

# 2022 GWCO Congress



## Journey Through Darkness

Robert Reed Jr OD

# Journey Through Darkness

**Dr Robert Reed Jr OD**

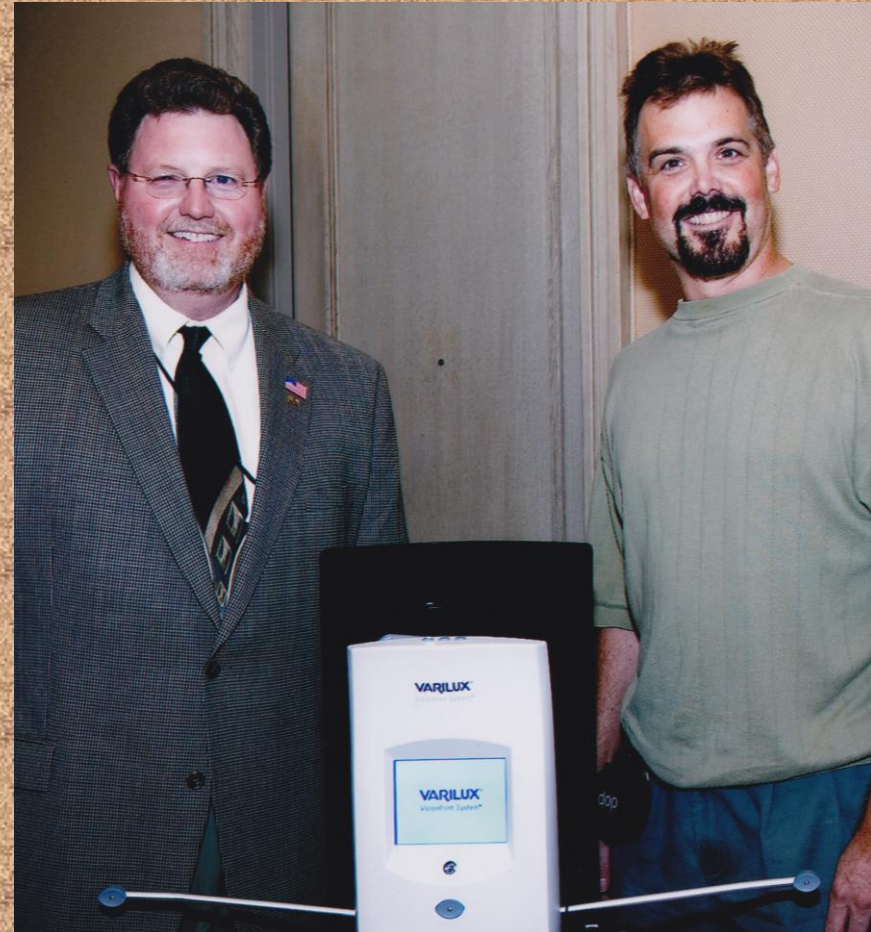
**GWCO Congress**

**October 9, 2022**

**1Hr**

**Special Guest**

**Tracy Knight ABOC**



**Varilux Ipseo introduction - 2005**

# Disclosures

I have no financial connections nor backing for this talk.

Thanks to Eschenbach for some images

Information presented is from my own experience, based on 39 years of independent practice.

I am NOT an expert in low vision, but did my best to serve “All Eyes”. To help understand the *Journey Through Darkness*, I ‘brought’ a friend.

# **Learning Objectives**

**After attending class participant will be able to:**

**Relate to how a person with partial vision struggles with their loss**

**Develop strategies of evaluating vision loss & appropriate magnification & device accommodations**

**Prepare information packet of resources, organizational contacts, & family & friend suggestions to aid vision impaired individuals**

# Course Description

**Sure, vision is important. It's our job! With 80% of a person's sensory input connecting us to the world what do we do when their vision situation isn't correctable to 20/40? 20/70? 20/200? Going blind isn't the end of a persons life. There's A LOT we can do. Let's explore magnification & technology to enhance partial vision. What resources & support organizations are there? How do family, friends, & faith help someone deal with vision restrictions?**

# A moment in time - Oct 1999



# Lumberjack Trunkshow Fall 2002



# Who goes blind?





# Statistics

**Stats are suspect: Who? When?**

**How obtained? How interpreted?**

**National Health Interview Survey 2018 // WHO 2019**

**Worldwide 2.2B vision impaired, 300-400M low vision, 50M totally blind, 80% over 50yo**

**32% of US has “vision loss”, ~ 13% of population**

**CDC 6/2020**

**1.4M over 40yo in US blind**

**4.2M over 40yo in US visually impaired (not correctable, interfering with life)**

**REGARDLESS - It's a BIG POPULATION!**

# Life expectancy

<b>If you survive to age 65 now, the odds of making</b>	<b>male</b>	<b>female</b>
<b>80yo</b>	<b>60%</b>	<b>71%</b>
<b>85yo</b>	<b>40%</b>	<b>53%</b>
<b>90yo</b>	<b>29%</b>	<b>31%</b>
<b>95yo</b>	<b>6%</b>	<b>12%</b>
<b>100yo</b>	<b>1%</b>	<b>3%</b>

**72,000 over 100 now, over 1M by 2050 (15X)**

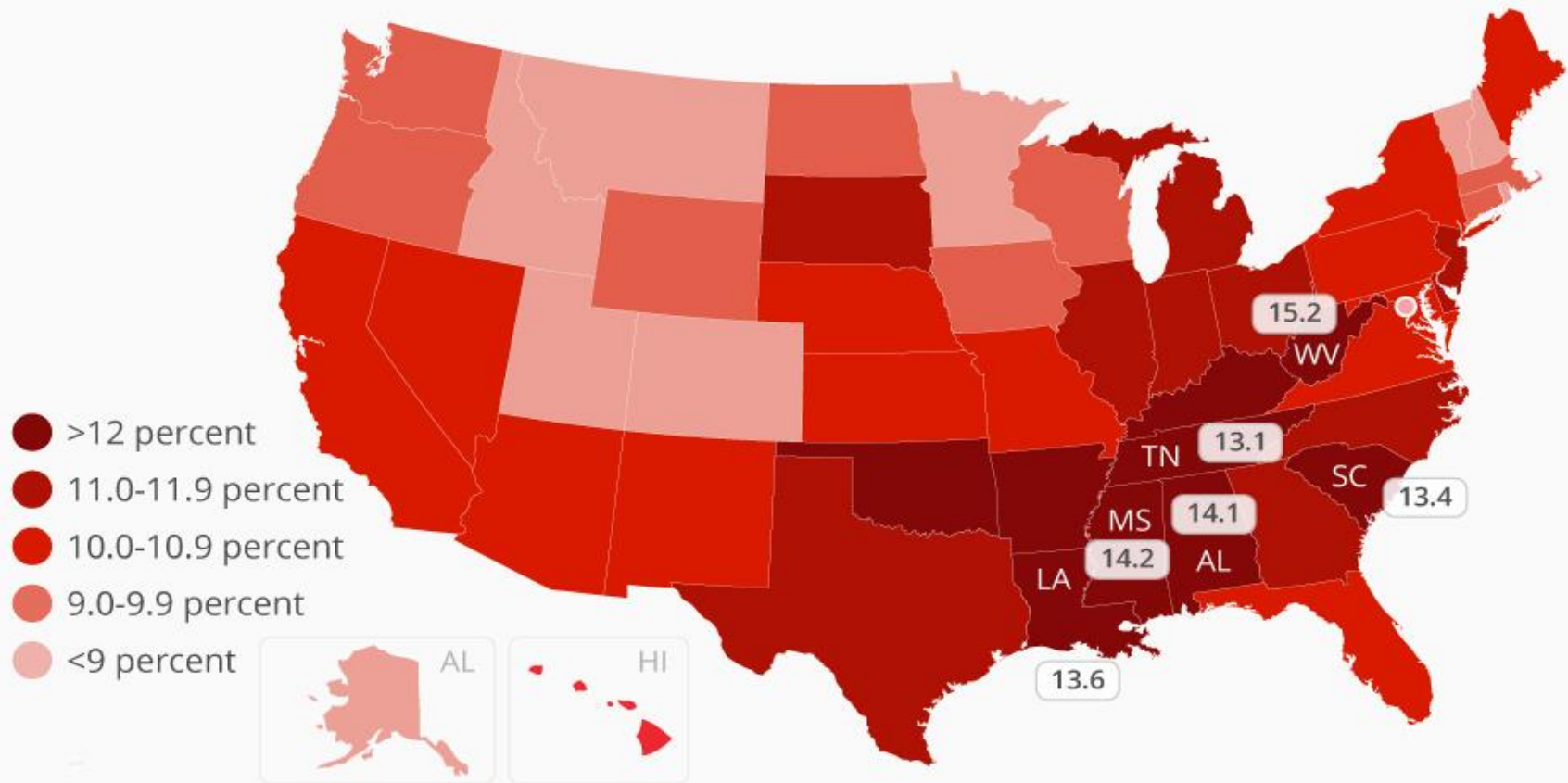
# Baby boomers



# Projections

## Where Diabetes is Most Prevalent in the U.S.

Percent of adults who have ever been told by a doctor that they have diabetes (2017\*)



Includes pregnancy-related diabetes, percentages are weighted to reflect population characteristics (e.g. average age)

\* latest on record



@StatistaCharts

Sources: Kaiser Family Foundation, CDC

# Blind happens



# More than vision loss

**Longevity- Journal of American Geriatrics Society 2019**

- >60 - vision/hearing loss decreased life expectancy by 4+ yrs**
- added 3+yrs of health issues at end of their lives**

**Quality of life -**

- mobility restrictions,**
- social interactions**
- economic issues**
- loss of independence**

**Depression >40% diagnosed, 10-30% claim anxiety**

# Defining Vision

**What doesn't kill us, makes us stronger  
(Frederick Nietzsche 1844-1900)**

**What is the “number on a chart”?**

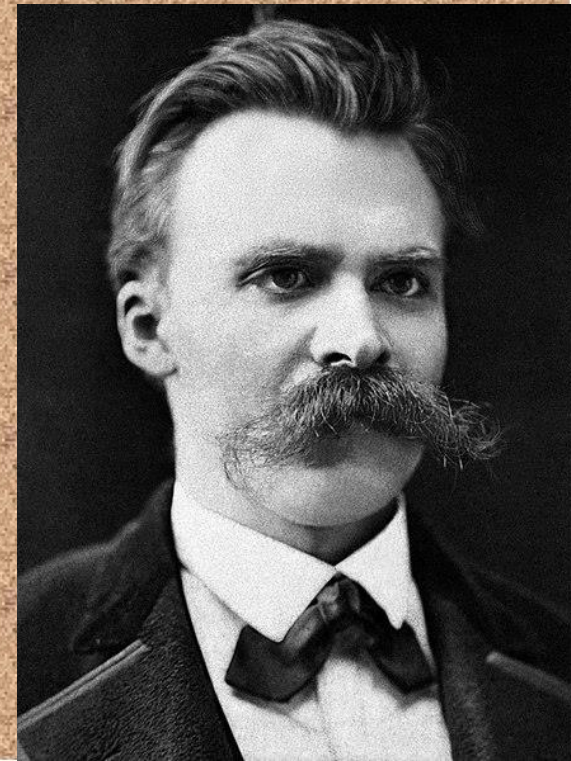
20/40, 20/70, 20/200, contrast sensitivity

**What is the “field of vision”?**

10° field(toilet roll view size)

**What “do you want to do”?**

Functionality, task oriented



# RE-Defining Vision

When best corrected vision is insufficient to do what you want to do.

1. 3 types of tasks – dist, intermediate, near
2. DEFINE patients Wish List:(typical top 10)

- |                      |                       |
|----------------------|-----------------------|
| 1 See like I used to | 6 Playing cards       |
| 2 Driving            | 7 Prices/labels/menus |
| 3 Reading            | 8 Recognize faces     |
| 4 Computer           | 9 Music               |
| 5 TV                 | 10 Crafts             |



Safari Trunkshow Spring 2005



# Things get tough



# **Simple adaptations**

**Lifestyle accommodations**

**Lighting**

**Tints and filters**

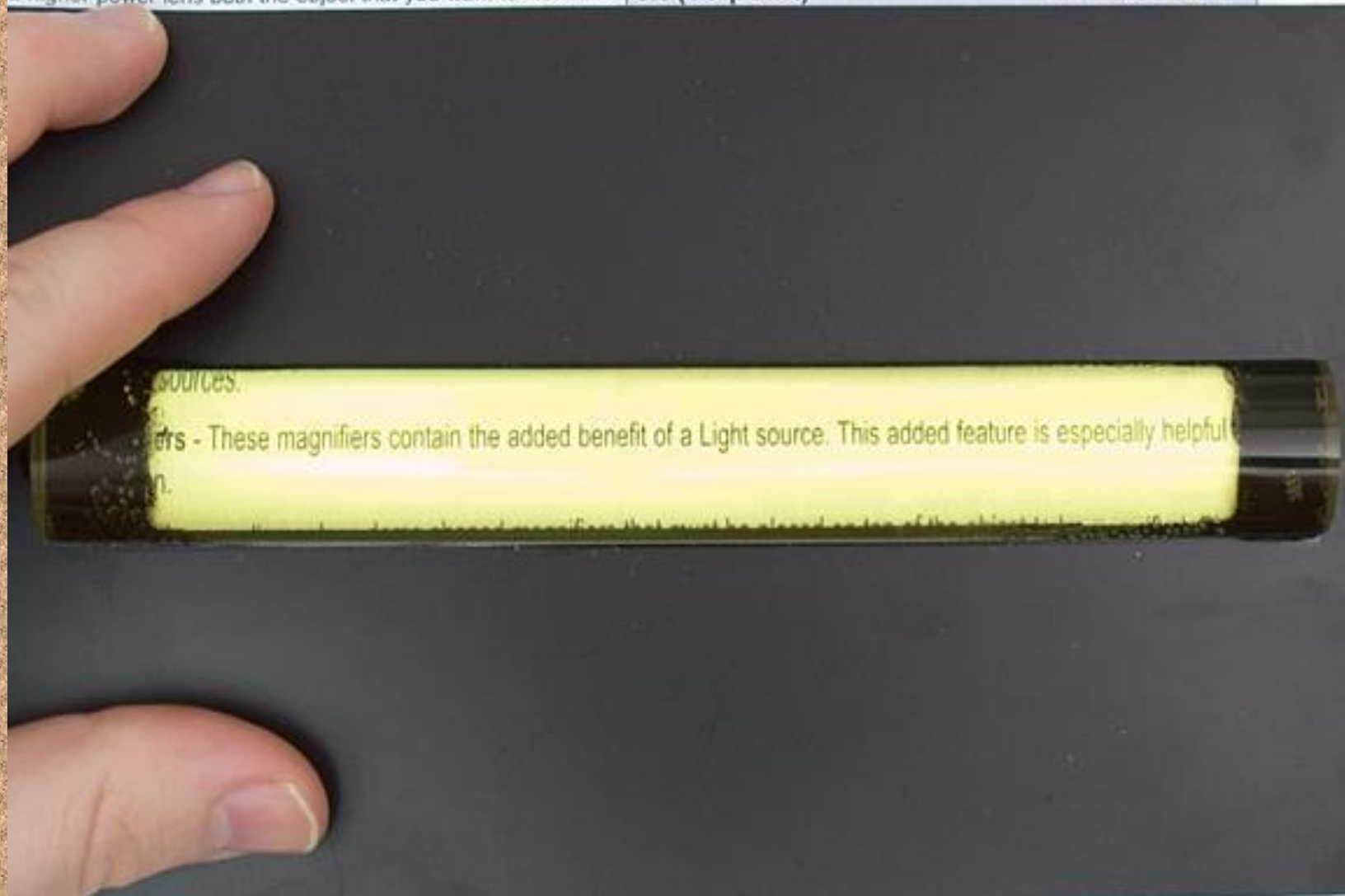
**Calculating magnification**

**Simple magnification devices**

With Higher power lenses the focal distance, also referred to as the working distance decreases. What this means is that as you use a higher power lens both the object that you want to view and

**Six Times Standard  
6x (36-point)**

# Maxi



use with low Vision and those with Macular degeneration. CCTV's feature Reverse Video, which transform a white background to black background and black type to white type making it easier to see!

Example of how reverse video would appear:

**MAXI-AIDS MAKES MY LIFE EASIER**

# Lighting

**More lighting is better...**

**till it's NOT**

**Glare becomes issue,  
directionality of light is  
consideration**



**Lightbulbs different spectrums**

**new CFL pigtail bulbs are poor**

**LEDs better, but glare**

**Incandescent higher wattage**

**Standard room light insufficient**

**fluorescents bright white vs. full  
spectrum**

**Need 2° or 3° additional light  
sources**

**Inverse Square law**

**½ the distance = X<sup>2</sup> energy**



# Tints & Filters

https://www.amazon.com/Colored-Overlays-Transparency-Correction-Assorted/dp/B074Z58CH4/ref=asc\_df\_B074Z58CH4?tag=bingshoppinga-

amazon Hello Select your address

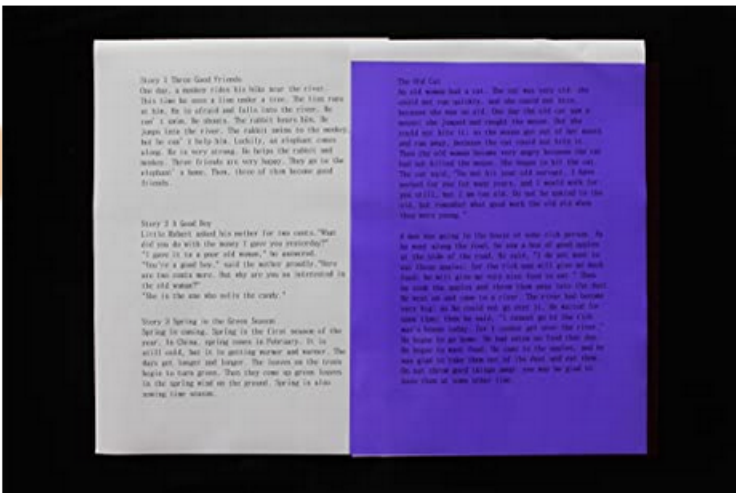
Electronics



All Best Sellers Customer Service Prime New Releases Pharmacy Books Today's Deals Fashion Kindle Books Toys & Games Gift Cards Amazon Home

All Electronics Deals Best Sellers TV & Video Audio & Home Theater Computers Camera & Photo Wearable Technology Car Electronics & GPS Portable Audio Cell Phones Office El

Electronics > Camera & Photo > Lighting & Studio > Lighting > Lighting Controls & Modifiers > Filters



## 14 Pack Colored Overlays Transparency Color Film Plastic Sheets Correction Gel Light Filter Sheet, 8.5 by 11 Inch, 7 Assorted Colors

Brand: color mogu

★★★★★ 453 ratings | 47 answered questions

Amazon's Choice in Lighting Filters by color mogu

Price: **\$13.99** Get Fast, Free Shipping with Amazon Prime & FREE Returns

Get \$50 off instantly: Pay \$0.00 \$13.99 upon approval for the Amazon Rewards Visa Card. No annual fee.

Available at a lower price from [other sellers](#) that may not offer free Prime shipping.

- 14 pack transparent colored plastic sheets with size 8.5 x 11 in/ 22 x 28 cm
- Assorted colors: Orange, Yellow, Red, Pink, Blue, Purple, Neon Yellow
- Made of high light transmission material with light weight steady color temperature and low loss
- Color filters used for lighting effects and color correction, involving additive and subtractive color, color mixing, color transmission, absorption and filtering of the different wavelengths of light
- Also can help kids reduce reading frustration, improve clarity and eye movement control

# Magnification

## Relative size magnification

Increase size of actual target (large print books)

## Angular magnification

Object same size, same distance (telescope)

## Relative distance magnification

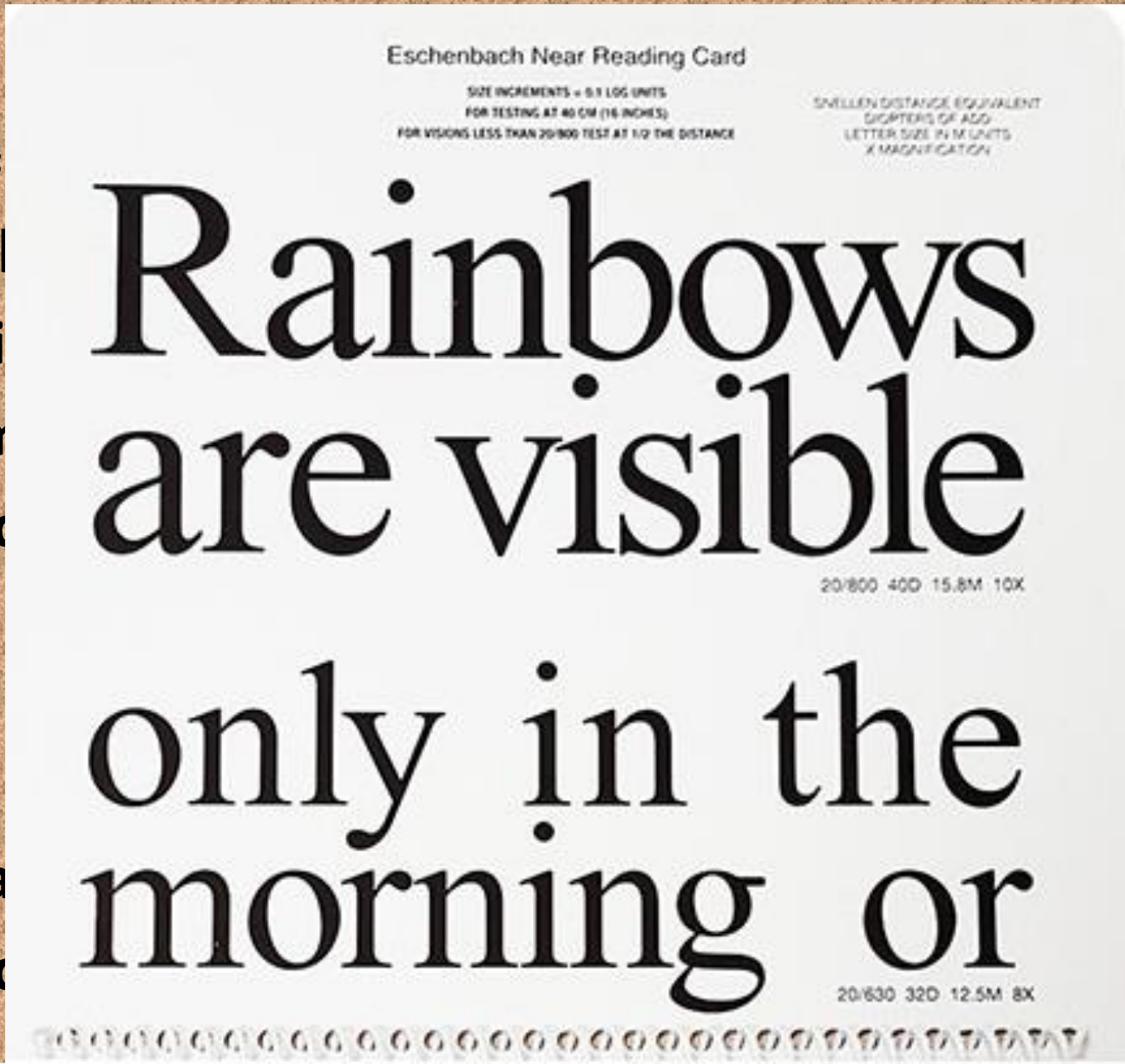
Reduce viewing distance from target (high add)

## Projection magnification

Image enlarged by projecting object

# Calculating magnification

- 4D =
- Word
- 40(i
- Determ
- Need
- best
- best
- Larger
- dista
- Need



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# Simple magnification

By that I mean --- “inexpensive”, over the counter

“Credit  
Pocket  
Simple  
Sheet  
Clip-on  
Handhe  
Crafter



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ns)  
s)  
)

# Devices help



# Auxiliary devices

**Magnifiers**  
**mini**  
**hand held**  
**stands**  
**lighted**



**Glasses for Dist & near**  
**Smart phone apps**

# Higher technology

**Ipads & apps**

**Telescopes**

**Microscopes**

**CC TVs**

**Eschenbach Optik of America**

**Eschenbach.com 1-800-487-4212**



# Reality Bytes



# Synthetic vision

- Smart glasses
- “Geordi vision”
  - eSIGHT
  - OCUTECH
  - IRISVISION (VR)
  - ORCAM
  - Enhancedvision.com (merlin mini)
  - Oculenz ARWear headset
- Retinal/cortical implants - Argus2
- Stem cells

# Google “smart” glasses



# “Geordi” vision

Star Trek Next Generation Geordi La Forge





# NIKE VYPER



# e-SIGHT

Wireless and handsfree  
with built in controls

All-day comfort  
halo band with back-  
battery for perfect weight  
distribution

Patented Bioptic Tilt  
to provide greater  
mobility and access to  
peripheral vision

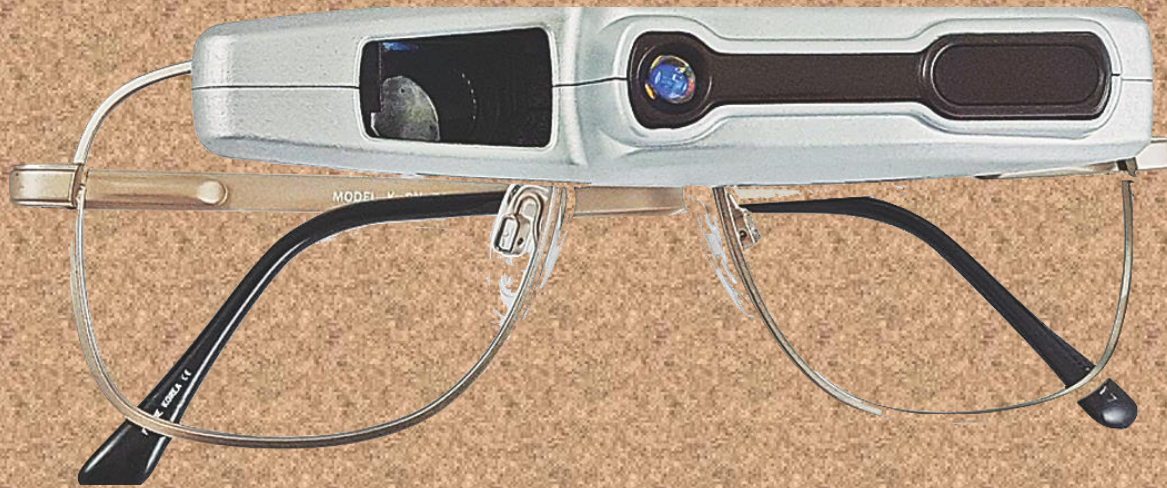
Proprietary algorithms  
to improve quality of  
information sent to the brain

made po  
aberi

**\$4,000 cost**



# Ocutech



- Prescription only
- Variety of styles & magnifications
- Permanent mount or flip-up
- For distance or near, 20/40-<20/200
- Cost \$4000+

# IrisVision VR

- Multiple zooms
- Multiple settings (wide angle, bubble)
- Can read to you with OCR
- Cost \$2500



# OrCam Myeye 2.0

Read Text Including: newspapers, books, menus, signs, & screens.

Recognize Faces Real time identification of faces is announced.

Identify Products Enabling an independent shopping experience.

Smart Reading Simply ask for the text that interests you. "Read the headlines," "Read amounts," or "Start from" a specific section.

Orientation Identify objects in your surroundings (including doors, chairs and more), allowing the user to simply ask "What is in front of me?"

Voice commands or tap device

Cost \$3500

Dr Phil youtube  
video of OrCam



# Merlin mini



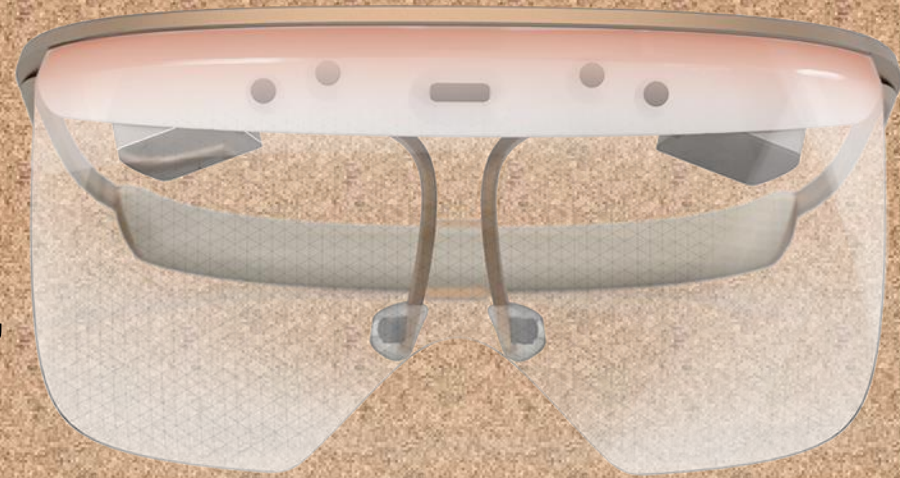
## Key Features & Benefits:

- Full HD – 1080p with autofocus
- Adjustable monitor height for best viewing angle
- Video magnifier 15.6" or 17.3" screen easily folds away
- Read text & view objects up close, in distance, or view yourself
- Read full pages without moving reading material
- Connect to TV screen for larger image with HDMI
- 3 magnification ranges
- 3-in-1 rotating camera
- Portable
- 5-hour rechargeable battery
- Zoom & pan features
- 2-year warranty
- Cost \$3000



# Oculenz ARWear

A connected-network device pairs with existing laptop, tablet, or smart-phone, allows existing Apps to work on Oculenz for Cell calls, Gaming, & Streaming Video Content. Headset is lightweight with 110-degree FOV 2.5K resolution, 2 HD cameras, 5 camera/sensors & stereo sound, including noise-cancelling microphones. Mini-HDMI & USB-C connectors for direct-connect with Cellular, BlueTooth® & WiFi wireless connections for “tetherless-go-anywhere” AR system.



**Cost \$6000**

# Cortical/retinal implants

Stem cells –not just science fiction

## Implants - Argus 2

For RP blind patients

350 patients

>90% “some” vision

Light

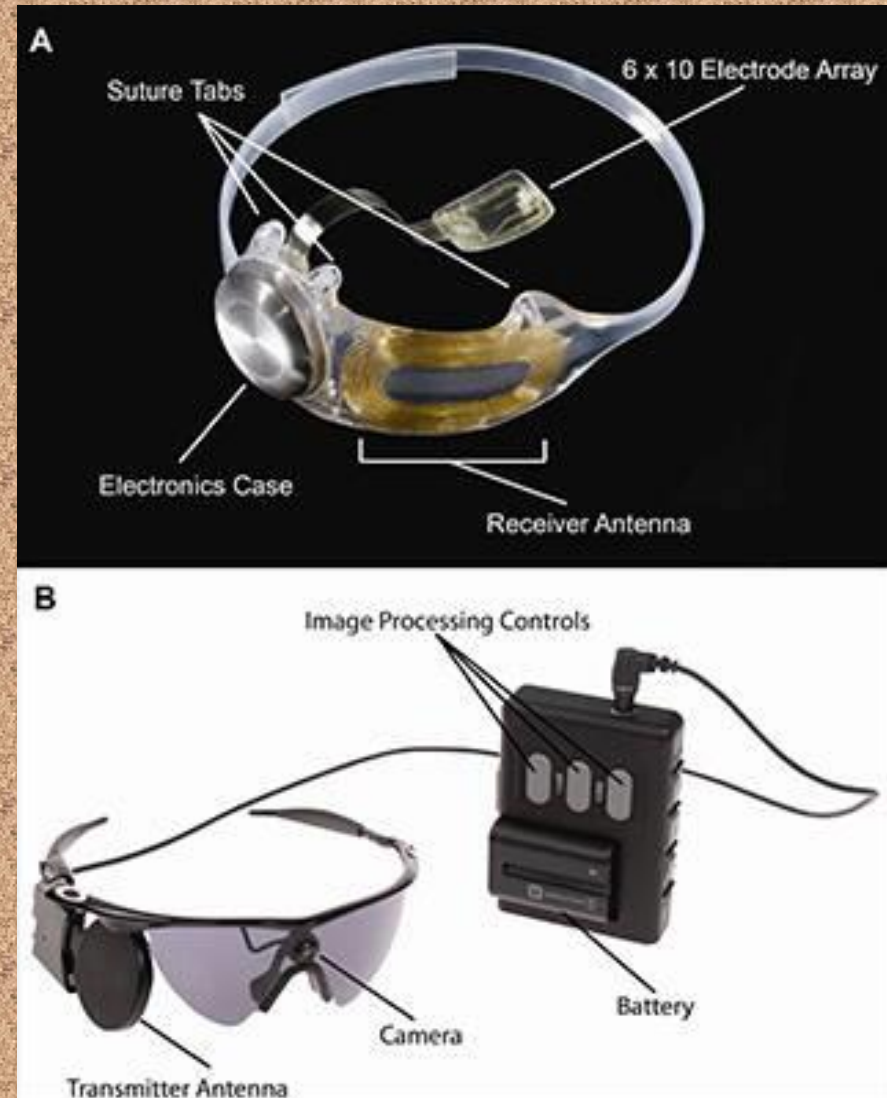
Motion

Object detection

Large print characters

FDA approved Argus2s – 3/21

\$200,000 10 years





# Coping



# Support Services

**Federal - SS “bump” & Tax deduction**

**State – services for the blind**

**Blind services**

**Lowvision.preventblindness.org**

**American Foundation for the Blind (AFB)**

**International Academy of LV Specialists**

**AOA.org- Vision Rehab section**

**Service dogs ~ 10,000 teams in US 2%of blind**

**Counseling/ occupational therapy**

**Family/Friends/Faith**

# Question # 1

Which of the following is the *MOST* critical sense?

- a) Taste                      1% of sensory input
- b) Touch                      3% of sensory input
- c) Smell                      6% of sensory input
- d) Hearing                      11% of sensory input
- e) Vision                      80% of sensory input**

# Question # 2

Which statement is FALSE?

- a) Statistics are science, therefore are indisputable
- b) Worldwide billions are vision impaired
- c)  $\frac{1}{3}$  of the US adults surveyed claim some vision impairment
- d) There are 3x more low vision people compared to blind
- e) Age is the biggest worldwide variable creating vision loss

# Question # 3

Which projection statement is FALSE?

- a) By 2050 1M people(15x) in US over 100 yo
- b) Baby boomers are the largest generation in the US
- c) >40% of the US is obese leading to diabetes & vision loss
- d) >80M people have Glaucoma, but >½ are undiagnosed
- e) Mac Degen is the #1 cause of blindness over 55yo In the US

# Question # 4

In Optometry, what is the *MOST* important consideration about defining vision loss?

- a) The Snellen Acuity chart number
- b) It decreases life expectancy by 4 years
- c) When best corrected vision doesn't allow a patient to do what they want**
- d) It decreases quality of life the last 3 years of a persons life
- e) It increases the likelihood of depression

# Question # 5

Which is NOT a simple adaptation to vision loss?

- a) Large print books
- b) More light to read
- c) Colored filters
- d) Stem cell therapy
- e) Typoscopes

# Question # 6

Which is NOT a classification of magnification?

- a) Relative size magnification
- b) Absolute size magnification**
- c) Relative distance magnification
- d) Angular magnification
- e) Projection magnification



# Question # 7

Which lighting statement is FALSE?

- a) CFLs give better light than incandescent
- a)** Decreasing work distance by half increases light energy 4x
- c) Normal room lighting isn't adequate for low vision
- d) LEDs produce more light, but also more harsh glare
- e) Full spectrum fluorescents bulbs are better, but expensive

# Question # 8

Which ISN'T a conventional magnification device 1<sup>o</sup> care ODs will likely provide a low vision patient?

- a) Hand magnifier
- b) Lighted stand magnifier
- c) Lighted high add reading glasses
- d) TV magnifying glasses
- e) CCTV system

# Question # 9

Which ISN'T a synthetic vision device?

- a) Ocutech
- b) OrCam
- c) Argus2
- d) Geordi Vision
- e) Oculens ARWear**

# Question # 10

Which vision loss support system statement is FALSE?

- a) Federal S.S. has increase benefits & IRS tax deductions for blind
- b) States have various services for blind assistance
- c) About 25% of blind people have seeing eye dogs
- d) ODs can do MANY things for low vision
- e) Family, friends, & faith are critical support systems

# Closing

Thanks to Tracy for his insights. It takes good friends for a good life!

Remember your class credit code

Thanks for your time! How can this help YOUR office & patients?

Next up: Counterfeit Cash, Credit Card Cons, & Shoplifting Security