

Evidence Based Guideline

Diabetic Retinopathy Telescreening

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Description of Procedure or Service

Diabetes is a disease that affects the body's ability to produce or respond to insulin, a hormone that allows blood glucose (blood sugar) to enter the cells of the body and be used for energy. Diabetes falls into two main categories: type 1, which usually occurs during childhood or adolescence, and type 2, the most common form of the disease, which usually occurs after age 45, but is increasingly being diagnosed in children and adolescents. The major cause of blindness in people with diabetes is diabetic retinopathy. Diabetic retinopathy is a term used for all the abnormalities of the small blood vessels of the retina caused by diabetes. Diabetic retinopathy is estimated to be the most frequent cause of new cases of blindness among adults aged 20 to 74 years. All individuals with type I or type II diabetes are at risk for diabetic retinopathy.

Diabetic retinopathy progresses, at varying rates, from asymptomatic, mild nonproliferative abnormalities to proliferative diabetic retinopathy (PDR) with new blood vessel growth on the retina and posterior surface of the vitreous. The two most serious complications for vision are diabetic macular edema and proliferative diabetic retinopathy. At its earliest stage (nonproliferative retinopathy), the retina develops microaneurysms, intraretinal hemorrhages, and focal areas of retinal ischemia. With disruption of the blood-retinal barrier, macular retinal vessels become permeable, leading to exudation of serous fluid and lipids into the macula (macular edema). As the disease progresses blood vessels that provide nourishment to the retina are blocked, triggering the growth of new and fragile blood vessels (proliferative retinopathy). The new blood vessels that occur in PDR may fibrose and contract, resulting in tractional retinal detachments with significant vision loss. Severe vision loss with proliferative retinopathy arises from vitreous hemorrhage. Moderate vision loss can also arise from macular edema (fluid accumulating in the center of the macula) during the proliferative or nonproliferative stages of the disease. Although proliferative disease is the main blinding complication of diabetic retinopathy, macular edema is more frequent and is the leading cause of moderate vision loss in people with diabetes.

Because diabetic retinopathy has few visual or ocular symptoms in its early stages, many people do not seek annual retinal examinations as recommended. The value of screening for diabetic retinopathy is well established. Laser photocoagulation is effective at retarding the progression of the changes but uncommonly is able to restore lost vision. Because treatments are aimed at preventing vision loss, it is important to detect disease and begin treatment early in the process.

An annual eye exam consisting of dilated indirect ophthalmoscopy coupled with biomicroscopy or stereoscopic fundus photography has been considered the screening technique of choice. Because these techniques require a dedicated visit to a competent eye care professional, typically an ophthalmologist, there is underutilization of this screening recommendation by at risk members. The under-use rate is estimated to be 30% or higher, which has resulted in the exploration of retinal imaging, using film or digital photography, as an alternative to direct ophthalmic examination of the retina. This type of retinopathy screening and risk assessment is proposed as an alternative to conventional dilated fundus examination, particularly in diabetic individuals who are not compliant with the recommended periodic retinopathy screenings.

Diabetic Retinopathy Telescreening

Diabetic retinopathy telescreening is a diagnostic test, which uses a digital fundus camera and the internet to transmit digital images of the retina to another location for evaluation by trained readers. Screening can be performed in the medical doctor's office rather than having to make an additional appointment. Results are sent back to the medical doctor's office with recommendations for follow-up with an eye specialist if necessary.

Several digital camera and transmission systems have received marketing clearance through the U.S. Food and Drug Administration's 510(k) process and are currently available:

- The Diabetic Retinopathy Digital Disease Detection and Tracking (3DT) System (Inoveon Corp., Oklahoma City, OK)
- DigiScope® (EyeTel Corp., Columbia, MD) in conjunction with the Wilmer Eye Institute at Johns Hopkins Medicine
- The Fundus AutoImager™ (Visual Pathways Inc., Prescott, AZ)
- ImageNet™ Digital Imaging System (Topcon Medical Systems Inc., Paramus, NJ)
- Zeiss FF450 Fundus Camera and the VISUPAC® Digital Imaging System (Carl Zeiss Meditech Inc., Dublin, CA)

NOTE: Also refer to separate policy "Telemedicine" regarding legislation.

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

Evidence Based Guideline for Diabetic Retinopathy Telescreening

Diabetic Retinopathy Telescreening with digital imaging and manual grading of images may be appropriate as a screening technique for the detection of diabetic retinopathy for those patients diagnosed with type 1 or type II diabetes at a frequency according to the American Diabetes Association's retinopathy screening recommendations. The images should be of sufficient resolution for judgement regarding the presence or absence of pathology.

The current diabetic retinopathy screening recommendation of the American Diabetes Association includes:

Patient Group	First Examination Recommendation	Minimum Follow-Up Recommendation
Type 1 diabetes	Within 5 years after diagnosis of diabetes in adults and children >10 years	Annually*
Type 2 diabetes	At time of or shortly after the diagnosis of diabetes	Annually*
Pregnancy in pre-existing diabetes	Prior to conception and early in the first trimester	Throughout pregnancy and for 1 year postpartum.

*Less frequent exams (every 2-3 years) may be considered following one or more normal eye exams.

*More frequent retinal examinations may be required if retinopathy is progressing

Medical Evidence regarding Diabetic Retinopathy Telescreening indicates it is not recommended in the following situations

When the above criteria are not met.

Retinal telescreening is not recommended for all other indications, including the monitoring and management of disease in individuals diagnosed with diabetic retinopathy.

Diabetic Retinopathy Telecreening

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.

Billing/Coding/Physician Documentation Information

This guideline 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 codes: n/a

Scientific Background and Reference Sources

BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.13, 4/1/05

ECRI Hotline Response - Tele-screening for Diabetic Retinopathy (06/4/2005) retrieved on 6/4/05 from http://www.ta.ecri.org/Hotline/Prod/summary/detail.aspx?doc_id=8835&q=Diabetic+retinopathy&nm

National Coordinating Centre for Health Technology Assessment (NCCHTA). Value of digital imaging in diabetic retinopathy. Technology assessment report. [11/2003]. retrieved on 8/1/05 from <http://www.ncchta.org/execsumm/summ730.htm>

American Academy of Ophthalmology Retina Panel, Preferred Practice Patterns Committee. Diabetic retinopathy. [2003]. Retrieved on 5/19/2005 from <http://www.aao.org/education/library/ppp/upload/Diabetic-Retinopathy.pdf>

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American Diabetes Association. Diabetes and Retinopathy (Eye Complications). Retrieved on 5/19/2005 from http://www.diabetes.org/utills/printthispage.jsp?PageID=STATISTICS_233192

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Specialty Matched Consultant Advisory Panel review - 1/25/07

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BCBSA Medical Policy Reference Manual [Electronic Version]. 9.03.13, 6/9/2011

Diabetic Retinopathy Telescreening

Specialty Matched Consultant Advisory Panel review- 6/2011

Policy Implementation/Update Information

- 9/15/05 Original policy issued.
- 8/28/06 Medical Policy changed to Evidence Based Guideline.
- 2/26/07 Specialty Matched Consultant Advisory Panel review. No changes to guidelines. Reference sources added. (pmo)
- 4/27/09 No changes to guidelines. Reference sources added. (pmo)
- 6/22/10 Policy Guideline Number(s) removed (amw)
- 7/19/11 Specialty Matched Consultant Advisory Panel review 6/29/2011. Added information to Background section . Under “When Recommended” changed first examination recommendation to 5 years from 3-5 years. Under “When Not Recommended” added “Retinal telescreening is not recommended for all other indications, including the monitoring and management of disease in individuals diagnosed with diabetic retinopathy.” Reference added. (lpr)
- 1/1/2012 Removed HCPCS code S0625 from Billing/Coding section for 2012 code update. (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.