BlueCross BlueShield of North Carolina

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Corporate Medical Policy

Computerized Corneal Topography

File Name:	computerized_corneal_topography
Origination:	7/2017
Last CAP Review:	6/2020
Next CAP Review:	6/2021
Last Review:	6/2020

Description of Procedure or Service

Computerized corneal topography (also known as computer assisted corneal topography, computer assisted keratography, or videokeratography) is a computer-assisted diagnostic technique in which a special instrument projects a series of light rings on the cornea, creating a color-coded map of the corneal surface as well as a cross-section profile. This test is used for the detection of subtle corneal surface irregularities and astigmatism as an alternative to manual keratometry.
Corneal topography describes measurements of the curvature of the cornea. Various techniques and instruments are available to measure corneal topography:

- The keratometer (also referred to as an ophthalmometer), the most commonly used instrument, projects an illuminated image onto a central area in the cornea. By measuring the distance between a pair of reflected points in both of the cornea's 2 principal meridians, the keratometer can estimate the radius of curvature of 2 meridians. Limitations of this technique include the fact that the keratometer can only estimate the corneal curvature over a small percentage of its surface and that estimates are based on the frequently incorrect assumption that the cornea is spherical.
- The keratoscope is an instrument that reflects a series of concentric circular rings off the anterior corneal surface. Visual inspection of the shape and spacing of the concentric rings provides a qualitative assessment of topography. A photokeratoscope is a keratoscope equipped with a camera that can provide a permanent record of the corneal topography.
- Computer-assisted photokeratoscopy is an alternative to keratometry or keratoscopy in measuring corneal curvature. This technique uses sophisticated image analysis programs to provide quantitative corneal topographic data. Early computer-based programs were combined with keratoscopy to create graphic displays and high-resolution, color-coded maps of the corneal surface. Newer technologies measure both curvature and shape, enabling quantitative assessment of corneal depth, elevation, and power.

The American Academy of Ophthalmology's guidelines on "primary open-angle glaucoma" (AAO, 2010) mentioned no role for corneal topography in the management of patients with open-angle glaucoma.

******Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.***

Policy

BCBSNC will provide coverage for computerized corneal topography when it is determined to be medically necessary because the medical criteria and guidelines shown below are met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Computerized Corneal Topography is covered

Corneal Topography is considered **medically necessary** for patients who meet the following criteria:

1. Central corneal ulcer; or
2. Corneal dystrophy, bullous keratopathy and complications of transplanted cornea; or
3. Diagnosing and monitoring disease progression in keratoconus or Terrien's marginal degeneration; or
4. Difficult fitting of contact lens; or
5. Post-traumatic corneal scarring; or
6. Pre- and post- penetrating keratoplasty and post kerato-refractive surgery for irregular astigmatism; or
7. Pterygium, pseudo pterygium and/or corneal ectasia that cause visual impairment

When Computerized Corneal Topography is not covered

Corneal Topography is considered **investigational** for the following conditions:

1. Acanthomoeba keratitis;
2. Epithelial ingrowth following laser in situ keratomileusis (lasik);
3. Interstitial keratitis;
4. Lens subluxation (e.g., in Marfan syndrome);
5. Limbal dermoids;
6. Nodular degeneration of the cornea (e.g., Salzmann's corneal degeneration);
7. Ocular graft-versus-host disease'
8. Open-angle glaucoma;
9. Superficial punctate keratopathy.

Services performed for screening purposes, routine follow-up testing, or in the absence of associated signs, symptoms, illness or injury as indicated above, are considered **not medically necessary**.

Computer-assisted corneal topography is considered **not medically necessary** to detect or monitor diseases of the cornea.

Computerized Corneal Topography is considered **not medically necessary** if performed pre- or post-operatively in relation to a non-covered procedure (i.e., refractive surgery).

Computerized Corneal Topography is considered **not medically necessary** if performed as part of a pre-operative assessment of patients with cataracts.

Policy Guidelines

Computer-assisted corneal topography (also called photokeratoscopy) provides a quantitative measure of corneal curvature. Measurement of corneal topography is being evaluated to aid the diagnosis and follow-up of corneal disorders such as keratoconus, difficult contact lens fits, and pre- and postoperative assessment of the cornea, most commonly after refractive surgery.

For individuals who have disorders of corneal topography who receive computer-assisted corneal topography/photokeratoscopy, the evidence includes only a few studies. Relevant outcomes are test

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accuracy, other test performance measures, and functional outcomes. With the exception of refractive surgery, a procedure not discussed herein, no studies have shown clinical benefit (eg, a change in treatment decisions) based on a quantitative evaluation of corneal topography. In addition, a large prospective series found no advantage with use of different computer-assisted corneal topography methods over manual corneal keratometry. Computer-assisted corneal topography lacks evidence from appropriately constructed clinical trials that could confirm whether it improves outcomes. The evidence is insufficient to determine the effects of the technology on health outcomes.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable service codes: 92025

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.05, 3/10/16

Centers for Medicare and Medicaid Services (CMS). [Electronic Version]. Retrieved February 21, 2017 from https://www.cms.gov/medicare-coverage-database/shared/handlers/highwire.ashx?url=https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx@@@LCDId$$$34008***ver$$$5***Date$$$***DocID$$$L34008***bc$$$iAAAABAAAAAAAA$$$$$$***&session=evz3x2v2jk4epujjq1nvtd55&kq=735266470

Senior Medical Director review 2/2017

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.05, 3/9/17

Senior Medical Director review 7/2017

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.05, 3/8/18

Specialty Matched Consultant Advisory Panel- 6/2018

Specialty Matched Consultant Advisory Panel- 8/2018

Medical Director review 8/2018

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.05, 3/14/19

Specialty Matched Consultant Advisory Panel- 6/2019

Medical Director review 6/2019

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.05, 3/12/20

Specialty Matched Consultant Advisory Panel- 6/2020

Medical Director review 6/2020

Policy Implementation/Update Information

8/25/17 New policy developed. Computerized Corneal Topography may be considered medically necessary when criteria are met. Senior Medical Director review 7/2017. Reference added. (lpr)

9/28/18 Specialty Matched Consultant Advisory Panel review 6/2018. Reference added. Updated Policy Guidelines section. No change to policy statement. Medical Director review 8/2018. (lpr)

7/16/19 Specialty Matched Consultant Advisory Panel review 6/19/19. Reference added. No change to policy statement. Medical Director review 6/2019. (lpr)

6/30/20 Specialty Matched Consultant Advisory Panel review 6/17/2020. Updated Policy Guidelines section. Reference added. No change to policy statement. Medical Director review 6/2020. (lpr)

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.