



## Vision Rehabilitation 2026: Beyond Magnifiers and Telescopes

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## Disclosure

I HAVE NO RELEVANT FINANCIAL INTERESTS TO REPORT

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## Overview

We will be discussing via interactive case examples;

- How visual impairment is now defined
- Disability language
- Assessment of Disability
- Driving with a visual impairment – including CDL
- Americans with Disability Act
- Pediatric consideration
- AMA Guide to the Evaluation of Disability
- 12 Questions to determine if a person has an inherited eye condition.
- Simple options to improve visual functioning



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## Vision Rehabilitation:

AN INTEGRAL PART OF THE CONTINUUM OF EYE CARE

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## Definition

- “Low Vision” is a visual impairment, not correctable by standard glasses, contact lenses, medicine, or surgery, that interferes with the person’s ability to perform everyday activities.
- In the past, 20/70 or worse was used as the definition of low vision.
- Now, this functional definition is used to account for those with visual field loss and/or contrast loss or glare who retain normal or near normal visual acuity.
- Vision rehabilitation is the only non-surgical treatment modality for vision loss.

Source: [www.nei.nih.gov/nehcp/nehcpov.htm](http://www.nei.nih.gov/nehcp/nehcpov.htm)



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## The goal of vision rehabilitation...

MAXIMIZE VISUAL FUNCTION TO ENHANCE POTENTIAL,  
INCREASE INDEPENDENCE & IMPROVE QUALITY OF LIFE.

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## Definitions

### Disease/Disorder

- Any deviation from the normal structure and/or function.
- Describes organ pathology and etiology.
- Refers to anatomical changes in the visual organs caused by diseases of the eye.
- Example: Nystagmus is a disorder of the visual system.

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## Definitions

### Impairment

- Manifestation of organ dysfunction or disease.
- Based on the severity and duration of the disease.
- Refers to the functional loss that results from a visual disorder.
- Comment: Nystagmus does not always result in the impairment of reduced visual acuity.

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## Definitions

### Disability

- Produced by severe and chronic impairments.
- Loss of the skills/abilities of the individual to perform desired, usual and necessary activities.
- Example: reduced acuity (20/200) may result in the disability of being unable to read regular sized print.

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## Questions to Determine if the Person is Disabled?

- What are the functional limitations the person experiences daily?
- When a person is truly disabled, there should be a lot of examples from many people who can describe the disabled person's daily difficulties.
- People with a bona fide disability should easily be able to show the impact of their disability in multiple areas of functioning that are central to daily life.
- Must think beyond the diagnosis to show the functional impact for there to be a disability.

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## Definitions

### Handicap

- Refers to the ensuing psychosocial and economic consequences of a visual loss, such as the loss of independence or the inability to work.
- Depends on the severity and duration of a disability.
- Barrier to normal functioning in society.
- Example: reduced acuity may result in the handicap of not being able to drive.

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## Blindness

- In 1966 the WHO reported that there were 65 different definitions of blindness used around the world.
- The WHO proposed a uniform definition of blindness as best corrected vision of less than 20/400 in the better eye.
- In the US – best corrected vision of 20/200 or worse in the better eye was the standard until February 2007.

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### SSA Definition of Legal Blindness

Remaining vision in the better eye after best correction is less than 20/100 or contraction of the peripheral visual fields in the better eye (A) to 10 degrees or less from the point of fixation; or (B) so the widest diameter subtends an angle no greater than 20 degrees (1114e)."

• Effective 2/20/2007

Source: [www.ssa.gov/disability/professionals/bluebook/2.00-SpecialSensesandSpeech-adult.htm](http://www.ssa.gov/disability/professionals/bluebook/2.00-SpecialSensesandSpeech-adult.htm)



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### Legal Blindness

- The Social Security Administration's term "legal blindness" is a misnomer because 90% of individuals who have 20/200 or less visual acuity are not blind.
- Even more now that the standard is less than 20/100.



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### Using a Humphrey Field Analyzer

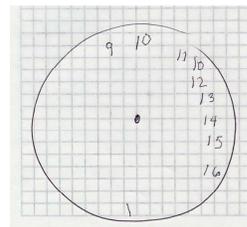
- Can use the SSA Kinetic test to determine extent of the peripheral visual field.
- Need central vision testing to know about central vision loss.
  - Central 10 degrees is 50% of the visual field by the Guides.
- To assess central fields with an automated perimeter, the provider takes the absolute value of the mean deviation of the 30-2 Humphrey visual field test and divides that by 22. Next, they add this number to the LogMAR visual acuity of each eye. If the number is 1.0 or greater in the better eye, the person is legally blind by the Social Security Administration.



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### Case Example



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### Clock drawing test for dementia

- Sensitivity - 86%
- Specificity - 96%



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### Commercial Driver's Licenses

ACQUIRING, RENEWING & VISION EXEMPTIONS

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## CDL Vision Standards and Exemptions

- In 2019, the FMCSA commissioned a comprehensive review of the literature to review the existing driving standards for commercial drivers.
- Based on this research, the change from 70 degrees temporal to 70 degrees total for a CDL was found to not be problematic from a safety standpoint.
- In March 2022, the CDL exemption rules were changed to allow individuals to acquire driving privileges, with visual acuity loss in one eye or visual field loss in one or both eyes, with no prior experience.

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## What should we be doing?

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## AMA's - Physician's Guide to Assessing and Counseling of Older Drivers (2<sup>nd</sup> Ed.)

- Assess risk factors.
- For those individuals at risk for unsafe driving, recommends a formal assessment of:
  - Vision
  - Cognition
  - Motor Skills
- Refer for a driving assessment when appropriate.

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## Driving Legalities

### Duty to Warn

- Legal rationale is to provide a means of protecting the patient from an unreasonable risk of harm.
- Failure to warn patients of conditions that create a risk of injury will be upheld as a cause of action against eye care providers when it can be shown that the failure to warn is the proximate cause of an injury.

Classe, J. G. (1986) Clinicolegal Aspects of Practice. Southern Journal of Optometry IV, 1 January

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## Driving Legalities

### Duty to Warn

- The patient can argue that they had insufficient warning of their impairment, and because of their impairment, their operation of a motor vehicle or other machinery resulted in an injury.
- Patients whose vision no longer legally qualifies them to operate a motor vehicle should be warned not to drive and a notation to this effect should be entered into the patient's record.

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## Be careful using the word "blind"

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## Americans with Disabilities Act-1990

### REASONABLE ACCOMMODATIONS

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## ADA Major Life Activities

Includes, but are not limited to,

- Caring for oneself
- Performing manual tasks
- Hearing
- Eating
- Sleeping
- Walking
- Concentrating
- Thinking
- Standing
- Lifting
- Bending
- Breathing
- Communicating
- Working
- Seeing, reading, speaking, writing or learning
  - Important for testing



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## ADAAA Definition of Disability

- The determination of whether an impairment substantially limits a major life activity shall be made without regard to the ameliorative effects of mitigating measures such as,
  - Medications
  - Low vision devices (excluding regular glasses/CLs)
  - Hearing devices including cochlear implants
  - Assistive technology



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## ADA

- Title III (public accommodations) of the ADA states that the question to be asked is:
  - Is the proposed exception a "reasonable modification" or does it "fundamentally alter the nature" of the good, service or activity in question?
  - Standardized educational testing falls under Title III
    - ACT
    - SAT
    - MCAT
    - LSAT



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## ADA Major Life Activities

- Learning is a major life activity.
- Test taking and processing speed are not MLA.
- Spelling rate is not a MLA.
- Taking a timed test is not a MLA.
- The life consequences of not doing well on a test is not a MLA.
  - Not doing well could be a major life consequence.



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## Testing Accommodations

- 0.5% who applied for the GED test requested testing accommodations.
- 10% applying for the LSAT requested testing accommodations.
  - Likely a smarter population.



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## Testing Accommodations

- Licensing organizations mission is different than the mission of a testing organization for someone to get into school or to succeed in school.
  - Licensing organizations mission is to protect the public.
  - Assure safety and competency.
- Entrance testing is to determine likelihood of success in school.
- Classroom accommodations can facilitate learning to help with classroom success.



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## Educational Accommodations

- Getting accommodations in school does not mean the person is disabled under the ADA.
- It also does not mean the accommodations are appropriate.
- For high stakes testing, is it expected that the requested accommodations will,
  - Improve access to the test versus enhancing chances of success on the test?



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## Educational Accommodations

- ADA is to be outcome neutral.
  - Enhanced access versus "do better", "pass", "finish the test", or demonstrate "true potential."
- ADA does not guarantee the person's desired outcome.



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## We see ourselves as advocates for our patients

- We want to help our patients
- We want to ensure that our patients and their families get what they paid for.
- This leads to confirmatory bias "a tendency to search for or interpret information in a way that confirms one's preconceptions, leading to statistical errors."
- Results in loss of objectivity.
- Results in giving a diagnosis that is **wanted** rather than a diagnosis that is warranted.



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## Parental perceptions of what will help their child



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## Singer and US College Admissions Scandal

- Singer told a client "Everywhere around the country, the wealthy families have figured out that if they get their child tested and they get extended testing time, they will do better on the test."
- "Most of these students don't have any issues, but they are getting extra time. The playing field is not fair."
- Singer told parents that the double time their child would get due to the bogus diagnosis will also be a "huge advantage" once they are in college.



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## Educational Accommodations

- Educational based testing is needed to support requested accommodations.
  - Should not be provided just because the well-meaning health care provider said the person should have these accommodations.
  - "There must be rigor in the process that determines the need for accommodations."
  - Is there evidence of functional limitation that supports the requested accommodation?
    - An eye doctor should not comment about reading abilities if near vision or continuous text reading vision was not tested.



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## My reviewer comments

- To qualify for testing accommodations under the ADA, the student/candidate must provide objective evidence that shows that their visual condition(s) substantially limits one or more major life activities.
- My review is looking for a diagnosed disability that substantially limits the candidate/student's ability to see and take a standardized test, when compared to most people in the general population. This evidence is required by the ADA to be considered disabled and thus eligible for accommodations.



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## My reviewer comments

- Descriptions of adverse effects on test taking must be supported by test results showing the student/candidate's present functional limitations.
- When it is reported that the student/candidate's visual condition affects their seeing/reading ability, results of a measure of reading (decoding, rate, and comprehension) are required.
- Collaborative evidence from educational and/or psychometric testing is required to confirm this assertion.



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## Educational Accommodations: Bottom Line

- Should have formal, educationally based testing information that supports the claim that the individual has a visual problem that requires educational accommodations to accurately demonstrate their educational potential, before such accommodations are provided.



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## Unusual Accommodation Requests

- Emotional support ant farm
- Thunderstorm sound machine
- Parents present for high stakes testing
- Support animals for resident surgeons in OR
- Parents living in college dorms to make sure their child eats appropriately, gets up and goes to class on time, does their homework and gets their laundry done, etc.



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# Break

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## Workplace Accommodations

- Extra time is not listed as a reasonable accommodation.
- For pre-existing conditions, should inform the employer, at time of hiring, of condition.
  - This facilitates requests for accommodations when needed in the future, if not needed at the time of hiring.



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## Pay per Performance Issue

- Patient contacted Office of Patient Experience to complain about me.
- Stated, on our website, it does not indicate I am an expert in TED and for this reason, I should not have provided her with any care.
- When pay per performance becomes the norm, would you handle this person's needs differently for a glowing report on the care you provided?



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## Discharge Application: Total and Permanent Disability

- Work in any capacity is qualified as "unable to work and earn money because of a condition that is expected to continue indefinitely or result in death."
  - Unable to work and earn money in any capacity, in any field of work, even if only on a limited basis.
- This is a very different standard then is used by the Social Security Administration.
- Is there any eye condition where you could answer yes to the above disability definition?



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## Discharge Application: Total and Permanent Disability

- I advised the patient that in my opinion, unless a person is on a medical gurney, unable to see, speak and move their limbs, it is impossible to affirm that the person is incapable of working in any capacity due to vision loss.
- If the person is receiving SSA benefits, they will be considered totally and permanently disabled for the purposes of discharging their student loans if they provide documentation of their SSA disability determination.
  - No doctor note required.



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## Disability Forms

Just so you know,

- In many states – a person who knowingly and with intent to injure, defraud or deceive an insurance company files a claim containing false, incomplete or misleading information may be,
  - Prosecuted under state law
  - Guilty of a crime and may be subject to fines and jail
  - Guilty of a felony
  - Guilty of insurance fraud



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## Disability Assessment Resource

- To determine the extent of a visual problems/loss, I use the AMA Guide to the Evaluation of Permanent Impairment, 6<sup>th</sup> Edition, Chapter 12 – The Visual System, to determine the person's visual and whole-body impairment rating.



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### Evaluation of Permanent Impairment

- The AMA guidelines provides the criteria for evaluating permanent impairment of the visual system as it affects an individual's ability to perform activities of daily living.
- The guidelines focus on functional impairments of the visual system as a whole.
- The impairment rating provides an estimate of the severity of the effects of certain types of vision loss on the ability to perform activities of daily living.



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### Evaluation of Permanent Impairment

- The Functional Vision Score (FVS) is based on an assessment of monocular and binocular visual acuities and visual fields.
- The FVS allows for individual adjustments for other functional deficits such as contrast and glare sensitivity, color vision, binocularity, stereopsis, suppression, and diplopia, if these deficits cause a significant loss of abilities that is not fully reflected in the visual acuity or visual field loss score.
  - Maximum adjustment is 15 points



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### Evaluation of Permanent Impairment

- The AMA guidelines emphasize ability as opposed to disability.
- These guidelines were significantly revised based on the Guidelines for the Evaluation of Visual Impairment, published by the International Society for Low Vision Research and Rehabilitation.
- Visual impairment ratings are calculated using the formula  $(3 \times OU + OD + OS)/5$



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### Monocular vs Binocular VA & VF

- Binocular viewing represents the most common viewing condition in daily life.
- For this reason, the impairment rating gives the highest value (3x) to the best-corrected binocular visual acuity and binocular visual field findings and (1X) to the best-corrected visual acuity and visual field for each eye separately.



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### Calculations

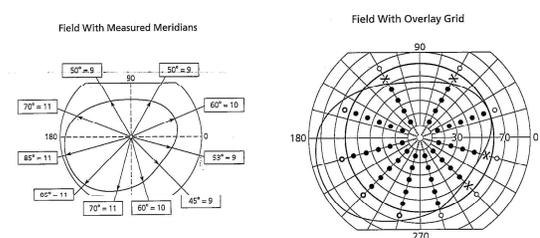
- Measured impairment of each eye – VA/VF
  - Results in a Visual Acuity Score and a Visual Field Score for OD, OS and OU
- The scores are combined to determine a single Functional Acuity Score and a single Functional Field Score.
- The Functional Acuity Score and the Functional Field Score are combined to give a Functional Vision Score =  $(FAS \times FFS)/100$ 
  - Remember the FVS can be adjusted down by up to 15 points



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### Calculations for Visual Field Loss



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## Individual Adjustments

- If significant factors remain that affect functional vision, that are not accounted for through visual acuity or visual field loss, a further adjustment of the impairment rating of the visual system may be in order.
- Section 12.4b of the Guides states that additional points should only be used if "significant factors remain that affect functional vision" and "the need for this adjustment must be well documented."
- The adjustment should be limited to an increase in the impairment rating of the visual system (Functional Vision Score) by, at most, 15 points.



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## Photophobia

- Photophobia is a subjective complaint for many, hard to quantify.
- One case review had assigned 5 points for photophobia based on a past clinical complaint related to the person's desire to get a tinted window exemption for a new car with tinted windows.
- Treating eye care provider did not recommend or prescribe any specialty tinted lenses which caused me to conclude the complaint was more to try and get the tinted windows approved, than a true functional problem.



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## Glare

- One individual receiving a 3% impairment based on self-reported glare when driving at night.
- No corneal, lenticular, vitreous or retina pathology was documented by the impairment rating physician during their examination of the person's ocular status.
- Additionally, the person's more extensive ocular health examinations did not document any physiologic or ocular health reason for the person to have pathology induced glare that would justify an impairment rating for glare per the Guides.



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## Glare

- 30-50% of adult driver's self-report glare at night when driving.
- With no ocular pathology documented that could cause the self-reported glare, this subjective complaint did not meet the requirements of the Guides to be factored into an impairment rating.



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## Diplopia

- One impairment rating had 10 points added to the impairment rating for a person with congenital rectus muscle abnormalities that cause exotropia and diplopia.
- Past ophthalmologic evaluations noted "no diplopia" complaint. Also noted "occasional side by side double vision for years, stable and not worsening."
- Based on these statements, there was no clear functional limitation from the long-standing rectus muscle abnormality.
  - Additional 10 points not justified based on clinical record.



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## Contrast Sensitivity Loss

- Visual acuity is generally measured with small objects of high contrast.
- Contrast sensitivity refers to the ability to detect larger objects of poor contrast.
  - Ability is needed for daily living skills.
  - Facial characteristics are an example of typical low-contrast objects.
- Contrast sensitivity loss often accompanies visual acuity loss, but it can occur separately.
- Where indicated, contrast sensitivity loss that exceeds the effects of the visual acuity loss may be handled as an individual adjustment.



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## Mars Letter Contrast Sensitivity Test



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## Mars Letter Contrast Sensitivity Test

- Set of 3 near charts
  - Each letter fades by 0.04 log units
- Norms for different levels of loss
  - Profound (<0.48)
  - Severe (0.52-1.00)
  - Moderate (1.04-1.48)
  - Normal > age 60 (1.52-1.76)
  - Normal < age 60 (1.72-1.92)



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## Asking the right questions

SOMETIMES, MAKES THE DIAGNOSIS CHILD'S PLAY!

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## Usher Syndrome

- Individuals with Ush1B do not walk until 18 months or older due to problems with their vestibular function.
  - Often deaf and mute prior to newborn hearing testing and cochlear implants.
- All disease-causing syndromes, can cause isolated conditions of the syndrome, without having all the conditions of the syndrome.

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## Genetic Counseling Considerations: X-linked conditions

- Screen maternal relatives:
  - Mother's sisters (who may be carriers and who may be considering having children), mother's sister's sons (for the disease) and mother's sister's daughters (carriers).
- The women need to know if they are carriers before having children, in the event that they want to pursue pre-implantation genetic testing.
- Sons need to know if they have the disease for vocational planning purposes.

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## Genetic Counseling Considerations: X-linked conditions

- It is important to not tell the mother of a child with x-linked disease that she caused her child to have this condition.
- It is as much the father's fault, because he gave a Y instead of an X chromosome.
- No one is to blame!
- The risk of an affected individual having an affected child with an AR disease is <1%.

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## Sighted Guide Technique

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## Sighted Guide Overview

- Provides the individual with a visual impairment a comfortable way to travel safely and efficiently.
- The Sighted Guide Technique is felt to be the safest, most efficient way for a person with a visual impairment to walk with a sighted person.

Reference: <http://webeye.ophth.uiowa.edu/eyeforum/tutorials/sighted-guide-technique.htm>

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## White Cane

- Used as a mobility tool for independent travel purposes.
- Used as an identifier to others who may not realize the individual has a visual impairment.
- When used for independent travel purposes requires proper training by a qualified orientation and mobility specialist.

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**The hardest diagnosis to make is the one that is contrary to the diagnosis that has already been made.**

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## 12 Questions

1. Age of onset.
2. Earliest symptoms (reduced acuity, night blindness, photophobia, color vision).
3. Earliest diagnosis.
4. All previous diagnoses.
5. Does the patient prefer being in a room that is too dark or too bright?
6. Syndromic features.

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## 12 Questions

7. Current/chronic medications relevant to vision.
8. Dose the patient have any history of cancer or autoimmune disease?
9. Relevant family history.
10. Driving history.
11. Current refractive information with acuities.
12. Color vision testing.

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## Simple vision rehab options

- Dark mode on all devices
- Text to speech
- Voice Dictation
- <https://hadleyhelps.org/>
- MetaGlasses



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## Free apps

- iPhone
  - Super Vision
  - Seeing AI
- Android
  - Lookout
  - WeZoom
- Other options
  - BeMyEyes (AI)



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## Resources on eyerounds.org

- Vision rehabilitation
- Visual acuity testing
  - Adult
  - Children
- Trial Frame refraction
- Contrast Sensitivity testing
- Subjective refraction technique
- Optics review



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## Conclusion

- Vision rehabilitation is the only non-surgical treatment modality for vision loss.
- With advances in readily available accessibility options for computers and free apps for smart phones and tablets, the need for magnifiers and telescopes has been greatly reduced.
- You can provide vision rehabilitation care for a large percentage of individuals with vision loss with no disruption in your clinical schedule.



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**Thanks for your attention!**

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