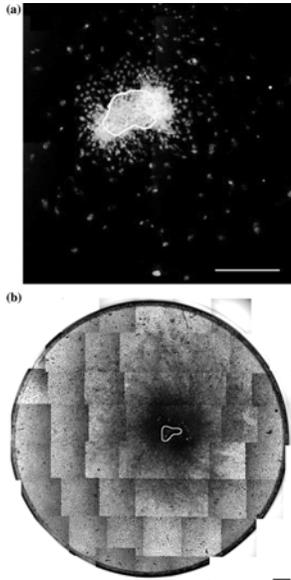


Migration and proliferation of retinal pigment epithelium on extracellular matrix ligands

Hao Wang, MS, MD, et al.

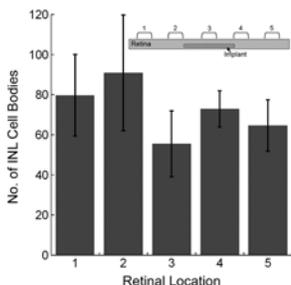


Our goal is to develop a surgical treatment that will improve vision for patients with age-related macular degeneration (AMD). AMD is the most common cause of blindness among people over age 55 in the United States (including veterans). In most AMD patients with severe visual loss, abnormal blood vessels grow under the central retina (the area that provides high resolution vision) and cause bleeding, scarring, and blindness. If surgical excision of the abnormal vessels can be combined with resurfacing of the dissection area by the patient's own retinal pig-

ment epithelial cells (RPE), then vision might be restored postoperatively. We studied the ability of young versus old RPE cells to grow in cell culture on surfaces that contain proteins believed to foster RPE migration and proliferation. We found that old as well as young RPE cells can grow in cell culture on surfaces that contain appropriate extracellular matrix ligands. These results will guide us in developing techniques to provide sight-restoring treatment for patients with exudative AMD.

Status of the feline retina 5 years after subretinal implantation

Machelle T. Pardue, PhD, et al.



The long-term biocompatibility and durability of retinal prosthetics are essential components of a viable clinical device. In this study, we report results obtained 5 years following implantation of normal adult cats with a subretinal microphotodiode array.

All implants functioned throughout the study period. Small changes in retinal function and morphology were noted that could be attributed to surgical manipulation or the presence of a solid device in the subretinal space. No indications of rejection of the prosthesis existed. Clinical trials to determine whether visual improvements exist in patients implanted with subretinal devices of similar design are in progress, while animal studies address the mechanisms that may underlie these improvements.

Nonmydriatic teleretinal imaging improves adherence to annual eye examinations in patients with diabetes

Paul R. Conlin, MD, et al.

We studied whether teleretinal imaging during a primary care provider visit would increase the chances that patients with diabetes obtained a follow-up dilated eye examination. We measured the number of patients who received dilated eye examinations within 12 months of study enrollment and measured the agreement on level of diabetic retinopathy between teleretinal imaging and the eye examinations. Patients who had received teleretinal imaging ($n = 223$) had significantly more dilated eye examinations than the control group ($n = 225$). Teleretinal imaging and eye examination results showed significant correlation and moderate agreement. Patients reported a high degree of satisfaction with teleretinal imaging. The imaging also improved diabetic retinopathy assessment rates.

Framework for a national teleretinal imaging program to screen for diabetic retinopathy in Veterans Health Administration patients

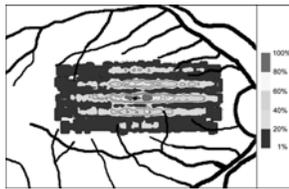
Paul R. Conlin, MD, et al.

Digital retinal imaging with remote image interpretation (teleretinal imaging) is an emerging healthcare technology for screening patients for diabetic retinopathy (DR). An expert panel met to identify and solve the issues related to use of teleretinal imaging in the Veterans Health Administration (VHA). The panel made recommendations and identified areas that required more information. These recommendations became the framework for a national teleretinal imaging program. Subsequent VHA experience

with teleretinal imaging and accumulating scientific evidence support nationwide use of teleretinal imaging to screen for DR. The program will increase patients' access to screening and uniquely evaluate the role of teleretinal imaging in the care of patients with diabetes.

Retinal locus for scanning text

George T. Timberlake, PhD, et al.

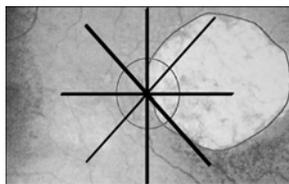


We developed and tested a method of mapping the retinal location of text scanning during reading. Text location is plotted cumulatively on scanning laser ophthalmoscope (SLO) retinal

images. Retinal locations that contain text most often are brightest in the cumulative plot, and locations that contain text least often are darkest. Text maps of five subjects with scotomas from macular degeneration showed that they used the same peripheral retinal area to scan text and fixate. Text maps of three subjects with scotomas showed that they used separate areas to scan text and fixate. Retinal text maps may help evaluate strategies that train people with scotomas to use a particular retinal area to scan text.

Effects of preferred retinal locus placement on text navigation and development of advantageous trained retinal locus

Gale R. Watson, MED, CLVT, et al.



We sought to identify factors that inhibit the reading ability of veterans with visual impairments. Our study investigated whether preferred retinal locus (PRL) and scotoma placement

were related to text navigation ability in subjects with low vision. We also investigated whether a trained retinal loci (TRL) could be developed in the better-seeing eyes of subjects with low vision who were long-term PRL users. We evaluated 60 subjects' visual function and text-navigation abilities. The visual field and PRL were measured with a scanning laser ophthalmoscope (SLO). We found significant differences in text-navigation ability based on scotoma and PRL placement. In a follow-up study, seven subjects with a nonadvantageous PRL quickly developed a TRL during instruction with an SLO. Our study results may

inform clinical practice, increase veterans' reading abilities, and stimulate new research on this topic.

Recognition distance of pedestrian traffic signals by individuals with low vision

Michael D. Williams, PhD, et al.



Researchers have developed a variety of accessible pedestrian signals (APS) to facilitate safe street-crossing for visually impaired individuals. Forty-one subjects with vision loss participated in our study to determine

the minimum distance they required to correctly identify three different pedestrian traffic icon symbols. We performed a replication of an earlier study to measure differences in the relative conspicuousness of APS presented in a community environment. We found that subjects identified the WALK icon without augmented light source information (animated eyes) from farther away than either the WALK icon with augmented light source information or the DON'T WALK icon. This result suggests that changes to the pedestrian display must be evaluated for various types of eye conditions that cause low vision. We wanted to provide vision rehabilitation professionals, as well as transportation and traffic safety engineers, with reliable, valid, and scientifically collected data for assessment of these APS.

Longitudinal associations between dual sensory impairment and everyday competence among older adults

Mark Brennan, PhD, et al.

Dual sensory impairment in hearing and vision currently affects from 5 to 21 percent of older adults. Using Longitudinal Study on Aging (LSOA) data, we examined the associations between self-reported dual impairment and everyday competence in terms of self-reported activities of daily living (ADL) among adults aged 70 and older. We found an overall trend of increasing difficulty reported for ADL tasks; those reporting no difficulty decreased from approximately two-thirds to one-half over the 6 years of the LSOA. Findings highlight the importance of vision and aural rehabilitation programs for older adults to mitigate the loss of competence in later life due to sensory impairment.

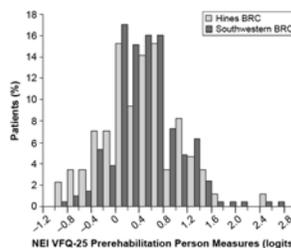
Historical perspective on the development of outcomes measures for low vision and blind rehabilitation in the Department of Veterans Affairs

Judith Babcock-Parziale, PhD; Michael D. Williams, PhD

This article reviews the instrument development process and summarizes current research findings for three low-vision and blind rehabilitation outcomes measures developed in the Department of Veterans Affairs (VA). The measures examined include the Blind Rehabilitation Service Functional Outcomes Survey, the Functional Assessment of Self-Reliance on Tasks, and the VA Low Vision Visual Functioning Questionnaire. We compared and contrasted the instrument development process and research findings for the three measures using two fundamental measurement criteria. Our findings suggest the three measures need refinement to meet the criteria and proposed measurement standards for instruments in this field. We hope that future development efforts both within and outside the VA will incorporate these criteria. The development of instruments that meet the specified measurement standards and demonstrate clinical relevance is an essential step toward establishing an evidence-based system for the VA and the field of low-vision and blind rehabilitation.

Timing and directions for administration of questionnaires affect outcomes measurement

Joan A. Stelmack OD, MPH, et al.



We compared data from pilot studies involving patients' self-reported health-related quality of life after participation in two Department of Veterans Affairs (VA) Blind Rehabilitation Center (BRC) programs. Southwestern BRC researchers in Tucson, Arizona, administered the National Eye Institute Visual Functioning Questionnaire (NEI VFQ) exactly as directed, while researchers at the VA hospital BRC in Hines, Illinois, modified the directions to consider use of low-vision devices. Person and item measures estimated from the patient's pre- and postrehabilitation responses were compared with these same measures obtained at follow-up. At the Southwestern BRC, no change was reported in either person or item measures 3 months after rehabilitation. At the Hines BRC, improvement was seen in both the person and item measures when measurements were made immediately following rehabilitation. Veterans from the Hines cohort were contacted by telephone and administered the same instrument 3 years later. For these subjects, the improvement noted in the person measure disappeared at follow-up, while the improvement in the item measure was maintained. If outcomes are measured before patients have time to use their low-vision devices and skills at home, halo effects may modify outcomes measurement. We recommend that researchers using the NEI VFQ modify the questions to make the instrument more sensitive to improvements that occur after treatment.