

Vision Care	Pg
Service Category Definition – Part A	1
FY18 Performance Measures Report	4
FY18 Vision Care Chart Review, RWGA - December 2018	9
HIV Associated Complications of the Eye – Verywell health, December 2019	17
Sight Problems Factsheet –aidsmap, November 2017	19

FY 2020 Houston EMA Ryan White Part A/MAI Service Definition Vision Care	
HRSA Service Category Title: RWGA Only	Ambulatory/Outpatient Medical Care
Local Service Category Title:	Vision Care
Budget Type: RWGA Only	Fee for Service
Budget Requirements or Restrictions: RWGA Only	Corrective lenses are not allowable under this category. Corrective lenses may be provided under Health Insurance Assistance and/or Emergency Financial Assistance as applicable/available.
HRSA Service Category Definition: RWGA Only	Outpatient/Ambulatory medical care is the provision of professional diagnostic and therapeutic services rendered by a physician, physician's assistant, clinical nurse specialist, or nurse practitioner in an outpatient setting. Settings include clinics, medical offices, and mobile vans where clients generally do not stay overnight. Emergency room services are not outpatient settings. Services includes diagnostic testing, early intervention and risk assessment, preventive care and screening, practitioner examination, medical history taking, diagnosis and treatment of common physical and mental conditions, prescribing and managing medication therapy, education and counseling on health issues, well-baby care, continuing care and management of chronic conditions, and referral to and provision of specialty care (includes all medical subspecialties). <i>Primary medical care</i> for the treatment of HIV infection includes the provision of care that is consistent with the Public Health Service's guidelines. Such care must include access to antiretroviral and other drug therapies, including prophylaxis and treatment of opportunistic infections and combination antiretroviral therapies. HRSA policy notice 10-02 states funds awarded under Part A or Part B of the Ryan White CARE Act (Program) may be used for optometric or ophthalmic services under Primary Medical Care. Funds may also be used to purchase corrective lenses for conditions related to HIV infection, through either the Health Insurance Premium Assistance or Emergency Financial Assistance service categories as applicable.
Local Service Category Definition:	Primary Care Office/Clinic Vision Care is defined as a comprehensive examination by a qualified Optometrist or Ophthalmologist, including Eligibility Screening as necessary. A visit with a credentialed Ophthalmic Medical Assistant for any of the following is an allowable visit: • Routine and preliminary tests including Cover tests, Ishihara Color Test, NPC (Near Point of Conversion), Vision Acuity Testing, Lensometry. • Visual field testing • Glasses dispensing including fittings of glasses, visual acuity testing, measurement, segment height. • Fitting of contact lenses is not an allowable follow-up visit.

Target Population (age, gender, geographic, race, ethnicity, etc.):	HIV-infected individuals residing in the Houston EMA/HSDA.
Services to be Provided:	Services must be provided at an eye care clinic or Optometrist's office. Services must include but are not limited to external/internal eye health evaluations; refractions; dilation of the pupils; glaucoma and cataract evaluations; CMV screenings; prescriptions for eyeglasses and over the counter medications; provision of eyeglasses (contact lenses are not allowable); and referrals to other service providers (i.e. Primary Care Physicians, Ophthalmologists, etc.) for treatment of CMV, glaucoma, cataracts, etc. Agency must provide a written plan for ensuring that collaboration occurs with other providers (Primary Care Physicians, Ophthalmologists, etc.) to ensure that patients receive appropriate treatment for CMV, glaucoma, cataracts, etc.
Service Unit Definition(s): RWGA Only	One (1) unit of service = One (1) patient visit to the Optometrist, Ophthalmologist or Ophthalmic Assistant.
Financial Eligibility:	Refer to the RWPC's approved <i>Financial Eligibility for Houston EMA/HSDA Services</i> .
Client Eligibility:	HIV-infected resident of the Houston EMA/HSDA.
Agency Requirements:	Providers and system must be Medicaid/Medicare certified to ensure that Ryan White Program funds are the payer of last resort to the extent examinations and eyewear are covered by the State Medicaid program.
Staff Requirements:	Vendor must have on staff a Doctorate of Optometry licensed by the Texas Optometry Board as a Therapeutic Optometrist.
Special Requirements: RWGA Only	Vision care services must meet or exceed current U.S. Dept. of Health and Human Services (HHS) guidelines for the treatment and management of HIV disease as applicable to vision care.

FY 2021 RWPC “How to Best Meet the Need” Decision Process

Step in Process: Council		Date: 06/11/2020
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
Step in Process: Steering Committee		Date: 06/04/2020
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
Step in Process: Quality Improvement Committee		Date: 05/19/2020
Recommendations:	Approved: Y: _____ No: _____ Approved With Changes: _____	If approved with changes list changes below:
1.		
2.		
3.		
Step in Process: HTBMTN Workgroup #1		Date: 04/21/2020
Recommendations:	Financial Eligibility:	
1.		
2.		
3.		

Umair A. Shah, M.D., M.P.H.
Executive Director
2223 West Loop South
Houston, Texas 77027
Tel: (713) 439-6000
Fax: (713) 439-6080



Les Becker, M.B.A.
Deputy Director
Director of Operations
2223 West Loop South
Houston, Texas 77027
Tel: (713) 439-6000
Fax: (713) 439-6089

FY 2018 PERFORMANCE MEASURES HIGHLIGHTS
RYAN WHITE GRANT ADMINISTRATION
HARRIS COUNTY PUBLIC HEALTH (HCPH)

TABLE OF CONTENTS

Highlights from FY 2018 Performance Measures	1
Summary Reports for all Services	
Vision Care	2

HCPH is the local public health agency for the Harris County, Texas jurisdiction. It provides a wide variety of public health activities and services aimed at improving the health and well-being of the Harris County community.

Follow HCPH on Twitter [@hcphtx](https://twitter.com/hcphtx) and like us on [Facebook](https://www.facebook.com/hcphtx)

Highlights from FY 2018 Performance Measures

Measures in this report are based on the 2018/2019 Houston Ryan White Quality Management Plan, Appendix B. HIV Performance Measures.

Vision Care

- During FY 2018, 993 clients were diagnosed with HIV/AIDS related and general ocular disorders. Among 245 clients with follow-up appointments, 21% of clients had disorders that were either resolved or improved, while 59% of clients had disorders that remained the same.

Ryan White Part A
HIV Performance Measures
FY 2018 Report

Vision Care
All Providers

HIV Performance Measures	FY 2018
75% of clients with diagnosed HIV/AIDS related and general ocular disorders will resolve, improve or stay the same over time	See ocular disorder table

Clinical Chart Review Measures*	FY 2016	FY 2017
100% of vision clients will have a medical health history (initial or updated) at least once in the measurement year	100%	99%
100% of vision clients will have a vision history (initial or updated) at least once in the measurement year	100%	99%
100% of vision clients will have a comprehensive eye exam at least once in the measurement year	100%	100%

* To review the full FY 2017 chart review reports, please visit:
<http://publichealth.harriscountytexas.gov/Services-Programs/Programs/RyanWhite/Quality>

Ocular Disorder	Number of Diagnoses	Number with Follow-up	*Improved		*Resolved		*Same		*Worsened	
			#	%	#	%	#	%	#	%
Accommodation Spasm										
Acute Retinal Necrosis										
Anisocoria	13	3					3	100%		
Bacterial Retinitis										
Cataract	136	24					16	67%	8	33%
Chalazion	7	0								
Chorioretinal Scar	9	3					2	67%	1	33%
Chorioretinitis										
CMV Retinitis - Active										
CMV Retinitis - Inactive	2	1	1	100%						
Conjunctivitis	30	7	2	29%	3	43%	2	29%		
Covergence Excess										
Convergence Insufficiency										
Corneal Edema	1	0								
Corneal Erosion	1	0								
Corneal Foreign Body	2	0								
Corneal Opacity	38	0								
Corneal Ulcer										
Cotton Wool Spots										
Diabetic Retinopathy	8	3			2	67%			1	33%
Dry Eye Syndrome	374	96					95	99%	1	1%
Ecchymosis										
Esotropia										
Exotropia	5	2					2	100%		
Glaucoma	3	0								
Glaucoma Suspect	47	14	3	21%			10	71%	1	7%
Iritis	3	1			1	100%				
Kaposi Sarcoma	1	1					1	100%		
Keratitis	10	2	1	50%	1	50%				
Keratoconjunctivitis	1	1			1	100%				
Keratoconus	4	1					1	100%		
Lagophthalmos										
Macular Hole	1	0								
Meibomianitis	8	1			1	100%				
Molluscum Contagiosum										
Optic Atrophy	15	4					4	100%		
Papilledema	1	1			1	100%				

Ocular Disorder	Number of Diagnoses	Number with Follow-up	*Improved		*Resolved		*Same		*Worsened	
			#	%	#	%	#	%	#	%
Paresis of Accommodation										
Pseudophakia										
Refractive Change/Transient										
Retinal Detachment	1	0								
Retinal Hemorrhage										
Retinopathy HTN	6	1					1	100%		
Retinal Hole/Tear										
Suspicious Optic Nervehead(s)	1	0								
Toxoplasma Retinochoriochitis										
Thyroid Eye Disease										
Visual Field Defect	11	4					4	100%		
Vitreous Degeneration	6	1	1	100%						
Other	248	74	2	3%	32	43%	3	4%	37	50%
Total	993	245	10	4%	42	17%	144	59%	49	20%

Umair A. Shah, M.D., M.P.H.
Executive Director



Harris County
Public Health
Building a Healthy Community

2223 West Loop South
Houston, Texas 77027
Tel: (713) 439-6000
Fax: (713) 439-6080

Vision Care Chart Review Report FY 2018

Ryan White Part A Quality Management Program–Houston EMA

October 2019

CONTACT:

Heather Keizman, RN, MSN, WHNP-BC
Project Coordinator–Clinical Quality Improvement
Harris County Public Health & Environmental Services
Ryan White Grant Administration
2223 West Loop South, RM 431
Houston, TX 77027
832-927-7629
heather.keizman@phs.hctx.net

HCPH is the local public health agency for the Harris County, Texas jurisdiction. It provides a wide variety of public health activities and services aimed at improving the health and well-being of the Harris County community.

Follow HCPH on Twitter [@hcphtx](https://twitter.com/hcphtx) and like us on [Facebook](https://www.facebook.com/hcphtx)

Introduction

Part A funds of the Ryan White Care Act are administered in the Houston Eligible Metropolitan Area (EMA) by the Ryan White Grant Administration of Harris County Public Health. During FY 18, a comprehensive review of client vision records was conducted for services provided between 3/1/18 to 2/28/19.

The primary purpose of this annual review process is to assess Part A vision care provided to people living with HIV in the Houston EMA. Unlike primary care, there are no federal guidelines published by the U.S Department of Health and Human Services for general vision care targeting people living with HIV. Therefore, Ryan White Grant Administration has adopted general guidelines published by the American Optometric Association, as well as internal standards determined by the clinic, to measure the quality of Part A funded vision care. The Ryan White Grant Administration Project Coordinator for Clinical Quality Improvement (PC/CQI) performed the chart review.

Scope of This Report

This report provides background on the project, supplemental information on the design of the data collection tool, and presents the pertinent findings of the FY 18 vision care chart review. Also, any additional data analysis of items or information not included in this report can likely be provided after a request is submitted to Ryan White Grant Administration.

The Data Collection Tool

The data collection tool employed in the review was developed through a period of in-depth research conducted by the Ryan White Grant Administration. By researching the most recent vision practice guidelines, a listing of potential data collection items was developed. Further research provided for the editing of this list to yield what is believed to represent the most pertinent data elements for vision care in the Houston EMA. Topics covered by the data collection tool include, but are not limited to the following: completeness of the Client Intake Form (CIF), CD4 and VL measures, eye exams, and prescriptions for lenses. See Appendix A for a copy of the tool.

The Chart Review Process

All charts were reviewed by the PC/CQI, a Master's-level registered nurse experienced in identifying documentation issues and assessing adherence to published guidelines. The collected data for each site was recorded directly into a preformatted database. Once all data collection was completed, the database was queried for analysis. The data collected during this process is intended to be used for the purpose of service improvement.

The specific parameters established for the data collection process were developed from vision care guidelines and the professional experience of the reviewer on standard record documentation practices. Table 1 summarizes the various documentation criteria employed during the review.

Table 1. Data Collection Parameters	
Review Area	Documentation Criteria
Laboratory Tests	Current CD4 and Viral Load Measures
Client Intake Form (CIF)	Completeness of the CIF: includes but not limited to documentation of primary care provider, medication allergies, medical history, ocular history, and current medications
Complete Eye Exam (CEE)	Documentation of annual eye exam; completeness of eye exam form; comprehensiveness of eye exam (visual acuity, refraction test, binocular vision assessment, fundus/retina exam, and glaucoma test)
Ophthalmology Consult (DFE)	Performed/Not performed
Lens Prescriptions	Documentation of the Plan of Care (POC) and completeness of the dispensing form

The Sample Selection Process

The sample population was selected from a pool of 2,718 unduplicated clients who accessed Part A vision care between 3/1/18 and 2/28/19. The medical charts of 150 of these clients were used in the review, representing 5.5% of the pool of unduplicated clients.

In an effort to make the sample population as representative of the actual Part A vision care population as possible, the EMA's Centralized Patient Care Data Management System (CPCDMS) was used to generate the lists of client codes. The demographic make-up (race/ethnicity, gender, age) of clients accessing vision care services between 3/1/18 and 2/28/19 was determined by CPCDMS, which in turn allowed Ryan White Grant Administration to generate a sample of specified size that closely mirrors that same demographic make-up.

Characteristics of the Sample Population

The review sample population was generally comparable to the Part A population receiving vision care in terms of race/ethnicity, gender, and age. It is important to note that the chart review findings in this report apply only to those who receive vision care from a Part A provider and cannot be generalized to all Ryan White clients or to the broader population of people with HIV or AIDS. Table 2 compares the review sample population with the Ryan White Part A vision care population as a whole.

**Table 2. Demographic Characteristics of FY 18 Houston EMA Ryan White
Part A Vision Care Clients**

Race/Ethnicity	Sample		Ryan White Part A EMA	
	Number	Percent	Number	Percent
African American	72	48%	1,346	50%
White	73	49%	1,297	48%
Asian	3	2%	39	1%
Native Hawaiian/Pacific Islander	0	0%	6	<1%
American Indian/Alaska Native	0	0%	11	<1%
Multi-Race	1	<1%	19	<1%
TOTAL	150		2,718	
Hispanic Status				
Hispanic	53	35%	924	34%
Non-Hispanic	97	65%	1,718	63%
TOTAL	150		2,718	
Gender				
Male	113	75%	2,033	75%
Female	34	23%	685	25%
Transgender Male to Female	3	2%	37	1%
Transgender Female to Male	0	0%	0	0
TOTAL	150		2,718	
Age				
<= 24	3	2%	132	5%
25 – 34	35	23%	665	24%
35 – 44	31	21%	589	22%
45 – 49	15	10%	390	14%
50 – 64	61	41%	865	32%
65+	5	3%	77	3%
TOTAL	150		2,718	

Findings

Laboratory Tests

Having up-to-date lab measurements for CD4 and viral load (VL) levels enhances the ability of vision providers to ensure that the care provided is appropriate for each patient. CD4 and VL measures indicate stage of disease, so in cases where individuals are in the late stage of HIV disease, special considerations may be required.

Patient chart records should provide documentation of the most recent CD4 and VL information. Ideally this information should be updated in coordination with an annual complete eye exam.

	2016	2017	2018
CD4	91%	80%	83%
VL	91%	80%	83%

Client Intake Form (CIF)

A complete and thorough assessment of a patient's health history is essential when caring for individuals living with HIV or anyone who is medically compromised. The agency assesses this information by having patients complete the CIF. Information provided on the CIF, such as ocular history or medical history, guides clinic providers in determining the appropriateness of diagnostic procedures, prescriptions, and treatments. The CIF that is used by the agency to assess patient's health history captures a wide range of information; however, for the purposes of this review, this report will highlight findings for only some of the data collected on the form.

Below are highlights of the findings measuring completeness of the CIF.

	2016	2017	2018
Primary Care Provider	50%	81%	87%
Medication Allergies	100%	99%	100%
Medical History	100%	99%	100%
Current Medications	100%	99%	100%
Reason for Visit	100%	100%	100%
Ocular History	100%	99%	100%

Eye Examinations (Including CEE/DFE) and Exam Findings

Complete and thorough examination of the eye performed on a routine basis is essential for the prevention, detection, and treatment of eye and vision disorders. When providing care to people living with HIV, routine eye exams become even more important because there are a number of ocular manifestations of HIV disease, such as CMV retinitis.

CMV retinitis is usually diagnosed based on characteristic retinal changes observed through a DFE. Current standards of care recommend yearly DFE performed by an ophthalmologist for clients with CD4 counts <50 cells/mm³ (2). Five clients in this sample had CD4 counts <50 cells/mm³, and four had a DFE performed.

	2016	2017	2018
Complete Eye Exam	100%	100%	100%
Dilated Fundus Exam	98%	98%	94%
Internal Eye Exam	100%	100%	100%
Documentation of Diagnosis	100%	100%	100%
Documentation of Treatment Plan	100%	100%	100%
Visual Acuity	100%	100%	100%
Refraction Test	100%	100%	100%
Observation of External Structures	100%	100%	100%
Glaucoma Test	100%	100%	100%
Cytomegalovirus (CMV) screening	98%	98%	94%

Ocular Disease

Eleven clients (7.3%) demonstrated ocular disease, including visual field defects, lattice degeneration of the peripheral retina, corneal ulcer, cataracts, optic atrophy, pinguecula, conjunctivitis, and strabismic amblyopia. Four clients received treatment for ocular disease, four clients were referred to a specialty eye clinic, and three clients did not need treatment at the time of visit.

Prescriptions

Of records reviewed, 95% (99%-FY17) documented new prescriptions for lenses at the agency within the year.

Conclusions

Findings from the FY 18 Vision Care Chart Review indicate that the vision care providers perform comprehensive vision examinations for the prevention, detection, and treatment of eye and vision disorders. Performance rates are very high overall, and are consistent with quality vision care.

Appendix A—FY 18-Vision Chart Review Data Collection Tool

Mar 1, 18 to Feb 28, 19

Pt. ID # _____

Site Code: _____

CLIENT INTAKE FORM (CIF)

1. PRIMARY CARE PROVIDER documented: Y - Yes N - No
2. MEDICATION ALLERGIES documented: Y - Yes N - No
3. MEDICAL HISTORY documented: Y - Yes N - No
4. CURRENT MEDS are listed: Y - Yes N - No
5. REASON for TODAY's VISIT is documented: Y - Yes N - No
6. OCULAR HISTORY is documented: Y - Yes N - No

CD4 & VL

7. Most recently documented CD4 count is within past 12 months: Y - Yes N - No
8. CD4 count is < 50: Y - Yes N - No
9. Most recently documented VL count is within past 12 months: Y - Yes N - No

EYE CARE:

10. COMPLETE EYE EXAM (CEE) performed: Y - Yes N - No
11. Eye Exam included ASSESSMENT OF VISUAL ACUITY: Y - Yes N - No
12. Eye Exam included REFRACTION TEST: Y - Yes N - No
13. Eye Exam included OBSERVATION OF EXTERNAL STRUCTURES: Y - Yes N - No
14. Eye Exam included GLAUCOMA TEST (IOP): Y - Yes N - No
15. Internal Eye Exam findings are documented: Y - Yes N - No
16. Dilated Fundus Exam (DFE) done within year: Y - Yes N - No
17. Eye Exam included CYTOMEGALOVIRUS (CMV) SCREENING: Y - Yes N - No
18. New prescription lenses were prescribed: Y - Yes N - No
19. Eye Exam written diagnoses are documented: Y - Yes N - No
20. Eye Exam written treatment plan is documented: Y - Yes N - No
21. Ocular disease identified? Y - Yes N - No
22. Ocular disease treated appropriately? Y - Yes N - No
23. Total # of visits to eye clinic within year: _____

Appendix B – Resources

1. Casser, L., Carmiencke, K., Goss, D.A., Knieb, B.A., Morrow, D., & Musick, J.E. (2005). Optometric Clinical Practice Guideline—Comprehensive Adult Eye and Vision Examination. *American Optometric Association*. Retrieved from <http://www.aoa.org/Documents/CPG-1.pdf> on April 15, 2012.
2. Heiden D., Ford N., Wilson D., Rodriguez W.R., Margolis T., et al. (2007). Cytomegalovirus Retinitis: The Neglected Disease of the AIDS Pandemic. *PLoS Med* 4(12): e334. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2100142/> on April 15, 2012.
3. International Council of Ophthalmology. (2011). *ICO International Clinical Guideline, Ocular HIV/AIDS Related Diseases*. Retrieved from <http://www.icoph.org/resources/88/ICO-International-Clinical-Guideline-Ocular-HIVAIDS-Related-Diseases-.html> on December 15, 2012.
4. Panel on Opportunistic Infections in Adults and Adolescents with HIV. Guidelines for the prevention and treatment of opportunistic infections in adults and adolescents with HIV: recommendations from the Centers for Disease Control and Prevention, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. Available at http://aidsinfo.nih.gov/contentfiles/lvguidelines/adult_oi.pdf. Accessed February 1, 2019.

HIV-Associated Complications of the Eye

By [James Myhre and Dennis Sifris, MD](#) |  Medically reviewed by [a board-certified physician](#) | Updated on December 05, 2019

HIV-associated eye disorders are common among people living with HIV, with between 70 and 80% experiencing some form of eye problem during the course of their disease. While many of these disorders are associated with later-stage infection—when a person's [CD4 count](#) drops below 250 cells/mL (and even more so below 100 cells/mL)—they can, in fact, occur at stage of infection.

Among the eye-related disorders associated with HIV:

- Below 500 cells: [herpes zoster \(shingles\)](#); Kaposi sarcoma (KS), [lymphoma](#), tuberculosis (TB)
- Below 200 cells: [herpes simplex virus \(HSV\)](#), [pneumocystosis](#), [toxoplasmosis](#)
- Below 100 cells: aspergillosis, [cytomegalovirus \(CMV\)](#), [cryptococcosis](#), HIV encephalopathy, microsporidiosis, [molluscum contagiosum \(MC\)](#), [mycobacterium avium complex \(MAC\)](#), [progressive multifocal encephalopathy \(PML\)](#), varicella-zoster virus (VZV)

While HIV-associated eye disorders are more often caused by these and other opportunistic infections (OIs), they may also be a direct result of the HIV infection itself, manifesting with changes—sometimes minor, sometimes profound—to the nerve and vascular structure of the eye itself.

Since the advent of combination [antiretroviral therapy \(ART\)](#), the incidence of many of these infections has dropped dramatically, although they remain high in regions where access to therapy remains sparse and/or control of disease is poor.

Identifying the cause of an HIV-associated eye disorder typically begins by determining where the infection is presenting.

Infections of the Eyelid, Tear Ducts, and Conjunctiva

Known as the *ocular adnexa*, this section of the ocular anatomy provides protection and lubrication to the eye itself and includes the eyelid, tear ducts, and conjunctiva (white of the eyes). The most common infections to present within these areas are herpes zoster virus (HSV), Kaposi sarcoma (KS), and molluscum contagiosum (also known as "water warts"). Microvascular changes—dilation of veins and arteries, micro-aneurisms—are also known to occur in about 70 to 80% of people with HIV, and may be directly related to the HIV infection itself.

Infections of the ocular adnexa may present with painful shingles running along the ophthalmic nerve to the eye; dark purplish tumors on and around the eyelid; or pox-like bumps affecting one or both the eyelids.

Infections on the Front of the Eye (Cornea, Iris, and Lens)

The anterior (front) segment of the eye functions primarily by refracting light and adjusting focus needed for vision, and includes the cornea, iris, lens, and anterior chamber (the fluid-filled space between the cornea and iris). Some of the more [common infections](#) of the anterior segment are varicella-zoster virus (the virus associated with chickenpox and shingles); microsporidiosis (a protozoan infection); herpes simplex (the virus associated with cold sores and genital herpes); and other opportunistic fungal or bacterial infections.

Many of these infections tend occur in later-stage disease when an HIV-positive person's immune system is effectively compromised. Keratitis, a sometimes painful and itchy inflammation of the cornea, is one of the frequent symptoms note in anterior segment infections, whether caused by varicella-zoster virus, herpes simplex, or fungal infection like *Candida* or *Aspergillus*.

Infections to the Back of the Eye (Retina and Optic Nerve)

The posterior (back) segment of the eye functions by maintaining the shape of the eyeball, holding the lens in place, and triggering nerve impulses to the brain from photoreceptor cells on the back of the eyes. The retina, choroid (the vascular layer of the eye), and optic nerve comprise much of the posterior segment, with a number of HIV-associated disorders [presenting within these ocular layers](#), more often in later stage HIV disease.

Disorders of the posterior segment—primarily presenting with vascular changes to the retina—are seen in as many as 50% to 70% of people with HIV, and may sometime result in persistent or acute damage to the retina (called retinopathy).

Other HIV-associated infections of the posterior segment are cytomegalovirus (one of the most common ocular infections among people with HIV); tuberculosis (TB); toxoplasmosis (a common and easily transmitted parasitic infection); and cryptococcosis (another common HIV-related fungal infection).

Infections of the Eye Socket

While there are few HIV-associated infections of the orbital segment of the eye (also known as the eye socket), aspergillosis—a fungal infection that typically occurs in persons with advanced HIV disease—is known to cause the inflammation of the orbital eye tissue (cellulitis) in some. Similarly, lymphomas (blood cell tumors) may present within this segment, again usually when the individual's CD4 has dropped below 100 cells/mL.

Article Sources

Verywell Health uses only high-quality sources, including peer-reviewed studies, to support the facts within our articles. Read our [editorial process](#) to learn more about how we fact-check and keep our content accurate, reliable, and trustworthy.

- Rocha Lima, B. [Ophthalmic manifestations in HIV infection](#). *Digital Journal of Ophthalmology*. 2004;10(3).
- Sudhakar P, Kedar S, Berger J. [The neuro-ophthalmology of HIV/AIDS review of Neurobehavioral HIV Medicine](#). *Neurobehavioral HIV Medicine*. 2012;2012(4):99-111.

Factsheet **Sight problems**

Key points

- Most people living with HIV don't experience eye problems related to HIV.
- Sight problems are more likely to occur in people with very low CD4 counts (below 50 cells/mm³).
- Cytomegalovirus (CMV) is a serious eye disease that people with very weak immune systems can develop.



Most people do not experience any HIV-related problems affecting their sight. Taking [HIV treatment](#) will prevent the severe damage to the immune system that can lead to sight problems.

However, about 70% of people with HIV who have very weak immune systems develop serious eye diseases. These may lead to blindness if not treated promptly.

The most common of these conditions is HIV retinopathy. This is a condition where the retina is damaged, probably because uncontrolled HIV is damaging the blood vessels in the eye. It can eventually lead to blindness, but can be treated in the early stages. Having [diabetes](#) is another risk factor for retinopathy, a condition that is more common in people living with HIV, especially as they age.

Uveitis is the inflammation of an inner layer of the eye. The most common cause is a weakened immune system. It can be caused by toxoplasmosis (a parasite infection) or by the antibiotic rifabutin (used to treat other opportunistic infections), especially if you are taking other drugs that boost rifabutin levels. Like retinopathy, the sooner uveitis is treated, the less damage it will do.

The most serious eye disease is caused by cytomegalovirus (CMV). If your [CD4 count](#) is or has been below 50, CMV may cause retinitis – damage to the light-sensitive lining of the eye called the retina.

Other infections that can affect the eye include varicella zoster virus (VZV), [herpes simplex virus \(HSV\)](#), toxoplasmosis and a number of [sexually transmitted infections](#), including [syphilis](#), [gonorrhoea](#), [chlamydia](#) and [candidiasis](#).

Symptoms of eye diseases

HIV retinopathy causes 'cotton wool' spots and broken blood vessels in the eye.

Uveitis causes:

- redness
- a dull pain in the eye, particularly when focusing
- sensitivity to light
- new 'floaters' (tiny black specks that move around in your line of sight)
- blurred vision or loss of peripheral vision (being unable to see at the sides of your field of vision).

Early symptoms of CMV retinitis can include:

- blurred vision
- new 'floaters'
- a blind spot
- flashes of bright light.

If your CD4 count is or has been low you should take any of these symptoms seriously and consult your doctor, as the earlier CMV is treated, the less damage it is likely to do. If your CD4 count is higher, the problem is very unlikely to be CMV, but you should still tell [your doctor](#) about your symptoms. CMV can also cause a detached retina, which needs to be treated with surgery.

The central part of the retina where images are focused is known as the macula. It may only take a small area of damage to this central area to cause a substantial loss of sight. Damage to the retina outside the macula may cause no loss of sight or only the loss of some sight out of the corner of your eyes, but it will usually spread if left untreated.

"Sight problems can affect anyone, whether or not they have HIV."

Treatment

The best way to prevent serious eye problems is to take HIV treatment to boost your immune system. In the UK, it is now recommended that people [start HIV treatment](#) as soon as they are diagnosed with HIV, whatever their CD4 cell count. However, some people only find out that they have HIV when they have a very [low CD4 cell count](#). In these circumstances, HIV treatment can still increase CD4 cell count, protect against infections and lead to a longer and healthier life.

Sight loss due to CMV can't be corrected by glasses because the retina is permanently scarred. The aim of anti-CMV treatment is to try to prevent the damage to the retina from getting any worse. Drugs such as ganciclovir, foscarnet and cidofovir can slow down or prevent the CMV lesions from spreading. The drugs can be taken in a number of different ways, including tablets, intravenous infusions, injections into the eye and eye implants.

After CMV retinitis has been stabilised, maintenance therapy using lower doses of the same drugs or oral ganciclovir capsules has to be continued indefinitely to stop it reactivating. If you have experienced sight loss your clinic can refer you to social services that can help you adjust.

If you have a very low CD4 count or a blood test finds signs of CMV infection, you may be offered anti-CMV drugs to try to prevent CMV retinitis from developing.

If the sight problems are caused by a different infection, the appropriate treatment will be used, such as anti-viral drugs for varicella zoster virus, or antibiotics for toxoplasmosis. Uveitis is treated by stopping or reducing the dose of rifabutin, if that is the cause. The symptoms may be helped with anti-inflammatory treatments such as steroids.

Looking after your eyes

Sight problems can affect anyone, whether or not they have HIV. Common problems include short- and long-sightedness. It's a good idea to go for regular eye tests so that any problems can be identified early.

Many of the lifestyle changes that keep you generally healthy will help maintain the health of your eyes. [Exercise](#), a [healthy diet](#), and not [smoking](#) or drinking too much [alcohol](#) will all help, as will protecting your eyes from direct sunlight.

Checks and examinations

You can check your own eyesight for any distorted, blurred or obscured areas while reading a page of a newspaper. Eyesight can change temporarily after illness because of changes in the lens of the eye. It is recommended that all adults, whatever their HIV status, have their eyes checked at least every two years. It may be recommended you go more often, especially once you are over 40, if you have certain health conditions, or are from certain ethnic groups.

Cataracts – cloudy or blurred patches on the lens of the eye – are common in older people. There is some evidence that people with HIV are more likely to need surgery for the removal of cataracts than others. Having a regular eye test as you get older will allow cataracts to be spotted early. You can then be referred to an eye specialist to determine what treatment might be needed.

Eye examinations are usually done by optometrists, trained professionals in eye health.

They will ask detailed questions about your eyesight, lifestyle, health and any previous eye problems you or family members may have had. You should bring a list of any medication you take, along with your glasses if you use them, or a previous prescription for glasses. Then they will test what you can see, using a chart of symbols or letters.

Your usual optometrist can examine the back of your eye, although you may need to visit a specialist if problems are found.

They will also examine the health of your eyes, inside and out. You may be given eye drops to dilate the pupil of the eye, making it easier for the optometrist to see the interior. They may check the pressure in your eye and test your peripheral vision. They can give advice on eye health, and refer you for more specialist treatment if necessary.

Find out more

GPs and primary care Simple factsheet

Diagnosed with HIV at a low CD4 count Simple factsheet

Mouth problems Simple factsheet