Clinical Policy Bulletin: Fundus Photography

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Number: 0539

Policy

I. Aetna considers fundus photography medically necessary for any of the following indications:
   - Abnormal electro-oculogram (EOG)
   - Abnormal oculomotor studies
   - Abnormal retinal function studies
   - Abnormal visually evoked potential
   - Benign neoplasm of choroid, cranial nerves, eyeball, or retina
   - Carcinoma in situ of eye
   - Chorioretinal inflammation, scars, and other disorders of choroid
   - Color vision deficiencies
   - Congenital anomalies of posterior segment of eye
   - Congenital rubella
   - Diabetes mellitus (diabetic retinopathy)
   - Disorders of aromatic amino-acid metabolism affecting the fundus
   - Disorders of globe
   - Disorders of optic nerve and visual pathways
   - Endophthalmitis
   - Glaucoma and glaucoma suspects
   - Hamartoses involving the eye
   - Histoplasmosis
   - Human immunodeficiency virus (HIV) disease
   - Lupus erythematosus
   - Malignant neoplasm of eye
   - Monitoring of members for toxicity by anti-malarials such as chloroquine (Aralen), hydroxychloroquine (Plaquinil) and drugs acting on other blood protozoa
   - Multiple sclerosis
   - Penetration of eyeball with magnetic or non-magnetic foreign body
   - Peters anomaly
   - Pseudotumor cerebri
Rheumatoid arthritis and other inflammatory polyarthropathies
Sickle-cell anemia
Syphilitic retrobulbar neuritis
Systemic lupus erythematosus
Toxoplasmosis
Tuberous sclerosis
Other retinal disorders where the results of fundus photography will change the treatment of the member.

II. Aetna considers fundus photography experimental and investigational for screening and for all other indications (e.g., toxocariasis) because there is insufficient evidence that this test affects management for these other indications such that clinical outcomes are improved.

III. Aetna considers computer-aided animation and analysis of time series retinal images (e.g., MatchedFlicker) experimental and investigational for monitoring disease progression and for all other indications.

Background

Fundus photography involves the use of a retinal camera to photograph the regions of the vitreous, retina, choroid, and optic nerve. The resultant images may be either photographic or digital and become part of the member's medical record. Fundus photographs are usually taken through a dilated pupil in order to enhance the quality of the photographic record, unless unnecessary for image acquisition or clinically contraindicated.

Fundus photography is indicated to document abnormalities related to disease processes affecting the eye or to follow the progress of the disease, and is considered medically necessary for such conditions such as macular degeneration, retinal neoplasms, choroid disturbances and diabetic retinopathy, or to identify glaucoma, multiple sclerosis, and other central nervous system abnormalities.

Fundus photographs are only considered medically necessary where the results may influence the management of the patient. In general, fundus photography is performed to evaluate abnormalities in the fundus, follow the progress of a disease, plan the treatment for a disease, and assess the therapeutic effect of recent surgery (e.g., photocoagulation). Fundus photographs are not medically necessary simply to document the existence of a condition. However, photographs may be medically necessary to establish a baseline to judge later whether a disease is progressive.

Sequential series of photographs are considered medically necessary only if they document a clinically relevant condition that is subject to change in extent, appearance or size, and where such change would directly affect the management. Repeat fundus photography may be medically necessary when an examination of the fundus reveals that the disease of condition of the fundus has progressed, such that prior fundus photographs no longer depict the pathology at the present time. Repeated fundus photographs of the same disease or condition, without any meaningful change, are not considered medically necessary. In
addition to disease progression, repeat fundus photographs may be necessary if there is a new disease affecting the fundus, or for planning for additional surgical treatment. Routine images to embellish the record, but a succession of which would not influence treatment, are not considered medically necessary. When performed concurrently, the medical necessity of fundus photography and scanning computerized diagnostic imaging of the posterior segment should be documented in the medical record.

Documentation in the patient's medical record should include a current, pertinent history and physical examination, and progress notes describing and supporting the covered indication for fundus photography, and pertinent prior diagnostic testing and completed report(s), including, when appropriate, previous fundus photographs. Fundus photographs should be properly labeled as to which eye they represent, the date they were taken, and the date they were reviewed. The medical records should document the findings of the fundus photography, including a description of changes from prior fundus photographs (if any), and an interpretation of those findings, and the implications of the photographic evidence, including whether any changes in the treatment plan will be instituted as a result of the photographs. Fundus photographs without an interpretation are considered not medically necessary. All documentation must be maintained in the member's medical record. The record must be legible and include appropriate patient identification information (e.g., complete name, dates of service(s)), as well as the physician or non-physician practitioner responsible for and providing the care of the patient.

When indicated for glaucoma, the interpretation of the fundus photographs should include a report of the vertical and horizontal cup/disc ratio based upon vessel pattern and/or coloration, the presence or absence of diffuse or focal pallor, the presence or absence of asymmetry, and the presence or absence of progression regarding any of the above parameters. If the fundus photographs include red-free images, commentary on the status of the retinal nerve fiber layer should accompany the images.

The American Academy of Ophthalmology (Marmor et al, 2011) does not recommend the use of fundus photography for screening of chloroquine and hydroxychloroquine retinopathy. It is not sensitive enough for screening because recognizable bull's-eye retinopathy signifies relatively advanced chloroquine or hydroxychloroquine toxicity.

Salcone et al (2010) stated that retinopathy of prematurity (ROP) is a vision-threatening vaso-proliferative condition of premature infants worldwide. As survival rates of younger and smaller infants improve, more babies are at risk for the development of ROP and blindness. Meanwhile, fewer ophthalmologists are available for bedside indirect ophthalmoscopy screening examinations. Remote digital imaging is a promising method with which to identify those infants with treatment-requiring or referral-warranted ROP quickly and accurately, and may help circumvent issues regarding the limited availability of ROP screening providers. The Retcam imaging system is the most common system for fundus photography, with which high-quality photographs can be obtained by trained non-physician personnel and evaluated by a remote expert. It has been shown to have high reliability and accuracy in detecting referral-warranted ROP, particularly at
later post-menstrual ages. Additionally, the method is generally well-received by parents and is highly cost-effective.

An UpToDate review on “Retinopathy of prematurity” (Paysse, 2012) does not mention the use of digital imaging or fundus photography. It states that “screening evaluation consists of a comprehensive eye examination performed by an ophthalmologist with expertise in neonatal disorders”.

An UpToDate review on “Toxocariasis: visceral and ocular larva migrans” (Weller and Leder, 2013) does NOT mention the use of fundus imaging/photography.

Computer-aided animation and analysis of time series retinal images (e.g., MatchedFlicker) has been proposed for use in monitoring glaucoma and other retinal diseases. According to the manufacturer of the MatchedFlicker (EyeIC, Wayne, PA), the technology automatically aligns and registers two images of the same object taken at different points in time, and generates a superimposed view that is alternated back and forth (i.e., a flicker). In so doing, areas of change present between the two images appear as motion.

MatchedFlicker has been cleared by the FDA based upon 510(k) premarket notification as a class II device.

The manufacturer states that MatchedFlicker helps to improve both the speed and accuracy of image diagnostic evaluations, resulting in more efficient workflow, more accurate patient diagnosis, and ease of documentation (EyeIC, 2014).

Studies have compared computer-aided animation and analysis of time series retinal images to side-by-side comparison of photographic images in a number of retinal diseases, including detection of glaucoma and screening of premature infant eyes for retinopathy of prematurity. Clinical utility studies are ongoing.

CPT Codes / HCPCS Codes / ICD-9 Codes

CPT codes covered if selection criteria are met:

92250 Fundus photography with interpretation and report

ICD-9 codes covered if selection criteria are met:

042 Human immunodeficiency virus (HIV) disease
084.0 - 084.9 Malaria
094.85 Syphilitic retrobulbar neuritis
115.02 Infection by Histoplasma capsulatum, retinitis
115.12 Infection by Histoplasma duboisi, retinitis
115.92 Histoplasmosis, unspecified, retinitis
130.1 Conjunctivitis due to toxoplasmosis
<table>
<thead>
<tr>
<th>Code</th>
<th>Condition</th>
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<tbody>
<tr>
<td>130.2</td>
<td>Chorioretinitis due to toxoplasmosis</td>
</tr>
<tr>
<td>190.0 - 190.9</td>
<td>Malignant neoplasm of eye</td>
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<tr>
<td>198.4</td>
<td>Secondary malignant neoplasm of other parts of nervous system</td>
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<tr>
<td>224.0</td>
<td>Benign neoplasm of eyeball, except conjunctiva, cornea, retina, and choroid</td>
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<tr>
<td>224.5</td>
<td>Benign neoplasm of retina</td>
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<tr>
<td>224.6</td>
<td>Benign neoplasm of choroid</td>
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<tr>
<td>225.1</td>
<td>Benign neoplasm of cranial nerves</td>
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<tr>
<td>234.0</td>
<td>Carcinoma in situ of eye</td>
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<tr>
<td>239.81</td>
<td>Neoplasm of unspecified nature of retina and choroid</td>
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<tr>
<td>249.00 - 250.93</td>
<td>Diabetes mellitus</td>
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<tr>
<td>270.2</td>
<td>Other disturbances of aromatic amino-acid metabolism</td>
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<td>282.60 - 282.69</td>
<td>Sickle-cell disease</td>
</tr>
<tr>
<td>340</td>
<td>Multiple sclerosis</td>
</tr>
<tr>
<td>348.2</td>
<td>Benign intracranial hypertension [pseudotumor cerebri]</td>
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<td>360.00 - 360.89</td>
<td>Disorders of the globe</td>
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<td>361.00 - 361.9</td>
<td>Retinal detachment and defects</td>
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<td>362.01 - 362.9</td>
<td>Other retinal disorders</td>
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<td>363.00 - 363.9</td>
<td>Chorioretinal inflammations, scars, and other disorders of choroid</td>
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<td>Glaucoma</td>
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<td>368.51 - 368.59</td>
<td>Color vision deficiencies</td>
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<td>377.00 - 377.9</td>
<td>Disorders of optic nerve and visual pathways</td>
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<td>379.21 - 379.29</td>
<td>Disorders of vitreous body</td>
</tr>
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379.32  Subluxation of lens
379.34  Posterior dislocation of lens
695.4   Lupus erythematosus
710.0   Systemic lupus erythematosus
714.0 - 714.9 Rheumatoid arthritis and other inflammatory polyarthropathies
743.44  Specified congenital anomaly of anterior chamber, chamber angle, and related structures [Peterâ€™s anomaly]
743.51 - 743.59 Congenital anomalies of posterior segment
759.5   Tuberous sclerosis
759.6   Other hamartoses, not elsewhere classified
759.81 - 759.89 Other specified anomalies
771.0   Congenital rubella
794.11  Abnormal retinal function studies
794.12  Abnormal electro-oculogram (EOG)
794.13  Abnormal visually evoked potential
794.14  Abnormal oculomotor studies
871.5   Penetration of eyeball with magnetic foreign body
871.6   Penetration of eyeball with (nonmagnetic) foreign body
961.4   Poisoning by antimalarials and drugs acting on other blood protozoa [hydroxychloroquine toxicity]
961.5   Poisoning by other antiprotozoal drugs

ICD-9 codes not covered for indications listed in the CPB: (not all inclusive):
128.0   Toxocariasis

The above policy is based on the following references:


24. Paysse EA. Retinopathy of prematurity. UpToDate [online serial]. Waltham, MA: UpToDate; reviewed March 2012.