keratoplasty: prospective multicenter study of visual and refractive outcomes and endothelial survival. Ophthalmology. 2009; 116(12):2361-2368

Guerra FP, Anshu A, Price MO, et al. Descemet's membrane endothelial keratoplasty: prospective study of 1-year visual outcomes, graft survival, and endothelial cell loss. Ophthalmology. 2011; 118(12):2368-2373

Vetter JM, Butsch C, Faust M, et al. Irregularity of the posterior corneal surface after curved interface femtosecond laser-assisted versus microkeratome-assisted descemet stripping automated endothelial keratoplasty. Cornea. 2013; 32(2):118-124.

Anshu A, Price MO, Price FW, Jr. Risk of corneal transplant rejection significantly reduced with Descemet's membrane endothelial keratoplasty. Ophthalmology 2012; 119(3):536-40.

Li JY, Terry MA, Goshe J et al. Three-year visual acuity outcomes after Descemet's stripping automated endothelial keratoplasty. Ophthalmology 2012; 119(6):1126-9.

Novitas Solutions, Inc. Local Carrier Determination (LCD) for Cataract Extraction (L34344). Accessed 2/12/14.

Lee WB, Shtein RM, Kaufman SC, et al. Boston Keratoprosthesis: outcomes and complications: a report by the American Academy of Ophthalmology. Ophthalmology. Jul 2015;122(7):1504-1511

Rudnisky CJ, Belin MW, Guo R, et al. Visual acuity outcomes of the Boston Keratoprosthesis Type 1: multicenter study results. Am J Ophthalmol. Feb 2016;162:89-98 e81.

Dunlap K, Chak G, Aquavella JV, et al. Short-term visual outcomes of Boston type 1 keratoprosthesis implantation. Ophthalmology. Apr 2010;117(4):687-692.

This policy will be revised as necessary and reviewed no less than annually.

Kang JJ, de la Cruz J, Cortina MS. Visual outcomes of Boston keratoprosthesis implantation as the primary penetrating corneal procedure. Cornea. Dec 2012;31(12):1436-1440

Ciolino JB, Belin MW, Todani A, et al. Retention of the Boston keratoprosthesis type 1: multicenter study results. Ophthalmology. Jun 2013;120(6):1195-1200.

Fadous R, Levallois-Gignac S, Vaillancourt L, et al. The Boston Keratoprosthesis type 1 as primary penetrating corneal procedure. Br J Ophthalmol. Dec 2015;99(12):1664-1668.

Ahmad S, Mathews PM, Lindsley K, et al. Boston Type 1 Keratoprosthesis versus repeat donor keratoplasty for corneal graft failure: a systematic review and meta-analysis. Ophthalmology. Jan 2016;123(1):165-177.

Sykakis E, Karim R, Evans JR, et al. Corneal collagen cross-linking for treating keratoconus. Cochrane Database Syst Rev 2015

Chunyu T, Xiujun P, Zhengjun F, et al. Corneal collagen cross-linking in keratoconus: a systematic review and meta-analysis. Sci Rep. 2014;4:5652.

Papaioannou L, Miligkos M, Papathanassiou M. Corneal Collagen Cross-Linking for Infectious Keratitis: A Systematic Review and Meta-Analysis. Cornea. Jan 2016;35(1):62-71.

Raiskup F, Theuring A, Pillunat LE, et al. Corneal collagen crosslinking with riboflavin and ultraviolet-A light in progressive keratoconus: ten-year results. J Cataract Refract Surg. Jan 2015;41(1):41-46

Meiri Z, Keren S, Rosenblatt A, et al. Efficacy of corneal collagen cross-linking for the treatment of keratoconus: a systematic review and meta-analysis. Cornea. Mar 2016;35(3):417-428.

Godefrooij, DA, Soeters, N, Imhof, SM, Wisse, RP. Corneal Cross-Linking for Pediatric Keratoconus: Long-Term Results. Cornea. 2016 Jul;35(7):954-8.

Meiri, Z, Keren, S, Rosenblatt, A, Sarig, T, Shenhav, L, Varssano, D. Efficacy of Corneal Collagen Cross-Linking for the Treatment of Keratoconus: A Systematic Review and Meta-Analysis. Cornea. 2016 Mar;35(3):417-28.

Hersh, PS, Stulting, RD, Muller, D, Durrie, DS, Rajpal, RK. United States Multicenter Clinical Trial of Corneal Collagen Crosslinking for Keratoconus Treatment. Ophthalmology. 2017 Sep;124(9):1259-70.

Rush, SW, Rush, RB. Epithelium-off versus transepithelial corneal collagen crosslinking for progressive corneal ectasia: a randomised and controlled trial. The British journal of ophthalmology. 2017 Apr;101(4):503-8.

Aixinjueluo, W, Usui, T, Miyai, T, Toyono, T, Sakisaka, T, Yamagami, S. Accelerated transepithelial corneal cross-linking for progressive keratoconus: a prospective study of 12 months. The British journal of ophthalmology. 2017 Sep;101(9):1244-9.

Hayes Inc. Corneal Cross-Linking for Treatment of Keratoconus. Comparative Effectiveness Review. Feb 15, 2018

Hayes Inc. Corneal Collagen Cross-Linking for Treatment of LASIK-Related Ectasia. Search and Summary. Nov. 16, 2017

Woo JH, Iyer JV, Lim L, et al. Conventional versus accelerated collagen cross-linking for keratoconus: a comparison of visual, refractive, topographic and biomechanical outcomes. Open Ophthalmol J. 2017;11:262-272.

Liu Y, Liu Y, Zhang YN, et al. Systematic review and meta-analysis comparing modified cross-linking and standard cross-linking for progressive keratoconus. Int J Ophthalmol. 2017;10(9):1419-1429

Oellerich S, Baydoun L, Peraza-Nieves J, et al. Multicenter study of 6-month clinical outcomes after Descemet membrane endothelial keratoplasty. Cornea. Dec 2017;36(12):1467-1476.

Li S, Liu L, Wang W, et al. Efficacy and safety of Descemet's membrane endothelial keratoplasty versus Descemet's stripping endothelial keratoplasty: A systematic review and meta-analysis. PLoS One. Dec 18, 2017;12(12):e0182275.

Ivarsen A, Hjortdal J. Clinical outcome of Descemet's stripping endothelial keratoplasty with femtosecond laser-prepared grafts. Acta Ophthalmol. 2018;96(5).

Deng SX, Lee WB, Hammersmith KM, et al. Descemet membrane endothelial keratoplasty: safety and outcomes: a report by the American Academy of Ophthalmology. Ophthalmology. 2018;125(2):295-310

Chamberlain W, Lin CC, Austin A, et al. Descemet Endothelial Thickness Comparison Trial: A Randomized Trial Comparing Ultrathin Descemet Stripping Automated Endothelial Keratoplasty with Descemet Membrane Endothelial Keratoplasty. Ophthalmology. 2019;126(1).

Sorkin N, Mednick Z, Einan-Lifshitz A, et al. Three-Year Outcome Comparison Between Femtosecond Laser-Assisted and Manual Descemet Membrane Endothelial Keratoplasty. Cornea. 2019;38(7)

Marques RE, Guerra PS, Sousa DC, et al. DMEK versus DSAEK for Fuchs' endothelial dystrophy: A meta-analysis. Eur J Ophthalmol. 2019;29(1).

Duggan MJ, Rose-Nussbaumer J, Lin CC et al. Corneal Higher-Order Aberrations in Descemet Membrane Endothelial Keratoplasty versus Ultrathin DSAEK in the Descemet Endothelial Thickness Comparison Trial: A Randomized Clinical Trial. Ophthalmology. 2019;126(7).

Chen M, Ng SM, Akpek EK, Ahmad S. Artificial corneas versus donor corneas for repeat corneal transplants. Cochrane Database Syst Rev. 2020;5(5):CD009561

Wu J, Wu T, Li J, et al. DSAEK or DMEK for failed penetrating keratoplasty: a systematic review and single-arm meta-analysis. Int Ophthalmol. Jul 2021; 41(7): 2315-2328.

Maier AB, Milek J, Joussen AM, et al. Systematic Review and Meta-analysis: Outcomes After Descemet Membrane Endothelial Keratoplasty Versus Ultrathin Descemet Stripping Automated Endothelial Keratoplasty. Am J Ophthalmol. Jan 2023; 245: 222-232

This policy will be revised as necessary and reviewed no less than annually.

**Devised:** 11/01 (Surgical Correction of Refractive Error)

**Revised:** 11/02(added definition); 11/26/03(re-title policy to Keratoplasty); 2/05 (add exclusions); 10/05 (clarification for accommodating IOL use); 10/06; 10/07(wording); 3/10 (added toric lens clarification), 3/14 (added DSEK indications); 3/16 (added indications and exclusions), 11/16 (Added Keratoprosthetic); 10/17 (added CXL exclusion); 9/18 (add indication for CXL, exclusions); 9/19 (update indications)

Reviewed: 10/08, 10/09, 3/11, 3/12, 3/13, 3/15, 9/20, 9/21, 9/22, 9/23, 9/24

CMS UM Oversight Committee Approval: 12/23; 11/8/24

Geisinger Health Plan may refer collectively to health care coverage sponsors Geisinger Health Plan, Geisinger Quality Options, Inc., and Geisinger Indemnity Insurance Company, unless otherwise noted. Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

Coverage for experimental or investigational treatments, services and procedures is specifically excluded under the member's certificate with Geisinger Health Plan. Unproven services outside of an approved clinical trial are also specifically excluded under the member's certificate with Geisinger Health Plan. This policy does not expand coverage to services or items specifically excluded from coverage in the member's certificate with Geisinger Health Plan. Additional information can be found in MP015 Experimental, Investigational or Unproven Services.

Prior authorization and/or pre-certification requirements for services or items may apply. Pre-certification lists may be found in the member's contract specific benefit document. Prior authorization requirements can be found at https://www.geisinger.org/health-plan/providers/ghp-clinical-policies

Please be advised that the use of the logos, service marks or names of Geisinger Health Plan, Geisinger Quality Options, Inc. and Geisinger Indemnity Insurance Company on a marketing, press releases or any communication piece regarding the contents of this medical policy is strictly prohibited without the prior written consent of Geisinger Health Plan. Additionally, the above medical policy does not confer any endorsement by Geisinger Health Plan, Geisinger Quality Options, Inc. and Geisinger Indemnity Insurance Company regarding the medical service, medical device or medical lab test described under this medical policy.