Vision loss: New technology = no need for despair

Story by Michael Sondergard

If you or a loved one has vision loss, you might have gotten the wrong message. You might have been told, “There’s nothing more we can do.”

That is simply not true for many patients, including those with age-related vision loss, says University of Iowa optometrist Mark Wilkinson, OD.

“People with vision loss often are not told about many of the remarkable new options available to them—optical and electronic magnification devices, computer enhancements, and even apps for smart phones and tablets,” he says. “GPS devices can enhance driver safety, and audio options can improve the ability to read everything from books to emails. There is a whole range of exciting new technologies that can greatly enhance a patient’s quality of life.”

Wilkinson’s encouraging message comes on the heels of new National Institutes of Health research into depression and age-related macular degeneration (AMD). Previous studies have shown that as many as one-third of people with bilateral AMD develop clinical depression. Yet there is no standard of care for depression in primary care settings, where AMD is typically diagnosed.

In looking at ways to reduce the risks of depression, researchers tested a technique called “behavior activation.” This technique recognizes that depression often occurs when things that
New vision screening tool for amblyopia

If not discovered and treated early, an eye with amblyopia may never develop good vision and could even become legally blind. Commonly called “lazy eye,” amblyopia is poor vision in an eye that did not develop normally in early childhood and affects two or three out of every 100 people. More than seven million people in the United States may be affected. A new web-based vision test for children seeks to prevent this unnecessary vision loss.

Visionforkids.org provides testing for children ages three years and older, and offers cost-effective and accessible vision screening. The site provides a 15-minute test that can help identify a vision problem in a child before ever noticing a single symptom.

Pediatric ophthalmologists and orthoptists at the University of Iowa collaborated with colleagues in the University of Utah’s Department of Medical Informatics to develop the website. The site underwent validity testing, and the results were published by the American Association for Pediatric Ophthalmology and Strabismus.

Provided as a public service, the website is made possible through funding from the Primary Children’s Medical Center Foundation in Salt Lake City, Utah, and the National Library of Medicine.

For more information, check out visionforkids.org

Expanding eye care in eastern Iowa

University of Iowa Hospitals and Clinics is pleased to offer a new eye care option in the Clinton area of eastern Iowa.

We recently partnered with Midwest Vision Clinic of Clinton and Mercy Medical Center – Clinton to provide a convenient alternative for area patients seeking cataract surgery and comprehensive eye care. Appointments with Tim Johnson, MD, PhD, a comprehensive ophthalmologist with fellowship training in glaucoma, can be arranged by calling our scheduling team at 319-356-2852.

Diabetic eye disease a topic of discussion

Clinical associate professor Karen Gehrs, MD, shared how diabetes impacts vision during a recent community education seminar. Gehrs is a retina specialist who treats individuals dealing with diabetic eye disease, macular degeneration, and other retinal conditions at the UI Health Care – Iowa River Landing clinic.
Individuals who are extremely visually impaired due to certain corneal diseases and irregularities may now have a new solution to consider. A new prosthetic scleral lens has been created to help benefit those needing visual correction, ocular protection, relief from pain, or wanting to maximize their vision due to diseased and irregular corneas.

The EyePrintPRO™ is a prosthetic scleral cover shell that improves vision by creating a new smooth, refractive surface for the eye. The lens is designed to match the exact contours of the individual eye and provide the best vision and comfort possible. The technology was developed by associate professor of clinical ophthalmology and director of the contact lens service Christine Sindt, OD, FAAO, and business venture Advanced Vision Technologies.

It starts with an impression process which only takes minutes and captures the precise curvatures of the entire ocular surface. This comfortable and gentle process gives more information than high tech computerized topographical scanners and provides eye care providers the ability to fit complicated ocular irregularities with precision.

The EyePrint impression is then shipped to EyePrint Prosthetics LLC for digitizing and prosthetic scleral cover shell design. Through the latest technology in 3-D scanning and computer numerically controlled machining systems, an exact match is achieved for each individual cornea and sclera. Prisms and decentered optics, as well as multifocals and torics, can be manufactured into the lens to achieve optimal vision.

While scleral lenses are fit through a system of trial and error with prefabricated lenses, the EyePrintPRO™ is made from an impression of the ocular surface, just like a prosthetic eye. Instead of using a series of standardized curvatures as with scleral lenses, the EyePrintPRO™ is generated to exactly match the unique irregularities of the individual eye. The lens is manufactured in a high oxygen permeable material with superior quality optics, ensuring wearers have the ultimate in comfort, health, and vision.

Offering this solution to patients requires some comprehensive training in the EyePrint impression and fitting process. Sindt lectures about the option and has sought to educate other eye care providers about the use of prosthetic scleral lenses through the Scleral Lens Education Society.

Learn more online at eyeprintpro.com or uihealthcare.org/ContactLenses
used to be fun or engaging—such as reading, writing, or cooking—may seem difficult or even impossible.

Behavior activation helps AMD patients:
• Focus on activities they enjoy
• Recognize that losing enjoyable activities can lead to depression
• Re-engage in these activities

Maintaining social activity is an important aspect of behavior activation therapy, which relies on teamwork between primary eye care professionals and those in psychiatry, psychology, and rehabilitation. The study showed that this approach cut depression rates in half.

The trial was funded by the National Eye Institute (NEI).

As chair of the NEI’s Low Vision Committee, Wilkinson shares a passionate interest in improving patient awareness of low vision technologies and treatments. He has been a major contributor to an updated free patient resource called “Living with Low Vision.”

“There is a whole range of exciting new technologies that can greatly enhance a patient’s quality of life.”
Mark Wilkinson, OD

“Living with Low Vision” features a new booklet and videos encouraging patients to seek help from low vision specialists. The content includes tips for maximizing remaining eyesight. The video and booklet also contain testimonials from individuals of all ages (including a child), who have used low vision services to improve their quality of life.

The booklet and free DVD with videos and patient stories can be ordered at nei.nih.gov/lowvision

For more information or to arrange a low vision evaluation, contact the Vision Rehabilitation Clinic at University of Iowa Hospitals and Clinics, 319-356-2852.

Neuro-ophthalmology fellow Enrique Rivera, MD (’15F), received a VitreoRetinal Surgery Foundation grant to support his research involving the novel application of positional OCT for retinal conditions. Almeida’s research supervisors are Michael Abramoff, MD, PhD, and Stephen Russell, MD.

Vitreoretinal fellow David Almeida, BSc(Hon), MD, MBA, PhD, FRCSC (’15F), received a VitreoRetinal Surgery Foundation grant to support his research involving the novel application of positional OCT for retinal conditions. Almeida’s research supervisors are Michael Abramoff, MD, PhD, and Stephen Russell, MD.

Johanna Beebe, MD (’16R), was selected as one of this year’s resident recipients of the 2015 Humanism and Excellence in Teaching Award presented by the Arnold P. Gold Foundation. Beebe was selected due to her excellence as a role model exhibiting humanity, excellence, and leadership.

The award was established to recognize and honor residents who demonstrate commitment to teaching and compassionate treatment of patients and families, students, and colleagues.
The American Academy of Ophthalmology recognized several University of Iowa alumni for their loyalty and long-standing support. 2015 Life Fellows include:

- Gary W. Abrams, MD ('78F)
- Gary Fish, MD ('77F)
- William N. Gillum, MD ('77R, '80F)
- Dennis D. Gordy, MD ('73MD, '78R)
- Donald M. Grayson, MD ('79F)
- Henry J. Kaplan, MD ('78R)
- Thomas P. Keenan, MD ('75R)
- Gary K. Phelps, MD ('69MD, '73F, '77R)
- William F. Rachal, MD ('76F)
- Chris W. Schmidt, MD ('77MD)
- Alexander G. Smith, MD ('76R)
- Michael J. Versackas, MD ('73MD)
- Nicholas A. Zubyk, MD ('79R)

Other Alumni Notes

- Jane Bailey, MD ('96R), was elected to the American Board of Ophthalmology. Bailey practices ophthalmology with First Eye Associates in Omaha, Neb.
- Juan Fernandez de Castro, MD, PhD ('09F, '10F), received the Young Scientist Research Retina Grant from The Juliette RP Vision Foundation, a Retinitis Pigmentosa Foundation.

Congratulations to our alumni and colleagues for their accomplishments and dedication on behalf of the field of ophthalmology.

If you receive a special award or distinction, let us know. Email us at iowaeyecare@uiowa.edu

ASCRS Hall of Fame adds two prominent ophthalmologists

Emeritus chairman and former faculty member, Frederick C. Blodi, MD, was posthumously inducted into the American Society of Cataract and Refractive Surgery Ophthalmology Hall of Fame.

Blodi was a recognized expert in ophthalmic pathology and namesake of the FC Blodi Eye Pathology Laboratory at the University of Iowa. He was also known as an expert diagnostician, accomplished surgeon, and highly skilled teacher. Blodi joined the department in 1952 as an assistant professor and was named department head in 1967, a position he held until 1984.

Also inducted was Gunter K. von Noorden, MD ('60R), a former UI faculty member who led a distinguished career in academic medicine. Von Noorden was a leader in ophthalmology and strabismus surgery for 40 years. He began his career as a resident at the University of Iowa in 1957 and joined the faculty after completing his fellowship. He held positions at Wilmer Eye Institute and Baylor College of Medicine where he retired as a distinguished emeritus professor.

The ASCRS Hall of Fame award honors pioneers whose contributions have shaped the way ophthalmology is practiced. Recipients are chosen by their peers and only 55 ophthalmologists have been inducted since 1999.

Remembrances

- Glenn Mohney, MD ('52MD), passed away in Sarasota, Fla. on April 26, 2014.
- M. Wallace Friedman, MD ('48MD), from San Francisco, Cal., died on November 25, 2014.

Thank you to the alumni and Iowa ophthalmologists who have renewed their Iowa Eye Association membership. We appreciate your support of our training programs and continuing education activities through association dues!
New fund supports residency work abroad

Treating preventable blindness and bringing basic eye care to the world has been an interest of ophthalmologist Robin Ross, MD (’95R), since her days of residency training. Over the years since she has participated in numerous medical mission trips that have affirmed her desire to make a difference. She even returned to school to complete a master in public health degree focused on developing innovative solutions to global eye care distribution.

“During my time at Iowa, I was able to work in Ghana for two weeks and this solidified my lifelong interest in global health,” recalls Ross.

Her deep interest in the issue and the ophthalmology profession drove her and her husband, Chad Cleveringa, to create the Robin Ross and Chad Cleveringa Ophthalmology Residency Support Fund. The fund supports numerous areas of residency training and educational programming, including costs associated with international medical mission trips that University of Iowa residents pursue in their third year of training. These experiences provide valuable insight into alternate health care delivery systems, highlight the challenges of eye care around the globe, and, as in Ross’s case, can alter career paths.

“The University of Iowa residency program was transformative and altered my career to give me the skills necessary to work on the pressing challenges of ophthalmology care in underserved areas,” Ross says.

As residents begin ophthalmology specialty training, many are burdened with high debt due to costs associated with medical school. “I know during residency, the added cost of buying equipment and interviewing are financially burdensome. This new support fund will also help cover start-up costs for supplies and equipment incurred by new residents,” states Ross.

“Robin has been so generous to our department. When she was a resident she started the resident free eye clinic, which is still an important part of our program. She wanted to help the program and chose several projects which will really make a difference,” says residency program director Tom Oetting, MD. He adds, “Our new interns coming in July will be spoiled by the fantastic set of lenses purchased through the fund.”
residency experiences at home and abroad

The fund also establishes a Women in Ophthalmology (WIO) lectureship, which allows the department to invite prominent female ophthalmologists to campus. The lecture is a legacy of sorts for Ross, since she explored the history of women in ophthalmology during her residency. The inaugural WIO lecture took place at the Iowa Eye Annual Meeting and featured Susan Day, MD (‘80F), vice president for medical affairs for Accreditation Council for Graduate Medical Education International. Membership in the Women in Ophthalmology organization and participation in WIO conferences by Iowa’s ophthalmology residents will also be supported as a result of this generous gift.

“We felt that it was important to invest in the next generation of leaders to solve the pressing problem of access to eye care.”
Robin Ross, MD

“Robin wanted to make sure our residents are exposed to great mentoring opportunities such as the WIO, and chose to support resident attendance to the meetings. I am excited by the new WIO lecture where faculty, alumni, and trainees will all be able to learn from the guest lecturer,” says Oetting.

Learn how you can support educational initiatives and projects by visiting givetoiowa.org/eye

The University of Iowa Foundation

To learn more about how philanthropic support helps advance the work of the UI Department of Ophthalmology and Visual Sciences and Stephen A. Wynn Institute for Vision Research, please contact:

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The UI acknowledges the UI Foundation as the preferred channel for private contributions that benefit all areas of the university. For more information or to make a donation in support of the eye program, visit the UI Foundation’s secure website at givetoiowa.org/eye

Chad Cleveringa (left) and Robin Ross, MD, frequently travel to underserved areas to provide medical care and explore fair trade practices. Ross completed residency training at the University of Iowa in 1995 and went on to complete a Vitreoretinal Surgery Fellowship. She recently merged her practice, Retina Vitreous Center, with the University of Michigan Kellogg Eye Center. Image courtesy of Robin Ross, MD.
Research Center of Excellence continues

The United States Department of Veterans Affairs (VA) has agreed to continue funding its Center for the Prevention and Treatment of Visual Loss for another five years.

Since its inception in 2009, the center – located in Iowa City – has been dedicated to solving important vision-threatening disorders affecting veterans and the general population. Researchers from the University of Iowa and the Iowa City VA Health Care System (ICVAHCS) are focused on discoveries that will lead to the improved diagnosis, monitoring, and treatment of the most common causes of visual loss, such as optic neuropathy, diabetes, glaucoma, macular degeneration, and traumatic brain injury.

The center will continue advancement in several key areas of research, including determining earlier signs of vision loss progression and new treatment innovations. Researchers also continue to explore the use of telemedicine and computer-aided diagnosis for the detection of eye disease, as well as efforts related to neuroprotection and neurotrophic growth factors for prevention and healing from vision loss. This includes pursuing new initiatives aimed at using the structure and function of the nerves in the eye as a window into understanding and treating disorders of the nervous system, such as multiple sclerosis, Alzheimer’s disease, raised intracranial pressure, and diabetic peripheral neuropathy.

Randy Kardon, MD, PhD, is the director of the center and a professor of ophthalmology at the University of Iowa. He and his colleagues continue to establish and leverage important collaborations with scientists involved in vision and brain research. Research spans across disciplines at UI, ICVAHCS, and the Department of Defense.

“We recognize the sacrifice that Veterans have provided through their dedicated service and remain focused on developing innovative diagnostic and treatment options for their vision loss. Continued funding from The Department of Veterans Affairs allows our research team a wonderful opportunity to advance the progress we’ve achieved thus far,” states Kardon.

Learn more about the investigators and research projects of the center at vision.research.va.gov/index.asp

Pieter Poolman, PhD (left), and Randy Kardon, MD, PhD, track pupil response as part of an evaluation and diagnostic measure of eye disease.
Traumatic brain injury (TBI) and resulting damage and dysfunction to both cognitive and visual processes are among the leading injuries of military personnel and are also highly prevalent in civilian populations. TBI not only creates its own medical challenges, but also puts individuals at greater risk for developing chronic neurodegenerative diseases, such as Alzheimer’s disease or Parkinson’s disease.

A research team at the Center for the Prevention and Treatment of Visual Loss is addressing this public health challenge through a new line of research. Matthew Harper, PhD, assistant professor of ophthalmology and lead investigator at the center, and Andrew Pieper, PhD, from the University of Iowa Department of Psychiatry and Iowa City VA Hospital, were awarded a multi-year translational research award from the Department of Defense to test a new therapeutic drug compound called P7C3-S243. Research studies will evaluate the efficacy of the novel protective compound in preventing neuronal damage in the brain and vision loss after TBI.

The Harper and Pieper laboratories will conduct experiments that seek to determine the optimal dose and treatment window of the neuroprotective compound for prevention of acute neuronal damage and dysfunction. Knowledge gained is expected to lead to new treatment strategies and clinical studies for individuals impacted by TBI.

“We have discovered and developed a new class of neuroprotective compounds with broad efficacy in preclinical models of neurodegeneration, including Parkinson’s disease, amyotrophic lateral sclerosis, cognitive decline with aging, peripheral nerve degeneration, and traumatic brain injury,” the researchers state. “In TBI, we’ve noted that treatment with this compound preserves not only cognitive and motor function, but also normal visual responses. The P7C3 compounds are currently being developed into a new class of neuroprotective drugs, and we are currently seeking funding to investigate whether these compounds may provide additional efficacy in neurodegenerative conditions affecting the optic nerve, such as glaucoma.”

The Center for the Prevention and Treatment of Visual Loss is located at the Iowa City Veterans Affairs Medical Center. Information about the research taking place may be found online at vision.research.va.gov/index.asp
Catalyst Award goes to stem cell researcher

University of Iowa researcher Budd Tucker, PhD, was awarded one of three Research to Prevent Blindness/International Retinal Research Foundation Catalyst Awards for Stem Cell Research Approaches for Age-Related Macular Degeneration.

The four-year award of up to $250,000 is designed to help fund high-risk/high-gain vision research by scientists who are working on cutting-edge approaches to age-related macular degeneration involving stem cells.

Tucker is an investigator at the University of Iowa Stephen A. Wynn Institute for Vision Research and directs the Steven W. Dezii Translational Vision Research Facility. In his research, Tucker and his team hope to produce outer retinal cell grafts grown from fibroblasts taken from a patient’s own skin on biodegradable scaffolds and deliver those cell scaffolds into an eye. These scaffolds will aid in the immune rejection response of the transplant and will significantly reduce cell loss that typically occurs following bulk injection of stem cells into the eye.

Information about Budd Tucker’s research and lab may be found at tuckerlaboratorylab.org

Research to Prevent Blindness is the world’s leading voluntary organization supporting eye research. More information about the organization and Catalyst Awards may be found at rpbusa.org/rpb

Renewed funding for vision research

The UI Department of Ophthalmology and Visual Sciences received a grant of $115,000 from Research to Prevent Blindness (RPB) to support vision research. Funding allows UI researchers to pursue innovative investigations into the causes and treatments for blinding eye diseases. In particular, the grant supports studies using electroretinography to diagnose retinal diseases, clinical research concerning uveitis, and expanded corneal research.

“We are excited about the renewed support from Research to Prevent Blindness. With research funding difficult to secure, the organization’s support is essential in our efforts to take good ideas and translate them into potential treatments for those who are experiencing vision loss,” states Keith Carter, MD, professor and chairman of the department of ophthalmology and visual sciences.

To date, RPB has awarded grants totaling more than $4.6 million to the University of Iowa. For more information on RPB and RPB-funded research, visit rpbusa.org

Learn more about the University of Iowa’s vision research at wivr.uiowa.edu

Talking research in the Mile High City

UI vision researchers, faculty, alumni, and friends gathered at the Iowa Reception during ARVO 2015. The group met up at Wynkoop Brewing Company in the Lower Downtown district of Denver to discuss the latest projects and findings. A fun time was had by all!
Faculty changes

The comprehensive ophthalmology service added a new face to the faculty ranks. **Michael Griess, MD**, joins as clinical assistant professor of ophthalmology. Griess received his medical degree in 2001 from the University of Nebraska Medical Center in Omaha, where he also completed his ophthalmology residency training in 2005. After serving on the faculty at the University of Nebraska Medical Center, he took a position in private practice at Avera Medical Group in Sioux Falls, S.D. He returns to academia by joining the faculty at the University of Iowa.

Griess specializes in primary eye care, cataract surgery, IOL implants, and phacoemulsification. He treats patients at the main hospital Eye Clinic, UI Health Care - Iowa River Landing in Coralville, and the Iowa City VA Medical Center.

The addition comes after the departure of a faculty member from our comprehensive and cornea services. **Anna Kitzmann, MD ('08F)**, left the department to move closer to her family and to pursue a position with the Mayo Clinic in Rochester, Minn. Good luck, Anna!

Our vision research team also lost a faculty member. **Stewart Thompson, PhD**, a researcher who focuses on how detection of light in the eye affects human health and performance, took a position with the New Mexico Institute of Mining and Technology in Socorro, N.M.

Scott chosen for service award

**William Scott, MD**, was chosen by the Iowa Medical Society to receive the 2015 Physician Community Service Award. The award is given annually to a physician who has made outstanding contributions to the community.

Scott was honored for his exemplary efforts and dedication to the children of Iowa through his work with Iowa KidSight, a program he has directed since 2000. He was nominated by a medical student who, after a rotation on the pediatric ophthalmology service, was impressed by the impact of the statewide vision screening program which has helped more than 360,000 children thus far.
The 2015-2016 Clinical Conference Series

Sep 18  
**Cornea** – Woodford S. Van Meter, MD, University of Kentucky HealthCare

Oct 23  
**Glaucoma** – Jost Jonas, MD, Ruprecht-Karls-University, Heidelberg, Germany (Mansour F. Armaly Lecture)

Dec 4  
**Retina** – Thomas W. Gardner, MD, MS, University of Michigan Kellogg Eye Center

March 5, 2016 (Saturday)  
**Cataract/Comprehensive** – James Banta, MD, Bascom Palmer Eye Institute

Apr 1, 2016  
**Neuro-Ophthalmology** – Nicholas J. Volpe, MD, Northwestern Memorial Hospital

Other Events

June 5-6  
**Iowa Eye Annual Meeting and 90th Anniversary Celebration**, Iowa City

June 12-13  
**UI Carver College of Medicine Alumni Reunion Weekend** (Classes of ’45, ’50, ’55, ’60, ’65, ’70, and ’75), Iowa City

June 29  
**Resident and Fellow Graduation**, Kinnick Stadium, Iowa City

Aug 7  
**Midwest Eye Research Symposium 2015**, Iowa City

Oct 8-9  
**UI Carver College of Medicine Alumni Homecoming** (Classes of ’80, ’85, ’90, ’95, and ’05), Iowa City

Nov 14-17  
**AAO 2015 Annual Meeting**, Las Vegas

Nov 15  
**Iowa Alumni Reception at AAO**, Wynn Las Vegas Resort, Las Vegas

Roll the dice with us in Vegas

Attend the Iowa Eye Alumni Reception at the AAO 2015 Meeting and you are sure to come out a winner! Join us for an evening of great food and fun at the premiere resort in Las Vegas!

Wynn Las Vegas  
Sunday, November 15  
6:30-9:30 PM