Adam Hull, with Dr. Mark Johnson, who initiated a treatment plan to save Adam’s vision.

“After living with total blindness for six weeks, Adam Hull says he will never take his vision for granted. Adam, 24, has diabetes and, over the last several months, has experienced just how profoundly the disease can affect eyesight. Adam also realized he was lucky to be in the capable hands of retina specialist Mark W. Johnson, M.D.

When he came to the U-M Kellogg Eye Center, Adam was already blind in his right eye, despite treatment elsewhere. The cause was an especially severe form of diabetic retinopathy, a disease in which unwanted blood vessels grow on the retina. Continued growth of these abnormal vessels can cause bleeding and retinal detachment, leading to severe vision loss or even total blindness.

Now vessels were growing aggressively in Adam’s left eye, even after laser treatments. There was also edema, or swelling, in the macula (the central portion of the retina) that was beginning to affect vision. Dr. Johnson proposed an “aggressive” course of laser treatments to reduce swelling and stop blood vessel growth, followed by surgery, if necessary, to relieve traction on the retina.

With his parents at his side, Adam agreed to begin treatment. “From the start, the thing we loved about Dr. Johnson is that he is very straightforward and explains everything clearly,” says Adam. “We knew exactly what he wanted to have happen and what the difficulties might be.”

Despite laser treatment, the abnormal vessels continued their rampant proliferation, macular swelling increased, and vision declined. Adam was now legally blind. Dr. Johnson felt certain that continued laser treatment had the best chance of controlling blood vessel growth, and was hopeful that swelling would resolve after surgery. He asked Adam to continue the treatments.

Again, Adam trusted Dr. Johnson’s recommendation. “These were the longest months of my life,” he says, adding that his parents and girlfriend provided constant support. And his sister gave him a special gift—a Labrador retriever named Ben, who became another source of comfort.

After completing extensive laser treatments, Dr. Johnson was ready to perform a vitrectomy to remove the gel-like fluid in...
FROM THE CHAIR
Saving sight every way we can

We have a great deal to celebrate this spring. We are just a year away from dedicating the Kellogg Eye Center Expansion, and while staff prepare to move into the new facility, we are continuing to recruit the clinical and research faculty who will help to expand our program. Friends of the Eye Center have responded to our program needs and have been especially generous at just the right time. Meanwhile, there is much to do in our current clinics, where faculty provide world-class care to our patients every day.

Two such stories are reported in this issue. Dr. Mark Johnson, a highly respected retina specialist, treated a young man who was in danger of losing his sight to complications from diabetes. It was not easy for Adam Hull to stick with the recommended treatment, but he did, and the outcome, according to Adam, was “awesome.”

Another message of hope comes from Dr. John Heckenlively. In a newly published study he has shown, for the first time, that it is possible for patients with autoimmune retinopathy to regain vision after treatment. There is, however, a huge obstacle: it is extremely difficult to identify individuals who have this rare and complex condition. Dr. Heckenlively, an international expert on retinal dystrophies, reports on his experience in diagnosing the disease and on using immunosuppression therapy to treat patients successfully.

Recruiting new faculty is a pleasure, and I am delighted to welcome our newest faculty member, Terry J. Smith, M.D., an endocrinologist who has made remarkable strides in his research on Graves’ eye disease. In its advanced stage, this autoimmune condition can be devastating, causing loss of vision and even blindness. The link between hyperthyroidism and eye manifestations has been poorly understood. However, Dr. Smith’s research has presented a new way of looking at Graves’ and his findings are applicable to many other autoimmune diseases.

It is also with great appreciation that I thank friends who continue to support the building campaign and our research program. For example, Mr. Larry Miller, an early campaign leader, has recently extended his generosity to the Department’s scientists. Thanks to Mr. Miller, our scientists are about to acquire state-of-the-art equipment—confocal microscopes—that will allow them to achieve images of exceptional depth and precision. This is the kind of equipment that can make a real difference in a research program.

Finally, I invite you to save an important date: April 23, 2010. We’ll celebrate the opening of the Brehm Tower and the Kellogg Eye Center Expansion. There will be two separate symposia on the latest in ophthalmology practice and diabetes research, a grand celebration, a reception, and tours of the new building. Please mark your calendars and be sure to join us next April.

Paul R. Lichter, M.D.
F. Bruce Fralick Professor and Chair
Department of Ophthalmology and Visual Sciences
Director, W.K. Kellogg Eye Center

EQUIPPED TO LEAD
Gift helps scientists stay at forefront of discovery

Two state-of-the-art confocal microscopes being acquired through a $1 million gift from Larry G. Miller will enable scientists to conduct their work in new and innovative ways. The technology allows researchers to view tissues and cellular activity at great depths and at exceptionally high resolutions.

“These microscopes have a variety of applications that will enable scientists to answer questions that they can’t answer with traditional microscopy,” says Debra A. Thompson, Ph.D., Professor of Ophthalmology and Visual Sciences and Biological Chemistry, who will use the new microscopes to study the biological mechanisms of inherited retinal diseases. “The work of every one of our researchers will benefit from these tools. This acquisition provides the technology needed to advance our research goals.”

The purchase of a confocal laser-scanning microscope and a multiphoton confocal laser-scanning microscope will make the Kellogg Eye Center one of the best-equipped vision research centers in the world. “Kellogg is building impressive research facilities, and having the best technology available is important,” says Mr. Miller, a founding partner of automotive supplier Molmec, Inc., and a graduate of the University of Michigan School of Engineering. “My hope is that the microscopes will help the Eye Center continue to recruit top scientists and empower all faculty members to do their best research.”

Confocal microscope systems use lasers and a spatial filtering technique to enable the very precise examination of cells, while a multiphoton confocal microscope and corresponding software system allow researchers to image thick tissues such as the cornea and retina. Scientists can also use infrared light to view activity in cells that are sensitive to normal light, such as those that are essential to vision.

Faculty members will use the microscopes to expand existing projects and launch new research efforts. “The investment in this technology is an investment in our future, one that has the potential to greatly increase the speed with which discoveries are made and scientific advances occur,” says Paul R. Lichter, M.D., Director of the Kellogg Eye Center. “We are grateful for Mr. Miller’s dedication to vision.”

This is Mr. Miller’s second $1 million contribution to Kellogg’s expansion effort. To celebrate Mr. Miller’s partnership, the Eye Center will name its new comprehensive ophthalmology clinic in his honor.
Residency programs at many academic medical centers require their trainees to carry out at least one major research project, but few offer scheduled time for residents to complete the work. That recently changed for residents at the U-M Kellogg Eye Center, where they now have a separate rotation dedicated to research.

It’s an opportunity offered by only a few other programs, says resident Irina V. Koreen, M.D., Ph.D. Second-year residents at Kellogg now have almost two months to work on a project that they will later present at the Department’s annual Research Day. Dr. Koreen and her colleagues value this protected research time. “If you want to make a significant contribution and especially if you are interested in academic medicine, it’s extremely helpful to have a separate rotation for research,” she says.

The growing interest in research is not limited to those looking at academic careers, observes Shahzad I. Mian, M.D., director of the Department’s residency program. “Ophthalmologists in all areas of practice need to understand what constitutes a valid research study and then determine how the findings might affect standards for patient care,” he says. “In fact, during resident interviews, more and more candidates are asking whether we provide time for research,” says Dr. Mian. “We have always expected our residents to be involved in research endeavors and now we can provide dedicated time for them to make greater contributions to the field,” he adds.

Dr. Koreen used her research rotation to study patients diagnosed with sebaceous carcinoma, a rare but serious tumor of the eyelid. She reviewed case histories and analyzed tissue samples. Her goal was to identify factors that might predict the prognosis for patients with this form of cancer.

Such projects allow residents to work closely with senior faculty. Dr. Koreen had two advisors, both specialists in oculoplastic surgery. Victor M. Elner, M.D., Ph.D., and Christine C. Nelson, M.D. Dr. Koreen’s tissue analysis was guided by Dr. Elner, one of just a few ophthalmic pathologists in the country. He is the Ravitz Foundation Professor.

A portion of the study has been accepted as a poster presentation for the annual meeting of the Association for Research in Vision and Ophthalmology, and Dr. Koreen has been awarded a National Eye Institute Travel Grant to attend the conference. She also plans to publish her findings.

Dr. Irina Koreen studied a rare eyelid tumor during her research rotation.

No Time to Finish that Research Project? Problem Solved.

“We have always expected our residents to be involved in research endeavors and now we can provide dedicated time for them to make greater contributions to the field,”
— Shahzad I. Mian, M.D.

When Adam worried that his vision was gone, Ben was a comfort.

the eye. In a complex surgery lasting over four hours, he carefully dissected off the retina the vitreous gel, abnormal vessels, and scar tissue that were pulling on the macula. After surgery Adam’s vision began to improve, but his troubles were not yet over. Recurrent hemorrhaging in the eye led to total vision loss. However, ever since a second surgery to wash out the blood, Adam’s vision has steadily improved.

Dr. Johnson is not one to overstate his successes. “We performed extensive surgery at just the right time and were lucky enough to restore near-normal vision,” he says. “This outcome exceeded everyone’s expectations.”

But Adam uses stronger terms. “It’s awesome,” he says. “Dr. Johnson changed my life. He is the reason I’m seeing again.” Today Adam’s vision in his left eye is 20/25. He has returned to work, and is reading and driving again. Ben continues to be a faithful friend, and Adam is delighted to see every mischievous move made by his 73-pound puppy.

If you have diabetes, be sure to have regular eye examinations. Learn more about diabetic retinopathy under Eye Conditions at www.kellogg.umich.edu.
KELLOGG EXPANSION: ONE YEAR AND COUNTING

More space, new services, and high-end communications will improve the patient experience

It has been years in the planning and several more in the construction phase. The expanded Kellogg Eye Center, designed to serve many more patients in comfortable and spacious surroundings, will open its doors in less than a year.

The new building will house all seven eye clinics, each with additional examination rooms. “The space will allow physicians to provide more services, transforming Kellogg in ways that we couldn’t imagine just a few years ago,” he says. “Our expansion will allow us to make these new treatments a reality for our patients. I am proud to be part of an eye center that provides this level of service.”

Six new operating suites will be equipped with state-of-the-art technology, including high-powered surgical microscopes that will benefit surgeons and patients alike. To enhance teaching, there will be capabilities to broadcast surgeries to the auditorium, a nearby observation room, and a resident conference room. The video system will allow residents and medical students to view surgical techniques they will need to master. They, along with visiting physicians, will be able to observe the gamut of procedures that are undertaken at major academic medical centers.

For Carol George, R.N., coordinator of the Kellogg ORs, a new communications system will improve surgical scheduling and patient flow. “As we planned for the new operating suites,” says Ms. George, “we focused on improvements that would contribute to our ultimate goal—exceeding even the gold standard for patient care and safety.”

All clinics will have more space designed for patient comfort. And some, like the Low Vision Clinic, will be able to expand assistance provided to patients. Dr. Donna Wicker, a low vision specialist, notes that the clinic will have space to display magnifiers and other devices that enable her patients to carry on with daily activities and hobbies. “Having a demonstration area right in the clinic will be a real convenience for our patients and will signal to others that we provide low vision services,” she says.

The clinic will also have a small kitchen where occupational therapist Karen Murphy can show patients how to carry out household tasks despite diminished vision.

Facilities manager Patricia Tongusi has been involved in the building project from the start. From day one, she reports, the clinics have been designed for patient convenience. “With more exam rooms and better clinic design, our patients will move more easily through their appointments.” Speaking for just about everyone in the Department, Ms. Tongusi says, “I can’t wait.”

The building has been going up right before our eyes since the hole was dug in March of 2007. By that November the structural steel was in place. For the past 18 months the interior and exterior have slowly taken shape. In less than a year our doors will be open to patients.
A new study has good news for patients with a rare blinding eye disease. In a review of individuals with autoimmune retinopathy (AIR), most saw their vision improve after being treated with drugs to suppress their immune systems. The study was led by John R. Heckenlively, M.D., an international expert on retinal dystrophies. Because autoimmune retinopathy is difficult to diagnose, Dr. Heckenlively notes that the biggest challenge now is to find biologic markers that identify patients who can benefit from treatment.

In a review of 30 patients with autoimmune retinopathy, 21 individuals showed improvement after receiving treatment with immunosuppression therapy. The study, reported in the April issue of Archives of Ophthalmology, is the largest review of AIR cases to date. Improvement was defined by several measures, including the ability to read a minimum of two additional lines on the standard eye chart or expansion of at least 25% in visual field size.

“The results challenge the commonly held belief that autoimmune retinopathy is untreatable,” says Dr. Heckenlively. In this disease, antibodies attack the retina, resulting in progressive vision loss and eventual blindness.

Autoimmune retinopathy is like other autoimmune diseases in which the immune system goes awry and begins to attack healthy tissue. The patients in the current study were treated with various combinations of immunosuppression medications to counteract the unwanted autoantibodies in the immune system.

“It is not easy to identify patients with AIR because the clinical symptoms are very similar to other diseases involving retinal degeneration,” notes Dr. Heckenlively. Typically these patients are diagnosed as having retinitis pigmentosa, a blinding eye disease for which there is no treatment. “When someone asks how to distinguish one group from the other,” says Dr. Heckenlively, the answer often is “with difficulty.”

“We do not yet have a single test to confirm a diagnosis of AIR,” explains Dr. Heckenlively. “However, most patients have characteristic symptoms and findings, as well as subtle abnormalities on electrophysiologic testing. All patients have antiretinal antibodies on blood testing, but that finding alone is not diagnostic. The majority of cases have other family members with autoimmune disorders. A clear diagnosis of AIR relies on carefully weighing all these factors,” he concludes.

Dr. Heckenlively observes that few reports on AIR treatment are available in scientific publications, due largely to the difficulty in establishing the diagnosis. “It is also possible that many patients are undertreated because we do not have good markers to evaluate treatment effects,” he adds. “Now that we have evidence that immunosuppressant therapies work, we need further studies to evaluate which medications will be effective in treating autoimmune retinopathy.”

This work was supported in part by the Foundation Fighting Blindness.
A Century of Sight
A patient and her ophthalmologist celebrate a special relationship and a big birthday

Not many people have the good fortune to celebrate a century of life, but Atron Hicks Johnson recently achieved this milestone and she was honored to have her long-time ophthalmologist, Susan S. Thoms, M.D., at her side. Dr. Thoms, an assistant professor at the University of Michigan W.K. Kellogg Eye Center, was a special guest at Mrs. Johnson’s 100th birthday celebration, held Saturday, April 4th, at the Charles H. Wright Museum of African American History in Detroit. Almost 200 friends and family were on hand to wish Mrs. Johnson well, tell stories, and dance the night away.

It was a reunion of sorts in a special doctor-patient relationship that has continued to grow for nearly 20 years.

They first met when Dr. Thoms was working in private practice in Detroit and they immediately established a special bond. After seeing Mrs. Johnson every year for several years, Dr. Thoms noticed that a cataract was beginning to form. She monitored her patient closely, waiting until Mrs. Johnson recognized that the cataract interfered with her vision-related quality of life. At that point, Dr. Thoms removed the cataract and implanted an intraocular lens.

“The timing of cataract surgery is always a judgment call,” says Dr. Thoms. “Some people need fine vision for close work like sewing—others have different jobs and hobbies that do not require that level of refinement. You need to understand your patients and their needs as together you make a decision about surgery.”

This cataract is the only problem Mrs. Johnson has ever had with her vision and she was thrilled with the result. After such a positive outcome from her surgery, Mrs. Johnson decided she would follow Dr. Thoms anywhere, and she did just that when Dr. Thoms joined the Kellogg Eye Center in 1996.

“Dr. Thoms is wonderful,” says Mrs. Johnson. “She always is concerned and she really takes her time with you. She answers all your questions and makes you feel like you’re the only patient she has all day!” Over the years, Mrs. Johnson and Dr. Thoms have shared stories about families, travel, and the kinds of life experiences that only someone who has lived through so much history can retell. “She is as sharp as a tack and really keeps me on my toes,” laughs Dr. Thoms. “Nothing gets by her.”

When she was younger, Mrs. Johnson drove herself to her appointments with Dr. Thoms. Now her daughter, Corrine Sneed, drives her from the home they share on the east side of Detroit to Kellogg’s community office in Livonia, where Dr. Thoms is director of the Ophthalmology Service. Mrs. Johnson sees Dr. Thoms just once a year for her annual check-up, and while she does have a second cataract, it’s not affecting her vision enough to have it removed. In fact, Mrs. Sneed says her mother still has great eyesight. “She still can thread a needle,” she says.

Her great eyesight also allows her to see and enjoy her 59 offspring: 3 children, 11 grandchildren, 20 great-grandchildren, 23 great-great-grandchildren and 2 great-great-great grandchildren. It also allowed her to dance “the hustle” late into the night during her birthday celebration.

“Mrs. Johnson is one of those patients who become like family when you take care of them year after year,” says Dr. Thoms. “When I see her name on the schedule, I know it will be a good day.”

Dr. Thoms says her relationship with Mrs. Johnson proves how important it is for patients to receive high-quality routine eye care. Regular examinations are critical to maintaining good vision throughout life, especially when a life spans a century.

The treatment from Kellogg physicians means a lot to their patients. And, Mrs. Johnson agrees. “If Dr. Thoms ever retires, I just won’t go to the ophthalmologist any more!”

Dr. Susan Thoms and her long-time patient, Mrs. Atron Hicks Johnson, before Mrs. Johnson’s 100th birthday party celebrated at the Charles H. Wright Museum of African American History in Detroit.
Ask the Expert:
Spotting a Red Flag for Your Child’s Vision
by Steven M. Archer, M.D.

How are parents to know when an infant or child has a serious eye problem? Pediatric ophthalmologist Steven M. Archer, M.D., has been treating babies and youngsters at the U-M Kellogg Eye Center for 20 years. He has identified three red flags that should alert parents to a possible problem with their child’s vision.

1. Your child’s pupil looks “different” in a photograph taken with a flash.

It is normal to see “red eye” in a photograph taken with a flash. If, however, the eye appears to be white, a trip to a pediatric ophthalmologist is in order. In some cases, the white pupil could signal a cataract or even retinoblastoma, a cancer of the eye. Or that odd-looking pupil in the photo might be caused by eyes that have unequal refractive errors. These problems can and should be evaluated and treated without delay.

• Cataracts in babies under two must be treated urgently with cataract removal and contact lens correction to give the child an opportunity to develop vision in the eye. Cataracts in older children are treated the same as they are in adults, with surgery and placement of an intraocular lens.

• Retinoblastoma is a life-threatening problem and must be treated immediately. Although rare, retinoblastoma is the most common malignant childhood ocular tumor. The earlier it is detected, the more likely it is to treat successfully. Treatment depends on the size of the tumor.

• Eyes that focus differently can also cause vision loss. If, as a child grows, the image in one eye is not in focus, the brain can lose the ability to interpret images from that eye. This is called amblyopia, a fairly common condition that is preventable and reversible. There are several treatments; success is linked to early detection.

2. Your child’s eyes are crossed or otherwise not aligned properly.

The alignment of a baby’s eyes usually becomes stable at 4-6 months. After that, if they are not aligned, the baby should be examined by a pediatric ophthalmologist.

By approximately 18 months of age, a toddler’s vision is fairly mature. If your child consistently holds books and toys especially close to his or her eyes, you have reason to suspect that vision is not developing properly. Many things can cause a child’s vision to be impeded. For instance, your toddler could be nearsighted. In this case glasses will be prescribed to correct the refraction and allow him or her to see clearly.

To learn more, click “Eye Conditions” on the front page of our website at www.kellogg.umich.edu

Dr. Steven Archer and his seven-year-old patient, Vanessa Guerrero, take a break during her recent examination.

This misalignment, called strabismus, affects about 4% of children. As above, if a child’s eyes are misaligned and can be used only one at a time, the result can be amblyopia. Strabismus is correctable through a variety of treatments, including surgery.

3. Your child holds books and objects close to the eyes when playing.

By approximately 18 months of age, a toddler’s vision is fairly mature. If your child consistently holds books and toys especially close to his or her eyes, you have reason to suspect that vision is not developing properly. Many things can cause a child’s vision to be impeded. For instance, your toddler could be nearsighted. In this case glasses will be prescribed to correct the refraction and allow him or her to see clearly.

To learn more, click “Eye Conditions” on the front page of our website at www.kellogg.umich.edu

Our MISSION

To solve the puzzles of blinding eye disease, to improve the quality of life for our patients, and to teach the next generation of vision scientists and clinicians.

Advances in Ophthalmology
Spring 2009

To learn more about the Kellogg Eye Center or if you wish to be added to our mailing list, contact the marketing staff at: aboutkellogg@umich.edu or 734.647.5586

You can find many resources at our website: www.kellogg.umich.edu

Useful links from the front page:
“Patient Care” for listings of our clinics
“Find a Physician” for information about your physician
“Eye Conditions” for information on specific eye diseases
“LASIK” for complete information on refractive surgery
“Expansion” for the latest on our building project

The Regents of the University of Michigan:
Julia Donovan Darlow, Ann Arbor
Laurence B. Deitch, Bingham Farms
Denise Bitch, Bingham Farms
Olivia P. Maynard, Goodrich
Andrea Fischer Newman, Ann Arbor
Andrew C. Richner, Grosse Pointe Farms
S. Martin Taylor, Grosse Pointe Farms
Katherine E. White, Ann Arbor
Mary Sue Coleman, ex officio
Irina V. Koreen, M.D., Ph.D., received a National Eye Institute Travel Grant to attend the 2009 Association for Research in Vision and Ophthalmology Annual Meeting. Her research project is entitled, “Frequency of Non-diagnostic Conjunctival Map Biopsies for Sebaceous Carcinoma Correlates with Disease Severity.”

Roni M. Shtein, M.D., was awarded the 2008 Anthony P. Adamis, M.D., Prize for Outstanding Research in Ophthalmology and Visual Sciences for her work on the evaluation of corneal peripheral nerves. The Adamis Prize supports the promising work of an early-career physician-scientist.

Dr. Shtein has also won a grant from the University of Michigan Office of the Vice President for Research Faculty Grants and Awards Program for her research project entitled, “Evaluation of Growth Factors in Tears of Patients with HSV Keratitis.”

Joshua D. Stein, M.D., received a Mentoring for Advancement of Physician-Scientists Award from the American Glaucoma Society. Dr. Stein has also been awarded a National Eye Institute K23 grant for his research project entitled, “Association between Cataract Surgery and Progression of Diabetic Retinopathy.”

Debra A. Thompson, Ph.D., received a Senior Investigator Award from Research to Prevent Blindness for her research project entitled, “Visual Cycle Defects in Inherited Retinal Degeneration.” Since 1961, RPB has provided over $4.2M in funding to Kellogg Eye Center scientists.

David M. Wu, M.D., Ph.D., was one of four residents across the country selected to present at the AUPO/RPB Resident and Fellow Research Forum at the 2009 AUPO Annual Meeting. He gave a talk on “Nm3342: A New Mouse Model of Retinal Degeneration and its Role in Understanding Retinal Disease.”

Carlos A. Murgo-Zamalloa, M.D., was awarded an ARVO AFER/Retina Research Foundation Travel Grant for the 2009 Annual Meeting for his research project entitled, “Integrity and Ciliary Localization of the RPGR-SMC Protein Complex Are Critical for Normal Photoreceptor Function.”

Carol L. Standardi, R.N., received the 2008 University of Michigan Medical School Dean’s Award for Professional Staff Member of the Year. Ms. Standardi was recognized for excellence in her professional role and for working as part of a team to create a positive work environment.

We Work Where You Live

Make an appointment at one of our offices by calling 734.763.1415 or visit www.kellogg.umich.edu

Ann Arbor • Ann Arbor — Briarwood
Brighton • Canton • Livonia • Milford
West Bloomfield • Ypsilanti — Clark Road
Ypsilanti — Reichert Building