

Vision *for the* Future

UNIVERSITY OF ROCHESTER FLAUM EYE INSTITUTE

SUMMER 2013 NEWSLETTER

A Picture of Health

“Life was like looking through bubble wrap,” Lee Drake said. He and his wife Barbara spend much of their retirement creating beautiful images — they are accomplished nature photographers. And before that, Drake spent much of his time peering through microscopes at Finger Lakes Community College where he was a professor of microbiology. Accordingly, vision has always been important to Barbara and him.

Drake had been routinely seeing his eye doctor in Canandaigua, New York. Diagnosed with an inherited corneal condition called Fuchs’ Dystrophy, he hadn’t experienced any vision related problems beyond his need for glasses. “Then I started noticing blurred vision. It corresponded with the bubble wrap effect.

At the top of the bubble, everything was bright and expanded; in between the bubbles it was murky,” Drake said. “I also had the full starburst effect at night. It really affected my photography and my ability to get around. My eye doctor told me that I needed to see a cornea specialist. Fortunately, my son was doing some computer work for the local eye bank and he gave me Dr. Ching’s name.”

“Lee came to FEI with bilateral Fuchs’ Dystrophy,” **Steven Ching, M.D.**, said. “The bubble wrap effect he described is common. It is the result of endothelial cell loss. This is a single layer of cells on the inner surface of the cornea that helps to nourish and properly hydrate the

“I wouldn’t be in photography if it weren’t for Dr. Ching and the Flaum Eye Institute.”

layers above. When endothelial cells die, they don’t replace themselves. Instead fewer cells have to do the same amount of work. When there are insufficient cells, the cornea begins to swell causing severely distorted vision. Focal areas or blisters of epithelial edema (“bullae”) may be particularly painful in latter stages of Fuchs’ disease.”

“It was pretty bad,” Barbara Drake said. “I had been noticing for some time that Lee’s photographs had become oversaturated and that the edges of them had to be sharpened. Lee losing his ability to take



©Barbara Drake

pictures would have been tough on him, and me, too. Photography is part of our relationship. It is one of those common threads that we’ve been able to share in retirement. Going out and taking pictures without

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MELORIA CAMPAIGN UPDATE:

Adeline Lutz Distinguished Professorship in Ophthalmology to Honor Friend and Mentor Steven S.T. Ching, M.D.

Anyone who has been associated with the University of Rochester Department of Ophthalmology during the last thirty-four years has in some way been touched by the caring hand of **Steven Ching, M.D.** From the time he entered his residency here in 1978, he has been the consummate physician and teacher. Patients are so appreciative of the time he spends with them and the reassuring demeanor that he brings to their care. Moreover, any undergraduate, medical student, resident or fellow interested in the practice of ophthalmology need only ask and he is ready to share his wisdom and expertise.

Ching will be the inaugural Lutz Professor, established through an endowment funded by a generous initial gift from a grateful patient and friend, **Mrs. Adeline Lutz** (deceased) with additional support from the University of Rochester Medical Center. The Flaum Eye Institute is now embarking on a fundraising initiative to elevate the position to the Distinguished Professorship level in recognition of Ching’s inspirational contributions to teaching and patient care. When

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I have exciting news since our last issue of Vision for the Future.

We have recently welcomed the Geneva, NY practice of **Harold Ross, M.D.**, to the Flaum Eye Institute (FEI) (page 7). This acquisition represents another step in our effort to join a growing trend toward population-based medicine.

Our goal remains to provide individuals with the ultimate in personalized, specialty and sub-specialty care, but we will also be charged with a new challenge: keeping entire populations healthy. To achieve this requires FEI to have ready access to regions that we currently serve with tertiary and quaternary care. This will allow us to deliver a high standard of medicine across the region and to easily exchange information with other ophthalmic and non-ophthalmic providers.

Last year's implementation of an electronic medical record was a first step in this process. We have implemented a report within e-record to help primary care providers take better care of diabetics. The system we are piloting lets University of Rochester affiliated PCPs directly refer diabetic patients to FEI for important eye screenings. We, in-turn, can update each patient's chart so that their primary care doctor will know if they have diabetic eye disease and what should be the next steps in their course of treatment.

Also directed toward preventative eye care, **Rajeev Ramchandran, M.D., M.B.A.**, was recently awarded more than \$600,000 by the Greater Rochester Health Foundation to screen diabetics for retinopathy using telemedicine (page 3). In a partnership with RIT and Rochester General Hospital, primary care offices are being trained to use specialized cameras to photograph the retinas of patients from underserved neighborhoods. These photos then get screened by FEI faculty and staff with their results sent back to the primary care providers.

We are moving forward in our educational mission (page 10). This is the second year we welcome four ophthalmologists-in-training to our ranks. The additional residents reflect our expanded training capabilities associated with recent faculty recruitments and the increased need for patient services, especially for the underserved in our community.

Despite cutbacks to federal funding, scientific research at FEI moves forward at an accelerated pace. We recently received notice of new funding to study the mechanisms involved with thyroid eye disease (page 8). With other well-received federal and private applications recently submitted, FEI scientists anticipate reporting more new scientific advances like those presented at the recent Association for Research in Vision and Ophthalmology Meeting (page 8).

Our transformation as a learning organization continues to translate into specific steps designed to improve patient care and satisfaction. Importantly, the learning organization leadership team identified an immediate need for a director of human resources to make sure that every employee is fully trained and empowered to his or her job with a minimum level of direct supervision. We welcome **Kathy Sapp, P.T.A., S.H.P.R.**, who brings her expertise in these areas to FEI.

I also encourage everyone to participate through the University of Rochester Meliora Campaign in honoring long time friend and faculty member **Steven S.T. Ching, M.D.** The Dean of the Medical School has identified as a top priority a Distinguished Professorship that will eventually bear his name. Steve has had a tremendous impact on FEI and it is fitting that he be recognized for his outstanding clinical care and dedication to the education of future ophthalmologists.

Finally, I want to thank all of you who support FEI as patients, members of our advisory board, annual fund participants, faculty, residents and staff. You are the supporters who have fueled our growth to date and will make possible the accomplishments yet to come in the preservation, restoration, and enhancement of vision.

Sincerely,



Steven E. Feldon, M.D., M.B.A.
 Director, David and Ilene Flaum
 Eye Institute
 Chair, Department of Ophthalmology
 University of Rochester
 School of Medicine & Dentistry



V I S I O N

The Flaum Eye Institute is a world leader in preserving and restoring vision, providing the most advanced research, education, and technology development, coupled with compassionate, expert, patient care.

Grant Provides Better Diabetic Eye Screening in Community

FEI's **Rajeev Ramchandran, M.D., M.B.A.**, has initiated a collaborative effort to serve people with diabetes-related vision problems in Rochester's poorest neighborhoods. Funded by the Greater Rochester Health Foundation (GRHF), the project involves Rochester General Health System (RGHS), Rochester Institute of Technology and FEI.

The three-year, \$600,000 grant supports Rochester Area Tele-I-Care, a pilot telemedicine program that links the Flaum Eye Institute, RGHS Department of Ophthalmology and primary care physicians to identify people with diabetes who are at risk of vision loss.

"In our community, 12 percent of the population has diabetes and the rate is double that for African Americans and Hispanics. Because only about six in 10 people with diabetes have dilated eye exams annually, they do not receive the care they need to prevent serious and often irreversible complications," John Urban, president and CEO of GRHF, said. The percentage of underserved patients receiving annual eye exams in the Rochester region is known to be much lower resulting in patients presenting for urgent eye care only after developing severe retinopathy and vision loss.

"The program will help increase the ability to screen for diabetic retinopathy in our poorest communities by allowing for the remote examination of the retina during a regularly scheduled primary care visit." Ramchandran, a retinal specialist, said. "It will reduce the cost and inconvenience of a separate visit to see an eye doctor and immediately identify patients with vision threatening retinopathy for timely vision saving treatment."

The pilot program will operate at three area primary care practices that serve some of Rochester's poorest neighborhoods. Tele-I-Care will provide physicians and staff at these clinics access to portable ophthalmic cameras to capture images of diabetic patients' retinas. The clinic staff will be trained to use the specialized camera by expert ophthalmic photographers from Rochester Institute of Technology's



RAJEEV RAMCHANDRAN, M.D., M.B.A.

Biomedical Photographic Communications program. The images they take will be studied for signs of diabetic eye disease by Ramchandran and other ophthalmologists at FEI. Patients needing further eye care will be seen and treated by ophthalmologists.

It is hoped that the effort will help reduce cost of care and increase the number of diabetics who receive regular screening for retinopathy. The goal is to increase screening rates, from the current 10 percent, to 80 percent for the diabetic population who receive primary health care at each site. Organizers expect to serve about 1,000 patients over three years. Without the screenings it is estimated that 5 percent, or 50 people of those served by the program, would likely experience vision loss or blindness. Each of them would require specialized care, additional social services and experience a loss of productivity costing thousands of dollars annually.

FEI in the Community

FEI continues extending a friendly hand into the region to bring healthcare and education through community based lectures and screenings. FEI would like to thank all the faculty, staff, students and volunteers who helped out at the following events:

MARCH 21: FEI glaucoma specialist **Regina Smolyak, M.D.**, presented a lecture about eye health to nearly a dozen attendees at the Jewish Community Center of Rochester. Fluent in Russian, Smolyak answered questions in English and her native language.

APRIL 18: Smolyak again delivered an eye health lecture. On this occasion she spoke at FEI's LASIK facility in Brighton and

delivered the entire program in Russian to a handful of appreciative attendees for whom English is not their first language.

APRIL 27: First year Resident **Catherine Liegle, M.D.**, led half a dozen University of Rochester medical students to Memorial AME Zion Church in Corn Hill where they conducted a glaucoma screening. More than 30 people were evaluated who are at high

risk for this blinding disease. After each of these comprehensive screenings, Liegle provided participants with recommendations for follow-up care.

MAY 23: At a meeting of the FEI Graves' Disease Support Group, nearly 30 attendees shared their best practices about coping with Graves' and thyroid-related eye disease. University of Rochester Psychiatrist **Ronald Yearwood,**

M.D., shared advice and provided a lecture titled "Psychotherapy in Layman's Terms." Later FEI Chair **Steven Feldon, M.D.**, gave an update about thyroid eye disease research including a new clinical study beginning at the Flaum Eye Institute. The group is led by FEI patient **Patricia Marino, Ph.D.**, who wanted to provide a forum for persons suffering from Graves'.

IF YOU ARE INTERESTED IN...

inviting one of our faculty members to speak about eye health topics, starting a support group related to eye disease or scheduling a glaucoma (or other type of) screening, please contact Steve Kofron at 585-275-3977. We'll do our very best to accommodate your request.

ADVANCING THE VISION

A MOST GRATEFUL THANK YOU TO OUR DONORS FOR THEIR GENEROUS GIFTS AND ONGOING SUPPORT.

The David and Ilene Flaum Eye Institute is most grateful to its donors for their generous gifts and ongoing support. We are especially appreciative to the friends, patients, alumni and faculty who contributed to our Annual Fund. The Annual Fund is an essential source of funding that will help continue our groundbreaking work in vision care and research. This year, your donations had a direct impact on our mission, helping us recruit new faculty and purchase new equipment for our clinic and research laboratories.

The following donors have contributed in various ways to FEI between December 1, 2012, and May 1, 2013. Gifts can be designated to the Annual Fund and mailed to: **Jennifer Richardson**, Director of Advancement, FEI, 210 Crittenden Blvd., Box 659, Rochester, NY 14642.

Or make a gift online by going to eyeinstitute.urmc.edu and clicking on "Ways to Help".

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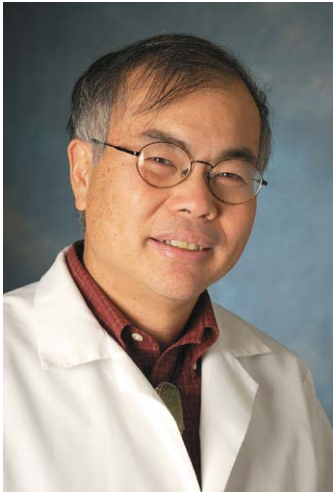
NOT-FOR-PROFITS

Spencerport Fire Dept. Ladies Auxiliary
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We offer special thanks to Bausch + Lomb, Research to Prevent Blindness, Glover-Crask Charitable Trust, David & Ilene Flaum, and the late Lynn & Walter Lutz for their sustaining support.

Adeline Lutz Distinguished Professorship...

"[Patients] carry a lot of worry when they come into the exam room and he has an unbelievable way of putting them at ease."



STEVEN S.T. CHING, M.D.

Ching eventually retires, his years of service and dedication will be further honored when it is renamed the Lutz-Ching Distinguished Professorship. Many friends past and presently affiliated with the department are applauding this effort.

"I couldn't be more pleased to hear this," **Henry Metz, M.D.**, former Department Chair, said. "When I arrived as Chair, Steve was a second-year resident. By the time he finished his third-year, we had talked to him about coming back after he finished his cornea fellowship. It was a great match. He has a wonderful way of connecting with patients and is an outstanding surgeon."

"Steve Ching is a role model," **Andreas Lauer, M.D.**, said. "He inspired me to go into medicine, let alone ophthalmology. I try to emulate his clinical demeanor. He listens and he's kind to patients. They carry a lot of worry when they come into the exam room and he has an unbelievable way of putting them at ease. I often draw on these experiences when I need to have a difficult discussion with a patient."

Ching sees the endowed professorship as something that will recognize and support future FEI faculty members who have a special affinity for compassionate patient care and teaching. "I am humbled to be honored in this way. I would like the professorship to reward and recognize faculty leaders who are interested in making good medicine through educating students and residents who desire to have the best technical skills and who also aspire to learn the art of connecting with the people we treat."

Restoring Sight, Rewarding Innovation

A computer sits in John Murphy's suburban Akron Ohio home.

It has no connection to the networked world. He prefers surfing the Web at his local library. But the computer in his home serves a very important purpose — restoring his vision. How it came to be there and what it has done for him are truly remarkable. The gift John Murphy has given for vision research at FEI because of **Krystel Huxlin, Ph.D.**, and her team is inspiring.

On September 15, 2006, Murphy suffered a stroke. One of the consequences was loss of about half his vision. "It was quite a challenge," he said. "It made getting around difficult and it was hard for me to accept. A doctor told me about a company in Florida that did vision rehabilitation for stroke patients. I spent the next year-and-a-half (and thousands of dollars) traveling to Miami without results."

Disappointed but undaunted, Murphy continued to research options for vision rehabilitation. While he was on the Internet, he ran across a patent application for visual rehabilitation at the University of Rochester. "There wasn't much information so I contacted the attorney who filed the patent," Murphy said. "He gave me the number of Dr. Krystel Huxlin and I called her." This began a transformation to his life.

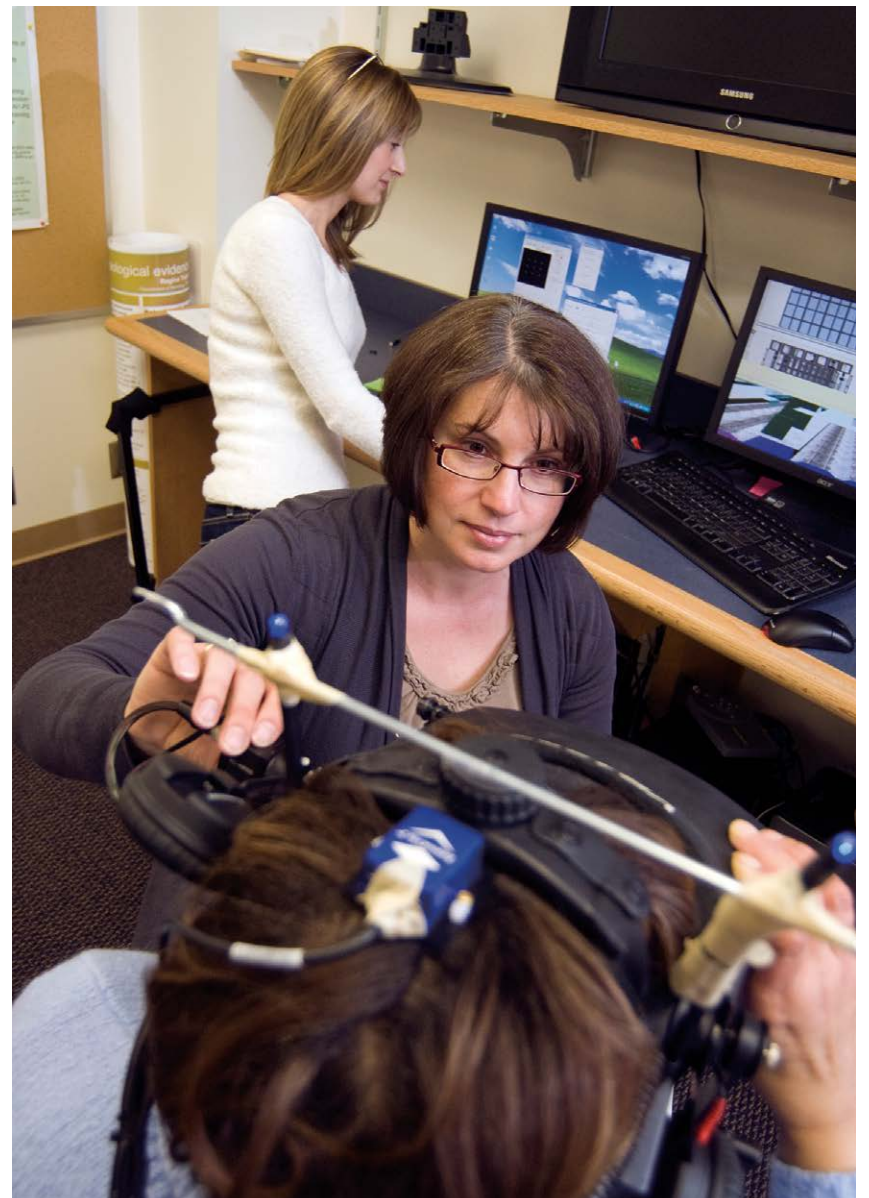
"John contacted me in 2008 and explained his situation," Huxlin, FEI Research Director, said. "He had suffered damage to the part of his brain responsible for processing visual signals. In 2008, common opinion was that this type of blindness was incurable. At this time, we were recruiting patients for an ongoing study related to our process of restoring vision to stroke patients — and others with cortical damage — by circumventing the permanently damaged neural tissue in the V1 visual cortex. John fit the study criteria and we welcomed him to the program."

Because the therapy was experimental, Murphy came in with a healthy attitude and tempered expectations. As a retired product

development specialist at Lubrizol, he understands that many new ideas fail. After the fruitless visits to Florida, he was prepared to accept whatever fate came from this new experience in Huxlin's laboratories.

"I understood that this was exploratory," Murphy said. "Things that have never been done before are not predictable, nor easy." And so

CONTINUED ON BACK COVER



UP TO 30 PERCENT OF STROKE VICTIMS DEVELOP SOME DEGREE OF VISUAL LOSS. THIS CONDITION WAS THOUGHT TO BE PERMANENT UNTIL FEI RESEARCHER KRYPEL HUXLIN, PH.D., DISCOVERED A WAY TO RESTORE VISION THROUGH A RETRAINING METHOD THAT CIRCUMVENTS THE DAMAGED PORTION OF THE BRAIN. PATENTED AND LICENSED TO COMMERCIAL INTERESTS, THE DISCOVERY GIVES HOPE TO HUNDREDS OF THOUSANDS WHO SUFFER FROM CORTICAL BLINDNESS.

A Picture of Health

Lee just wouldn't be the same."

"I've been looking at the fine and big picture through microscopy or photography all my life," Drake added. "Because of the Fuchs, I was beginning to lose my ability to see what I knew was there. It was incredibly frustrating and unsettling."

Ching recommended to Drake that he undergo a corneal transplant procedure called Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK). This surgery is ideal for patients with Fuchs' disease because it replaces only the inner layers of the cornea. DSAEK provides quicker visual recovery than full-thickness corneal transplants and reduces the chance of large amounts of astigmatism, nearsightedness or farsightedness occurring post-operatively.

"As a scientist, I was concerned about the process and the impact it might have on me," Drake said. "I thoroughly researched the Internet and compared the old type of transplant to DSAEK. However, it was Dr. Ching who really convinced me that it was the right choice. How he approached the conversation satisfied my scientific curiosity. What's more, he communicated it to us so well. It wasn't long before Barbara and I had total trust in him that everything would be done right. It's a great comfort having that kind of confidence in a doctor."

About six months prior to the first transplant in Drake's right eye, Ching performed surgery to remove a cataract. This was done as a precaution to ensure that Drake's new cornea wouldn't be disrupted by future surgery. After the DSAEK procedure was performed, Drake noticed an immediate difference.

"As the eye recovered, the bubble wrap effect was gone," he said. "The vision wasn't perfect and there were a few hiccups along the way, but we made good progress." At one point Drake needed a small hole lasered into his iris. Called an iridotomy, the procedure was used as a precaution to prevent glaucoma. It left Drake with a small visual artifact that he was able to articulate to Ching using test targets that photographers rely on to calibrate their cameras.

"Lee and Barbara are an amazing couple, and Lee is a great patient," Ching said. "His skill as a photographer helped me understand what was going on with his vision after the iridotomy and how to best treat him. Even with DSAEK it sometimes takes awhile to reach stable vision. Throughout this time, Lee has always been a patient and willing partner in the process. He even let me use him to train medical students and fellows."

With each follow-up appointment, Drake's vision in his right eye



©Lee Drake

LEAVES OVER YELLOW WATER

stabilized and gradually improved. The process took about three years. Colors became more lifelike and he grew more confident that what he was seeing through his camera lens was how the real world looked. By covering his left eye, which still had the effect of active Fuchs, he noticed a big difference. With the right eye seeing well, a similar procedure of cataract removal followed by DSAEK was performed on the left. Now with glasses, he is seeing well enough to drive and he and Barbara are enjoying life in the field where they have been shooting some breathtaking landscapes and nature photographs.

"Last September I took some of my best pictures ever!" Drake said. "Not only is there less distortion, but my depth perception is better. I have a much easier time framing and placing objects where they ought to be in my photos. Everything is right, and I'm no longer having to do extensive computer corrections of my work."

It's something for which he and Barbara are grateful. They recently demonstrated their gratitude when they made a gift of three prints to the Flaum Eye Institute. The images have found a home in the cornea service's new waiting room, there to remind us how precious sight is. "I have regained my vision," Drake continued. "More so, I have regained a sense of optimism and the sheer joy of being able to capture something that brings happiness to others. I wouldn't be in photography if it weren't for Dr. Ching and the Flaum Eye Institute."

ABOUT

Corneal Dystrophies

Corneal dystrophies are a group of genetic, often progressive eye disorders in which abnormal material accumulates in the clear outer part of the eye (cornea). Generally, corneal dystrophies affect both eyes, are slow to progress and run in families. Because of their slow progression, corneal dystrophies may not threaten vision in the early stages. Depending on the type, corneal dystrophies may not manifest until a person's teens, twenties or even much later in life — as in the case of Fuchs' Dystrophy.

There are more than 20 corneal dystrophies ranging from fairly common to rare. They are classified by the areas of the cornea that they affect:

- **Anterior corneal dystrophies**
(affecting the outer layers of the cornea)
- **Stromal corneal dystrophies**
(affecting the thickest, central part of the cornea)
- **Posterior corneal dystrophies**
(these affect the innermost layers of the cornea)

A corneal dystrophy is usually found during a routine eye exam, though some can be detected with genetic tests prior to abnormal material appearing in the cornea. As the condition progresses and material accumulates, the cornea may lose transparency causing a loss of vision or blurred vision. Common to many forms of corneal dystrophy is a condition called recurrent corneal erosion where the surface cell layer

FEI Expands Regional Footprint into Finger Lakes

On March 1, FEI acquired the Geneva, New York practice of **Harold Ross, M.D., P.C.** — a Geneva-based general ophthalmology office. Ross joined FEI's faculty and continues to provide medical and surgical ophthalmologic care to area residents. He is joined by additional faculty from FEI who will expand the scope of specialty eye care available in the region. New services introduced to Geneva include pediatric eye care.

"I am pleased to welcome FEI to Geneva," Ross said. "FEI is a tremendous asset to Upstate New York and Northern Pennsylvania because it provides access to specialists, advanced diagnostics and the latest therapies. Ten years ago, we would send some of our most difficult cases to New York City or Philadelphia. Since the establishment of FEI, we are able to send them to a world class eye facility that is less than an hour from Geneva. With this new agreement, we will be able to provide much of this specialty care locally."

FEI has been providing retina services, including treatment for macular degeneration, to the Ross Practice for more than two-and-one-half years through a service agreement. With the purchase, FEI will expand the number of exam rooms at the 738 Pre Emption Road building. In these new rooms specialists and comprehensive ophthalmologists from FEI will provide services according to demand. Some of these doctors will also operate at Geneva Hospital and the Finger Lakes Surgery Center. Mason Street Optical will continue selling glasses and contact lenses from the location. FEI Director and University of Rochester Chair

of Ophthalmology **Steven E. Feldon, M.D., M.B.A.**, stressed that continuity of care will be enhanced as a result of the acquisition.

"We are delighted to become part of this thriving community and welcome Dr. Ross and his staff to FEI," Feldon said. "Our goal is to retain the intimacy of the current practice while expanding the level of services available. Like many areas of medicine, ophthalmology has become increasingly specialized due to advancing knowledge and technology. The good part of this trend is that our ability to

prevent and treat blinding diseases has never been better. However, many sub-specialists in disciplines like retina and pediatric ophthalmology are located in urban centers like Rochester. Bringing advanced care to Geneva and the surrounding communities reduces the time that patients spend traveling to appointments. For the most severe cases, patients will have a direct line to FEI's main campus at URM.

738 PRE EMPTION ROAD, GENEVA, NEW YORK



www.EyeInstitute.urmc.edu
585 273-Eyes

called epithelium does not adhere properly to the layer below. This can cause discomfort, severe pain, light sensitivity, foreign body sensation and blurred vision.

Treatments for corneal dystrophies vary. In early stages, routine observation by an eye doctor may be all that is required. As symptoms progress, eyedrops and ointments may be prescribed to reduce corneal swelling. As vision becomes compromised, surgery may be indicated. Some superficial corneal opacities can be treated with phototherapeutic keratectomy; an excimer laser is used to remove the abnormal tissue. Corneal scraping may also be used in these instances.

In many cases, corneal transplantation is required to restore useful vision. Common approaches to corneal transplantation include full and partial-thickness transplants. In full-thickness transplantation (penetrat-

ing keratoplasty) the entire central cornea is replaced with donor tissue that is sutured into place. Success in these procedures is high, depending on the nature of the eye disease, but recovery is slow, taking many months. Cornea specialists now commonly perform partial-thickness transplants; just the diseased layers are replaced with donor tissue. A small gas bubble inside the eye holds the donor tissue in place as it becomes attached into the host. Visual recovery in these procedures can be much faster than with penetrating keratoplasty.

To learn more about eye disease, please visit eyeinstitute.urmc.edu and click on our library of animations describing many diseases and conditions and their treatment.

\$1.4 Million Grant Addresses Mechanism of Thyroid Eye Disease

Thyroid eye disease (TED) occurs in more than half the patients with Graves' Disease, an autoimmune disease which commonly affects the thyroid causing it to become overactive. Chronic orbital inflammation in TED leads to extensive changes to the tissues around eye — called remodeling— that can cause pain, proptosis (bulging eyes) and even blindness. FEI collaborators **Richard Phipps, Ph.D.**, and **Steven Feldon, M.D.**, recently discovered an inflammatory pathway that may one day lead to new approaches in treating TED. They have been awarded nearly \$1.4 million by the National Eye Institute (1R01EY023239-01) to pursue their findings. According to the researchers, a ligand-activated transcription factor (AhR) could play a pivotal role in the activation orbital fibroblasts. These fibroblasts can eventually become scar-producing myofibroblasts that commonly lead to worsening disease. Current treatment of TED involves addressing its symptoms with corticosteroids, external beam radiation and surgery. Understanding the upstream function of AhR ligands in the disease process could lead to new drugs and therapies that stop or even reverse tissue remodeling that occurs in TED. This could help improve the prognosis for the disease and reduce the need for surgical management.

Best Doctors in America® Lists Six FEI Faculty



Best Doctors in America® recently released its annual listings of doctors for the Rochester area. These listings represent physicians from across medical specialties rated by their peers as elite. The highly regarded list, audited and certified by Gallup®, is the result of exhaustive polling of over 45,000 physicians in the United States. Doctors in over 40 specialties and 400 subspecialties of medicine appear on this year's list. Congratulations to:

James Aquavella, M.D.	Anterior Segment/Corneal Transplant
Steven S.T. Ching, M.D.	Anterior Segment/Corneal Transplant
Mina Chung, M.D.	Vitreoretinal Surgery
Steven Feldon, M.D.	Neuro-ophthalmology/Orbital Surgery
Matthew Gearinger, M.D.	Pediatric Ophthalmology
Scott MacRae, M.D.	LASIK/Refractive Surgery

ARVO Update

FEI faculty, residents, medical students and graduate students again distinguished themselves at the Association for Research in Vision and Ophthalmology meeting held this past May. Highlighting the conference attended by thousands of professionals interested in vision research was the Champlimaud Award lecture delivered by **David Williams, Ph.D.** **Len Zheleznyak, a Ph.D.** student in **Geunyoung Yoon's, Ph.D.**, lab was singled out by the Optical Society of America (OSA) for his research, too. His presentation, "The role of eye dominance on through-focus visual performance in modified monovision presbyopic corrections," was selected as best poster among the OSA Technical Group student members. Other FEI presentations included:

- Adaptive Optics Scanning Laser Ophthalmoscopy in Stargardt Disease Reveals Decreased Cone and Rod Densities, **Hongxin Song, Ph.D.**
- Rapid, automated measurements of single cell blood velocity in the living eye, **Jesse Schallek, Ph.D.**
- Cellular Features of Retinal Pigment Epithelial Atrophy after Regression of Choroidal Neovascularization, **Mina Chung, M.D.**
- Adaptive Optics Scanning Laser Ophthalmoscopy Demonstrates Reduced Foveal Cone Density in Pattern Dystrophy, **Xiaofei Wang, M.D., Ph.D.**
- Individual Retinal Pigment Epithelium Cells can be Imaged *In Vivo* in Age Related Macular Degeneration, **Ethan Rossi, Ph.D.**

FEI, the Center for Visual Science and the University of Rochester were well represented at the meeting, delivering nearly two dozen posters, papers or presentations.

Neural Adaptive Research Project Receives \$1.5 million from NIH

Even though nearly perfect optical correction of the eye is possible, the visual part of the brain may not appreciate the clarity of the image. **Geunyoung Yoon, Ph.D.**, has been awarded a renewal of his National Eye Institute grant (2R01EY01449) to study the problem of why a sharp image on the retina doesn't always translate into an improved, equally sharp image for the patient. Yoon proposes that long-term exposure to poor optical correction from eye disease makes the brain insensitive to improved correction with restoration of full visual potential. Employing a sophisticated visual learning technique, Yoon will study the process of neural adaptation wherein patients can utilize their restored visual potential fully. This information may change how physicians approach medical and surgical treatments for vision correction.





SHAKEEL SHAREEF, M.D.

Surgical Video Takes First Place

Shakeel Shareef, M.D., Associate Professor of Ophthalmology at the Flaum Eye Institute, presented a surgical video that took first place at the recent American Glaucoma Society meeting. “Definitive Surgical Repair of a Traumatic Cyclodialysis Cleft,” was one of six jury-selected entries picked from among dozens of submissions to be shown at the conference. The finalists’ videos were screened live by more than 500 conference attendees who voted for their favorite. Shareef’s winning entry showed a complex procedure that he helped pioneer at FEI — he is one of a handful of U.S. doctors to perform it. It demonstrates an innovative use of a device called a capsular tension ring to restore proper eye pressure and improve vision for patients with low eye pressure.

“I was honored and humbled to be selected by my peers to receive this award,” Shareef said. The video and an interview with Shareef can be seen at Glaucoma Today Journal Club on the Bryn Mawr Communications Network (www.bcmtoday.net).

Shareef would to acknowledge David DiLoreto, M.D., Ph.D. and Rachel Hollar.

FEI Offers New Type of Minimally Invasive Glaucoma Surgery

Shakeel Shareef, M.D., was the first in the region to implant the recently FDA approved Glaukos iStent. The device provides an excellent option for patients undergoing cataract surgery who have moderate glaucoma. During a patient’s cataract procedure, the tiny drainage device is implanted in the eye, bypassing obstructed drainage tissue called the trabecular meshwork. The stent reestablishes a more normal outflow of aqueous fluid from the eye thereby lowering intraocular pressure.

“I am pleased to offer another surgical option for people with cataracts who are also suffering from glaucoma,” Shareef said. “In

certain cases this device provides doctors and their patients with another tool to treat their disease. Although not a replacement for other procedures and drainage devices, it is useful in the treatment of advanced glaucoma because it is effective and carries less risk.”

The iStent is less than 1mm in length and is the smallest device ever implanted into the eye. In clinical research it proved to sustainably reduce intraocular pressure so that patients become less dependent on anti-hypertensive eye drops. iStent is one of a whole new category of minimally invasive glaucoma surgeries (MIGS) that the glaucoma service hopes to make available.

NEWS BYTES

Williams Awarded Edridge Green Medal

The Royal College of Ophthalmologists honored **David Williams, Ph.D.**, as the Edridge Green Lecturer in May. At the College’s annual meeting, Williams spoke about exciting new research into restoring vision to people with damaged photoreceptors. The lecture and medal remember Frederick William Eldridge-Green, a British physician who developed some of the first methods for testing color vision.

Ramchandran Receives Brophy Award

The University of Rochester Simon School of Business honored **Rajeev Ramchandran, M.D., M.B.A.**, at commencement this May

with the John M. Brophy Award. The annual award is named after the first dean of the College of Business and recognizes the part-time MBA student who has the highest record of academic achievement. Ramchandran intends to use his MBA knowledge to assist in analyzing the deployment, performance and adoption of innovative eye care delivery models in different environments.

Terry Meacham Retires

During his 21 years of service, **Terry Meacham, R.N.**, became one of the most recognizable faces in the Department of Ophthalmology. A favorite of patients, faculty and staff, Meacham set an example providing compassionate and expert care to those he served. During a recent retirement luncheon, Meacham recounted memories of his time with the department. He will be missed by those who know him. An avid hiker and

officer of the Finger Lakes Trail Association, he plans to spend more time traveling and enjoying the outdoors.

A Welcome Addition

FEI recently took another step forward in its transition to a learning organization. We are delighted to welcome **Cathy Sapp, P.T.A., S.H.P.R.**, to the team where she will serve as Director of Human Resources and Staff Development. She comes to FEI from Visiting Nurse Service where she had extensive experience in human resources. She joins FEI’s management team working to further FEI’s learning organization culture as well as to develop and implement practices and policies consistent with those of the University. Sapp has more than 22 years of human resource experience.

58th Rochester Ophthalmology Conference

More than 250 physicians, ophthalmology residents, optometrists, medical students and allied health professionals converged on the University from places as far away as Ottawa for the annual Rochester Ophthalmology Conference. This year's meeting included dynamic keynote lectures delivered by **Timothy Olsen, M.D.** (Chair at Emory University) who was our Distinguished Visiting Professor and **Joel Schuman, M.D.** (Chair at University of Pittsburgh) who gave the 58th Snell Memorial Lecture. The Flaum Eye Institute extends sincere thanks to all the speakers, attendees, exhibitors and underwriters who support this meeting.

Be on the look-out for next year's conference dates and an announcement of our Visiting Professor Series.

Moving Day: With July comes the bittersweet departure of residents and fellows as they begin the next chapter in their young careers. Retina fellow **Gareth Lema, M.D., Ph.D.**, traveled a short distance down the NYS Thruway where he joined the ophthalmology faculty at the University of Buffalo School of Medicine. **Alexandra Herzlich, M.D.**, took the skills she learned during her corneal fellowship to Columbia University's private practice where she joins the cornea service and provides resident instruction. **Alex Manguikian, M.D., Ph.D.**, returned to Fairfax, Virginia. There he keeps a family tradition going by joining his father in private practice. **Brooke Miller, M.D.**, joined the Tufts University faculty practicing

comprehensive ophthalmology at the New England Eye Center's main office and satellite campus. **Seth Pantanelli, M.D.**, and his family headed to Miami, Florida to begin a cornea fellowship at the University of Miami's Bascom Palmer Eye Institute. The FEI faculty and staff wish them good luck and thank them for the great memories they leave behind.

The entire faculty and staff also look forward to July 1st and the new academic year when a new group of residents arrive, eager to begin their training in ophthalmology. This year brings three new faces and one familiar to FEI. **Katherine Fallano, M.D.**, joined the resident practice after completing her first year in internal medicine at Mt. Sinai Medical Center in Baltimore, Maryland. She completed

her medical degree at Johns Hopkins University School of Medicine. University of Rochester School of Medicine graduate **Amit Sangave, M.D.**, returned to FEI after completing his first-year at University of Pittsburgh Medical Center. **Rachel Wozniak, M.D., Ph.D.**, comes to FEI from Boston. The Tufts University graduate completed her internal medicine rotation at Cambridge Health Alliance in Cambridge, Massachusetts. **Tailun Zhao, M.D.**, a graduate of the University of North Carolina at Chapel Hill School of Medicine, completed his internship at UCLA-Harbor. We expect great things as they continue their training.

Third-Year Residents Return from India



HYDERABAD, INDIA: DR. G.C. SEKCHAR OF LV PRASAD EYE INSTITUTE AND ALEXANDER MANGUIKIAN, M.D., PH.D., FROM THE FLAUM EYE INSTITUTE.



Alex Manguikian, M.D., Ph.D., and **Seth Pantanelli, M.D.**, completed rotations at the LV Prasad Eye Institute (LVPEI) in Hyderabad, India. This opportunity is designed to give senior residents a deeper appreciation for international ophthalmology. Residents who visit LVPEI are introduced to eye diseases uncommonly seen in the United States. In addition, they may visit some of LVPEI's more than 200 satellite clinics and learn about models of capacity building and public health methods critical in a developing country.

FEI Group Teaches Course at Academy Meeting

Faculty members **Matthew Gearinger, M.D.**, **Yousuf Khalifa, M.D.** and third-year resident **Bill Gensheimer, M.D.**, teamed up to present a cataract training program at the American Academy of Ophthalmology's annual meeting. The course detailed the steps needed to implement a resident cataract training program using the Kitaro Dry Lab and Wet Lab system for realistic simulation of phacoemulsification. The curriculum demonstrated how Kitaro can be used to instruct and evaluate resident surgical skills in wound construction, making the capsulorrhexis, nucleus disassembly, epineucleus removal and IOL insertion. FEI is one of the first programs in the country to implement Kitaro into its resident curriculum.

Publications: Sharing Discoveries

FEI faculty and residents share their findings with colleagues across ophthalmology and vision science. Scholarly publication is at the heart of making new discoveries and education. A recent sampling of FEI publications during the most recent six months include:

Epithelium and Bowman's layer thickness and light scatter in keratoconic cornea evaluated using ultrahigh resolution optical coherence tomography. Yadav R, Kottaiyan R, Ahmad K, Yoon G. Journal of Biomed Optics; Nov 2012

Binocular visual performance and summation after correcting higher order aberrations. Sabesan R, Zheleznyak L, Yoon G. Biomedical Optics Express; Dec 2012

Lemierre syndrome causing bilateral cavernous sinus thrombosis. Miller B, Khalifa Y, Feldon SE, Friedman DI. Journal of Neuro-ophthalmology; December 2012.

Objective resident cataract surgery assessments. Gensheimer WG, Soh JM, Khalifa YM. Ophthalmology; February 2013

Visual function and cortical organization in carriers of blue cone monochromacy. Rossi EA, Achtman RL, Guidon A, Williams DR, Roorda A, Bavelier D, Carroll J. PLoS One; Feb. 2013

Descemet membrane endothelial keratoplasty: why does the donor tissue roll? Moshirfar M, Jarstad A, Khalifa YM. Cornea; April 2013

Wavefront-guided scleral lens prosthetic device for keratoconus. Sabesan R, Johns L, Tomashevskaya O, Jacobs DS, Rosenthal P, Yoon G. Optometry and Vision Science; Apr. 2013.

Infant keratoprosthesis. Herzlich AA, Aquavella JV. International Ophthalmology Clinic; Spring 2013

JUN regulates early transcriptional responses to axonal injury in retinal ganglion cells. Fernandes KA, Harder JM, Kim J, Libby RT. Experimental Eye Research; May 2013

Imaging light responses of retinal ganglion cells in the living mouse eye. Yin L, Geng Y, Osakada F, Sharma R, Cetin AH, Callaway EM, Williams DR, Merigan WH. Journal of Neurophysiology; May 2013

Modified monovision with spherical aberration to improve presbyopic through-focus visual performance. Zheleznyak L, Sabesan R, Oh JS, MacRae S, Yoon G. Investigative Ophthalmology and Visual Science; May 2013

Transcription Factors SOX4 and SOX11 Function Redundantly to Regulate the Development of Mouse Retinal Ganglion Cells. Jiang Y, Ding Q, Xie X, Libby RT, Lefebvre V, Gan L. The Journal of Biological Chemistry; June 2013

Volunteering for a clinical research study is one of the greatest things a person can do to advance medicine.

Clinical trials allow doctors and scientists to evaluate new ways to prevent, detect, or treat disease. Although these studies offer no guarantee for cure, they are one of the cornerstones for nearly every single breakthrough in medicine.

Each is rigorously conducted, following the highest patient safety protocols. FEI offers participation in the studies:

- ⊙ A multicenter, double-masked, placebo-controlled, efficacy and safety study of RV 001, an insulin-like growth factor-1 receptor (IGF-1R) antagonist antibody (fully human), administered every 3 weeks (q3W) by intravenous (iv) infusion in patients suffering from active thyroid eye disease (*S. Feldon, M.D., M. Gonzalez, M.D.*)
- ⊙ A Randomized, Multicenter, Double Masked, Parallel-Group Study Assessing the Safety and Efficacy of Loteprednol Etabonate Ophthalmic Gel, 0.5% versus Prednisolone Acetate Ophthalmic Suspension, 1% for the Treatment of Intraocular Inflammation Following Surgery for Childhood Cataract (*M. Gearinger, M.D.*)
- ⊙ Long-Term Follow-up of the Cohort from a Multicenter, Double-Masked, Randomized, Placebo-Controlled Study of Weight-Reduction and/or Low-Sodium Diet plus Acetazolamide vs. Diet plus Placebo in Subjects with Idiopathic Intracranial Hypertension with Mild Visual Loss (*Z. Williams, M.D.*)
- ⊙ Tele-I-Care Pilot Study to Improve Detection of Diabetic Retinopathy in Underserved Populations (*R. Ramchandran, M.D.*)
- ⊙ A Comparative Effectiveness Study of Intravitreal Aflibercept, Bevacizumab and Ranibizumab for Diabetic Macular Edema (*D. DiLoreto, M.D., Ph.D.*)
- ⊙ Short-term Evaluation of Combination Corticosteroid+Anti-VEGF Treatment for Central-Involved Diabetic Macular Edema in Pseudophakic Eyes with Incomplete Response to Anti-VEGF Therapy Alone (*D. DiLoreto, M.D., Ph.D.*)

For more information please contact us at:
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CONTINUED FROM PAGE 5

Restoring Sight, Rewarding Innovation

he began.

The training itself is rigorous and requires hours of intensive screen time. Subjects are encouraged to respond to specially designed visual targets that are displayed just outside their still functioning visual fields. The training stimulates a part of the visual cortex called MT, which is thought to help in processing motion vision. Gradually the targets are moved into the damaged areas of vision and, with time, those blind zones become smaller. In nearly every instance, subjects regain some level of useful visual function. This was the case with Murphy. The results of this study were published in the *Journal of Neuroscience* as one of the first, scientifically accepted evidence that stroke patients can regain vision.

“It’s fabulous that the brain can be trained to do something it normally couldn’t,” Murphy said. “I think Dr. Huxlin is one of the pioneers who early on recognized the stroke-affected brain’s ability to process and use visual stimuli to recover vision. And, I think that my vision has improved dramatically. Driving is easier and I’ve become much more aware of my surroundings. The training is difficult, but for someone who has lost vision, the incentive to do the exercises is there. I continue to see improvement and look forward to more progress.”

The Huxlin team outfitted him with his own computer and training software at his home so that he can keep up with his exercises. It is one of the first things he does every day. He has taken diligent notes about his progress and occasionally reports this to Dr. Huxlin. To demonstrate his appreciation to Huxlin and the visual retraining group, Murphy recently made a substantial gift to FEI in support of visual rehabilitation research.

“I’m very appreciative of what they’ve done for me,” he said. “The benefits that I’ve received are really valuable. As someone who has patented technology during my career, I understand and recognize the significance of Dr. Huxlin’s achievement. I’m very interested to see this technology move forward to where it can help people like me, and I’m glad to offer financial support.”

FEI is grateful to John Murphy for his recognition of FEI’s basic science efforts. If you’d like to learn more about our vision research program or schedule a tour, please contact **Jennifer Richardson** at **585-273-5472**.

Huxlin’s technology was patented and licensed by EnVision LLC. A commercially available product has been developed but first needs to undergo clinical trials and FDA approval.

FEI Chair Named A.U.P.O. President



Steven E. Feldon, M.D., M.B.A., director of the Flaum Eye Institute was named President of the Association of University Professors of Ophthalmology (AUPO). The membership, which is made up of the Chairs of all academic departments of ophthalmology in North America, is dedicated to advancing ophthalmic education, research and clinical care. Associate members of AUPO include Residency Directors, Medical Student Directors, and Research Directors. He will serve a one-year term. Feldon takes the helm of the organization with a broad understanding of the many challenges that academic ophthalmologists face balancing clinical, educational and scientific responsibilities.

FACULTY PRACTICE

Comprehensive Eye Care

Shobha Boghani, M.D.
Christian Klein, M.D.
Sarah Klein, O.D.
Rebecca Nally, O.D.
Harold Ross, M.D.
Jill Schafer, O.D.

Contact Lens Services

Rebecca Nally, O.D.
Jill Schafer, O.D.

Cornea and External Disease

James Aquavella, M.D.
Steven Ching, M.D.
Holly Hindman, M.D.
Yousuf Khalifa, M.D., F.A.C.S.
Ronald Plotnik, M.D., M.B.A.

Glaucoma/Anterior Segment

Shakeel Shareef, M.D.
Regina Smolyak, M.D.

Neuro-Ophthalmology and Orbit

Steven Feldon, M.D., M.B.A.
Zoë Williams, M.D.

Oculofacial Plastics

Mithra Gonzalez, M.D.
Steven Feldon, M.D., M.B.A.

Pediatric Ophthalmology

Matthew Gearinger, M.D.
Benjamin Hammond, M.D.

Refractive Surgery

Kenneth Dickerson, O.D.
Scott MacRae, M.D.
Holly Hindman, M.D.

Retina and Vitreous

Mina Chung, M.D.
David DiLoreto, M.D., Ph.D.
David Kleinman, M.D., M.B.A.
Rajeev Ramchandran, M.D., M.B.A.

Uveitis

Yousuf Khalifa, M.D.

Veterans Services

Shobha Boghani, M.D.
Sarah Klein, O.D.
Chet Scerra, O.D.
Fred Schamu, O.D.
Shakeel Shareef, M.D.

RESEARCH FACULTY

William Fischer, M.S.
Lin Gan, Ph.D.
Jennifer Hunter, Ph.D.
Krystal Huxlin, Ph.D.
Amy Kiernan, Ph.D.
Richard Libby, Ph.D.
William Merigan, Ph.D.
Gary Paige, M.D., Ph.D.
Richard Phipps, Ph.D.
Duje Tadin, Ph.D.
David Williams, Ph.D.
Gabrielle Yeane, M.D.
Geunyoung Yoon, Ph.D.
Jim Zavislan, Ph.D.