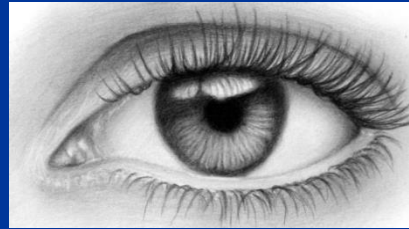


Visual Function: Incorporating Visual Assessment into Specialty Care Programs



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DukeMedicine



Why include visual assessment in my programs?

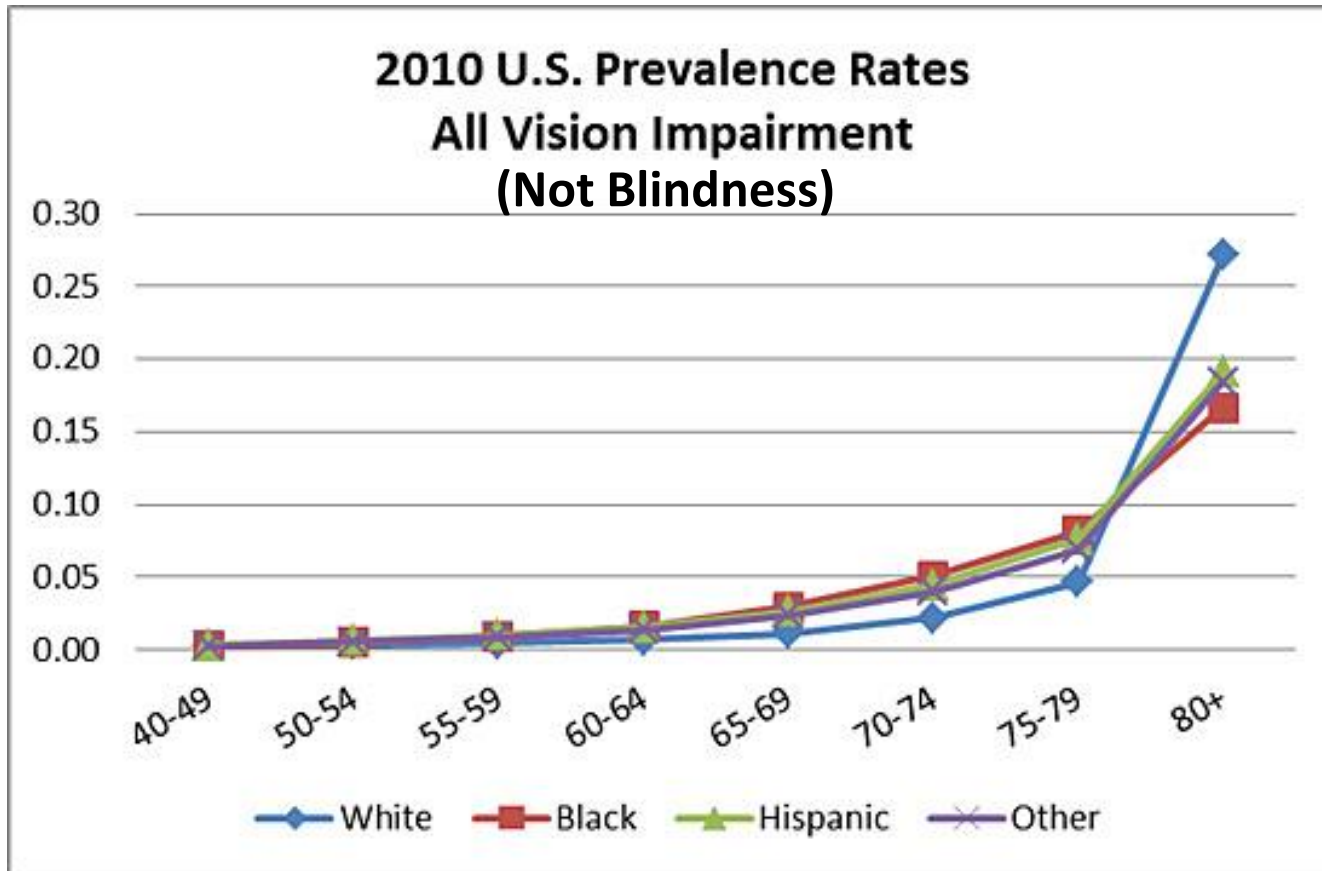
Vision Loss is More than a Nuisance!

Objective Outcomes Linked to Vision Impairment:

- Disability
- Depression
- Falls and Accidents
- Greater healthcare utilization
- Cognitive impairment
- Caregiver stress
- Reduced self care
- Cost



Prevalence of Chronic Vision Impairment in the U.S. is strongly age-related



https://nei.nih.gov/eyedata/vision_impaired (2010 Data)

Age (years)	Legal Blindness (<20/400 Or Field Deficit)	
	Persons	%
60-69	59,000	0.3
70-70	134,000	0.8
≥80	648,000	7.0

Data from National Health Interview Survey
Lee DJ et al., *Arch Ophthalmol.*
April 2004;122(4):506-509



June 2016

Many Americans have vision impairment that is **correctable**

- 8.2 to 15.9 million Americans have uncorrected refractive error. All they need is the right pair of glasses!
- Millions more live with operable cataracts

“...eye and vision health remain relatively absent from national health priority lists.”

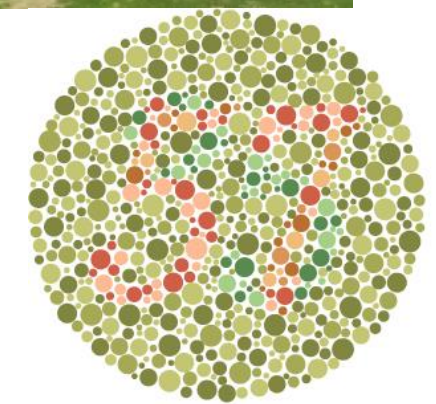
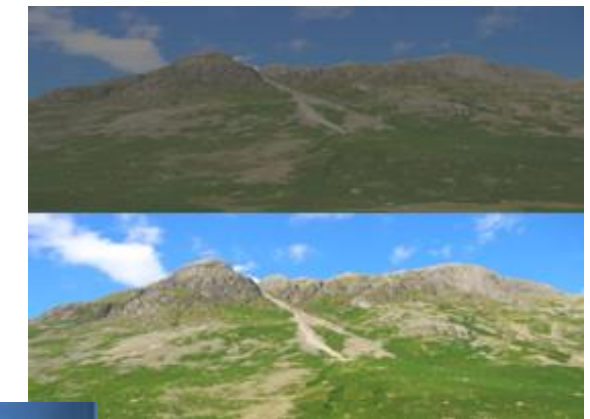
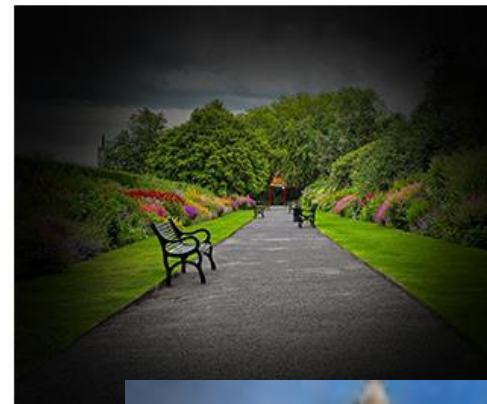
Basics of Vision Assessment in Research and Innovative Care Models

Common Causes of Vision Loss in Older Americans

- Refractive error
 - Distance visual acuity
 - Near visual acuity (e.g., presbyopia)
- Cataracts
- Age-related macular degeneration
- Glaucoma
- Diabetic Retinopathy

“Vision” has many components

- Distance visual acuity
- Near visual acuity
- Visual Fields
- Contrast Sensitivity
- Color vision
- Depth perception
- Visual processing
(a central process)

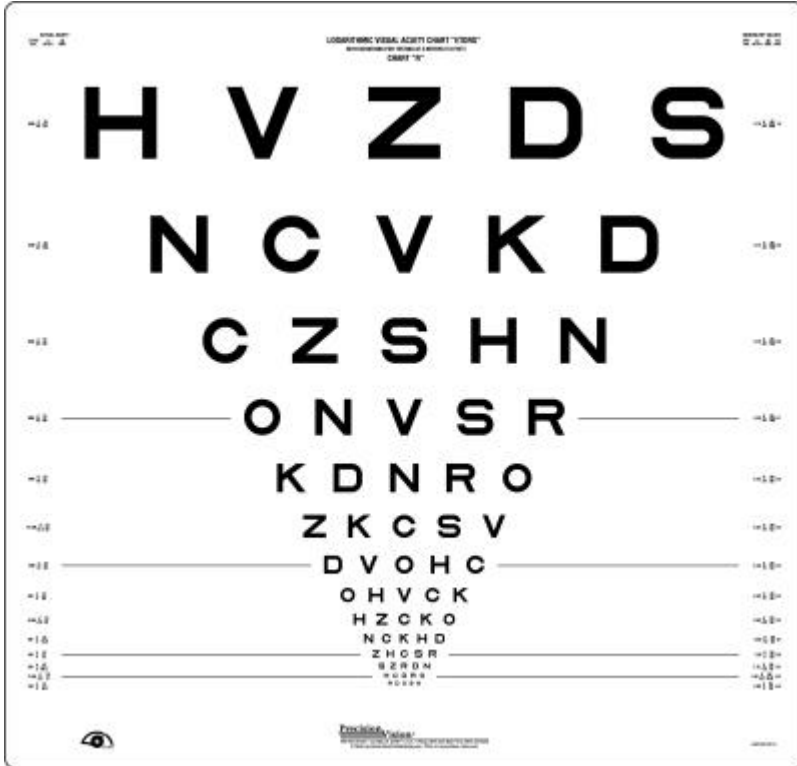


So what should I measure?

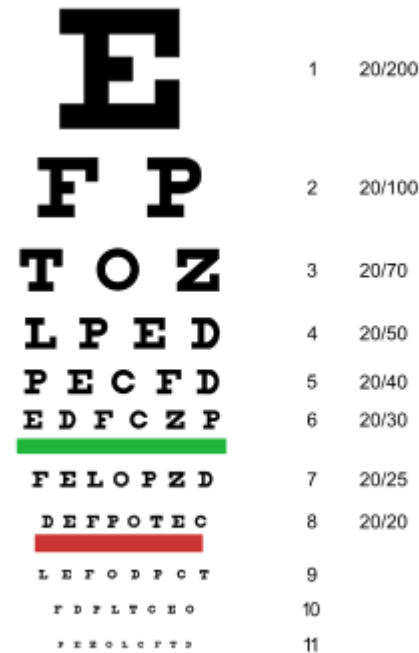
- Depends on your population and your question(s)
- Depends on your data collection protocol (e.g., in person or by phone? In office or in homes?)
- Depends on how much time you plan to devote to sensory assessment

Consider consulting a vision health expert to design the best protocol for your needs

Measurement Considerations: Distance Visual Acuity



ETDRS Chart: \$65 online
(4 meter distance)



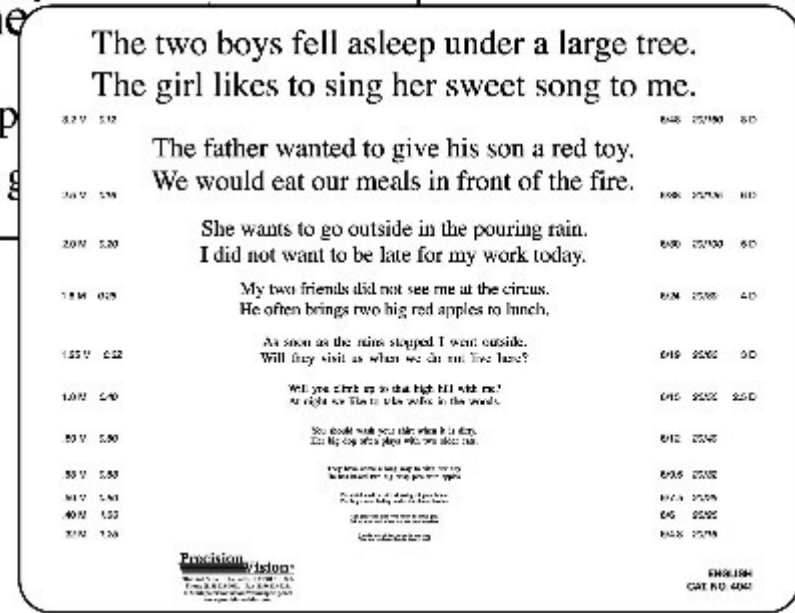
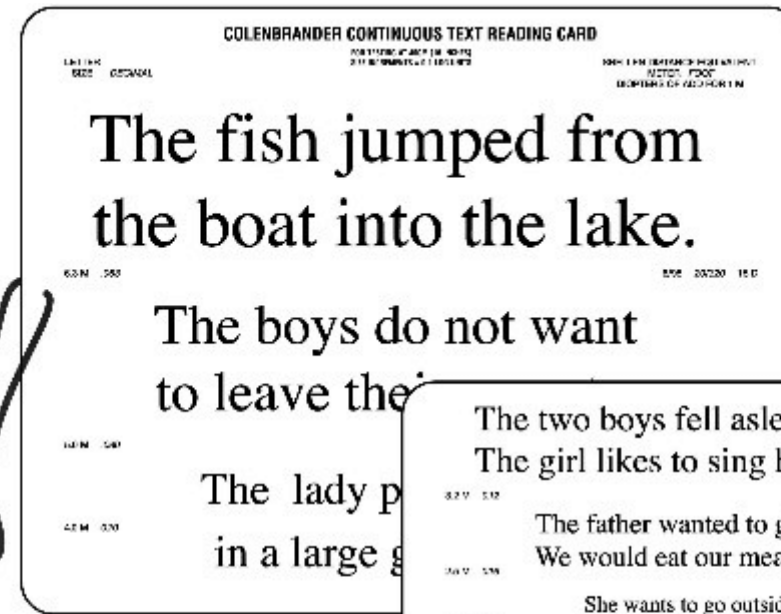
Snellen: \$17 online
(20 feet distance)

- Measure best corrected, or presenting vision, or both?
- Measure right eye (OD) and left eye (OS), or both eyes (OU), or all 3?
- Convert your measures (e.g., 20/40 or 4/8) to LogMAR for analysis (logarithm of minimal angle of resolution, conversion tables and calculators online)

More Measurement Options: Contrast Sensitivity and Near Vision Tools



Pelli Robson Chart for Contrast Sensitivity



Continuous Text Reading Cards for near vision (40 cm)

Automated Assessments are an option



What if I'm using survey instruments?

Self-reported vision ability

- No agreed-upon standard for simple question(s)
- E.g., from Salisbury Eye Study, “Rate your vision with your best glasses, if you wear glasses” Scale 0 (blind) to 10 (excellent)
- Typically correlate to clinical measures, but concordance not perfect¹

Vision-related quality of life (Age 18+)

- 53 items, 10 minutes to administer

Vision function

- NEI-VFQ (39- or 25-item versions)
- VA-LV-VFQ (48 items)



¹El-Gasim et al. Ophthalmology 2012
El-Gasim et al. IOVS 2013
Coyle et al. J Aging Health 2017

Gap Areas

- Integration of vision health into chronic care agenda
 - REMEMBER TO ASK: HAVE WE CONSIDERED VISION?
- Innovative approaches for screening/detection
 - Telemedicine
 - Community health partnerships
- Innovative approaches for linking detection to care
 - Health system navigators
 - Caregiver engagement
- New tools
 - Vision assessment protocols for cognitively impaired participants
 - Tests of cognition that don't rely on vision