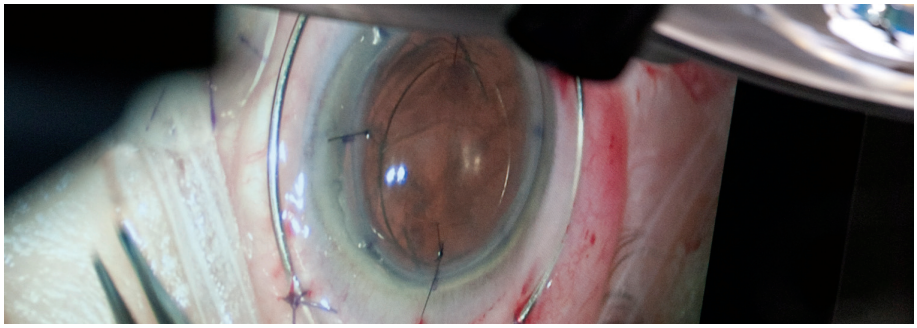
eyeWitness

HARVARD MEDICAL SCHOOL
DEPARTMENT OF Ophthalmology

NEWS FROM THE HARVARD MEDICAL SCHOOL DEPARTMENT OF OPHTHALMOLOGY



John Earle Photography

Advances in Corneal Surgery

A focus on DMEK for Fuchs' Dystrophy

For patients like Cynthia Coffey, living with Fuchs' endothelial corneal dystrophy can severely impact their quality of life. The progressive, degenerative disease causes the inner surface of the cornea to swell, resulting in corneal clouding, vision impairment, and eye discomfort. But today's state-of-the-art corneal transplantation procedure—Descemet's Membrane Endothelial Keratoplasty (DMEK)—is dramatically improving patient outcomes.

For the past 100 years, penetrating keratoplasty (PK) with or without cataract surgery has been the standard of care for treating patients with Fuchs'. During PK, the whole cornea is replaced. However, Fuchs' is a disease defined by its defective endothelial layer, and advances in corneal transplantation are making it possible to replace only the endothelial layer without disturbing normal anterior structures of the cornea.

Developed in the Netherlands six years ago, DMEK is the thinnest and most advanced form of corneal transplantation to date. In contrast to other partial thickness corneal transplant procedures, DMEK replaces only the diseased tissue without need for additional or redundant tissue, which allows for a more precise and anatomically correct approach. As a result, DMEK has a demonstrated lower risk of rejection, faster recovery, and better vision (a higher percentage of patients achieve 20/20 vision) than prior forms of corneal transplantation.

Roberto Pineda II, MD and Ula Jurkunas, MD

Today, Ula Jurkunas, MD, Roberto Pineda II, MD, Peter Veldman, MD, and Kathryn Hatch, MD are among a handful of corneal surgeons on the East Coast with advanced training in DMEK. Dr. Jurkunas, a corneal surgeon and Co-director of the HMS Ophthalmology Cornea Center of Excellence, performed the first

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INSIDE: MARCH 2015 #27

Paying It Forward

Joan W. Miller, MD, FARVO

Sharing knowledge, insights and discoveries with colleagues and the ophthalmology community at large is one of the most important aspects of our mission, particularly as our field evolves. In fact, knowledge transfer is a longstanding mindset that dates back to the origins of our department, and has grown *en force* over the last several decades.

Examples include our now iconic Biennial Cornea Conference which, since the 1960s, has promoted important discussion and interaction among leaders in the field to explore basic and translational research developments of the cornea and anterior ocular surface. The meeting continues to draw eminent faculty and enthusiastic attendees from around the world and, last year, expanded its global reach when it hosted its inaugural International Workshop. This one-day meeting brought together a multidisciplinary group of scholars to present current research findings, exchange ideas, and strengthen collaborations with the international community.

In 1999, the first Boston Angiogenesis Meeting was organized by Patricia D'Amore, PhD, MBA, FARVO after recognizing there was a "critical mass" of angiogenesis investigators in the Boston area and a lack of venues to promote ideas, share resources and form collaborations in angiogenesis research. Held annually, the meeting has become the mainstay for the Boston area angiogenesis community and draws participation from several local and regional universities, including Harvard University, Boston University, MIT, Tufts, UMass, and their affiliates.

Feedback from participants at these educational events is overwhelmingly positive. Attendees are enthusiastic to share their work with peers–a melding of minds and diverse experiences that never ceases to spark spontaneous dialogue and collaboration.

As our Centers of Excellence and Institutes have flourished, so has our international bandwidth with the addition of several new symposia. From its start in 2010, the biennial International Symposium on AMD has regularly drawn more than 200 clinicians and scientists from around the United States and abroad with a focus on current challenges and future directions in AMD research. Eminent speakers and a flexible format allowing for high level exchange have become hallmarks of this meeting, which participants regularly rank as their most important and inspired gathering in the field of retina.

In October 2014, the International Symposium on AMD was held in conjunction with the Ocular Regenerative Medicine Institute's Symposium on Ocular Regeneration: Cell Therapy and Regeneration. This interdisciplinary conference, the first of its kind, synthesized the latest developments in the field of regenerative medicine. Experts from around the world delivered thought-provoking presentations on a wide array of topics ranging from surgical techniques in preclinical models to optimizing strategies for isolating, culturing, and preserving stem cells for cellular therapies. The audience was engaged with open-ended panel discussions that promoted discussion of ideas, while interactions between faculty and trainees from both academia and industry added to the depth of discussion.

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The HMS Department of Ophthalmology strives to provide:

- ✓ Premier clinical care and attention to the patient experience
- ✓ Transformational research that eliminates blinding diseases
- ✓ World-class training of future leaders

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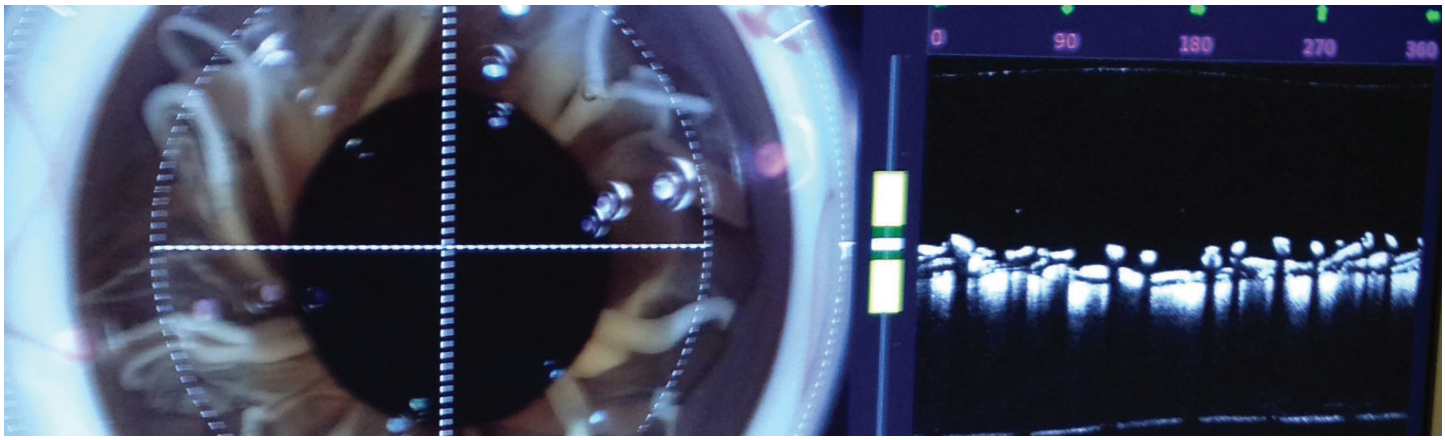
LenSx® Laser-Assisted Cataract Surgeries, Now Available at Mass. Eye and Ear



Credited with bringing many new techniques and technologies to Mass. Eye and Ear and the New England region, Roberto Pineda II, MD performed the first cataract surgery with a femtosecond LenSx® laser at Mass. Eye and Ear in October 2014. Dr. Pineda is the Director of Refractive Surgery and a member of the Cornea Service at Mass. Eye and Ear. Sherleen Chen, MD, Director of the Comprehensive Ophthalmology and Cataract Consultation Service at Mass. Eye and Ear also performed the surgery.

"Femto-assisted technology is an important technological advance and a great new option for our patients," commented Dr. Chen.

The advanced technology offers a level of precision not attainable with traditional surgical methods, and can be used, for example, to perform capsulotomy, one of the more challenging steps of cataract surgery.

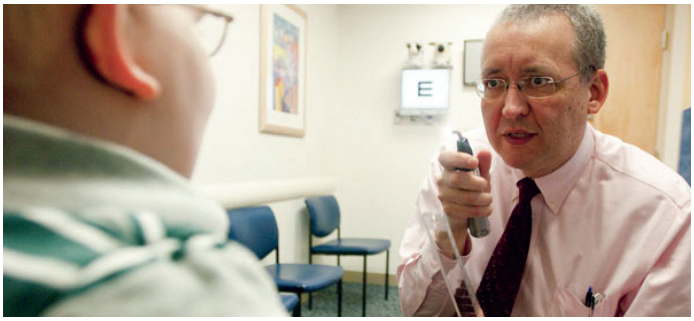
The procedure also requires less energy to break up the cataract and facilitates removal of the cataract. Drs. Pineda and Chen also used the laser to perform astigmatic keratotomy to help manage corneal astigmatism in patients.

Installed in August, the femtosecond LenSx® laser requires both a physician and a technician to operate, and Tom Keane, the Ophthalmology Department's chief technician for clinical and surgical equipment, assisted in the surgeries.

"Potential benefits of using this technique may include a reduced risk of infection because the incision is more likely to self-seal."
–Roberto Pineda II, MD

Femtosecond lasers for cataract surgery are manufactured by Alcon/LenSx® and Abbot Medical Optics/Optimedica, and Mass. Eye and Ear is among the first in Boston to use this instrument for cataract surgery. Currently, laser-assisted surgeries are available at Mass. Eye and Ear's main Charles Street location. ■

An Award-Winning Device: The Pediatric Vision Scanner



David Hunter, MD, PhD

REBIScan, the company founded by David Hunter, MD, PhD and his business partner Justin Shaka, was recently selected from over 50 competing medical device companies to receive an award of $50,000 for their work on the Pediatric Vision Scanner, a device that can detect strabismus, amblyopia, and other serious eye conditions in children as young as 2 years of age. The competition was held by the Sheikh Zayed Institute for Pediatric Surgical Innovation at Children's National Health System as part of its second annual symposium focused on pediatric surgical innovation.

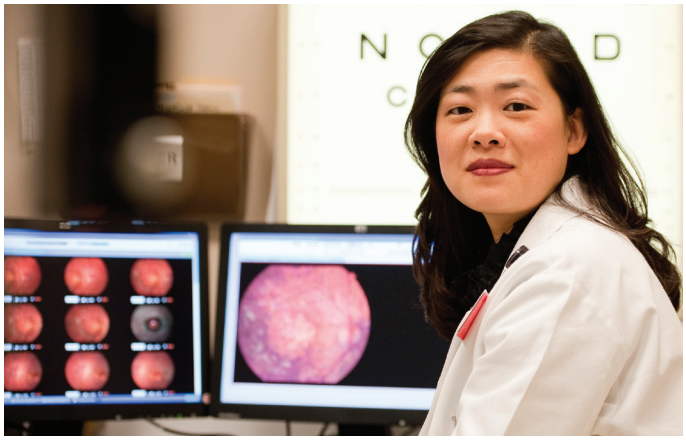
Dr. Hunter is Boston Children's Hospital's ophthalmologist-in-chief. According to an interview that appeared in *Vector*, Boston Children's Hospital's science and clinical innovation blog, Dr. Hunter credited his eclectic training background in electrical engineering, cell biology, and pediatric ophthalmology as influential in leading to the idea of the scanner 20 years ago. Today, the device detects amblyopia with such high accuracy that it has the potential to eradicate amblyopia by helping pediatricians make the diagnosis as early as preschool age—a time when the condition is highly correctable. ■

Fueling a Revolution in Retinal Care

Founded in 1949 as the world's first retina service by famed ophthalmologist, Charles L. Schepens, MD, the Massachusetts Eye and Ear Retina Service is one of the largest retina subspecialty groups in the country today. With expertise in lasers, cryopexy, pneumatic retinopexy, scleral buckling, vitrectomy, intravitreal injections, and proton beam therapy, Retina Service members diagnose and treat a full range of ocular diseases, including macular degeneration, diabetic retinopathy, retinal detachments, ocular tumors, retinopathy of prematurity, intraocular infections, and severe ocular injuries.

Over the last three-and-a-half decades, Mass. Eye and Ear's retina service director Evangelos Gragoudas, MD has helped transform the service into one of the world's preeminent academic and clinical services. Under his leadership, the service has grown exponentially – from two to 18 clinicians (and growing) who accommodate more than 25,000 patient visits each year at practices located in Boston, Stoneham, East Bridgewater, Plainfield, and Rhode Island.

Service members are utilizing cutting-edge imaging and genetic technologies to better diagnose diseases, monitor disease progression, and counsel patients. For instance, the Macular Degeneration Unit is equipped with all of the leading imaging technologies for macula as well as research devices, including swept source OCT and adaptive optics. Directed by Ivana Kim, MD, this unit is one of only a few places in North America



John Earle Photography

Ivana Kim, MD

with ultrasound biomicroscopy and a certified technician. In addition, the Electroretinography (ERG) Service, led by Eric A. Pierce, MD, PhD and comprised of four physicians, provides full-field and multifocal ERG testing, as well as measures of dark adaptation threshold, color vision, visual field, and retinal imaging studies. Through the Ocular Genomics Institute at Mass. Eye and Ear, ERG physicians also offer genetic diagnostic testing and provide genetic counseling to patients.

Each year, more than 8,500 intravitreal injections are administered to patients at Mass. Eye and Ear's main campus and satellite locations, most often in people with neovascular

CONTINUED ON PAGE 6 >

GAIL GLAZIER'S STORY

John Earle Photography

John Loewenstein, MD with patient, Gail Glazier

Former English teacher Gail Glazier always knew that she was at high risk for AMD. Her father, aunt, and brother were all diagnosed with it. Today, at 62, she's passionate about cooking her best Italian parmesan, reading historical novels, and laughing with her bowling league friends. But Gail long feared that blindness was inevitable.

Gail was Dr. Loewenstein's patient when she was first diagnosed with dry AMD. But it wasn't until 2006 that she noticed her vision had changed. "My husband and I were driving, and suddenly all the houses on the road looked wavy. My husband said they were straight," she recalls. "That's when I realized I had wet AMD."

Dr. Loewenstein soon confirmed the diagnosis, and immediately started her on Lucentis®–an effective, injectable anti-VEGF treatment developed in clinical trials based on basic science work done at Mass. Eye and Ear.

"This therapy isn't a cure, but it controlled the disease and saved my vision. I see pretty well in one eye, with 20/20 vision in the other."

Recently, Gail switched to treatment with Eylea®, a newer anti-VEGF therapy, and Dr. Loewenstein often updates her on "the next new thing" in AMD research.

"That's what's great about this place. From physicians to administrators, everyone here is wonderful. And you get the best care possible, as soon as possible. If there's a breakthrough, Mass. Eye and Ear has it first, six months before other places. That's too long to wait when it comes to your eyes. I wouldn't go anywhere else."
–Gail Glazier

Retina Faculty Members


Jason Comander, MD, PhD


Dean Eliott, MD

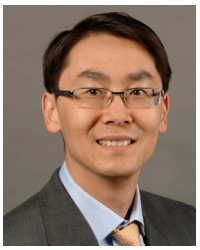

Evangelos Gragoudas, MD
Director


Paul Greenberg, MD


Rachel Huckfeldt, MD, PhD
(joining July 2015)


Deeba Husain, MD


Ivana Kim, MD


Leo Kim, MD, PhD


Magdalena Krzystolik, MD


John Loewenstein, MD


Joan Miller, MD, FARVO

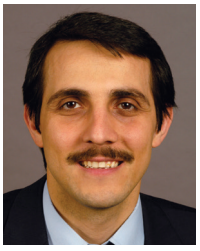

John Miller, MD
(joining September 2015)

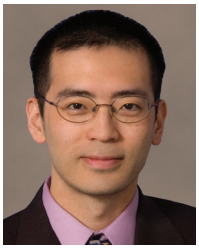

Shizuo Mukai, MD


Eric Pierce, MD, PhD

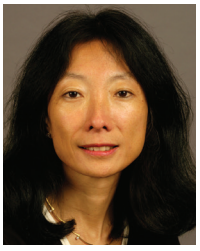

Michael Pinnolis, MD


Lucia Sobrin, MD, MPH


Demetrios Vavvas,
MD, PhD


David Wu, MD, PhD


Xiang Werdich, MD, PhD

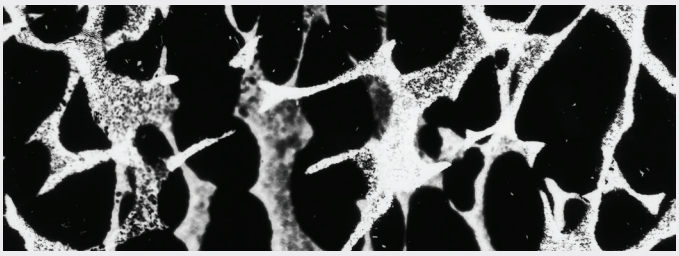

Lucy Young, MD, PhD, FACS

ADVANCES IN CORNEAL SURGERY CONTINUED FROM PAGE 1

Peter Veldman, MD

DMEK surgery on Coffey in June 2014. That same year, Dr. Veldman pursued fellowship training with one of the world's leading DMEK experts at the Devers Eye Institute in Portland, Oregon. Now a member of Mass. Eye and Ear's Cornea Service, he is helping spread the availability of DMEK by educating surgeons both within and outside the Department. Specifically, he plans to host visiting surgeons for observation of live DMEK surgery at Mass. Eye and Ear's Longwood medical center, as well as simulated surgeries with whole eyes and transplant tissue in a laboratory setting.

Scientists continue to probe the genetic and molecular underpinnings of corneal diseases. As the principal investigator of a National Institutes of Health-funded research project, Dr. Jurkunas hopes that by studying the complex gene-environment interactions that give rise to Fuchs', she and others will be able to find better treatments and preventatives. Clinicians are concomitantly innovating new treatment options to provide patients with cutting-edge care. Among the many promising avenues of exploration, Kathryn Colby, MD, PhD is involved with a pioneering technique, which involves stripping only the diseased tissue of the Descemet's membrane, allowing the peripheral cells to regenerate the corneal endothelium in patients with Fuchs'. ■



Updates in Collagen Cross-linking

Originally developed in Germany, collagen cross-linking has been shown to slow or arrest the progression of keratoconus in published European studies. The Food and Drug Administration currently prohibits its use in the United States outside of approved clinical trials. However, a joint panel of the FDA's Dermatologic and Ophthalmic Drugs Advisory Committee and Ophthalmic Devices Panel recently recommended approval of Avedro's combined riboflavin ophthalmic solutions and ultraviolet light irradiation for corneal collagen cross-linking in patients with progressive keratoconus and corneal ectasia following refractive surgery. At Mass. Eye and Ear, corneal expert Jonathan Talamo, MD performs transepithelial crosslinking, or "epi-on" crosslinking, as part of a clinical trial, and has been gathering data on the efficacy of this treatment since 2010. Avedro, a privately held medical device and pharmaceutical company, continues to conduct Phase III trials to validate the treatment's safety and efficacy, seek FDA approval, and make the treatment widely available in the United States. ■

MASS. EYE AND EAR RETINA SERVICE CONTINUED FROM PAGE 4

AMD or diabetic retinopathy. While acute endophthalmitis is a potential complication of these injections, the rate of infection at Mass. Eye and Ear remains one of the lowest reported, with a seven-year average of only 0.01 percent; international benchmarks range from 0.02 to 1.9 percent.

Surgeons also annually repair more than 750 retinal detachments and close to 200 macular holes, maintaining high success rates comparable to national and international benchmarks. With a 99.5 percent success rate for primary rhegmatogenous retinal detachment repair after one or more surgeries, the Retina Service has consistently met international benchmarks for the past four years. Additionally, researchers have shown a 93.9 percent single surgical success rate for macular hole.

Proton beam therapy, developed by Dr. Gragoudas at Mass. Eye and Ear some 30 years ago, remains the most broadly-applicable treatment for uveal melanoma. Mass. Eye and Ear is one of only a few dozen proton beam facilities in the world, and has become a major center for treatment as well as for scientific investigation for related areas of study in epidemiology, experimental models, new therapies, and basic research. Scientists in the HMS Department of Ophthalmology continue to investigate anti-VEGF injections and other adjunctive therapies to help manage the visual complications that may occur with proton beam therapy.

Pushing the boundaries of medicine even further, scientists continue to investigate two of the biggest challenges with retinal transplants: the inability of grafted cells to make connections with the host retina, and rejection of the donor tissue. In a clinical trial for AMD, Dean Eliott, MD, the Stelios Evangelos Gragoudas Associate Professor of Ophthalmology, demonstrated survival of grafted embryonic stem cell derived retinal pigment epithelium (RPE) in patients with AMD. This was the first study in humans to show the safety of grafts. Michael Young, PhD, the Minda de Gunzburg Scholar in Retinal Transplantation and Director of the Minda de Gunzburg Center for Retinal Transplantation at Schepens Eye Research Institute / Mass. Eye and Ear, and Co-director of the HMS Ophthalmology Ocular Regenerative Medicine Institute, also developed a novel stem cell therapy for retinitis pigmentosa using retinal progenitor cells, and a trial is planned for later in 2015. ■

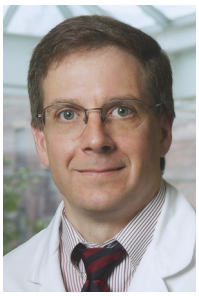
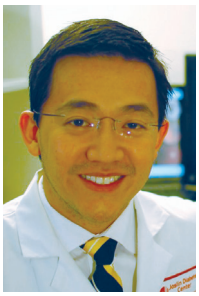
The Joslin Vision Network: Leveraging Technology and Expanding Service

The Joslin Vision Network™ Diabetes Eye Care Program (JVN)—a validated retinal imaging and clinical service designed to prevent blindness and vision loss for people with diabetes—is expanding access to diabetes eye care through new and existing collaborations. By leveraging technological advancements, such as ultrawide field retinal imaging, the JVN also is making tremendous improvements in its ability to grade retinal images gathered through its teleophthalmology programs.

Since 2000, the JVN has collaborated with the Indian Health Service (IHS) to provide high quality, cost-effective diabetic eye exams to American Indian (AI) and Alaskan Native (AN) communities using telemedicine technology. When patients with diabetes visit their primary care clinic for their usual diabetes care, retinal images are obtained and are immediately sent to a reading center where doctors interpret the images and report on any abnormalities needing further evaluation and possible treatment.

The JVN-IHS Teleophthalmology Program provides diabetic retinopathy evaluation in over 90 sites across 26 states in the United States. Twenty-five of these sites now use an advanced imaging technology known as ultrawide field retinal imaging, which has reduced ungradable image rates from 20 percent to less than 5 percent within one month of deployment. This state-of-the-art imaging technique produces dynamic, high-resolution images of approximately 200 degrees of the fundus and is superior to montaged retinal images.

In addition to serving AI/AN communities, the JVN is collaborating with the San Francisco Department of Public Health and University of the California, San Francisco to implement diabetes eye care at over 12 sites, primarily serving an inner-city population. Moreover, at the Mattapan Community Health Center, a community based

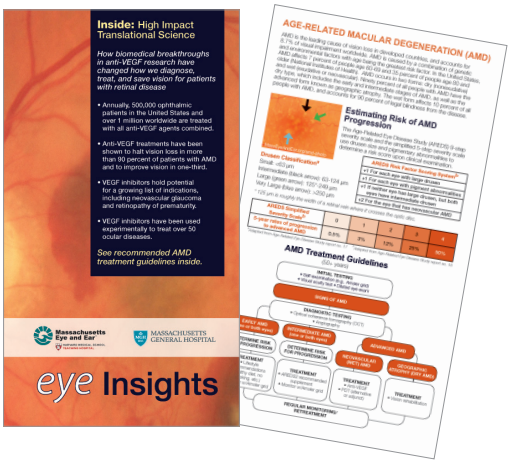




Drs. Lloyd Paul Aiello, Paolo Silva, and Jennifer Sun are members of a committee that aims to develop a national protocol on research work in imaging studies

teleophthalmology program using ultrawide field retinal imaging has been established, which serves a largely black and minority population that previously had limited access to eye care.

To date, more than 2 million retinal images have been acquired using the JVN teleophthalmology programs. The use of ultrawide field scanning laser imaging by the JVN has maintained ungradable rates of less than 3 percent, which is more than 70 to 85 percent lower than reported rates by similar programs outside of Joslin. Based on the JVN's leading expertise and experience in evaluating ultrawide field retinal images, JVN's reading center has been selected as the reading center of a nationwide Diabetic Retinopathy Clinical Research Network (DRCR.net) ultrawide field imaging study. This study will determine whether diabetic retinopathy lesions in the retinal periphery seen on a baseline examination improve our ability to predict risk of worsening of diabetic eye disease over the subsequent four years. Lloyd Paul Aiello, MD, PhD, Paolo Silva, MD, and Jennifer Sun, MD, MPH of the Beetham Eye Institute at Joslin Diabetes Center served on the DRCR.net protocol development committee that designed this study, and Dr. Sun serves as the nationwide Chair for this protocol. ■

Mass. Eye and Ear Publishes Clinical Newsletter, *Eye Insights*



Designed for practicing ophthalmologists, *Eye Insights* provides practical and relevant best practice information from Mass. Eye and Ear specialists in an easy-to-read format. Published twice a year, this clinical newsletter is mailed to 18,000 practicing ophthalmologists nationwide and features a different topic each issue.

The focus of the most recent issue was AMD and includes:

- Summary of advances in anti-VEGF therapies, angiogenesis research, and personalized medicine
- Snapshot of AREDS-validated severity scales
- AMD treatment guidelines

Available online at: eye.hms.harvard.edu/newsletters

Giving Opportunities

It is truly an exciting time in the Harvard Medical School Department of Ophthalmology. Your support is vital to maintaining our upward trajectory as clinical innovators, world-class educators, and cutting-edge researchers. Following are potential gift designations:

John Earle Photography

• OPHTHALMOLOGY SURGICAL TEACHING LABORATORY

Join us in our commitment to provide Mass. Eye and Ear residents with a world-class training experience complete with dedicated faculty teaching time and an enlarged, renovated, and updated facility on the third floor of Mass. Eye and Ear. Featuring the finest surgical equipment and educational tools available, this expanded surgical laboratory will be a highlight of the HMS Ophthalmology Residency Training Program. The overall goal of this project is $2 million.

Do you feel passionate about an aspect of your training?

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Julie Dutcher in the
Development Office:
julie_dutcher@meei.harvard.edu

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• HOWE LIBRARY OF OPHTHALMOLOGY

The Howe Library of Ophthalmology is a vital resource to the Department's medical and scientific staff, housing one of the most complete libraries of ophthalmology in the world. The Library depends on philanthropic support to provide a high level of service to trainees and faculty and to continually keep pace with changing technology.

• NAMED FUNDS HONORING FACULTY

In honor of some of our renowned clinicians, researchers, and mentors, fellow alumni have established named funds that enable residents, fellows, and faculty to advance their professional development. Examples include the Mariana Mead Lectureship Fund and the Robert Brockhurst Academic Development Award Fund.

• ENDOWMENT OPPORTUNITIES

Endowed gifts help sustain us as a premier center of learning and allow us to attract and retain outstanding faculty members, fellows, and students. These gifts provide critical financial aid and support key departmental resources. Endowment possibilities include:

- Mass. Eye and Ear Institutional Chair
- Post-Doctoral Fellowship
- Clinical Scholar, Research Scholar, or Education Scholar Award for Junior Faculty

• CHAIR OF OPHTHALMOLOGY DISCRETIONARY FUND

By designating your gift to this fund, you will help the Department seize new opportunities to invest in its people, research, and teaching programs to continually build upon the excellence of the Department.

Charles de Gunzburg's Family Legacy at Mass. Eye and Ear

For the de Gunzburg family, philanthropy is a family value that has been passed down for generations. Thirty two years ago, Charles de Gunzburg developed bilateral retinal detachment, which almost caused him to lose his sight. After Dr. Howard Tanenbaum, a student of Charles L. Schepens, MD, saved his vision, Charles became interested in giving back to the Schepens Eye Research Institute, now a part of Massachusetts Eye and Ear. Since then, he has continued to support various institutional initiatives and has been a key leader on the Schepens, and now Mass. Eye and Ear, Board of Directors.

de Gunzburg Retinal Diagnostic Imaging Center

Charles' interest in our regenerative medicine approach to treating eye disease led him to establish the Minda de Gunzburg Center for Ocular Regeneration at Schepens in 1996, in honor of his late mother. This center–now called the Minda de Gunzburg Center for Retinal Transplantation–is a major resource of the Ocular Regenerative Medicine Institute (ORMI) and dedicated to the development of therapies aimed at regenerating tissues of the eye that have been damaged by disease or trauma. Charles de Gunzburg also endowed the directorship of the de Gunzburg Center, a position held by stem cell and regenerative medicine leading scientist Michael Young, PhD, who co-directs ORMI with Demetrios Vavvas, MD, PhD.

"Scientists at Mass. Eye and Ear/Schepens have already made enormous progress in this rapidly growing fledgling, fascinating field," says Charles. "I was already a believer, but in the past few years, my commitment has grown even greater."

As testament to this deepened commitment, Nathalie and Charles de Gunzburg made a generous pledge to Mass. Eye and Ear's *Bold Science. Life-Changing Cures* campaign to name the de Gunzburg Retinal Diagnostic Imaging Center located in the hospital's Retina Service on the 12th floor.

"It is an amazing feeling to support the dedicated researchers at Mass. Eye and Ear/Schepens who have fantastic dreams which, when realized, will change millions of lives."
– Charles de Gunzburg

The de Gunzburgs also support research into neuroprotective therapy for retinal and optic nerve degeneration, which is conducted by Kameran Lashkari, MD, HMS Instructor of Ophthalmology and Assistant Scientist at Schepens/Mass. Eye and Ear. In particular, Dr. Lashkari and his laboratory are concentrating their efforts on identifying non-retinal sources of progenitors in the human eye for the purpose of developing cell-based therapies for eye disease.

Charles is Chairman of First Spring Corporation, a private New York-based investment company, and a founder of FdG Associates, a leverage buyout firm. He holds a bachelor's degree from Dartmouth College and a Master's degree in Public Administration from Harvard's Kennedy School of Government. He and Nathalie and their three children reside in New York City where Nathalie serves as Chair of the Board for the Dia Art Foundation, a multi-disciplinary contemporary arts organization.

Like many parents who strive to be strong role models for their children, the de Gunzburgs hope their children will witness the impact of their charitable giving and feel inspired to continue the family philanthropic legacy. "The ability to make a difference is one of the great things one can do in this world," Charles reflected. "We pass through this earth for a finite period of time, and if we make absolutely no difference anywhere, then why were we here?" ■

To learn more, please contact Julie Dutcher in the Development Office:
julie_dutcher@meei.harvard.edu
617-576-3350

ACRC/Macula 2015 Conference Debuts in Boston

On a very chilly January weekend, the Atlantic Coast Retina Club (ACRC) and Macula 2015 meetings, traditionally held in New York, Baltimore, and Philadelphia, came to Boston for the first time. These back-to-back meetings received rave reviews from those who attended and were heralded a complete success. Co-directors Dr. Dean Eliott (Mass. Eye and Ear/HMS), Dr. Jay Duker (New England Eye Center/ Tufts University School of Medicine), and Dr. Jeff Heier (Ophthalmic Consultants of Boston) organized the day and moderated along with colleagues.

On Thursday, January 8, Mass. Eye and Ear hosted over 200 ophthalmology residents, fellows, and faculty for day one of the ACRC meeting. More than 50 trainees from around the country presented "mystery cases" to a standing room only crowd in Meltzer auditorium.

The ACRC meeting continued on Friday at the Revere Hotel with over 375 in attendance for faculty and attending physician retina case presentations and the opening of an exhibit hall with 16 vendors presenting their newest devices and latest developments. Macula 2015, a CME event held on Saturday that featured well-known retina specialists from around the country, was the culmination of the three-day event. Presentations covered topics including ocular imaging, ocular tumors, management of diabetic retinopathy and retinal vein occlusion, and current and future approaches to AMD therapy. Course co-directors kept the discussions lively after each presentation, and Dr. Joan Miller closed the day. Next year, the ACRC/Macula Conference will be held January 7-9th in New York. ■

Eyes on the Complement System at the Third International Biennial Symposium on AMD

Drawing nearly 250 clinicians, researchers, trainees, and industry representatives from around the world, the Third International Biennial Symposium on AMD, which was held October 24–25 and co-chaired by Chief and Chair of Ophthalmology, Joan Miller, MD, FARVO, and AMD Center of Excellence co-directors Patricia D'Amore, PhD, MBA, FARVO and Ivana Kim, MD, had special significance because it followed the 2014 António Champalimaud Vision Award, which recognized the development of antiangiogenic therapies for AMD and other retinal diseases. Five members of the HMS Department of Ophthalmology were among the seven Champalimaud Laureates who identified vascular endothelial growth factor (VEGF) as a therapeutic target.

The symposium showcased research from diverse disciplines to increase the understanding of AMD pathogenesis and identify new therapeutic strategies. Leaders from the fields of inflammation, neuroprotection, neurodegenerative disorders, and pathology joined experts in ophthalmology and vision research for a fervent, cross-disciplinary interchange of innovative concepts and investigative avenues. Talks were organized into sessions by topic, and each session concluded with a panel discussion composed of the session presenters and additional selected participants.

Reflecting the dynamic field of AMD research, symposium topics have evolved remarkably since the first symposium began in 2010. In the original symposium, the complement system of innate immunity was a major topic of discussion, catalyzed by a flurry of genetic studies that linked several complement-related genes with AMD risk. Although lipid metabolism largely dominated the 2nd symposium in 2012, the spotlight was "back on the complement bandwagon," joked Robert D'Amato, MD, PhD, referring to the ongoing scrutiny of the complement system and clinical trials of complement-targeting therapies for AMD.

Additional immune-related topics included inflammasome activation and cellular modulators such as macrophages and mast cells. Other cross-disciplinary topics included oxidative stress and non-coding RNAs as biomarkers and therapeutic targets in AMD. Researchers also presented data on mechanisms of photoreceptor death and early-phase clinical investigation of stem cell therapy for the atrophic or "dry" form of AMD.

The field of AMD has also progressed beyond gene association studies. Efforts are underway to clarify the phenotypic outcomes of specific genotypes, and to elucidate the biological implications of gene variants. Besides the well-known effects on gene transcription and mRNA translation, novel repercussions of gene mutations (including "silent" polymorphisms) were discussed—such as altered protein translation rate and its impact on protein conformation and stability. ■

Scientists and Clinicians Discuss Regenerative Medicine and Philosophical Riddles at First Symposium on Ocular Regeneration

Demetrios Vavvas, MD, PhD, Pawan Sinha, PhD, Michael Young, PhD, and Joan W. Miller, MD, FARVO at the first interdisciplinary Symposium on Ocular Regeneration: Cell Therapy and Regeneration

The first Symposium on Ocular Regeneration: Cell Therapy and Regeneration in the Retina, held on October 23, 2014, drew over 150 participants from the United States and abroad. Co-chaired by Michael Young, PhD, and Demetrios Vavvas, MD, PhD, who also co-direct the Ocular Regenerative Medicine Institute, the symposium was presented in partnership with the Third International Biennial Symposium on AMD.

"By studying the eye, we have a unique opportunity to directly observe and monitor microanatomy and function. This gives us an edge in the field of regenerative medicine," explained Dr. Young. "Ophthalmology is on the frontier of developing and utilizing regenerative medicine and stem cell therapies for degenerative conditions," agreed Dr. Vavvas.

Experts from around the world delivered thought-provoking presentations and engaged participants in open-ended panel discussions. The wide array of topics ranged from refining surgical techniques in preclinical models to optimizing strategies for isolating, culturing, and preserving stem cells for cellular therapies.

Speakers explored the fundamental mechanisms of neuronal death in a variety of eye diseases, including AMD, glaucoma, and retinitis pigmentosa. Among the invited speakers, basic scientists highlighted the importance of scientific discovery in establishing the foundation for clinical trials. Indeed, scientists from HMS Ophthalmology are partnering with stem cell company ReNeuron to initiate the first-in-man restorative stem cell trial in the retina, slated for early 2015.

"The Symposium on Ocular Regeneration was the perfect prelude to the AMD Symposium."
– Participant

The symposium concluded with the keynote lecture "Learning to See Late in Life," presented by Pawan Sinha, PhD, Professor of Computational and Visual Neuroscience at MIT. Dr. Sinha's research addresses a philosophical question first posed by Irish scientist William Molyneux in the late 1600s, which has since puzzled neuroscientists and philosophers alike. Called "one the most fruitful thought-experiments ever proposed in the history of philosophy" by the Stanford Encyclopedia of Philosophy, Molyneux's problem questions whether a previously blind person, with newly gained vision, could recognize objects by sight that were formerly known only by touch. This avenue of research brings important implications to rehabilitation strategies for people cured of blindness. ■

Constance Cepko, PhD
Bullard Professor of Genetics and Neuroscience, and Professor of Ophthalmology, Harvard Medical School

Neville Osborne, PhD, Professor of Ocular Neurobiology, Nuffield Laboratory of Ophthalmology, University of Oxford

Educational Collaboration and Surgical Expertise on a Global Level

Roberto Pineda II, MD, along with ORL colleague Mack Cheney, MD of Mass. Eye and Ear, and Robert Boucher, MD of the Veterans Administration Boston Health System, visited the State University of Haiti in October on behalf of Mass. Eye and Ear's Office of Global Surgery and Health. Meeting with the Dean of the medical school and faculty from Ophthalmology and ORL, they discussed ways that the Office of Global Surgery could collaborate with Partners in Health to expand educational opportunities for residents through onsite surgical and clinical training, knowledge transfer, telemedicine, distance learning, and research collaboration and mentorship. Currently, the State University of Haiti residency programs are the only existing Ophthalmology and ORL post-graduate training programs in Haiti. ■

Nurturing a Culture of Excellence in Teaching and Learning at The Academy at HMS

Effective leadership requires both courage and vulnerability. As innovators of medical education in the HMS Department of Ophthalmology, Deborah Jacobs, MD, Carolyn Kloek, MD, and Dean Cestari, MD are members of The Academy, a 285-member program established to advance the education of physicians and scientists throughout the HMS community. The Academy fosters medical educators' careers, provides programming support, supports innovation in pedagogical methods and curriculum, and promotes research that focuses on teaching, learning, and assessment at the undergraduate and graduate medical education levels and in the science education of our graduate students.

Dr. Jacobs has maintained a long-term and serious commitment to ophthalmic education. As Director of the Ophthalmology Component of Core Medicine I at HMS, Dr. Jacobs manages faculty activities at two teaching hospitals and coordinates a Mass. Eye and Ear Emergency Room rotation for medical students. Over the last few years, she has successfully revamped the course content to align it with the American University Professors of Ophthalmology curriculum, including digitizing the materials to allow for on-line access. She also is actively involved in mentoring and training HMS cornea fellows who complete a rotation at the Boston Foundation for Sight under her supervision. She is the recipient of both an Honor Award and Secretariat's Award from the American Academy of Ophthalmology.

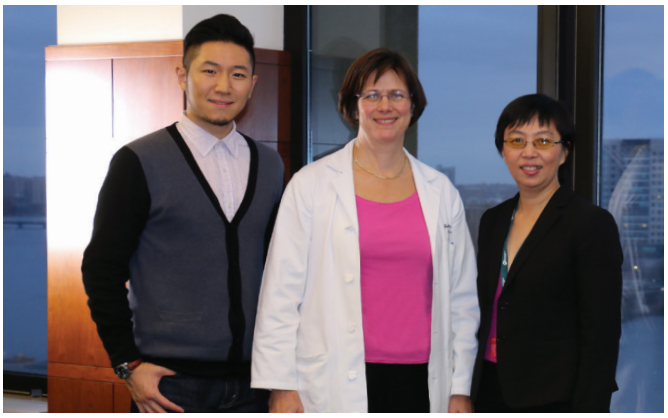
As the Director of the HMS Ophthalmology Residency Training Program, Dr. Kloek brings innovation to resident education by developing tools, technologies and training methods that aim to raise standards of ophthalmic training both at HMS and around the world. Among her leadership roles, Dr. Kloek is also Clinical Director of Ophthalmology at Mass. Eye and Ear, Longwood and Chief of the Division of Ophthalmology in the Brigham and Women's Hospital Department of Surgery. She has been recognized with numerous awards, including a 50th Anniversary Shore Scholar Award; an HMS Rabkin Fellowship in Medical Education; an Emerging Leader Award from Women in Ophthalmology; and the Boston Chamber of Commerce's Pinnacle Award for Achievement in the Professions.

Instrumental in helping the department achieve its core goals of excellence in education, translational research, and clinical care, Dr. Cestari also is a highly regarded educator and one of several faculty nominated for the 2012-2013 HMS Excellence in Mentoring Award. He has led the ophthalmology clinical fellowship program and his research program with strong executive skills, and has a long-standing interest in education policy and practice at all levels of medical education—from medical students to clinical fellows and beyond—and the associated administrative expertise. As one of a handful of ophthalmologists worldwide who is board-certified in both neurology and ophthalmology, he also is an integral member of Mass. Eye and Ear's Neuro-Ophthalmology Service. ■

Department Continues to Broaden Partnerships in China

In September 2014, Reza Dana, MD, MPH, MSc, FARVO led an HMS Department of Ophthalmology delegation to China on a week-long visit to several institutions, including the Chinese University of Hong Kong and the University of Hong Kong, Fudan University in Shanghai, and the Zhongshan Ophthalmic Center in Guangzhou, China. The trip built upon previous educational and research collaborations that the Department has cultivated with Chinese colleagues in Shanghai since 2011. New opportunities for collaboration were explored during meetings in Hong Kong and Guangzhou.

The HMS delegates included Teresa Chen, MD, Eric Pierce, MD, PhD, Dong Feng Chen, MD, PhD, Neena Haider, PhD, Roberto Pineda II, MD, Ula Jurkunas, MD, Demetrios Vavvas, MD, PhD, Jennifer Sun, MD, MPH, Lucy Shen, MD, and Bonnie Brodowski, MBA. ■



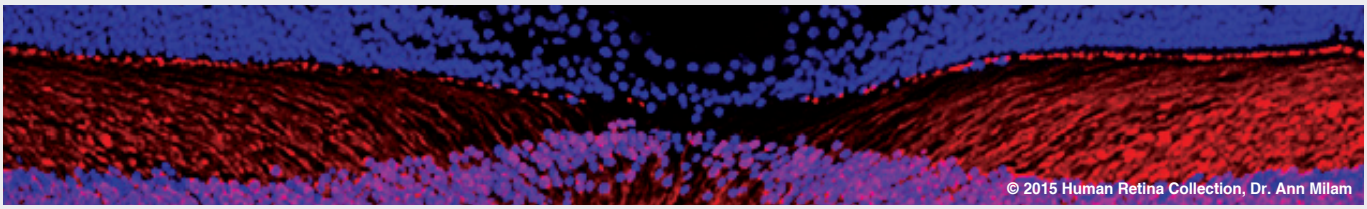
Xiao "James" Zhan, Joan W. Miller, MD, FARVO, and Dong Feng Chen, MD, PhD (left to right). HMS Department of Ophthalmology hosted a TV crew from Shanghai, China to film a five-part series on glaucoma, cataract, dry eye disease, AMD, and low vision. The project is sponsored by Women's Eye Health, an initiative directed by Dr. Chen.

Ocular Oncologist Carol Shields Captivates Mass. Eye and Ear Residents as 2014 Chandler Visiting Professor

As the 2014 Paul A. Chandler Visiting Professor, Carol Shields, MD, Professor of Ophthalmology at Thomas Jefferson University in Philadelphia, *(center first row)* lectured and discussed 21 case presentations with HMS Department of Ophthalmology residents during a visit to Mass. Eye and Ear on December 5th and 6th. Organized by the residents, the annual Paul A. Chandler lectureship consists of resident case presentations and lively discussion with a visiting professor. This year, Dr. Shields delivered two presentations—one on conjunctival tumors and another on intraocular tumors. Resident presentations reflected Dr. Shield's expertise in ocular oncology and spanned a range of specialties, including oculoplastics, retina, and cornea. Enthusiastic and engaged with each resident's presentation, Dr. Shields was praised as a "fantastic Chandler visiting professor" and a "captivating teacher" by second-year resident Avni Patel, MD, who organized this year's program along with Seanna Grob, MD.

Established by David G. Cogan, MD, the Chandler Visiting Professorship honors Dr. Chandler, a renowned glaucoma specialist and a generous benefactor of Mass. Eye and Ear. Dr. Chandler was also a resident at Mass. Eye and Ear from 1924 to 1925 and served as a consulting Chief of Ophthalmology for more than 20 years. He teamed up with W. Morton Grant, MD of Harvard Medical School to establish the Chandler Grant Glaucoma Society, which sponsors the Chandler-Grant lectureship and an associated clinical forum. In 1986, HMS established the Paul A. Chandler Professorship in Ophthalmology, which currently supports the work of two HMS faculty members: Simmons Lessell, MD and Janey Wiggs, MD, PhD. ■

Panel-based Genetic Diagnostic Testing for Inherited Eye Diseases is Highly Accurate and More Sensitive than Exome Sequencing



Departmental investigators and colleagues in the HMS Ophthalmology Ocular Genomics Institute (OGI) recently reported the development and characterization of a comprehensive genetic test for inherited eye disorders that is both accurate and reproducible in the online version of *Genetics in Medicine*, a *Nature* journal.

Using targeted capture and next generation sequencing techniques to sequence 226 genes known to cause inherited eye disorders, **the Genetic Eye Disease (GEDi) test is 98 percent accurate** at detecting spelling variations or mutations in the genetic code of inherited eye disease genes and is highly reproducible between test runs. In contrast, **whole exome sequencing – in which the coding regions of all genes are sequenced, and which is being employed commonly in clinical settings – was 88 percent accurate** at detecting genetic variants in the same genes.

"The results we obtained for the GEDi test show that panel-based testing focused on the specific genes associated with genetic conditions offers important advantages over whole exome sequencing."

–Janey Wiggs, MD, PhD, Director of the OGI's Genetic Diagnostic Testing Service

Currently, the GEDi test is offered on a CLIA-certified basis through the OGI at Mass. Eye and Ear and includes all of the genes known to harbor mutations that cause inherited retinal degenerations, optic atrophy and early onset glaucoma. These disorders are important causes of vision loss, and genetic treatments such as gene therapy hold promise for preserving vision in affected individuals. Future versions of the test will also include genes responsible for eye movement disorders (strabismus) and other inherited eye conditions. ■

Medical professionals interested in ordering genetic testing can email OGI_Diagnostics@meei.harvard.edu or call 617-573-6906. A completed Test Requisition form (available at http://oculargenomics.meei.harvard.edu/gdt) is required for all specimens.

NOTES FROM THE CHAIR FROM PAGE 2

The Ocular Genomics Institute debuted its inaugural symposium in the spring of 2013 as a means of leveraging the large concentration of genomic science research in the Boston-Cambridge area. This intensive, one-day meeting drew some of the most notable leaders in ophthalmic genetic and genomic science, an international mix of distinguished presenters, and a diverse audience of 100 geneticists, ophthalmologists, genetic counselors and researchers. The meeting–which explored current research for a wide range of inherited eye diseases and their impact on patients and their families–helped launch important dialogue around global research efforts and received rave reviews from participants.

Taken as a whole, the global ophthalmology community has incredible intellectual wealth and insights to share, and our Department remains committed to working and learning together with colleagues near and far to push the limits of our field. Conferences and symposia are important venues for us to pool ideas and refine investigations—all with the goal of speeding up ophthalmic advances. As you read through this issue of *Eye Witness*, I hope you are excited by the advancements in our field, made possible by the active participation of our ophthalmic community. ■

Joan W. Miller, MD, FARVO
Chief and Chair

Comparing Diabetic Macular Edema Treatments: Results of the DRCR.net Protocol T Study

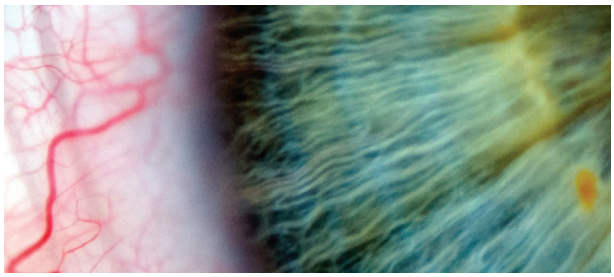
Data from the NIH-sponsored DRCR.net Protocol T study was published in the *New England Journal of Medicine* in February 2015, adding new information to the literature about treatment options for diabetic macular edema (DME). In this multicenter randomized clinical trial, researchers compared the safety and efficacy of intravitreous aflibercept, bevacizumab, and ranibizumab for the treatment of center-involved diabetic macular edema causing decreased visual acuity. At one-year follow-up, key findings included:

- All three anti-vascular endothelial growth factor (anti-VEGF) agents substantially improved vision.
- In the overall population, aflibercept (Eylea®/Regeneron) yielded greater improvement in visual acuity than either ranibizumab (Lucentis®/Genentech) or bevacizumab (Avastin®/Genentech).
- In patients starting the trial with visual acuity between 20/32 and 20/40, there were no differences among treatments.
- In patients starting the trial with a visual acuity of 20/50 or worse, aflibercept provided the greatest benefit.
- A smaller percentage of participants on aflibercept (36%) underwent laser treatment for persistent edema that did not resolve with anti-VEGF treatment alone, compared with those on bevacizumab (56%) or ranibizumab (46%).

Over the past five years, anti-VEGF agents have become the mainstay of treatment for the diabetic eye complication of DME. This landmark study was the first to compare the safety and efficacy of the three most widely-used, commercially available anti-VEGF treatments used for DME.

Many members of the combined DRCR.net Joslin and Harvard Vanguard team participated in this landmark study. Lloyd Paul Aiello, MD, PhD and Jennifer Sun, MD, MPH were co-authors on the published manuscript. Beetham Eye Insitute study coordinators included Peggy Stockman, Hanna Kwak, Ann Kopple and Ellen Golden. Paolo Silva, MD and Paul Arrigg, MD served as the Joslin site Principal Investigators (PI) for this study, and George Sharuk, MD is the overall Joslin DRCR.net site PI. ■

Bacterial Conjunctivitis at the Genome Level



Michael S. Gilmore, PhD, the Sir William Osler Professor of Ophthalmology at HMS and Director of the Infectious Disease Institute (IDI), and colleagues examined a leading cause of bacterial conjunctivitis, Streptococcus pneumoniae, by comparing a large collection of strains at the genome level and published their findings in *Nature Communications* (November 13, 2014). Responsible for a range of diseases that are increasingly difficult to treat because of antibiotic resistance, S. pneumoniae have been implicated in infections of the lungs, brain, and surface of the eye.

While vaccines against S. pneumoniae are available, they are not effective in preventing eye infections. To design a more effective vaccine, and to better understand how some strains of S. pneumoniae cause infection of the ocular surface, researchers examined the genomes of a large collection of S. pneumoniae strains collected from across the United States. This effort was spearheaded by postdoctoral researcher Michael Valentino, PhD and included Mass. Eye and Ear scientists Wolfgang Haas, PhD and Paulo Bispo, PhD as well as a collaborative team from the Broad Institute of Harvard University, Massachusetts Institute of Technology, the U.S. Centers for Disease Control and Prevention, and elsewhere.

Microbes that commonly infect the eye have special characteristics that seem to allow the bacterium S. pneumoniae to stick to the surface of the eye, grow, and cause damage and inflammation.

The research team demonstrated that microbes that commonly infect the eye have special characteristics that seem to allow the bacterium S. pneumoniae to stick to the surface of the eye, grow, and cause damage and inflammation. Researchers are now applying this information to develop new ways to treat and prevent conjunctivitis infections due to S. pneumoniae, which are becoming increasingly resistant to antibiotics. ■

Upcoming Events

Visit **HMS Department of Ophthalmology online at**
eye.hms.harvard.edu

- Calendar
- News and Events
- Publications

Ophthalmology Grand Rounds

Grand Rounds are held every Thursday from 8:00 to 9:00 am in the 3rd Floor Meltzer Auditorium at Mass. Eye and Ear and simulcast to the Karp 11 conference room at Boston Children's Hospital, Joslin Diabetes Center, and Mass. Eye and Ear, Longwood. Continuing Medical Education credit is available. *Check the online calendar for additional dates and times.* CME

Distinguished Lecture Seminar Series

2nd Floor Conference Room, Schepens Eye Research Institute

Course Director: David A. Sullivan, PhD

March 19, 2015, 3:00 pm: Alan Russell, PhD, Highmark Distinguished Career Professor and Director of the Disruptive Health Technology Institute at Carnegie Mellon University presents, "Hype and Hope of Innovations in Healthcare."

Joint Neuroscience Mass General/Ophthalmology Grand Rounds

Etherdome, Massachusetts General Hospital

April 2, 2015, 8:00 am: Dean Eliott, MD, Stelios Evangelos Gragoudas Associate Professor of Ophthalmology at Harvard Medical School and Associate Director of the Retina Service at Mass. Eye and Ear. CME

Distinguished Lecture Seminar Series

2nd Floor Conference Room, Schepens Eye Research Institute

Course Director: David A. Sullivan, PhD

April 16, 2015, 4:00 pm: Paul Kubes, PhD, Professor, Departments of Physiology & Pharmacology, Medicine and Microbiology, Immunology & Infectious Diseases; Director, Snyder Institute of Infection, Immunity and Inflammation; Immunology and Gastrointestinal Research Groups; AHFMR Scientist and CRC Chair at the University of Calgary

May 21, 2015, 4:00 pm: Eric M. Reiman, MD, CEO of Banner Health and Executive Director of the Banner Alzheimer's Institute

Awards, Grants, and Other Honors

Awards & Grants

Pablo Argüeso, PhD of Schepens Eye Research Institute/Mass. Eye and Ear received a new R01 in the amount of $2.4 million payable over five years in support of his project, "CD147 and Corneal Wound Repair."

Joseph Ciolino, MD received the 2015 Harvard University Milton Fund Award totaling $40,000 in support of his research investigating an antibiotic-eluting contact lens for the treatment of bacterial keratitism.

Christina Grassi, a HMS student working with **James Chodosh, MD, MPH,** received the 2014 Future Leader in Surgery Award (Patricia Numann Medical Student Prize) from the Association of Women Surgeons.

HMS Ophthalmology resident **Seanna Grob, MD** received 2nd place in *Ophthalmology Times*' 2014 Resident Writers Award Program for her entry, "A Pharmacological Approach to Dry Eye Syndrome in a Case of Graft-Versus-Host Disease (GVHD)."

Deeba Husain, MD received a new $450,000 clinical research award from Genentech to support a phase III study of the intravitreal administration of lampalizumab to patients with geographic atrophy secondary to age-related macular degeneration.

Tatjana Jakobs, MD received $100,000 from the Ellison Foundation for her project entitled, "Macrophages in the Optic Nerve Head – A Potential Target for Glaucoma Therapy?"

HMS Ophthalmology Annual Meeting & Alumni Reunion Weekend

Annual Meeting

May 29, 2015: Starr Center, 185 Cambridge Street, Boston

Course Directors: Lucia Sobrin, MD, MPH, Ula V. Jurkunas, MD, and Joan W. Miller, MD, FARVO

Alumni Reunion

May 30, 2015: Meltzer Auditorium (3rd floor), Mass. Eye and Ear, 243 Charles Street, Boston

Course Directors: Joseph F. Rizzo III, MD and Joan W. Miller, MD, FARVO

May 31, 2015: Optional Boston Activities

This 3-day event combines scientific exchange with networking events and social activities. Basic, translational, and clinical research updates are provided by Department faculty and alumni. Highlights also include the Distinguished Clinical and Research Achievement Awards, the Mariana D. Mead Lecture, tours of Mass. Eye and Ear and Schepens, and the Friday night celebratory dinner. An event not to be missed!

Registration is required:
MassEyeAndEar.org/AlumniReunion

Clara Men, a HMS student working with **Eric Pierce, MD, PhD**, received a Research to Prevent Blindness student fellowship award of $30,000 for her project, "TTC28 and Its Function in Photosensory Cilia."

Lotfi Merabet, OD, PhD, MPH received a four-year, $1.6 million R01 competitive renewal grant from the National Institutes of Health for his project, "Audio-Haptic Virtual Environments for Large-Scale Navigation in the Blind."

Eli Peli, OD, MSc received a new R01 totaling more than $1.9 million, payable over four years, for his project, "Measuring Functional Impact of Oncoming Headlight Glare for Cataract Patients." **Alex Huang, MD, PhD**, the main co-investigator, contributed substantially to the success of this grant application.

Dr. Merabet's TEDx Cambridge Talk on Blindness Named Editor's Pick in November 2014

At the Academy meeting on October 17th, **Francis Sutula, MD** received the Distinguished Alumnus Award from the Department of Ophthalmology of the University of Wisconsin. As the first oculoplastics fellow at UW, Dr. Sutula was credited with establishing the format of the fellowship, and effecting the relationship of the fellowship, the residents, and the rest of the department.

Michael Young, PhD, among other Mass. Eye and Ear scientists, received a grant awarded by The Bertarelli Program in Translational Neuroscience and Neuroengineering, a collaborative program between Harvard Medical School and the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. Dr. Young is working with Swiss collaborators Drs. Matthias Lutolf and Yvan Arsenijevic to develop cell lines that could be transplanted into the retina to reverse certain forms of blindness and to develop drugs that could prevent or reverse retinal degeneration, a leading cause of incurable blindness.

Other Honors

The Association of University Professors of Ophthalmology announced the results of the 2014-2015 Associate Council Members election. **Patricia D'Amore, PhD, MBA, FARVO** was elected to the Research Directors Council.

Reza Dana, MD, MPH, MSc, FARVO delivered the Thygeson Lecture at the Ocular Microbiology and Immunology Group annual meeting, held October 2014 in Chicago. For decades, this lecture has honored individuals who have made significant contributions to the field of ocular immunology.

Mary Daly Receives VA Boston's First "I CARE" Award

On October 16, 2014, the Honorable Robert A. McDonald, Secretary of Veterans Affairs, honored Mary K. Daly, MD, Chief of Ophthalmology at VA Boston Healthcare System, with the first I CARE Award in recognition of her department's commitment to Veterans. This award was established to recognize and celebrate those who have demonstrated the VA's core values of Integrity, Commitment, Advocacy, Respect, and Excellence.

"It is humbling and an honor to care for those service men and women who have made life as we know it in the United States possible," commented Dr. Daly. "I know everyone in our department considers it a privilege to work here. We will continue each and every day to provide cutting-edge care to all our patients."

During the last decade, Dr. Daly has championed transformative changes within the Department of Ophthalmology, including improving the continuity and quality of patient care, expanding research efforts, and creating an enhanced training rotation for the Harvard and Boston University ophthalmology residents and fellows.

Under her guidance, the Department's staff, programs, and services continue to grow rapidly. In particular, in response to the increasing patient volume, Dr. Daly spearheaded an expansion of the VA Boston's ophthalmology clinic, from approximately 8,000 to 17,000 square feet, which opened in 2013.

She also plays an important role on the Ophthalmic Surgical Outcomes Data Committee (OSOD). The VA Boston is one of five OSOD sites that tracks ophthalmic surgery data to establish a prospective outcome-based program for comparative assessment and enhancement of the quality of cataract surgery across the VA System.

Carolyn Kloek, MD was accepted into the 2015-2016 class of the Massachusetts General Physicians Organization Physician Leadership Development Certificate Program.

Roberto Pineda II, MD received the Senior Achievement Award at the American Academy of Ophthalmology (AAO) annual meeting in Chicago, IL in 2014. This award recognizes contributions made to the AAO, its scientific and educational programs, and to the field of ophthalmology.

Four HMS faculty members—**Ivana Kim, MD, Lucy Shen, MD, Michael Yoon, MD,** and **Suzanne Freitag, MD**—were selected to participate in the 2015 course, HMS Leadership Development for Physicians and Scientists. Building on participants' knowledge base and skills to enhance their professional development as administrative leaders in academic medicine, the course curriculum focuses on human resource management, negotiation, finance, self-assessment, communications, and personal career development.

Paolo Silva, MD received the 2014 Presidential Pamana ng Pilipino Award for Filipino Individuals and Organizations Overseas. Dr. Silva helps direct the Joslin Vision Network, Joslin's innovative telemedicine-enabling technology developed at the Beetham Eye Institute. He also spearheads many of the BEI overseas collaborations and led the establishment of the first teleophthalmology program for diabetic retinal disease in the Philippines at the Medical City.

Personnel Updates

HMS Appointments

James Akula, PhD
Assistant Professor of Ophthalmology
Boston Children's Hospital

Christopher Andreoli, MD
Assistant Professor of Ophthalmology
Part-time, Mass. Eye and Ear

Petr Baranov, MD, PhD
Instructor in Ophthalmology
Schepens/Mass. Eye and Ear

Linda Dagi, MD
Associate Professor of Ophthalmology
Boston Children's Hospital

Xiaowu Gai, PhD
Assistant Professor of Ophthalmology
Mass. Eye and Ear

Ronald Hansen, PhD
Assistant Professor of Ophthalmology
Boston Children's Hospital

Gena Heidary, MD, PhD
Assistant Professor of Ophthalmology
Boston Children's Hospital

Deeba Husain, MD
Associate Professor of Ophthalmology,
Mass. Eye and Ear

Melanie A. Kazlas, MD
Assistant Professor of Ophthalmology,
Boston Children's Hospital

Ramkumar Ramamirtham, PhD
Instructor in Ophthalmology
Boston Children's Hospital

Paolo Silva, MD
Assistant Professor of Ophthalmology,
Joslin Diabetes Center/Beetham Eye Institute

Ye Sun, PhD
Instructor in Ophthalmology
Boston Children's Hospital

Angela Turalba, MD
Assistant Professor of Ophthalmology,
Mass. Eye and Ear

Leadership Appointments

Matt Gardiner, MD
Associate Chief for Clinical Operations,
Mass. Eye and Ear

Ivana Kim, MD
Director of Retina Clinical Research and Co-director of the Ocular Melanoma Center, Mass. Eye and Ear

Angela Turalba, MD
Associate Director, Glaucoma Service,
Mass. Eye and Ear

New Recruits

Shannon Bligdon, OD joined Mass. Eye and Ear's Optometry and Contact Lens Service on March, 1 2015. She provides primary eye care services and specializes in fitting contact lenses to patients with corneal disease, post penetrating keratoplasty, keratoprosthesis, aphakia, and ocular trauma. After receiving her Bachelor of Science with Honors from the University of Western Ontario, Dr. Bligdon earned her Doctorate of Optometry at the New England College of Optometry, where she was an American Academy of Optometry Student Fellow for four years. In 2013, she went on to complete a one-year residency program through the New England College of Optometry, where she specialized in Cornea and Contact Lenses, and was the recipient of the 2014 George Mertz Contact Lens Residency Award.

John Gittinger, MD joins Mass. Eye and Ear's Neuro-Ophthalmology Service in May 2015. Until recently, Dr. Gittinger was the Director of the Neuro-Ophthalmology Service at Boston Medical Center and Professor of Ophthalmology and Neurology at Boston University School of Medicine. An HMS alumnus, Dr. Gittinger completed his ophthalmology residency at Washington University School of Medicine in St. Louis. He did a neuromuscular disease fellowship at the National Institute of Neurological and Communicative Disorders and Stroke and followed this with training in neuro-ophthalmology at the National Eye Institute under David Cogan. His impressive career spans leadership positions with UMass, Tufts University, the Veterans' Administration, and Boston University. Active in teaching and publications, Dr. Gittinger is a regular contributor to NEOS and an active member in the Cogan Ophthalmic History Society. He is the Editor-in-Chief of the international review journal, *Survey of Ophthalmology*.

Kristine Tan Lo, MD returns to the Department on March 1, 2015, joining Mass. Eye and Ear's Comprehensive Ophthalmology and Cataract Consultation Service. A native of the Philippines, Kristine pursued her medical degree, residency and cornea subspecialty training in the Philippines before completing ophthalmic plastic and

A LOOK AHEAD

Residents Match with Prestigious Training Opportunities

Ashley Campbell, MD
Class of 2015
Oculoplastics (ASOPRS) Fellowship at New York Eye & Ear Infirmary

Xi Chen, MD, PhD
Class of 2015
Vitreoretinal Fellowship,
Duke University

Aubrey Gilbert, MD, PhD
Class of 2015
Pediatrics Ophthalmology and Strabismus Fellowship, Boston Children's Hospital/Mass. Eye and Ear

Thanos Papakostas, MD
Class of 2014
Vitreoretinal Fellowship, Mass. Eye and Ear

David Solá-Del Valle, MD
Class of 2015
Glaucoma Fellowship, University of Miami/Bascom Palmer Eye Institute

Aristomenis Thanos, MD
Class of 2015
William Beaumont - Associated Retinal Consultants

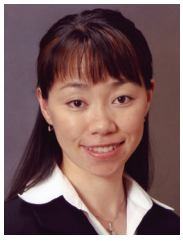
Mass. Eye and Ear Chief Residents:

Katherine Talcott, MD
Class of 2015
AY 15-16

Seanna Grob, MD
Class of 2016
AY 16-17

reconstructive surgery training with Aaron Fay, MD at Mass. Eye and Ear. She was a 2014 graduate of the HMS Ophthalmology Residency Training Program.

Senior Retina Fellow, **John Miller, MD** joins Mass. Eye and Ear's full-time staff following completion of his training this summer. A graduate of MIT and the University of Michigan Medical School, Dr. Miller completed his Ophthalmology residency at HMS and subspecialty training at Mass. Eye and Ear. He was selected by Mass. Eye and Ear's Retina Service Leadership to join its ranks as a vitreoretinal surgeon initially practicing at Longwood and 243 Charles Street. He will also be the Associate Director of the Vitreoretinal Fellowship. In addition, Dr. Miller will be developing some of his clinical research, including retina imaging like sweptsource, while on staff.



Xiang Qi Werdich, MD, PhD joined the Electroretinography Service at Mass. Eye and Ear on January 1, 2015. Dr. Werdich specializes in the comprehensive assessment and management of adults and children with retinal and vision disorders. After obtaining her medical degree from Peking University Health Science Center, Dr. Werdich earned her Master's degree and PhD from Vanderbilt University. She then completed her Ophthalmology residency at Cleveland Clinic, Cole Eye Institute, followed by subspecialty training in ophthalmic pathology, inherited retinal degenerations, and pediatric medical retina at Mass. Eye and Ear/Boston Children's Hospital. Dr. Werdich's research interests include ocular genetics and imaging study of retinal diseases, particularly inherited retinal degenerations, using adaptive optics scanning laser ophthalmoscopy. She also has a research interest in emerging gene and stem cell therapies.

Departures

Mary Lou Jackson, MD accepted the position of Director of Vision Rehabilitation for the University of British Columbia Department of Ophthalmology and Visual Sciences in Vancouver, British Columbia and will be leaving in May. As Director of the Vision Rehabilitation Service since 2006, Dr. Jackson has helped thousands of patients and their families benefit from comprehensive vision rehabilitation. She and her team have oriented HMS Ophthalmology residents and Mass. Eye and Ear fellows to this important aspect of the field and have developed useful tools and studies to expand understanding in the field of the impact of advanced vision loss. In addition, she made important contributions as Co-director the Mobility Enhancement and Vision Rehabilitation Center of Excellence.

After almost two decades of dedicated service, **Andrius Kazlauskas, PhD** departed Schepens/Mass. Eye and Ear on February 1, 2015 to pursue an opportunity at Roche in Basel, Switzerland. During his tenure, he made seminal contributions to the molecular mechanisms by which growth factor-triggered signaling events drive cellular responses such as proliferation and survival of cells.

Rebecca Stacy, MD, PhD left the full-time staff on December 1st having accepted a position with Novartis Institutes for BioMedical Research as a translational medical expert running Phase 1 and Phase 2 clinical trials. She will continue in Eye Pathology as the Associate Director and doing read-out once a week on a volunteer basis.

Lucy Shen Selected as 2015 Shore Scholar

HMS Assistant Professor of Ophthalmology Lucy Shen, MD was selected as Mass. Eye and Ear's 2015 Eleanor and Miles Shore Scholar in Medicine. This award will allow Dr. Shen protected time to conduct glaucoma imaging research, write manuscripts, and advance her career as a clinician scientist while also upholding her family responsibilities.

After earning her medical degree from HMS, Dr. Shen completed her ophthalmology residency and glaucoma fellowship at the Jules Stein Eye Institute at the University of California, Los Angeles. In 2009, she joined the faculty of HMS Ophthalmology and has since served on Mass. Eye and Ear's Glaucoma Service, specializing in glaucoma and cataracts. Focusing her research on glaucoma treatment and detection, she currently is imaging the glaucomatous optic nerve and correlating structural damage with functional loss. She also is developing a technique to reduce elevated pressure in the eye, which occurs in some patients following Boston Keratoprosthesis surgery. Dr. Shen also teaches and mentors medical students, residents, and fellows, and has made important contributions to redesigning the glaucoma training curriculum for senior residents.

Alumni News

Women in Ophthalmology President Mildred Olivier, MD, presented the 2014 Suzanne Veronneau-Troutman Award to **Bonnie An Henderson, MD** (HMS Ophthalmology residency class of 1998) of the Ophthalmic Consultants of Boston. The former Director of Comprehensive Ophthalmology and Cataract Consultation at Mass. Eye and Ear, Dr. Henderson collaborated with John Loewenstein, MD on the Mass. Eye and Ear Cataract Master™.

The Association of University Professors of Ophthalmology announced the results of the 2014-2015 Associate Council Members election. **Laura Green, MD** (HMS Ophthalmology residency class of 2006) was elected to the Program Directors Council.

Mark Rosenblatt, MD, PhD, MBA, a clinician scientist who studies regeneration of the cornea, has been named head of ophthalmology and visual sciences at the University of Illinois College of Medicine effective October 26, 2015. He completed an ophthalmology residency at Harvard Medical School followed by a two-year cornea fellowship at Mass. Eye and Ear.

HARVARD MEDICAL SCHOOL
DEPARTMENT OF Ophthalmology

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A LOOK AHEAD

2015 Annual Meeting & Alumni Reunion Weekend

May 29-31, 2015

Celebrating the 10 graduating classes of 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, and 2010, the annual meeting and alumni reunion weekend is an event not to be missed!

(details on page 16)

2nd Biennial Strabismus Fall Festival

October 17, 2015

Through case-based panel discussions and lectures, this course focuses on techniques and advances in strabismus surgery and pediatric ophthalmology.

Co-directors: Gena Heidary, MD, PhD and Dean Cestari, MD

29th Biennial Cornea Conference

October 16-17, 2015

As one of the world's premier anterior segment conferences, the Biennial Cornea Conference explores current basic and translational research developments of the cornea and anterior ocular surface. The conference promotes interaction and discussion among leaders in the field, and builds links between today's exciting research and the numerous diseases that affect this portion of the eye. Preceding the two-day conference will be the 2nd Cornea Center of Excellence International Workshop.

Co-directors: Reza Dana, MD, MPH, MSc, FARVO and James Chodosh, MD, MPH