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BlueCross BlueShield of Alabama

Name of Blue Advantage Policy*:*
Ophthalmologic Techniques for Evaluating Glaucoma

Policy #465:
Category: Medical

Latest Review Date: April 2017
Policy Grade: C

Background:

Blue Advantage *medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
   - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
   - *Furnished in a setting appropriate to the patient's medical needs and condition;*
   - *Ordered and furnished by qualified personnel;*
   - *One that meets, but does not exceed, the patient's medical need; and*
   - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill* ***Original Medicare* *for covered services that are related to* ***clinical trials*** *that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

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Description of Procedure or Service:

Several techniques have been developed to measure the thickness of the optic nerve/retinal nerve fiber layer (RNFL) as a method to diagnose and monitor glaucoma. Measurement of ocular blood flow is also being evaluated as a diagnostic and management tool for glaucoma.

Glaucoma

Glaucoma is a disease characterized by degeneration of the optic nerve (optic disc). Elevated intraocular pressure has long been thought to be the primary etiology, but the relationship between intraocular pressure and optic nerve damage varies among patients, suggesting a multifactorial origin. For example, some patients with clearly elevated intraocular pressure will show no optic nerve damage, 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.

A comprehensive ophthalmologic exam is required for the diagnosis of glaucoma, but no single test is adequate for establishing the diagnosis. The presence of characteristic changes in the optic nerve or abnormalities in visual field, together with increased intraocular pressure, is sufficient for a definitive diagnosis. However, some patients will show ophthalmologic evidence of glaucoma with normal intraocular pressures. These cases of normal tension glaucoma (NTG) are considered to be a type of primary open-angle glaucoma (POAG). Angle-closure glaucoma is another type of glaucoma associated with an increase in IOP. The increased IOP in angle-closure glaucoma arises from a reduction in aqueous outflow from the eye due to a closed angle in the anterior chamber.

Conventional management of the patient with glaucoma principally involves drug therapy to control elevated intraocular pressures and serial evaluation of the optic nerve. Standard methods of evaluation include careful direct examination of the optic nerve using ophthalmoscopy or stereophotography, or evaluation of visual fields. There has been interest in developing more objective, reproducible techniques both to document optic nerve damage and to detect early changes in the optic nerve and retinal nerve fiber layer (RNFL) before the development of permanent visual field deficits. Specifically, evaluating changes in the thickness of the RNFL has been investigated as a technique to diagnose and monitor glaucoma. However, IOP reduction is not effective in decreasing disease progression in a significant number of patients, and in patients with NTG, there is never an increase in IOP. It has been proposed that vascular dysregulation is a significant cause of damage to the RNFL, and there is interest in measuring ocular blood flow as both a diagnostic and a management tool for glaucoma. Changes in blood flow to the retina and choroid may be particularly relevant for diagnosis and treatment of NTG. A variety of techniques have been developed, as described below. (Note: This policy only addresses uses of these techniques related to glaucoma.)

Techniques to Evaluate the Optic Nerve/Retinal Nerve Fiber Layer

Confocal Scanning Laser Ophthalmoscopy

Confocal scanning laser ophthalmoscopy (CSLO) is a laser-based image acquisition technique, which is intended to improve the quality of the examination compared to standard ophthalmologic examination. A laser is scanned across the retina along with a detector system. Only a single spot on the retina is illuminated at any time, resulting in a high-contrast image of great reproducibility that can be used to estimate the thickness of the RNFL. In addition, this technique does not require maximal mydriasis, which may be a problem in patients with glaucoma. The Heidelberg Retinal Tomograph is probably the most common example of this technology.

Scanning Laser Polarimetry

The RNFL is birefringent, causing a change in the state of polarization of a laser beam as it passes. A 780-nm diode laser is used to illuminate the optic nerve. The polarization state of the light emerging from the eye is then evaluated and correlated with RNFL thickness. Unlike CSLO, scanning laser polarimetry (SLP) can directly measure the thickness of the RNFL. GDx® is a common example of a scanning laser polarimeter. GDx® contains a normative database and statistical software package to allow comparison to age-matched normal subjects of the same ethnic origin. The advantages of this system are that images can be obtained without pupil dilation, and evaluation can be done in about ten minutes. Current instruments have added enhanced and variable corneal compensation technology to account for corneal polarization.

Optical Coherence Tomography

Optical coherence tomography (OCT) uses near-infrared light to provide direct cross-sectional measurement of the RNFL. The principles employed are similar to those used in B-mode ultrasound except light, not sound, is used to produce the 2-dimensional images. The light source can be directed into the eye through a conventional slit-lamp biomicroscope and focused onto the retina through a typical 78-diopter lens. This system requires dilation of the patient's pupil. OCT® is an example of this technology. OCT analysis software is being developed to include optic nerve head parameters with spectral domain OCT (SDOCT), analysis of macular parameters, and hemodynamic parameters with Doppler OCT and OCT angiography.

Techniques to Measure Ocular Blood Flow

A number of techniques have been developed to assess ocular blood flow. They include laser speckle flowgraphy, color Doppler imaging, Doppler Fourier domain OCT, laser Doppler velocimetry, confocal scanning laser Doppler flowmetry, and retinal functional imaging.

Pulsatile Ocular Blood Flow

The pulsatile variation in ocular pressure results from the flow of blood into the eye during cardiac systole. Pulsatile ocular blood flow can thus be detected by the continuous monitoring of intraocular pressure. The detected pressure pulse can then be converted into a volume measurement using the known relationship between ocular pressure and ocular volume. Pulsatile blood flow is primarily determined by the choroidal vessels, particularly relevant to patients with glaucoma, since the optic nerve is supplied in large part by the choroidal circulation.

Laser Speckle Flowgraphy
Laser speckle is detected when a coherent light source such as laser light is dispersed from a diffusing surface such as retinal and choroidal vessels and the circulation of the optic nerve head. The varying patterns of light can be used to determine red blood cell velocity and retinal blood flow. However, due to differences in the tissue structure in different eyes, flux values cannot be used for comparisons between eyes. This limitation may be overcome by subtracting background choroidal blood flow results from the overall blood flow results in the region of interest.

Color Doppler Ultrasonography
Color Doppler imaging has also been investigated as a technique to measure the blood velocity in the retinal and choroidal arteries. This technique delivers ultrasound in pulsed Doppler mode with a transducer set on closed eyelids. The examination takes 30 to 40 minutes, and is most effective for the mean velocity of large ophthalmic vessels such as the ophthalmic artery, the central retinal artery, and the short posterior ciliary arteries. However, total blood flow cannot be determined with this technique, and imaging is highly dependent on probe placement.

Doppler Fourier Domain OCT
Doppler Fourier domain OCT is a noncontact imaging technique that detects the intensity of the light scattered back from erythrocytes as they move in the vessels of the ocular tissue. This induces a frequency shift that represents the velocity of the blood in the ocular tissue.

Laser Doppler Velocimetry
Laser Doppler velocimetry compares the frequency of reflected laser light from a moving particle to stationary tissue.

Confocal Scanning Laser Doppler Flowmetry
Confocal scanning laser Doppler flowmetry combines laser Doppler flowmetry with confocal scanning laser tomography. Infrared laser light is used to scan the retina, and the frequency and amplitude of Doppler shifts are determined from the reflected light. Determinations of blood velocity and blood volume are used to compute the total blood flow and create a physical map of retinal flow values.

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Policy:

Effective for dates of service on or after March 26, 2011 and prior to February 26, 2018:

Blue Advantage will treat **analysis of the optic nerve (retinal nerve fiber layer) in the diagnosis and evaluation of patients with glaucoma or glaucoma suspects** as a covered benefit when using scanning laser ophthalmoscopy, scanning laser polarimetry, and optical coherence tomography. (This test is usually not considered medically necessary more than one per 12 months.)

Blue Advantage will treat the **measurement of ocular blood flow, pulsatile ocular blood flow or blood flow velocity with Doppler ultrasonography** as a **non-covered benefit** and as **investigational** in the diagnosis and follow-up of patients with glaucoma.

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

The most recent literature search was performed through January 25, 2017. Following is a summary of the key literature to date.

The use of various techniques of retinal nerve fiber layer (RNFL) analysis (confocal scanning laser ophthalmoscopy [CSLO], scanning laser polarimetry [SLP], and optical coherence tomography [OCT]) for the diagnosis and management of glaucoma was addressed by TEC Assessments in 2001 and 2003. The 2003 Assessment offered the following observations:

Imaging of the Optic Nerve and Retinal Nerve Fiber Layer

Clinical Context and Test Purpose

The diagnosis and monitoring of optic nerve damage are essential for evaluating the progression of glaucoma and determining appropriate treatment. The question addressed in this evidence review is: Do imaging techniques for the optic nerve and RNFL improve diagnosis and monitoring.

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population is patients with glaucoma or who are suspected to have glaucoma being evaluated for diagnosis and monitoring of glaucoma progression.

Interventions
The technologies of interest for assessment of the optic nerve and RNFL include CLSO, SLP, and OCT. They are considered add-on tests to the standard clinical evaluation.

Comparators
There is no single criterion standard for the diagnosis of glaucoma. This diagnosis is made from a combination of visual field testing, intraocular pressure (IOP) measurement, and optic nerve and RNFL assessment by an ophthalmologist.

Outcomes
Relevant outcomes include the clarity of the images and how reliable the test is at evaluating the optic nerve and nerve fiber layer changes. Demonstration that the information can be used to improve patient outcomes is essential for determining the utility of an imaging technology. Although direct evidence on the impact of the imaging technology from controlled trials would be preferred, in most cases, a chain of evidence needs to be constructed to determine whether there is a tight linkage between the technology and improved health outcomes. The outcomes relevant to this evidence review are IOP, loss of vision, and changes in IOP-lowering medications used to treat glaucoma.

Timing
For patients with manifest glaucoma, the relevant period of follow-up is the immediate diagnosis of glaucoma. For patients with suspected glaucoma, longer term follow-up would be needed to detect changes in visual field or RNFL. Clinical utility might be demonstrated by a change in the management and reduction in glaucoma progression across follow-up.

Setting
Patients may be self-referred, referred by optometrists, or referred by a general ophthalmologist to a glaucoma specialist. These procedures can be performed in an ophthalmologist's office.

Diagnostic Accuracy
In 2012, the Agency for Healthcare Research and Quality published a comparative effectiveness review of screening for glaucoma. Included in the review were randomized controlled trials, quasirandomized controlled trials, observational study designs including cohort and case control studies, and case series with more than 100 participants. The interventions evaluated included ophthalmoscopy, fundus photography/computerized imaging (OCT, retinal tomography, SLP), pachymetry (corneal thickness measurement), perimetry, and tonometry. No evidence was identified that addressed whether an open angle glaucoma screening program led to a reduction in intraocular pressure (IOP), less visual impairment, reduction in visual field loss or optic nerve damage, or improvement in patient-reported outcomes. No evidence was identified regarding harms of a screening program. Over 100 studies were identified on the diagnostic accuracy of screening tests. However, due to the lack of a definitive diagnostic reference standard and heterogeneity, synthesis of results could not be completed.

A 2015 Cochrane review assessed diagnostic accuracy of optic nerve head and fiber layer imaging for glaucoma. Included were 103 case-control studies and 3 cohort studies (total of 16,260 eyes) that evaluated the accuracy of recent commercial versions of OCT (spectral

domain), HRT III, or SLP (GDx VCC or ECC) for diagnosing glaucoma. The population was patients who had been referred for suspected glaucoma, typically due to an elevated IOP, abnormal optic disc appearance, and/or an abnormal visual field identified in primary eye care. Population-based screening studies were excluded. Most comparisons were for different parameters within the 3 tests, and the parameters with the highest diagnostic odds ratio were compared. The 3 tests (OCT, HRT, SLP) had similar diagnostic accuracy. With specificity close to 0.95, sensitivity was 0.70. Thus, if 200 out of 1000 people referred by primary eye care, the tests would miss about 60 cases out of the 200, and incorrectly refer 50 of 800 patients without glaucoma. Because a case-control design was used in nearly all of the studies, concerns were raised about the potential for bias, overestimating accuracy, and applicability of the findings to clinical practice.

Effect on Health Outcomes

A technology assessment issued by the AAO in 2007 reviewed 159 studies published between January 2003 and February 2006, evaluating optic nerve head and RNFL devices used to diagnose or detect glaucoma progression. The assessment concluded, "The information obtained from imaging devices is useful in clinical practice when analyzed in conjunction with other relevant parameters that define glaucoma diagnosis and progression." Management changes for patients diagnosed with glaucoma may include the use of IOP lowering medications, monitoring for glaucoma progression, and potentially surgery to slow the progression of glaucoma.

Section Summary: Imaging of the Optic Nerve and Retinal Nerve Fiber Layer

Numerous articles describe findings from patients with glaucoma and glaucoma suspect using CSLO, SLP, and OCT. Although the specificity in these studies was high, it is likely that accuracy was overestimated due to the case-control designs used in the studies. The literature and specialty society guidelines have indicated that optic nerve analysis using CSLO, SLP, and OCT are established add-on tests that can be used with other established tests to improve the diagnosis and direct management of patients with glaucoma and those who are glaucoma suspects. Management changes for patients diagnosed with glaucoma may include the use of IOP-lowering medications, monitoring for glaucoma progression, and potentially surgery.

Techniques to Evaluate Ocular Blood Flow

Clinical Context and Test Purpose

The diagnosis and monitoring of optic nerve damage are essential for evaluating the progression of glaucoma and determining appropriate treatment. Measurement of ocular blood flow has been studied as a technique to evaluate patients with glaucoma or suspected glaucoma.

The question addressed in this evidence review is: Do the techniques described below for assessing ocular blood flow improve diagnosis and monitoring? One potential application is the early detection of normal tension glaucoma.

The following PICOTS were used to select literature to inform this review.

Patients
The relevant patient population is patients with glaucoma or suspected glaucoma who are being evaluated for diagnosis and monitoring of glaucoma progression. These tests may have particular utility for normal tension glaucoma (NTG).

Interventions
The technologies of interest for assessment of the optic nerve and optic nerve layer include color Doppler imaging (CDI), Doppler Fourier domain OCT, laser Doppler velocimetry, confocal scanning laser Doppler flowmetry, and retinal functional imager.

Comparators
There is no other criterion standard for the diagnosis of glaucoma. The diagnosis of glaucoma is made from a combination of visual field testing, IOP measurements, and optic nerve and RNFL assessment.

Outcomes
Relevant outcomes include the reliability of the test for evaluating ocular blood flow and the association between ocular blood flow parameters and glaucoma progression. Demonstration that the information can be used to improve patient outcomes is essential to determining the utility of a diagnostic technology. Although direct evidence on the impact of the imaging technology from controlled trials would be preferred, in most cases, a chain of evidence is needed to determine whether there is a tight linkage between the technology and improved health outcomes. The outcomes relevant to this evidence review are IOP, loss of vision, and changes in IOP-lowering medications used to treat glaucoma.

Timing
Longitudinal studies are needed to evaluate whether changes in blood flow are predictive of future visual loss.

Setting
Many of these procedures are performed with specialized equipment. While reports of use are longstanding (e.g., Bafa et al [2001]), investigators have commented on the complexity of these parameters9 and have noted that many of these technologies are not commonly used in clinical settings.

Technical Performance
We did not identify studies reporting on the technical performance of ocular blood flow evaluation techniques.

Diagnostic Accuracy
In 2016, Abegao Pinto et al reported the results from the prospective, cross-sectional, case-control, Leuven Eye Study, which included 614 individuals who had primary open-angle glaucoma (POAG; n=214), NTG (n=192), ocular hypertension (n=27), suspected glaucoma (n=41), or healthy controls (n=140). The objective of this study was to identify the blood flow parameters most highly associated with glaucoma using technology commonly available in an ophthalmologist's office or hospital radiology department. Assessment of ocular blood flow

included CDI, retinal oximetry, dynamic contour tonometry, and OCT enhanced-depth imaging of the choroid. The glaucoma groups had higher perfusion pressure compared to controls ($p<0.001$), with lower velocities in both central retinal vessels ($p<0.05$), and choroidal thickness asymmetries. The NTG group, but not the POAG group, had higher retinal venous saturation compared to healthy controls ($p=0.005$). There were no significant differences in macular scans. The diagnostic accuracy or effects on health outcomes were not addressed.

A 2011 study reported on CDI in normal and glaucomatous eyes. Using data from other studies, a weighted mean was derived for the peak systolic velocity, end-diastolic velocity, and Pourcelot Resistive Index in the ophthalmic, central retinal, and posterior ciliary arteries. Data from 3061 glaucoma patients and 1072 controls were included. Mean values for glaucomatous eyes were within 1 SD of the values for controls for most CDI parameters. Methodologic differences created interstudy variance in CDI values, complicating the construction of a normative database and limiting its utility. The authors noted that because the mean values for glaucomatous and normal eyes had overlapping ranges, caution should be used when classifying glaucoma status based on a single CDI measurement.

Effect on Health Outcomes

The clinical utility of techniques to evaluate ocular blood flow is similar to the other imaging techniques. The objective is to improve the diagnosis and direct management of patients with glaucoma or suspected glaucoma. Measures of ocular blood flow may have particular utility for the diagnosis and monitoring of NTG.

The only longitudinal study identified was a 2012 study by Calvo et al on the predictive value of retrobulbar blood flow velocities in a prospective series of 262 who were glaucoma suspect. At baseline, all participants had normal visual field, increased IOP (mean, 23.56 mm Hg), and glaucomatous optic disc appearance. Blood flow velocities were measured by CDI during the baseline examination, and conversion to glaucoma was assessed at least yearly according to changes observed with CLSO. During the 48-month follow-up, 36 (13.7%) patients developed glaucoma and 226 did not. Twenty (55.5%) of those who developed glaucoma also showed visual field worsening (moderate agreement, $\kappa=0.38$). Mean end-diastolic and mean velocity in the ophthalmic artery were significantly reduced at baseline in subjects who developed glaucoma compared with subjects who did not.

Section Summary: Evaluation of Ocular Blood Flow

Techniques to measure ocular blood flow or ocular blood velocity are being evaluated for the diagnosis of glaucoma. Data for these techniques remain limited. Current literature focuses on which technologies are most reliably associated with glaucoma. Literature reviews have not identified studies whether these technologies improve the diagnosis of glaucoma or whether measuring ocular blood flow in patients with glaucoma or suspected glaucoma improves health outcomes.

Summary of Evidence

For individuals who have glaucoma or glaucoma suspect who receive digital imaging of the optic nerve and retinal nerve fiber layer, the evidence includes studies on diagnostic accuracy. Relevant outcomes include test accuracy, other test performance measures, symptoms, morbid

events, and medication use. Confocal scanning laser ophthalmoscopy (CSLO), scanning laser polarimetry (SLP), and optical coherence tomography (OCT) can be used to evaluate the optic nerve and retinal nerve fiber layer in patients with glaucoma and glaucoma suspect. Numerous articles describe findings from patients with known and suspected glaucoma using CSLO, SLP, and OCT. These studies report that abnormalities may be detected on these examinations before functional changes are noted. The literature and specialty society guidelines indicate that optic nerve analysis using CSLO, SLP, and OCT has become an additional test that may be used in the diagnosis and therapeutic decisions about glaucoma care, including use of topical medication, monitoring and surgery to lower intraocular pressure. Thus, accurate diagnosis of glaucoma would be expected to reduce the progression of glaucoma. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have glaucoma or glaucoma suspect who receive evaluation of ocular blood flow, the evidence includes association studies. Relevant outcomes include test accuracy, other test performance measures, symptoms, morbid events, and medication use. Techniques to measure ocular blood flow or ocular blood velocity are used in evaluating various glaucoma treatments. The data for these techniques remain limited. Literature reviews have not identified studies on the technical performance of these tests (e.g., test-retest reliability), whether these technologies improve diagnostic accuracy, or whether they improve health outcomes in patients with glaucoma. Some have suggested that these parameters may inform understanding of the variability in visual field changes in patients with glaucoma, i.e., they may help explain why patients with similar levels of intraocular pressure develop markedly different visual impairments. However, data on use of ocular blood flow, pulsatile ocular blood flow, and/or blood flow velocity are currently lacking. The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements

American Academy of Ophthalmology

The American Academy of Ophthalmology 2015 primary open angle glaucoma (POAG) suspect and POAG preferred practice patterns recommend evaluating the optic nerve and retinal nerve fiber layer.

The documents state that “Although they are distinctly different methodologies, stereoscopic disc photographs and computerized images of the nerve are complementary with regard to the information they provide the clinician who must manage the patient”. The guidelines describe 3 types of computer-based imaging devices that are currently available for glaucoma and are similar in their ability to distinguish glaucoma from controls: CSLO, OCT, and SLP and state that “computer-based digital imaging of the ONH and RNFL is routinely used to provide quantitative information to supplement the clinical examination of the optic nerve…One rationale for using computerized imaging is to distinguish glaucomatous damage from eyes without glaucoma when thinning of the RNFL is measured, thereby facilitating earlier diagnosis and detection of optic nerve damage”. In addition, AAOS concludes that as device technology evolves the performance of diagnostic imaging devices is expected to improve.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Key Words:

Doppler ultrasonography, glaucoma, GDx, Glaucoma scope, Heidelberg Retinal Tomograph, Nerve Fiber Analyzer, Ophthalmologic Evaluation, Glaucoma, Optic Nerve Head Analyzer, Optical Coherence Tomography, Pulsatile Ocular Blood Flow, Retinal Nerve Fiber Layer Analysis, Scanning Laser Ophthalmoscope, Scanning Laser Polarimetry, TopSS Device

Approved by Governing Bodies:

A number of CSLO, SLP, and OCT devices have been cleared by the FDA through the 510(k) process for imaging the posterior eye segment. For example, the RTVue® XR OCT Avanti™ is an OCT system indicated for the in vivo imaging and measurement of the retina, retinal nerve fiber layer, and optic disc as a tool and aid in the diagnosis and management of retinal diseases by a clinician. The RTVue XR OCT Avanti with Normative Database is a quantitative tool for the comparison of retina, retinal nerve fiber layer, and optic disk measurements in the human eye to a database of known normal subjects. It is intended for use as a diagnostic device to aid in the detection and management of ocular diseases. In 2016, the RTVue XR OCT with Avanti with AngioVue™ Software was cleared by the FDA through the 510(k) process (K153080) as an aid in the visualization of vascular structures of the retina and choroid.

In 2012, The iExaminer™ (Welch Allyn) received marketing clearance from the U.S. Food and Drug Administration (FDA). The iExaminer consists of a hardware adapter and associated software (iPhone® App) to capture, store, send and retrieve images from the Welch Allyn PanOptic™ Ophthalmoscope using an iPhone®.

Benefit Application:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

Current Coding:

CPT Codes:

92133	Scanning computerized ophthalmic diagnostic imaging, posterior segment; with interpretation and report, unilateral or bilateral; optic nerve**. (Effective January 1, 2011)**
0198T	Measurement of ocular blood flow by repetitive pressure sampling, with interpretation and report

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Medical Policy Group, February 2015
Medical Policy Group, September 2016
Medical Policy Group, April 2017
Medical Policy Group, December 2017

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.