


PERSPECTIVE

2015 ANNUAL REPORT

UAB MEDICINE

CALLAHAN EYE HOSPITAL
DEPARTMENT OF OPHTHALMOLOGY

Our Prescription for Change

“There are many ways of going forward, but only one way of standing still.”
– Franklin Delano Roosevelt

Standing still is never an option for organizations that strive for excellence. In an increasingly competitive and regulated industry such as health care, it’s critical that we continue to deliver high-quality care to an expanding population while increasing operational efficiencies and attracting more financial support for translational research.

The University of Alabama at Birmingham Callahan Eye Hospital and Callahan Eye Hospital Clinics are seeing significant progress in our key areas of focus. Hospital and clinic volume has continued growing, nearly doubling since 2010. Our ambulatory operations launched a new electronic health record system on Jan. 1, 2016, and we developed plans to renovate areas of the second and sixth floors and expand our community locations to accommodate clinic growth.

Thanks to the diligent work of our research scientists, our investigational studies also enjoyed impressive growth during the past five years. In fact, 2015 marked the UAB Department of Ophthalmology’s largest increase in federal research support in its history; National Institutes of Health funding was up 48 percent from 2014. While government dollars are a critical element in our research activities, we salute the individual donors, alumni, and organizations whose generous support helps propel our mission of discovering new ways to treat and cure eye disease.

Moreover, we further refined our research recruitment efforts, pursuing scientists whose abilities coincide with our clinical strengths. This improved alignment ensures that we are targeting diseases with the greatest critical need and creates a pathway for faster translation of research from the bench to the bedside.

In 2015, we unveiled a plan to align and integrate the hospital and clinic operations, which will make the organization more flexible in responding to market changes. This will have a positive impact on funding and support for faculty and staff, as we are merging two high-growth organizations with healthy margins. In short, we are restructuring so that Callahan will not merely survive, but also thrive.

Undertaking these changes will help us stay ahead of certain external trends. We are facing a large population of elderly patients, and with that comes the diseases of aging – including eye conditions such as glaucoma, macular degeneration, and cataracts – in record numbers. To meet this demand, we must develop integrated care plans to allow us to handle tertiary referrals, surgeries, and continued care for high-acuity patients. We also need to grow a regional network to deliver more localized care in a cost- and quality-conscious manner. Our new organizational model provides capitalization for such growth.

Given recent increases in the number of insured, more patients are faced with spending their own money on high-deductible and cost-sharing coverage. An insured consumer will be a more engaged consumer, using the Internet and social media to compare outcomes, physician ratings, and prices. At the same time, the third-party reimbursement system is moving toward paying for value rather than volume. Becoming financially integrated will help us respond appropriately and reduce costs while increasing quality.

The strategies we are implementing will allow us to manage these and other trends. If we do this well, the process will be transparent to patients, and we will be able to sustain our high standard of care – no matter what challenges arise.

Sincerely,

C. Brian Spraberry, MSHA
President & Chief Executive Officer
UAB Callahan Eye Hospital

Christopher A. Girkin, MD, MSPH, FACS
EyeSight Foundation of Alabama Chair,
UAB Department of Ophthalmology
Chief Medical Officer, UAB Callahan Eye Hospital

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A Look Inside Callahan

For more than 50 years, UAB Callahan Eye Hospital and the UAB Department of Ophthalmology have focused on delivering innovative eye care and pioneering breakthroughs in the preservation and restoration of eyesight. We are closely aligned, and together we are committed to making a difference in the eye health of our community, the state, and the country.

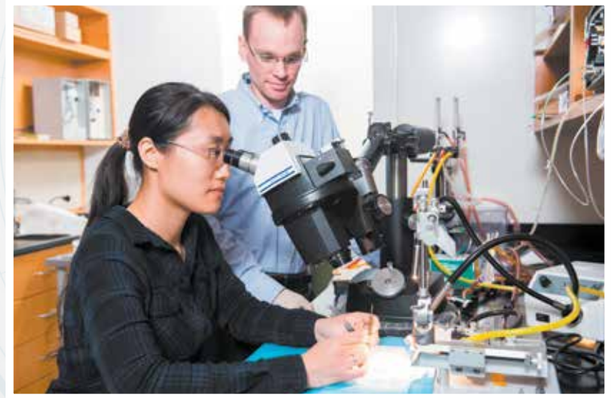
One of the few facilities in the world entirely dedicated to advancements in ophthalmology, Callahan is recognized nationally and internationally for outstanding patient care, treatment of eye trauma, and crucial research in eye disease. Along with the UAB Department of Ophthalmology – Alabama's only accredited ophthalmology training program – we educate the next generation of ophthalmologists and serve both patients and the field of ophthalmology by translating knowledge from the bench to the bedside.

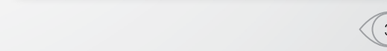
Callahan Eye Hospital is among the busiest eye care centers in the United States and one of only two Level 1 Ocular Trauma Centers with a 24/7 eye emergency department. We perform more than 11,000 surgeries annually in our nine operating suites, while our Lions Eye Clinic provides eye care services to underserved patients.

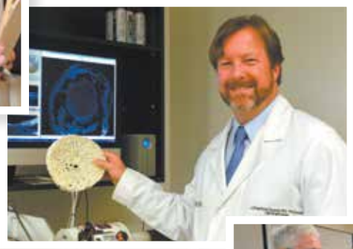
Callahan Eye Hospital Clinics operates seven locations across the greater Birmingham area, which offer timely access to UAB ophthalmologists and are backed by the same advanced technology and research insight that sustain Callahan's international reputation. From basic eye exams and corrective prescriptions to cataract surgery and treatment for chronic eye conditions, UAB Callahan Eye Hospital Clinics serve the community with sophisticated, specialized care in a friendly environment.

Our physician faculty members represent every subspecialty of ophthalmology, enabling us to deliver comprehensive care to our patients. Our highly skilled clinicians have pioneered the development of numerous surgical instruments, devices, and procedures that are used by ophthalmologists around the globe. In addition to our physician faculty, the UAB Department of Ophthalmology includes a team of innovative, effective clinical and basic research scientists.

In 2015, Callahan Eye Hospital was recognized with two important national awards from Press Ganey, the national health care consulting and research firm that administers HCAHPS and CAHPS surveys for Callahan and compiles the data gathered. Callahan earned the 2015 Press Ganey Pinnacle of Excellence Award for maintaining consistently high levels of achievement for patient experience. We also received the 2015 Press Ganey Guardian of Excellence Award, which honors Callahan for reaching the 95th percentile in employee engagement.







RESEARCH

Invigorated by leadership's renewed commitment to research, UAB Ophthalmology's research faculty has enhanced our scientific research abilities in areas that coincide with our clinical strengths. This alignment helps ensure that our research efforts target diseases with the greatest critical need and creates a pathway for quick translation of research from the bench to the bedside.

Focused Growth

From 2010 to 2015, UAB Ophthalmology research faculty has grown from 10 scientists to 18 scientists

We now employ 10 DEDICATED RESEARCHERS and 8 PHYSICIAN SCIENTISTS

10 ▶ 18

9 Full Professors – 2 Associate Professors – 7 Assistant Professors

OUR VIBRANT AND GROWING RESEARCH FACULTY IS MADE UP OF SCIENTISTS AT ALL STAGES OF THEIR CAREERS.

Diverse Ideas

Our faculty members are exploring new ideas in diverse topics and publishes in all major research areas, including:

Health Disparities
Glaucoma
Macular Degeneration
Gene Therapy
Vision & Eye Movements
Traumatic Brain Injury
Diabetic Retinopathy
Neuro-Ophthalmology
Myopia/Presbyopia
Retina & Vitreous
Epidemiology
Imaging
Vision Impairment & Low Vision
Pediatric Vision Impairment
Ocular Oncology

70% GROWTH

IN FACULTY MEMBERS SINCE 2012

39 faculty members in 2015

IN 2015, THE DEPARTMENT PURSUED 109 ACTIVE RESEARCH PROTOCOLS.

Cross-Disciplinary Collaboration

Many of the most common eye diseases are complicated and require cross-disciplinary collaboration. Our researchers collaborate across campus and across the nation.

BUILDING MOMENTUM:

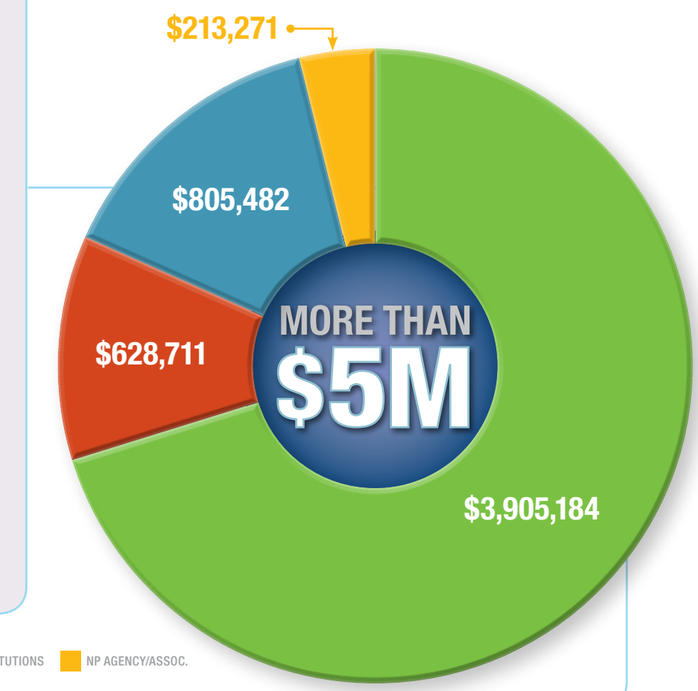
NIH Funding Grew Nearly 50 Percent in 2015

Diligent work by UAB Ophthalmology research faculty led to significant increases in research funding. For 2015, the department achieved a 48% year-over-year increase in research funding from the National Institutes of Health.

"These results are commendable, especially considering the challenges of the federal funding environment," says Christopher A. Girkin, MD, MSPH, EyeSight Foundation of Alabama Endowed Chair. "The NIH funding rate for unique principle investigators is about 25%, so we are pleased that our faculty was able to achieve an approximately 33% funding rate in 2015."

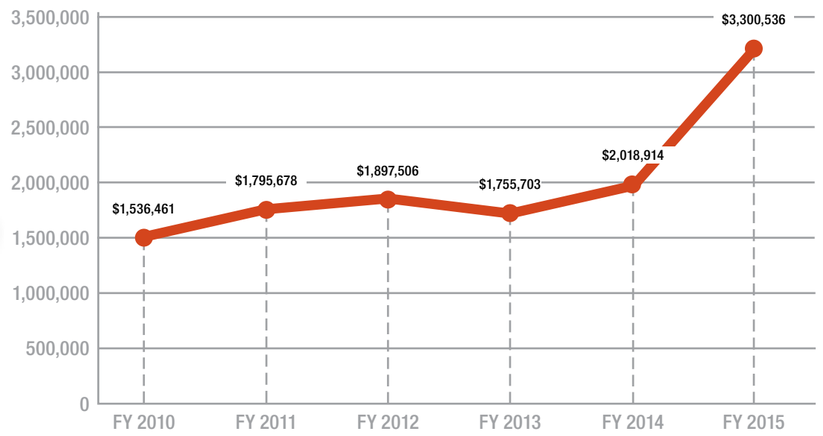
The more than $3.6 million in funding received this year from the NIH includes several existing grants, but three new R01 awards contributed greatly to that success. The details of those three awards are highlighted on the following pages.

2015 Active Awards by Sponsor Type



2010–2015 NIH Funding

MORE THAN $13M IN NEW GRANTS AWARDED IN 2015



*Data obtained from the Blue Ridge Institute for Medical Research

J. Crawford Downs, PhD

ROLE OF IOP FLUCTUATION IN DEVELOPMENT AND PROGRESSION OF GLAUCOMA

J. Crawford Downs, PhD, Vice-Chair of Research, was awarded a three-year, $1.23 million grant from the National Eye Institute to explore intraocular pressure fluctuation as it relates to the development and progression of glaucoma, a potentially blinding disease that affects more than 2.2 million Americans.

Downs, a leading ocular biomechanics expert, is director of the UAB Ocular Biomechanics and Biotransport Program, and he studies the eye using principles traditionally associated with mechanical engineering. He is exploring the underlying reasons that make the elderly and people of African descent more likely to develop glaucoma.

"It is well-known that IOP and age are the most consistent independent risk factors for glaucoma," Downs says. "Despite this, many people who present with these risk factors will not develop glaucoma, while others develop glaucoma or worsen rapidly at clinically measured normal levels of mean IOP. This illustrates the need for further research into the underlying causes of this complex, multifactorial disease."

Lowering mean IOP is the only clinical treatment that has been shown to slow the progression of glaucoma, but little is known about IOP variations. In earlier research, Downs developed a system to continuously monitor IOP. He demonstrated that IOP does not stay at a consistent level as previously thought but instead continually fluctuates, with some 7,000 large IOP spikes occurring per hour during waking hours.

"Our research shows that IOP spikes account for up to 15 percent of the total IOP energy the eye must absorb," Downs says. "This is extraordinary in that IOP spikes represent a previously unknown component of the IOP insult that has yet to be characterized or considered in previous studies. We had no idea that the eye is constantly subjected to these pressure spikes, and this could be a significant contributor to the optic nerve head damage typical with glaucoma. Our biomechanics work has shown that IOP spikes are likely to be much larger in the elderly and persons of African descent, which may explain their increased susceptibility to glaucoma."

Downs suspects that there are poorly understood disease-related components of IOP that independently contribute to the onset and progression of glaucoma. His studies will further explore how IOP fluctuations affect the development and progression of glaucoma, especially among high-risk populations.

CHARACTERIZING AMD'S LESIONS THROUGH ADVANCED OPTICAL IMAGING

Yuhua Zhang, PhD, assistant professor, has been awarded a $1.83 million grant from the National Eye Institute to characterize extracellular lesions associated with age-related macular degeneration (AMD), a common, vision-stealing disease.

AMD affects more than 10 million Americans and can lead to severe vision impairment. To date, effective treatments are available only for the late stages of the disease. Despite its prevalence, the factors that lead to

Yuhua Zhang, PhD

FACULTY EXCELLENCE

Prognostic Indicators for Reading in Pediatric Vision Impairment

Dawn DeCarlo, OD, MS, MSPH

Dawn K. DeCarlo, OD, MS, MSPH, was awarded a $599,879 grant from the Administration for Community Living to evaluate both top-down and bottom-up processes to determine factors that contribute to reading readiness among children with vision impairment.

"Reading is obviously an important skill, and failure to achieve literacy has a lifelong negative impact," Dr. DeCarlo says. "Therefore it is important to understand what contributes to reading readiness. We know that children with vision impairment frequently lag behind their sighted peers with respect to reading, but in order to address that problem we need to have a better understanding of why that is true."

Children in the study will be evaluated before kindergarten and then twice annually until completing first grade. Areas of investigation include developmental level, visual-motor integration, working memory, and attentional shifting to name a few. The basic reading cluster of the Woodcock-Johnson III test will be used to evaluate results.

"By identifying characteristics of children with vision impairment who are at risk for reading issues, we could more properly allocate the limited resources of teachers trained to work with children who are visually impaired," Dr. DeCarlo says. "This knowledge will allow more targeted interventions and hopefully help more children succeed."

development and progression of AMD are not completely clear.

Zhang aims to expand scientific understanding of the disease by characterizing subretinal drusenoid deposits (SDD), lesions recently recognized as conferring risk for progression to advanced AMD. Zhang will use an instrument he built to study retina changes related to these lesions at an unprecedented resolution. He seeks to develop imaging-based biomarkers and biometrics for assessing the progression of AMD. New knowledge about the role of SDD could help inform novel approaches to treatment.

Zhang, an optics engineer with expertise in adaptive optics imaging, has been mentored by two eminent scientists in the Department of Ophthalmology: Christine A. Curcio, PhD, and Cynthia Owsley, PhD. Curcio was the first to identify SDD in human donor tissue, and Zhang's work builds upon Curcio's findings.

"These lesions may impact vision by preventing the traffic of key nutrients to and wastes from the light-sensing photoreceptors and by directly exposing these cells to toxic compounds," Curcio says. "They also may stimulate the ingrowth of abnormal blood vessels and indicate changes in the underlying blood supply to the photoreceptors."

IMPROVING MEDICATION ADHERENCE IN AFRICAN-AMERICAN GLAUCOMA PATIENTS

Researchers at the University of Alabama at Birmingham are hoping a telemedicine-based health promotion

Laura Dreer, PhD, evaluating a patient.

intervention can improve medication adherence rates among older African-Americans with glaucoma. Glaucoma is the leading cause of irreversible blindness among African-Americans, who are more than three times more likely to develop glaucoma than are Caucasians.

"Not only are African-Americans at increased risk for glaucoma, studies have shown that they are at increased risk for being nonadherent with medications for glaucoma," says principal investigator **Laura Dreer, PhD,** associate professor in the Department of Ophthalmology. "Reasons for nonadherence include age-related memory loss, finances, and barriers to care."

Unchecked, glaucoma can have a serious negative impact on an individual's quality of life, independence, and everyday functioning and potentially can lead to blindness. Standard therapy involves the use of pressure-reducing eye drops that can significantly delay or prevent the onset of disease.

Dreer's study, funded by a five-year, $1.83 million grant from the National Eye Institute, is recruiting 240 African-American adults with glaucoma to determine whether a culturally relevant behavioral health intervention can improve adherence. The multicomponent intervention includes glaucoma education, motivational interviewing, and problem-solving training.

"Part of the objective is to plant a seed and help these individuals reach a better understanding of their glaucoma and realize the importance of taking increased responsibility for their own health behaviors," Dreer says. "We've made great strides in getting people to take charge of their health and wellness in areas such as diabetes, cardiovascular health, and nutrition. We believe glaucoma is deserving of the same effort."

Study subjects will be divided into two sections. One will be treated with standard glaucoma therapy, including medication, laser treatments, conventional surgery, or any combination of these. The second section will receive standard therapy and the telemedicine-based behavioral health intervention. Participants will have one in-person visit with the research team at the UAB Callahan Eye Hospital, followed by weekly phone interaction for six weeks.

Researchers will employ a self-measuring drug dispensing tool to determine whether patients are adherent or non-adherent with medications. Standard medication therapy usually is 1-2 eye drops, once or twice daily. The tool measures how many drops are dispensed at any one time and records the date and time of dispensation.

Patients at UAB's glaucoma clinic who enroll in the study will use the device for one month. A failure rate of 75 percent or greater will transfer the subject into the full study. Outcomes will be assessed at three-, seven- and 12-month follow-up visits by determining whether glaucoma medication adherence improves in the group receiving the intervention.

"The practical question to be addressed is whether a culturally relevant health promotion-based intervention improves glaucoma medication adherence among a high-risk segment of the population," Dreer says. "Information from this project will be particularly useful for African-Americans with glaucoma, their families, and eye care providers."

POWERFUL PARTNERSHIPS

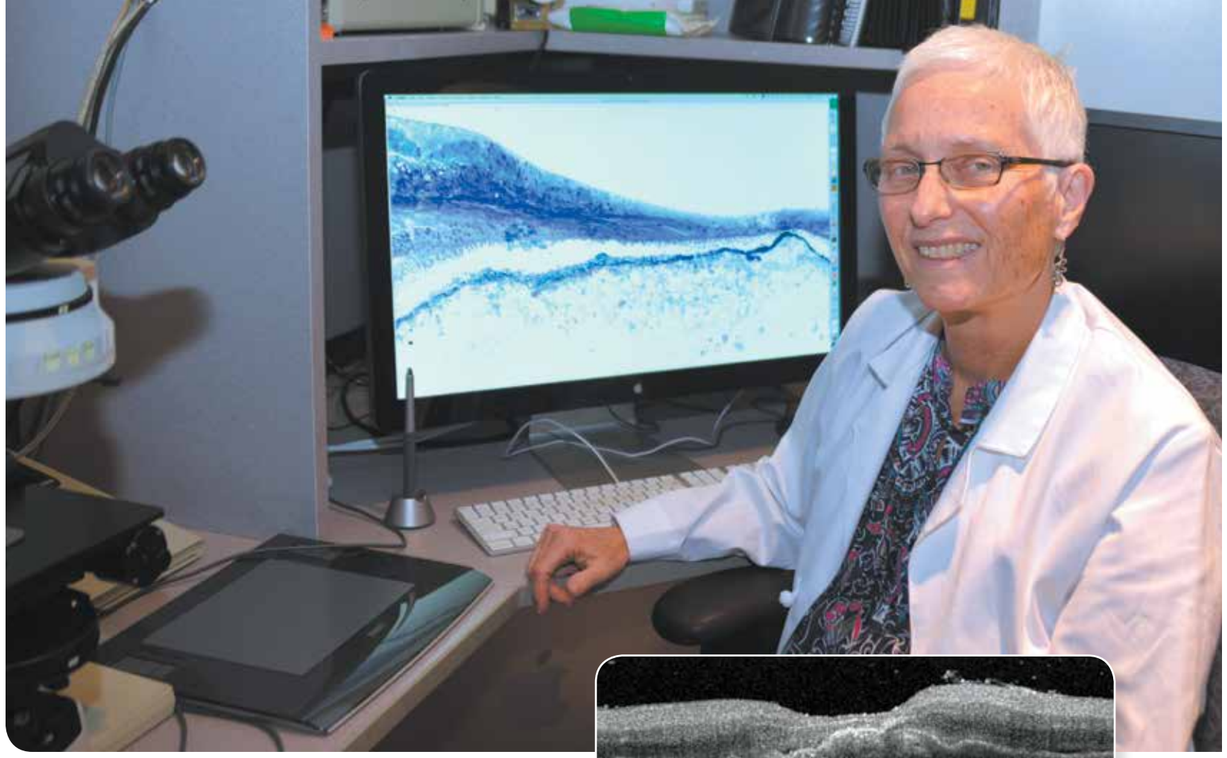
The Power of Philanthropy

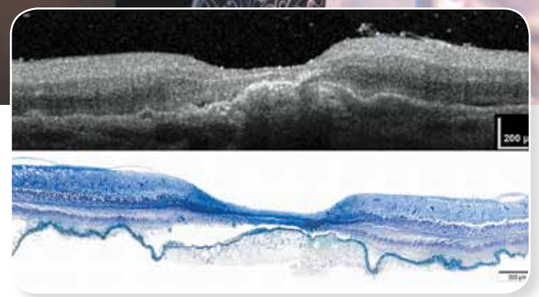
The stakes are high. There is no cure for some of the most debilitating eye diseases, and treatments are often inadequate. The discovery of new therapies and care delivery models is becoming increasingly important as growing demand and the increasing cost of care put further strain on the system.

Thanks to the generosity of several lead donors to the UAB Department of Ophthalmology, our researchers had the critical seed money necessary to collect pilot data and secure federal funding. In turn, those strategic investments allowed us to investigate promising new developments in eye disease.

"Philanthropic investment drives the critical innovation and data collection necessary to advance novel ideas from UAB researchers. Without this investment, many of these projects would stall. Thus, the power of philanthropy leverages UAB's best ideas into tangible advances toward understanding and treating eye disease."

– J. Crawford Downs, PhD,
Vice Chair of Research, UAB Department of Ophthalmology





Top: A comparison of optical coherence tomography (OCT) and histology on the same eye allows Project MACULA users to identify the cells on a microscope image (bottom) that are responsible for the hyper-reflective spots seen in the OCT (top, red, yellow), plus examine the contents of drusen, AMD's specific lesion (teal). "From this kind of analysis, we've learned that the retinal pigment epithelium is highly migratory in AMD," Curcio says. "Finding out what these cells are doing is now a research priority, and with OCT, they can be observed in living people."

Bottom: Research associate Jeffrey Messinger performing ex vivo color fundus photography of a donor eye with AMD. Project MACULA shows ex vivo color fundus photography in addition to OCT scans for each eye.

Project MACULA: Eye Site Offers New Insight on Age-Related Macular Degeneration

During the past 14 years, Christine A. Curcio, PhD, a professor in the UAB School of Medicine's Department of Ophthalmology, has collected images from hundreds of donor eyes in her search for the basic mechanisms underlying age-related macular degeneration (AMD).

AMD is the leading cause of severe vision loss and legal blindness in Americans age 60 or older, affecting up to 15 million people in the United States today and almost 200 million people worldwide by 2020. As the population ages, those numbers will only increase. AMD occurs when the central portion of the retina, known as the macula, deteriorates. But the exact cause is unknown, and new treatments are desperately needed.

A few years ago, Curcio realized that the images and tissues she had collected – if properly annotated, classified, and made widely available – could prove invaluable to researchers and clinicians alike. It wasn't as easy as uploading the photos to Facebook. The process took four years, and along the way, Curcio and her team, particularly research associate Jeffrey Messinger, D.C., had to develop new naming systems to achieve the level of precision they were after. But the result, an open-access website known as Project MACULA (Maculopathy Unveiled by Laminar Analysis), has been a resounding success, leading to several notable discoveries that have advanced understanding of the disease.

SHARING KNOWLEDGE

At the close of the 2000s, a high-powered new technology called optical coherence tomography (OCT) was becoming widely available to practicing ophthalmologists. It can provide detailed cross-sectional views of all the layers of the retina and the blood vessels behind it. OCT was so powerful, Curcio says, that clinicians "were now able to see the same structures" as basic researchers with their tissue samples. Curcio recognized that high-quality, accurately annotated lab images of eyes with and without AMD could serve as an invaluable roadmap for helping clinicians interpret the patient images they were seeing with the new machines.

"AMD is a degenerative disease that is laid out in delicate tissue layers, and if you know the microscopic histology, it is possible to see almost all of it in OCT," Curcio says. Connecting the microscopic world with patient images from the clinic can lead to "better diagnoses, more efficient clinical trials for new treatments, and, eventually, better experimental model systems to test new ideas."

With seed money from philanthropic foundations and a subsequent grant from the National Eye Institute, Curcio started Project MACULA. Her team catalogued 142 donor eyes: 82 with AMD and 60 controls. Each was tagged with critical information – such as exact measurements of the thickness of each tissue layer, along with a glossary and references – and both laboratory and OCT images. The site officially launched in 2013.

In the process of systematically reviewing the histology, Curcio's team made major discoveries about the pathology of AMD, including a natural history of the principal lesions associated with the disease, known as drusen; the first major description of a new, drusen-like lesion; and the first comprehensive description of the neurodegeneration of AMD involving photoreceptors and the retinal pigment epithelium, which supports the photoreceptors. These findings led to numerous peer-reviewed journal articles and invitations to major clinical meetings.

"Leading ophthalmologists want this information to develop guidelines for trials, for example," Curcio explains. "This is putting the right tools into the hands of the right workforce."

"Having the histologic images available has helped me in interpretations and integration of multimodal imaging in the clinic," agrees Richard Spaide, MD, a renowned specialist in the diagnosis and treatment of retinal diseases who practices at Vitreous-Retina-Macula Consultants of New York. He has collaborated with Curcio on Project MACULA since 2009, co-writing several well-cited papers that link clinical presentation on OCT with anatomical features seen in histologic images.

"As with anything in science, there is plenty we don't know," Dr. Spaide says. "So when a subtle finding is recognized in an imaging modality in the clinic, it is helpful to go back to the known histology to put the new finding into some kind of perspective."

CREATING COLLABORATIONS

Project MACULA also had the desired effect of fostering important collaborations to advance knowledge about AMD, with the ultimate goal of developing new treatments and cures, Curcio says.

For example, Curcio and collaborator Dwight Stambolian, MD, PhD, associate professor of ophthalmology and genetics at the University of Pennsylvania, recently submitted a funding request to add genetics to the equation. They propose obtaining a new set of donor eyes and uploading one eye from each pair to Project MACULA and sending the other to Stambolian's team for comprehensive and robotic sequencing of RNA. Since AMD is a bilateral disease, affecting both eyes, this would create links in understanding of AMD from genetic variation to cells to clinical presentation.

"Connecting changes on the cellular level with changes in gene expression will hopefully allow us to develop new targets for new drug therapies," Curcio says. "Since Project MACULA also links those changes with clinical images, it will also show physicians how these changes are presenting in the patient so they know when to start treatment or, in some cases, what does not need to be treated. This information advances the goal of personalized medicine for individual patients."

TISSUE, TECHNOLOGY AND OTHER SUPPORT

The project would not have been possible without several key partners, Curcio points out. "High-quality tissue made discoveries possible at Project MACULA," she says. "Very few people are blessed with a resource like the Alabama Eye Bank, a highly productive eye bank that is able to obtain lots of tissue rapidly and thus meet our research needs."

Another invaluable contributor was the UAB Department of Computer and Information Sciences. Associate Professor Kenneth R. Sloan, PhD, his students, and CIS staff provided the expertise and resources to create and host the Project MACULA site, Curcio notes.

The project also owes much to private funding partners such as the Birmingham-based International Retinal Research Foundation (IRRF) and the Endowed Support Fund in Retina and Vitreous Diseases, Curcio adds. Initial awards from the IRRF and the Edward N. & Della L. Thome Memorial Foundation allowed Curcio to purchase a large number of donor eyes from the Alabama Eye Bank, which formed the nucleus of Project MACULA. Another IRRF award supported the collection of pilot data that Curcio used to secure a large grant from the National Eye Institute, which funded Project MACULA's creation.

"It isn't possible to obtain large federal grants without first collecting pilot data," Curcio says. "Without the funding support of IRRF and the Endowed Support Fund in Retina and Vitreous Diseases during the early stages, Project MACULA would never have gotten off the ground."

"We saw Project MACULA as an extraordinary opportunity to expand AMD histopathology in hopes of translation to better clinical interpretations of this degenerative disease," says Sandra Blackwood, Executive Director of the IRRF. "This resource is serving as a valuable catalyst to both bench and clinical science."

ADVANCED EXPERTISE

Understanding How Glaucoma Can Impact Driving Ability

MiYoung Kwon, PhD

Glaucoma, a leading cause of irreversible blindness among older Americans, is characterized by optic nerve damage and associated visual field defects. Despite its significance in public safety, the association between glaucomatous visual field loss and motor vehicle collision remains unresolved.

However, a recent retrospective, population-based study by MiYoung Kwon, PhD, Assistant Professor in the UAB Department of Ophthalmology, and colleagues showed that older drivers with glaucoma are at increased risk for involvement in an at-fault motor vehicle collision compared to those without glaucoma.

Published in the journal *Ophthalmology*, the study demonstrated that of the three measures of visual function – visual acuity, contrast sensitivity, and visual field – visual field impairment was independently associated with an increase in at-fault motor vehicle collision involvement, whereas visual acuity and contrast sensitivity were not. This suggests that visual field loss is the most important visual mechanism underlying increased crash risk in older drivers with glaucoma. Additionally, it was shown that impairment in the left visual field had the greatest relevance to elevated collision rates.

These results underscore why it is important for physicians to discuss driving safety with glaucoma patients, as those with glaucoma had a 65% higher rate of involvement in at-fault motor vehicle collisions. They also demonstrate why an increased emphasis on driving safety is necessary for patients with severe glaucomatous visual field loss.

Kwon joined the UAB Department of Ophthalmology in the fall of 2014 after completing a two-year postdoctoral fellowship at the Schepens Eye Research Institute, Harvard Medical School. Her research is concerned with understanding how eye disorders and abnormal visual experience affect the way visual information is processed in the brain. Support of the Luke White Fund helped fund Dr. Kwon's initial recruitment and launch her promising vision science career.

New Research Faculty

Ocular Biomechanics Expert Joins Faculty

Massimo Antonio Fazio, PhD

Massimo Antonio Fazio, PhD, joined the UAB Department of Ophthalmology as an assistant professor. He holds a joint appointment in the Department of Biomedical Engineering. As a mechanical engineer, Fazio has dedicated his career to developing customized methods and non-contact optical techniques to directly measure deformations of the optic nerve head and sclera of the eye. The goal is to gain a deeper understanding of how intraocular pressure (IOP) drives structural changes in the eye in relationship to age, race, and the presence of ocular diseases such as glaucoma.

Through his multidisciplinary background in machine construction, experimental mechanics, and the biomechanical characterization of soft tissues, Fazio is able to develop novel imaging machines and techniques. For example, he invented the world's first Electronic Speckle Pattern Interferometer to measure dynamic deformations of the sclera in response to high-frequency IOP fluctuations. The interferometer was designed and built at UAB in collaboration with Luigi Bruno and Andrea Poggialini of the University of Calabria. This work will help UAB scientists and research collaborators outside UAB better understand the causal relationship between the biomechanics of the eye and the development and progression of diseases such as glaucoma, myopia, and keratoconus.

"I'm very thankful for the opportunity offered me by the departments of Ophthalmology and Biomedical Engineering, together with the EyeSight Foundation of Alabama," Fazio says. "UAB is quite a unique research institute because its tight connection with the Birmingham community serves as a catalyst for research. We have access to a diverse strata of tissue samples because the population of Birmingham is diverse and the community understands the value of donating tissue for research. Therefore our research can be representative of the global population response to eye disease and treatments. And that's quite a sweet deal! We hope the customized, modern, and advanced engineering methods we are developing will move the field forward. We will be able to test hypotheses that were not possible to investigate before due to technical limitations, and the results from these studies will broaden treatment possibilities in several ocular pathologies."

Physician-Scientist Spotlight

Breakthrough in Sight: Brian Samuels, MD, PhD

Brian Samuels, MD, PhD

Brian Samuels, MD, PhD, clearly remembers the moment he became hooked on scientific research. As a neurobiology doctoral student, he was toiling away in the laboratory at 2 am when an experiment yielded a key result.

"At 2 am I knew a very small piece of information about the universe that no one else knew," Dr. Samuels says. "That is both humbling and powerful at the same time. Once I experienced that feeling, it created an inner drive to continue searching for new discoveries. Even though it has been 13 years since that pivotal moment, I can tell you that discovering something new, no matter how large or small, never gets old."

Now, as an assistant professor in the UAB Department of Ophthalmology, Dr. Samuels – who is trained as both a basic science researcher and medical doctor – splits his time between the laboratory and clinic. He spends 4 days a week in the lab pursuing discoveries that could make a difference to the glaucoma patients he sees on his clinic day.

Dr. Samuels completed a combined MD-PhD program at Indiana University before coming to UAB for a residency in ophthalmology. After residency he completed clinical and research fellowships in glaucoma at Duke University. This extensive formal training on both sides of the fence gave him a unique perspective.

"Clinician-scientists really do live with one foot in both worlds," Dr. Samuels says. "We can bridge the gap between understanding the discoveries being made in basic science research, and we also recognize what our fellow clinicians need to better treat their patients. For this reason, clinician-scientists make great research collaborators. We can help find ways to translate bench research to clinical practice more quickly."

Samuels conducts independent research examining how areas of the brain control pressure inside the eye to cause the development and progression of glaucoma, and also collaborates on multiple projects with researchers in the Department of Ophthalmology and externally.

Recent Collaborations

- **GLAUCOMA RESEARCH:** *Here in the UAB Department of Ophthalmology, Dr. Samuels collaborates with some of the world's leading biomedical engineers, who are seeking a better understanding of ocular biomechanics and its role in causing blinding diseases, such as glaucoma. While not engineers themselves, Dr. Samuels and Christopher Girkin, MD, work with biomechanics experts Dr. Downs, Rafael Grytz, PhD, and Massimo Fazio, PhD, to blend advanced engineering and image analysis techniques with clinical and surgical glaucoma knowledge to be at the forefront of glaucoma research.*
- **MYOPIA RESEARCH:** *Dr. Samuels works closely with Dr. Grytz, who examines the biomechanical mechanisms that underlie growth and remodeling of ocular tissues during the development of myopia. Dr. Samuels' surgical skills and expertise in ocular physiology pairs well with Dr. Grytz's expertise in tissue biomechanics and computational modeling. Dr. Samuels hopes to help Dr. Grytz find new treatment options that might prevent the development of pathologic myopia.*
- **SPACE MEDICINE RESEARCH:** *Dr. Samuels is part of two different teams working on space medicine research. He started collaborating with a group of scientists and engineers from the Georgia Institute of Technology (GIT) and NASA in 2013. The grant, headed by GIT's C. Ross Ethier, PhD, uses computational modeling to explore why astronauts who spend extended periods of time in space develop vision problems. This work paved the way for Dr. Samuels to meet Christian Otto, MD, Director of NASA's Vision Impairment and Intracranial Pressure program. Dr. Samuels' expertise in neuroscience and ophthalmology led to his being invited to join NASA's Prospective Ocular Health study as a co-investigator.*

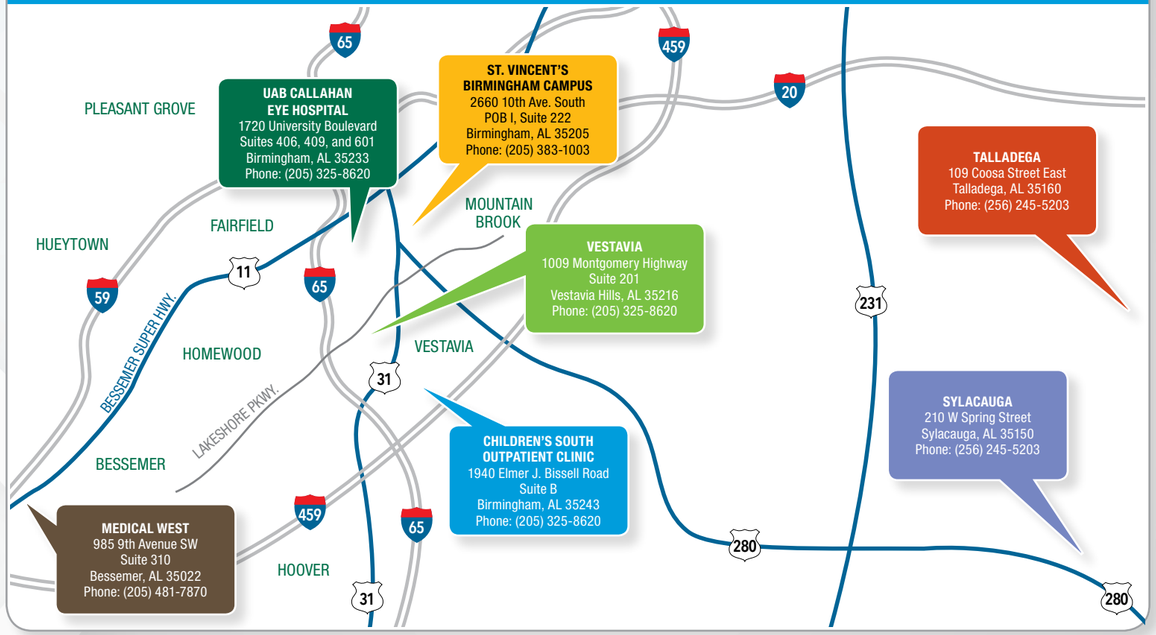
"It was really by accident that I ended up becoming a clinician-scientist," Dr. Samuels says. "I applied to medical school thinking that I just wanted to be an MD, but I also applied to the neuroscience PhD program separately as a backup plan. It wasn't until after I was accepted to both that I learned there was a combined program. It was a lucky accident, because I truly enjoy my career as a clinician-scientist. Hopefully one day the discoveries that are being made in my lab or through one of my collaborations will allow me to say that I helped patients with glaucoma or other blinding diseases throughout the world instead of just one patient at a time in my clinic."

PATIENT CARE

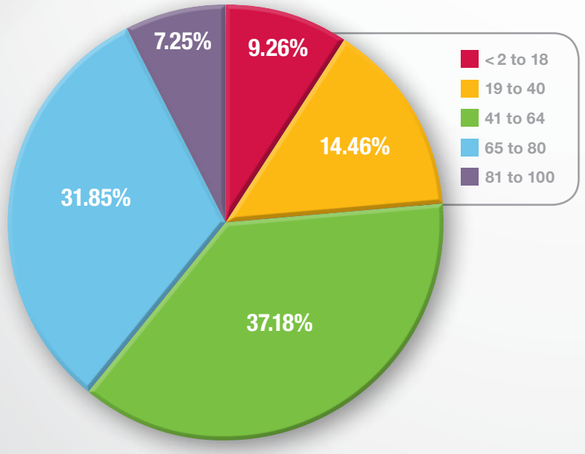
By offering the most advanced clinical practice, treatments, and technology, the experts at UAB Callahan Eye Hospital and the Department of Ophthalmology provide the highest quality continuum of vision care services. Treating more than 98,000 ophthalmic patients each year, the hospital operates the only 24-hour, 7 days-per-week eye emergency room in the state and the only Level I Ocular Trauma Center in the region. Callahan offers excellence in eye trauma, retinal, vitreal, cornea, cornea transplant, glaucoma, cataract, laser cataract, oculoplastics, orbital reconstruction, and pediatric eye surgeries.

UAB Callahan Eye Hospital Clinics

Delivering the same outstanding vision care associated with UAB Callahan Eye Hospital to convenient locations throughout Central Alabama.



2015 Patient Age Range



PRESS GANEY®

2015 Guardian of Excellence Award for Employee Engagement

This award honors clients who have reached the 95th percentile for patient experience, employee or physician engagement, or clinical quality performance.

2015 Pinnacle of Excellence Award for Patient Satisfaction

This award is given to the top three performing organizations by category on the basis of extraordinary achievement.

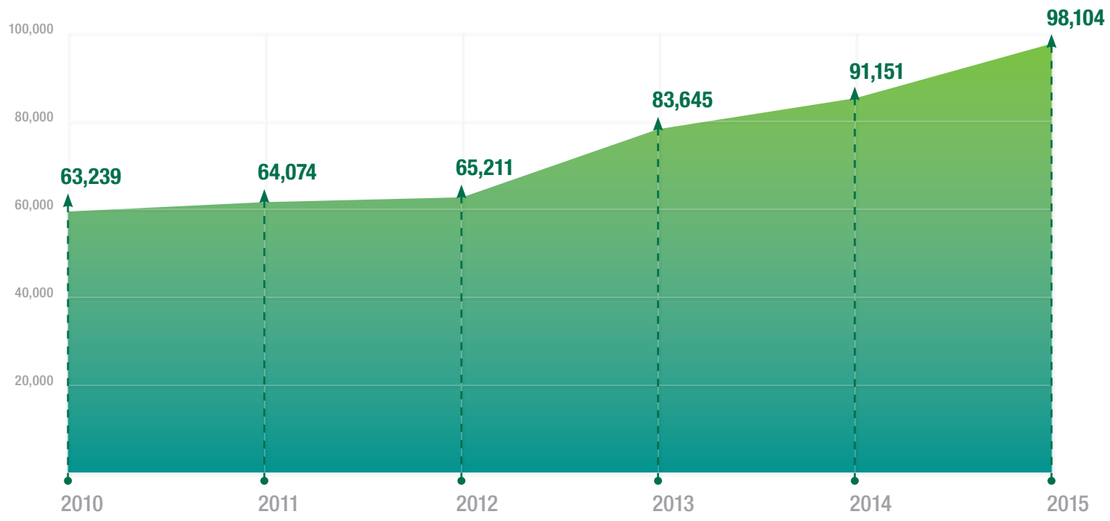
Dedicated Eye Care Facility

OVER 11K	Surgery cases in 2015
5,799	Emergency Department visits in 2015
4,931	Cataract surgeries in 2015
1 MINUTE	Lowest OR room turn time
1,200+	Surgery cases per room
7	Convenient clinic locations throughout central Alabama
12,000+	New clinic patients in 2015
74,483	Total clinic visits in 2015

1 OF ONLY 2
LEVEL 1
Ocular Trauma Centers in the nation

1 in 4
Surgeries at UAB Medicine are performed at **CALLAHAN EYE HOSPITAL**

2010–2015 Patient Volume for UAB Callahan Eye Hospital and Clinics



New Physician

J. WAID BLACKSTONE, MD, joined the UAB Department of Ophthalmology as an assistant professor. An alumnus of the UAB Ophthalmology residency program, he has more than 10 years of experience as an eye care specialist.

"We gladly welcome Dr. Blackstone to our department," says Christopher Girkin, MD, EyeSight Foundation of Alabama Endowed Chair of the UAB Department of Ophthalmology. "He was an outstanding resident and built a thriving practice in the Sylacauga community. By joining the department, Dr. Blackstone will help us continue to advance our clinical and educational missions."

Dr. Blackstone joined the UAB Callahan Eye Hospital Clinic physician network on April 1, 2015. He sees patients at his Sylacauga and Talladega office locations.

As a comprehensive ophthalmologist, Dr. Blackstone treats a variety of eye conditions ranging from routine eye exams to more complex eye diseases such as glaucoma and diabetic retinopathy. He is a member of the American Academy of Ophthalmology, the American Medical Association, the Alabama Academy of Ophthalmology, and the Medical Association of the state of Alabama.

ADVANCED EXPERTISE

Operating Room Expansion Project

Demand for advanced eye care and specialty surgery is growing nationally. The University of Alabama at Birmingham Callahan Eye Hospital and Clinics have seen substantial growth since 2010, collectively almost doubling volume and serving more than 98,000 patients and their families in 2015.

With the aging population, this demand will continue to grow. Callahan Eye Hospital projects a 21 percent increase in all surgical eye procedures between 2013 and 2018 and another 25 percent increase for 2018 through 2023.

To meet this growing demand, Callahan is expanding its facility by building eight new operating rooms, doubling the number to 16. This expansion will enable Callahan to meet the growing demand and provide quality care to patients and families, recruit new faculty, and expand research initiatives that will inform new diagnostic tools and treatments in the future. This expansion project will also enable Callahan to accomplish its mission of being a leader in the preservation and restoration of vision through excellence in clinical care, education, and research.

Top: Operating room expansion project rendering.
Bottom: Surgery waiting area rendering.

Employee Spotlights

UAB Callahan Eye Hospital and Clinics are proud of our diverse, highly skilled work force. These professionals form a close-knit community dedicated to advancing patient care. The following informal interviews provide some insight, both professional and personal, about a few staff members who exemplify our mission to provide innovative, award-winning eye care and vision restoration.

MACKENZIE RUSH

Unit: UAB Callahan Eye Hospital Clinic, Suite 601 and Children's Hospital South

Job Title: Lead Office Representative & Surgery Coordinator

What Mackenzie's colleagues are saying about him:
Mackenzie is routinely the first to get here and last to leave. He ensures that everyone has a good patient experience and really takes ownership of his area. Mackenzie is proactive in solving daily issues that arise in the clinic. He's a wealth of knowledge on all front-end operations and is widely regarded as a resource for everyone. "Mackenzie is an integral part of my team. He does everything he can to help me, often without being asked, and my patients often comment on his efficiency and professionalism. Every day with Mackenzie is a good day!" Virginia Lolley, MD

Tell us about where you are from and your past experience.
I am from a small town in Lowndes County, Alabama. I came to Birmingham to attend Miles College in 2001. I began my career at Brookwood Hospital as an ER Clerk in 2002. In 2008 I was given the opportunity to work as a surgery coordinator at UAB Callahan Eye Hospital and I've been here since that time. I knew on my first day that I was at home.

When did you know you wanted to have a career in medicine, and was there any particular event or experience that prompted your interest?
When I was younger I knew that I wanted to have a career in the health care field. After witnessing my father face various health issues and seeing doctors, nurses, and medical assistants give him the best treatment possible and making him comfortable and happy, I knew that I wanted to impact someone's life in that way as well.

What's the most rewarding aspect of your work at Callahan Eye Hospital?
At Callahan, it's more than a job. It's family.

Tell us about a personal hero, mentor, or teacher who has inspired you.
I had a high school teacher name Mrs. Betty Smith who inspired me. She always told me that I have a good heart and I love helping people. She said if I held on to that I would go a long way in life. That stuck with me.

What's on your iPod (or other device) right now?
Sam Smith "Stay With Me"

What are your favorite TV shows, authors, or movies?
My favorite TV show is "In the Heat of the Night" (yes, I am old school). I love a new show called "Empire." My favorite author/writer and poet is Maya Angelou.

Favorite sports team:
Alabama (Roll Tide Roll)

Do you have a memorable travel experience and/or favorite vacation destination?
Cancun, Mexico, is my most memorable vacation. It was my first time ever getting on a plane and traveling out of the country. Even though I was afraid because of all the bad things I had heard about traveling to foreign countries, it was an experience that I would not trade for anything in the world. The resort was amazing, and the people were extra friendly.

What do you like to do in Birmingham when you are not working?
I love going fishing, and spending time with my spouse and family.

In the health care profession, there are those moments when it seems like everything's going south. What gets you through the day when that happens?
When it seems like everything is going south, I always remember that I am here for a reason. My reason is to provide the best service possible to patients. At the end of the day, I know that I have tried to give 100 percent.

Is there a particular experience, event, or person on the job that stands out as special?
Our entire clinic staff stands out because it takes a team to make sure the job is done.

GABRIEL AGBALI

Unit: UAB Callahan Eye Hospital

Job Title: Patient Care Assistant

What Gabe's colleagues are saying about him:
"Gabe is always available and ready to help at any moment. He has mentored and trained PCA staff in his years here at Callahan, imparting little bits of all his knowledge. His infectious "can-do" attitude is noticed and felt by surgery staff and our patients. On the rare occasion he does decide to take a day off, he is greatly missed. Callahan Eye Hospital has been blessed over the years to have such a dedicated employee." Brandye Leigh Maddox, RN, Surgical Services Manager

"Gabe is the kind of employee who exemplifies the compassion that we show our patients. He's also the kind of health care worker who takes pride in everything we do here. Gabe puts total effort into every task, no matter how big or small." Brian Spraberry, CEO, UAB Callahan Eye Hospital

Tell us about where you are from and your past experience.
I am from Abuja, Nigeria. I came to the United States in March 1978 on a school visa. A very nice lady named Mrs. Drake provided me with a place to live, then she helped me find a job at the Eye Hospital. I first worked in the cafeteria serving patients. When it closed, I took the position as a PCA, and the rest is history.

What's the most rewarding aspect of your work at Callahan Eye Hospital?
Working with patients, talking and praying with them to help them feel at ease and to know that everything will be alright. Some ask me my name, and when I tell them it's Gabriel they say, "Oh, like the angel." Then they say they know they will be okay! I also love my co-workers. I look forward to coming to work every day here.

What's on your iPod (or other device) right now?
Bob Marley and other reggae music

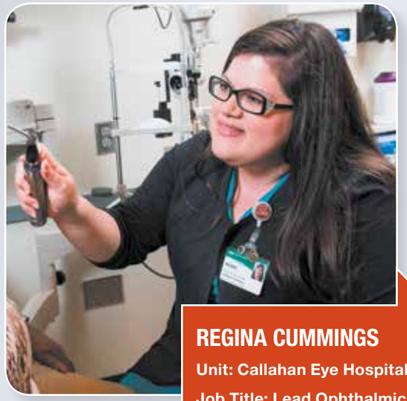
Favorite sports team:
I know you are expecting me to choose the Alabama Crimson Tide or the Auburn Tigers, but I like soccer.

Do you have a memorable travel experience and/or a favorite vacation destination?
I went back to Nigeria to visit my mother, Rachael, in Nigeria. I was so happy to see her. To hug her, to talk with her, and to see her face brought joy to my heart. Then to see my brothers and sisters, I tell you, I cried. I had not been home in 20 years. I did not get to see my dad before he died, but I did see my mom. This was such a blessing to me.

What do you like to do in Birmingham when you are not working?
I exercise at the gym. I love walking my dog, Woo Woo. She's a Great Pyrenees, so I really enjoy the attention we get when we are on our walks. I also like to watch wrestling, and reading my bible.

In the health care profession, there are those moments when it seems like everything's going south. What gets you through the day when that happens?
First, I pray about it, then I talk to my wife about these things. She can make me laugh, which always eases any tension. She often tells me to treat others the way I would like to be treated, because any of us might be in the same situation one day.

PATIENT CARE



REGINA CUMMINGS
Unit: Callahan Eye Hospital 406 and 409
Job Title: Lead Ophthalmic Technician

What Regina's colleagues are saying about her:
Regina is extremely versatile and can basically assume any role in the clinic. She's always willing to help other employees with training or professional development, or even just filling in to make patient phone calls when another clinic is shorthanded. Regina is an excellent communicator with faculty members, always making certain that they have all the resources needed to be successful. She's really the physician's right hand.

"Regina is one of the reasons the glaucoma service has thrived over the past decade. Her skills as an ophthalmic technician are unsurpassed. She is a great teacher to both patients and staff. She is a natural leader and is trusted by all of our patients and doctors." Jason Swanner, MD

Tell us about where you are from and your past experience.
I'm from Vestavia Hills, Alabama. I've worked as an ophthalmic technician for 19 years, at Callahan for 11 years.

When did you know you wanted to have a career in medicine, and was there any particular event or experience that prompted your interest?
In high school I knew I wanted to be a nurse or medical assistant. I began in nursing at UAB right out of high school. After starting a family, I returned to work in ophthalmology.

What's the most rewarding aspect of your work at Callahan Eye Hospital?
I know I have an important role in measuring and assessing the eye for a great outcome. That means I get to be an integral part of our work to improve and restore our patients' vision on a daily basis.

Are you reading, or have you recently read, anything noteworthy?
The Bible

What are your favorite TV shows, authors, or movies?
"Somewhere in Time," "Serendipity," "Sense and Sensibility," "Little Women"

Favorite sports team:
Alabama

What do you like to do in Birmingham when you are not working?
I enjoy discovering new and different restaurants in the area. I like to go antiquing at flea markets and shopping in home furnishings stores.

In the health care profession, there are those moments when it seems like everything's going south. What gets you through the day when that happens?
Everything I do is done unto the Lord. I take great pride in making a great first and lasting impression. I stay focused on my main priority, which is great patient satisfaction.

Is there a particular experience, event, or person on the job that stands out as special?
I feel very privileged to work for the amazing doctors at UAB Callahan Eye Hospital. Their skill set and surgical outcomes are second to none. I love that I work with the best!

Martin Cogen, MD, screens a premature infant for retinopathy of prematurity in the Continuing Care Nursery at the UAB Women & Infants Center.

ROP Screenings Save Vision in Premature Infants

Premature babies face an increased risk of visual loss from a condition called retinopathy of prematurity (ROP), but a screening program conducted by UAB Callahan Eye Hospital ophthalmologists is helping cut negative outcomes by half.

Oxygen is toxic to underdeveloped blood vessels in the retina, often causing scar tissue that can shrink, wrinkle, and lead to retinal detachment in severe cases. First diagnosed in 1942, ROP – which usually occurs in both eyes – is among the most common causes of visual loss in childhood and can result in lifelong vision impairment and blindness. It occurs almost exclusively in premature babies under 34 weeks and less than 1,500 grams (about 3.3 pounds). The severity and likelihood of developing ROP increase sharply toward the smaller extremes of age and weight.

Not all premature infants develop ROP, and many who do tend to heal on their own. However, a percentage with milder, stage 1-2 ROP will progress to the crucial stage 3 of the condition – the threshold where visual loss becomes more likely and treatment is recommended. If ROP is left untreated and progresses to stage 4-5, some degree of permanent visual loss or even blindness is typical.

"We can't tell which babies with milder stages of ROP will go onto the severe stages, so we have to watch all of them to see which are getting better and which are getting worse," says Martin Cogen, MD, one of several Callahan ophthalmologists who share bedside screening rounds for 20-30 premature infants each week at the Continuing Care Nursery in the UAB Women & Infants Center.

The screening process is relatively simple and quick. With help from a nurse, the physician applies a dilating drop and observes each eye with an indirect ophthalmoscope, looking for signs of ROP or determining its stage. If ROP is observed to have reached stage 3, retinal specialists from Callahan are brought in to conduct treatment.

Two treatments for ROP are available. Laser therapy began more than a decade ago, and in the past few years physicians have started using a growth factor inhibitor called Avastin to halt the development of the immature retinal blood vessels. "The cutting edge right now is figuring out how to combine Avastin with the laser – the ideal combination, the timing, and in what order they should be done," Dr. Cogen says.

Dr. Cogen and certain colleagues also screen premature infants each week at other area hospitals, including St. Vincent's Hospital, Brookwood Medical Center, Grandview Medical Center, and Princeton Baptist Medical Center.

According to the National Eye Institute, 14,000 to 16,000 premature infants are affected by ROP each year, and it is severe enough to require medical treatment in roughly 10 percent of cases. Even with increasingly effective treatment, ROP causes blindness in 400-600 infants in the United States annually.

There is very little risk associated with treatment, though peripheral vision is affected in a small number of cases. "No treatment is 100 percent effective, but we have been able to cut the bad outcomes by half," Dr. Cogen says. "In the past year or so at UAB, not a single baby has ended up with permanent visual loss due to ROP."

Top: Frank Fleming's "The Storyteller" fountain is located in the heart of Five Points South in Birmingham, Alabama. Bottom: UAB Medicine patient and Birmingham artist Frank Fleming is pleased with his restored vision and view of the world.

UAB Renews Vision for Renowned Sculptor Frank Fleming

Vision is precious to all of us, but for people who are especially oriented toward visual stimulus, or whose livelihood is dependent upon exceptional visual acuity, healthy vision has perhaps a deeper significance. UAB Medicine patient and Birmingham artist Frank Fleming can attest to that.

If the bronze sculptural fountain at Five Points South were the only major work Fleming had ever produced, he would still be a local celebrity and a key figure in the Birmingham arts scene. That bronze work, titled "The Storyteller," has become an iconic Birmingham landmark commonly known as "the fountain."

Fleming, however, has crafted thousands of pieces in clay, ceramic, and bronze for a body of work that spans some 40 years and has earned international acclaim. It goes without saying that his exquisitely detailed art, which features whimsical, Alice in Wonderland-like animal figures and themes of nature and fantasy, requires good vision for up-close work. Nonetheless, that point was recently made "clearer" when Fleming called on doctors at UAB Callahan Eye Hospital to restore his diminished eyesight.

Fleming was diagnosed with cataracts several years ago and at that time it was noted that he probably would require surgery within 3-4 years. During a December 2014 exam, however, it became apparent that the cataracts had quickly become much worse, he says.

"As my cataracts got worse, I had simply adjusted to living with them," Fleming says. "But there was concern that the new severity of the cataracts, especially in my left eye, and we knew I would have to do something soon."

Fleming was referred to Jason Swanner, MD, FACS, at UAB Callahan Eye Hospital. That was a happy set of circumstances for Fleming and Swanner; they are neighbors, and Swanner has collected a few bronze pieces by Fleming.

"It's important for people suffering from cataracts to know that the treatment is a very common, very safe procedure. It usually takes less than 10 minutes to complete. Ophthalmologists in the state, most of whom receive training at Callahan Eye Hospital, establish practices in communities all over Alabama where they perform this procedure every day."

– Jason Swanner, MD

Jason Swanner, MD

"No one had to tell me the importance of Frank's vision," Swanner says. "I'm a fan of his amazing work. He had pretty severe astigmatism, and very significant brunescent cataracts."

Brunescent cataracts are a condition in which the nuclear or central portions of the lens have become hardened and brownish in color. In advanced stages, the brown pigmentation can make the lens almost opaque. Although such an advanced condition may present complications for surgery, a successful procedure can improve vision from the category of legally blind to normal. Fleming's treatment was a success, although it resulted in an odd twist, according to both doctor and patient.

"After the first cataract was removed in January, the vision in my right eye was instantly clearer and brighter than it ever had been," Fleming says. "I wasn't sure I was ready to see the world in such brightness. I could close the right eye so that through my left eye, which still had a cataract, everything seemed kind of warm and peaceful."

Fleming laughs as he relates this story, recognizing the humorous and eccentric quality of such a response to a successful eye surgery. Swanner also sees the peculiar humor in this scenario.

"It's completely eccentric." Swanner says. "Only Frank, being the artist he is, would respond that way. I put in a toric (specially shaped) lens to correct his astigmatism, and with the cataract surgery this left him with 20-20 vision that was crystal clear. But he told me right away that he liked the way his art looked through the brown tint of the remaining cataract in his left eye. I immediately thought of the Impressionist artist, Claude Monet, who had cataracts."

Swanner is alluding to the change in Monet's work after his vision became impaired during later years. Regarded as the father of Impressionism and most famous for his masterwork Water Lilies, Monet was treated for cataracts by several ophthalmologists, with varying success. At one point in his ongoing treatment, after being fitted with glasses specialized for cataracts, the artist described the new, brighter colors he saw as "terrifying."

Fleming recalls that he remained somewhat concerned about how he would see colors if the procedure to treat the other cataract was as successful as the first. He waited a few weeks before having the left eye treated. Now he admits that he shouldn't have worried.

"After I had the left eye treated, my eyes adjusted," Fleming says. "The brightness sort of calmed down. It was amazing; it did not destroy my interpretations of colors. It was an unbelievable change for the better."

"It does sound dramatic," Swanner says. "But it's important for people suffering from cataracts to know that the treatment is a very common, very safe procedure. It usually takes less than 10 minutes to complete. Ophthalmologists in the state, most of whom receive training at Callahan Eye Hospital, establish practices in communities all over Alabama where they perform this procedure every day."

Fleming is pleased with both his restored view of the world and his close view of the work he is currently doing.

"I am thrilled with the results of the procedure Dr. Swanner performed," he says. "Before that I had about five or six different pair of glasses I swapped back and forth while working with the bronze sculptures. Now I can see every detail without all that trouble. But you know I'm a nature lover and a gardener, too. I was watching blue jays this morning, and I am probably not quite half a football field away but I can see the blue feathers and the white feathers. I grow some spectacular lilies, and at about 100 feet away I can see each petal."

EDUCATION

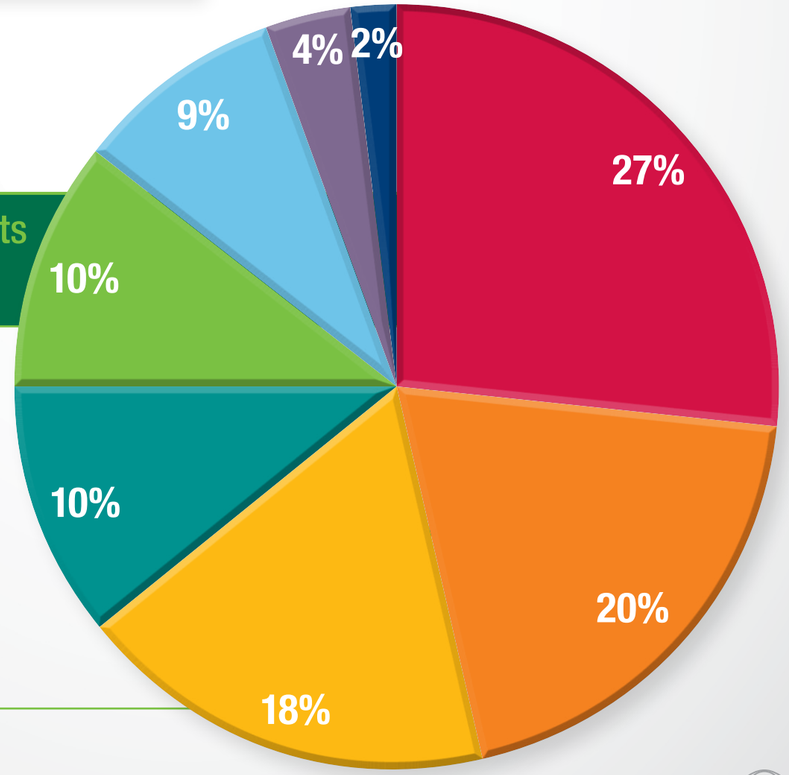
The *ONLY* OPHTHALMOLOGY TRAINING PROGRAM IN ALABAMA

RESIDENTS PROVIDED *COMPREHENSIVE EYE CARE* FOR NEARLY 9,000 LOW-INCOME ALABAMIANS IN 2015.

Career Path for Residents

During the past 10 years our residents have chosen the following specialties:

COMPREHENSIVE	15
RETINA	11
CORNEA	10
OCULOPLASTICS	6
GLAUCOMA	6
PEDIATRICS	5
NEURO-OPHTHALMOLOGY	2
GLOBAL EYE HEALTH	1



Training Programs

UAB Ophthalmology provides comprehensive training programs for medical students, residents, and fellows. It is the only ophthalmology training program in the state and offers an exceptional foundation of knowledge for the next generation of ophthalmologists. The well-rounded program provides trainees the experience needed to excel in any area of ophthalmology.

The region's only dedicated 24-hour eye emergency room, located at the UAB Callahan Eye Hospital, exposes trainees to a high volume of varied cases. The program also offers diverse experience at various facilities such as the Birmingham Veterans Affairs Medical Center, Cooper Green Mercy Health Services, UAB Hospital, and Children's of Alabama.

Residents train with faculty from every clinical subspecialty and complete a research project with the department's renowned researchers. Additionally, those interested can participate in a more in-depth research track if they choose.

FELLOWSHIP PROGRAM

A fellowship with UAB Ophthalmology can pave the way to a rewarding career. As a high-volume clinical practice, UAB offers fellows extensive experience. Fellows have a supervisory role with residents in the operating room and at outpatient clinics at UAB Callahan Eye Hospital, the Birmingham Veterans Affairs Medical Center, and Cooper Green Mercy Health Services. Throughout the yearlong program, fellows are given increasing responsibility in surgery. Fellowship opportunities are available in glaucoma, neuro-ophthalmology, oculoplastics, and retina.

MEDICAL STUDENT OPPORTUNITIES

The Department of Ophthalmology offers research opportunities in all areas of ophthalmology for medical students interested in either laboratory or clinical research. This competitive program provides medical students the experience necessary to determine if they want to pursue ophthalmology in the future. These research opportunities are available as either a scholarly activity, which is an intensive two-month experience during the second or third year of medical school, or as a summer research fellowship for students after their first year of medical school.

Residents Representing

The Alabama Academy of Ophthalmology sponsors a trip each year for two UAB Ophthalmology residents to travel to Washington, D.C., as Advocacy Ambassadors for the group's Mid-Year Forum, where they interact with lawmakers and are exposed to critical issues facing their chosen profession.

The Mid-Year Forum features several events and activities including Congressional Advocacy Day, the Mid-Year Forum sessions, and the Alabama Academy of Ophthalmology Council meeting. The resident ambassadors attend as part of the Advocacy Ambassador Program, which was created in 2004 to educate residents and fellows early in their careers about the importance of political action and organized involvement in ophthalmology at both the state and national levels.

"While the UAB residents learn about the clinical and surgical aspects of ophthalmology during their training, it is vital that they also learn about the importance of physician advocacy in a rapidly changing health care environment that is highly regulated by government," says Lindsay Rhodes, MD, assistant professor in UAB Department of Ophthalmology. "By exposing these future ophthalmologists to advocacy early in their careers, we are hoping they become engaged in protecting their patients' vision beyond the operating room."

At the Mid-Year Forum, the Advocacy Ambassadors attend sessions about hot topics and issues facing ophthalmology. During Congressional Advocacy Day, the residents are paired with seasoned ophthalmologists for visits with legislators and key staff on Capitol Hill. At the Council Meeting, ambassadors are special guests and learn about the Council's role as the policy advisory body to the Academy's Board of Trustees.

In 2015, more than 400 ophthalmologists attended the Mid-Year Forum.

"It is important for physicians to be informed on policy decisions that affect our patients, and meeting with our congressmen provided an opportunity to do just that," says resident Kevin Bray, MD. "The energy of other young physicians at the meeting was contagious, and it was rewarding to bring some of that energy back to Birmingham."

Residents and Fellows

THIRD-YEAR RESIDENTS

Kevin Bray, MD
Pooja Godara, MD
Carter Kirk, MD
David Neely, MD
John Parker, Jr., MD

SECOND-YEAR RESIDENTS

William Gannon, MD
Austin Gerber, MD
Elizabeth Keeble, MD
Adam Quinn, MD
Michael Rolfson, MD

FIRST-YEAR RESIDENTS

Peter Daniel, MD
Kristen Jijelava, MD
HongVan Le, MD
Katherine Orman, MD
Arthur "Jordan" Stanley, MD

FELLOWS

Ryan Burton, MD
Glaucoma

Jason Crosson, MD
Retina

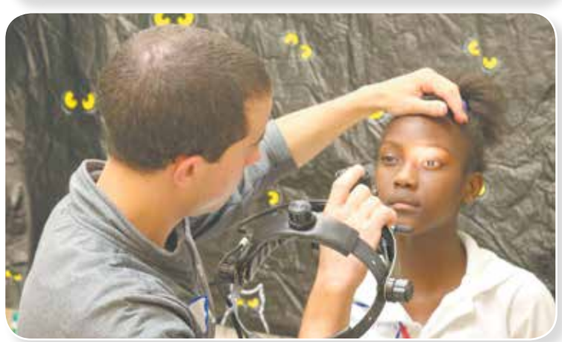
Jay P. Glover, MD
Retina

Daniel T. Kasuga, MD
Retina

Rushil G. Rao, MD
Cornea

Deepthi M. Reddy, MD
Retina

Jordan Spindle, MD
Oculoplastics



UAB Callahan Eye Hospital pediatric ophthalmologist Anne-Marie Arciniegas Bernal, MD (top), and residents Jack Parker, MD (middle), and Kevin Bray, MD (bottom), perform eye exams at a special clinic in Perry County, Ala.

Rural Eye Clinic for Children

For the 10th consecutive year, Sight Savers America and UAB Ophthalmology teamed up to bring eye care services to children who would otherwise not have access to eye care. In April 2015, more than 80 children received free eye exams in Perry County, Ala., where there are no practicing ophthalmologists or optometrists.

“Vision is vitally important. Eighty percent of what a child learns growing up is learned through the visual process,” says Jeff Haddox, CEO of Sight Savers America. “In these areas there is not an optometrist or an ophthalmologist, and children may have to drive as much as an hour and a half to get to an eye care provider. Many of the parents either don’t have transportation or can’t afford to go that far, so we bring the eye care to them.”

UAB pediatric ophthalmologist Anne-Marie Arciniegas Bernal, MD, staffed the 2015 clinic along with two residents: Kevin Bray, MD, and Jack Parker, MD.

Through a partnership with Lens Crafters, children who are prescribed eyeglasses get to choose their new glasses onsite. In 2015, LensCrafters provided 55 children free pairs of glasses.

The clinic has become a resounding success, but when Haddox first proposed the idea of a travelling eye care clinic to UAB pediatric ophthalmologist Martin Cogen, MD, he was skeptical.

“My initial reaction was that this was going to be astronomically difficult,” Cogen says. In ophthalmology it’s not as simple as a black bag and a stethoscope and a blood pressure cuff. You need a lot of equipment to do a state-of-the-art eye exam.”

Haddox persisted, however, and the team gathered enough equipment to hold the first rural eye clinic. After the first clinic, Dr. Cogen was convinced that they could accomplish a lot of good—despite limited resources—if the team focused its attention on the most common problems, such as helping kids see the board in class.

“For the bulk of the patients who need glasses, we can get it all done right here as one-stop shopping,” Cogen said. “And that is really the important thing. We get the patients in, in their community, they don’t have to travel very far.”

Grandmother’s Vision Struggle Motivates Young Woman to Make a Difference

Fazila Aseem working with ophthalmology faculty members Christine A. Curcio, PhD, and Cynthia Owsley, PhD.

As a young girl in Afghanistan, Fazila Aseem watched her grandmother struggle, because of vision loss, to independently complete daily tasks. Her grandmother was unable to see well enough to prepare simple meals for herself, and there was nothing Afghan doctors could do to restore her vision.

Many years later a simple cataract surgery significantly improved her grandmother’s vision and quality of life. Aseem wondered how many other older adults might be suffering from a curable condition because of treatment and care deficits.

Aseem’s curiosity sparked both a thirst for knowledge and a desire to improve treatment and care for older adults. This summer, through a fellowship from the American Federation in Aging Research, Aseem will work with researchers in the UAB Department of Ophthalmology to continue her interest in aging and vision research.

“Ophthalmology provides me with the ability to combine my interest in science with my humanitarian vision to make a positive impact in the lives of disadvantaged people, including older adults,” Aseem says. “In the future, I would like to be involved in both clinical practice as well as research so I can not only provide care but also help improve treatment options for vision impairments.”

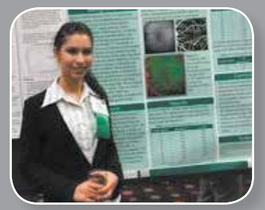
Aseem, a medical student at Wake Forest University, will work with ophthalmology faculty members Christine A. Curcio, PhD, and Cynthia Owsley, PhD, and the Alabama Study on Early Age-Related Macular Degeneration (ALSTAR), funded by the National Institute on Aging of the National Institutes of Health. This study aims to uncover risk factors that make certain older adults more susceptible to age-related macular degeneration (AMD), a disease that causes central vision loss for millions of Americans.

“I want to continue my work with the ALSTAR project because it provides the unique opportunity to study the subcellular basis of clinical autofluorescence imaging and functional assays of transitioning from normal aging to AMD, under the supervision of two brilliant scientists in the field—Drs. Curcio and Owsley,” Aseem says. “I am also excited about the prospect of setting a potential diagnostic biomarker for the earliest emergence of AMD, so AMD patients are able to seek early care.”

Although treatment for AMD is available, it cannot begin until the later stages of the disease, when vision loss is extensive. Through the ALSTAR study and other lines of research, UAB Ophthalmology is focusing on understanding the earliest stages of AMD, hopeful that this work will lead to the next generation of treatments and, ideally, a way to prevent this devastating disease. “Autofluorescence is a superb way to monitor the retinal cells most affected by AMD. Fazila’s project will help us detect the very earliest stages of degeneration in ALSTAR study patients,” Curcio says. “Due to their participation in the ALSTAR study, these patients’ vision, health, and lifestyle are now well documented. The addition of autofluorescence imaging will lead us to biomarkers for the emergence of AMD.”

ADVANCED EXPERTISE

Aseem wins top prize at poster competition



Fazila Aseem

Fazila Aseem won the imaging category poster presentation at the 2015 American Medical Association Research Symposium, held November 13 in Atlanta.

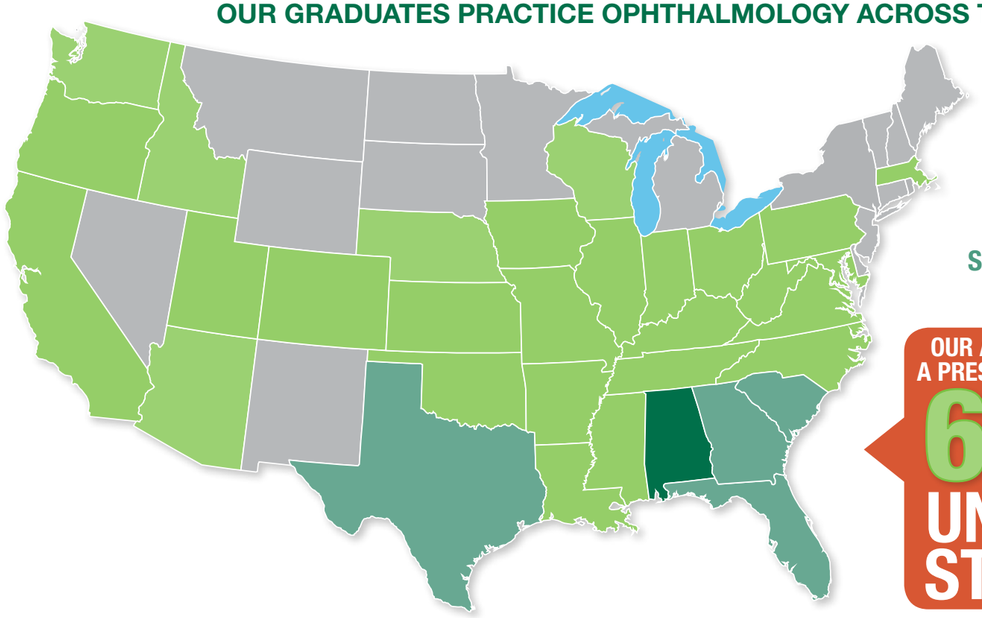
Medical students, residents, and fellows from across the country gathered at the AMA Research Symposium to present their research and exchange ideas and information. Aseem’s winning poster highlighted the work she did with Christine A. Curcio, PhD, and Cynthia Owsley, PhD, as part of her summer fellowship.

Congratulations to the 2015 Graduating Resident Class!

From left to right: Jay Glover, MD *(retina fellowship at UAB/Retina Specialists of Alabama)*; Rushil Rao, MD *(cornea fellowship with Parker Cornea)*; Katherine Donnithorne, MD *(joined Montgomery Eye Physicians)*; Jewel Sandy, MD *(global eye care fellowship at Dean McGee Eye Institute-University of Oklahoma)*; Ryan Burton, MD *(glaucoma fellowship at UAB Department of Ophthalmology)*

Where Are Our Alumni?

OUR GRADUATES PRACTICE OPHTHALMOLOGY ACROSS THE NATION.



TOP 5 STATES OUR ALUMNI CALL HOME:

Alabama
Florida
Georgia
South Carolina
Texas

OUR ALUMNI HAVE A PRESENCE ACROSS 64% OF THE UNITED STATES

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A special thank you to the two esteemed guest speakers, Daniel F. Martin, MD, and David Kaufman, DO. Their lectures, along with the presentations by UAB Ophthalmology faculty and residents, highlighted the latest treatment options and research in age-related macular degeneration as well as neuro-ophthalmology and uveitis.

POWERFUL PARTNERSHIPS

Alumni Challenge Fund Project

The collective generosity of our alumni ensures we are providing the highest quality education for our residents and fellows.

Recently, alumni gifts helped create the Max and Lorayne Cooper Endowed Professorship in Ophthalmology Residency Training, currently held by Russell Read, MD, PhD. “I am honored to be the inaugural holder of this professorship,” Dr. Read says. “This support provides vital resources that invigorate the training program.”

The Alumni Challenge Fund continues to be an integral source of support for our training programs. In the coming years, two key initiatives the Alumni Challenge Fund will support are:

- **VISITING PROFESSORSHIP:**
  Gaining tacit knowledge is an important part of a robust training experience. With alumni support, we could bring a nationally renowned specialist to spend time with the trainees. This opportunity would add an additional dimension to the outstanding mentoring our program already provides. Trainees would expand their knowledge through lectures and one-on-one interaction with a leader in our field.

- **NEW TECHNOLOGIES AND EQUIPMENT:**
  The rapid pace of advancement in technology and equipment creates the need for alumni support to keep our program competitive and on the cutting edge. With alumni support, we could continue to enhance our surgical training program through updates to our surgical practice lab and provide trainees with the technological resources they need to be successful.

Both of these projects will bolster our program and help recruit residents and fellows. Please consider a gift to the Ophthalmology Alumni Challenge Fund today. Your gift to UAB Ophthalmology can change everything.

To make a gift to the alumni challenge fund, visit uab.edu/giveoph or contact our development office at 205.325.8526.

GIVING BACK

John Parker, MD, performs an eye exam in Nicaragua.

Best Friends Forever

Through the Friends of Rudy organization, UAB Callahan Eye Hospital and affiliate clinic staff take the gift of vision care to Nicaragua — and get back much more than they give.

UAB Callahan Eye Hospital staff take time to pose for a photo with patients during a volunteer trip to Nicaragua.

Healthy vision is a precious gift. That's an instantly recognizable fact of life. Less readily recognized, especially in more fortunate societies, is that access to vision care is an equally precious commodity.

However, none of the doctors, technicians, nurses, and support staff who have participated in Friends of Rudy (FOR) Nicaraguan Health will ever take that for granted. By bringing excellent eye care to one of the neediest areas of the world, each of these professionals has gained a global perspective, experiencing firsthand the value and rewards of providing health care for populations in crisis.

FOR Nicaraguan Health, Inc., commonly known as Friends Of Rudy, is a nonprofit organization dedicated to providing medical treatment, resources, and clinic funding to residents of the world's poorest communities. FOR was initiated on an ad hoc, informal basis during the early 1990s by Jose Rodolfo (Rudy) Vargas, MD, of Birmingham, Ala. A native of Nicaragua, Dr. Vargas came to the United States in 1969 for a residency in internal medicine and a fellowship in the subspecialty of endocrinology and metabolism. He now practices at Brookwood Medical Center.

After Dr. Vargas made many successful mission trips to Granada, Nicaragua, and as various hospitals, churches, and individuals in the Birmingham area continued to grow funding and provide resources, FOR organized mission trips with teams of physicians to a small hospital in Granada. The organization officially incorporated as a nonprofit in 2002 and formalized plans to develop a full-time clinic in Nicaragua.

Since then, various physicians and staff at CEH and affiliate clinics have participated annually in this remarkable mission, travelling each February to bring treatment, equipment, and other resources to the Nicaraguan communities most in need. Some of those individuals shared their experiences for this annual report.

Michael A. Callahan, MD

I travelled there on my first mission right after a hurricane almost wiped out the city of Granada. The facilities were almost non-existent. The staff was washing sheets on rocks. Everything was tense because the revolution was still going on. One of the volunteers who worked with us was actually smuggled back to the airport in a white coat so that anyone who saw him would think he was a doctor.

Today, most of the work is done at the clinic outside the hospital there. It's a one-room clinic where we examine patients, and the room functions as both a pre-op and post-op area. We do about 20 surgeries per day. It's hot and dry there in February. There may be rodents or insects in the clinic, even birds nesting. We have had water brought in and boiled so we could use it when, for whatever reason, the water supply is cut off. Resources are still limited, even though over the years we have provided plenty of materials and equipment upgrades. FOR has made numerous changes for the better.

We try to get people back to a point where they can at least make a living. Without eyesight, folks in this area face a meager existence; there's no financial safety net. Worse still, children who have strabismus (crossed eyes) are ostracized in that culture, treated as though they have developmental disabilities, much the way deaf children or kids with disabilities were sometimes regarded in our society many years ago. If they aren't treated, their vision doesn't develop properly, which impacts their ability to get an education and greatly compounds the bleak prospects of a meaningful life.

FOR Nicaraguan Health, Inc., commonly known as Friends Of Rudy, is a nonprofit organization dedicated to providing medical treatment, resources, and clinic funding to residents of the world's poorest communities.

Michael Callahan, MD, with two strabismus patients.

The two main procedures I perform are to remove cataracts and correct strabismus. I call them "Nicaraguan cataracts." You almost need a hammer and chisel! I think the toughness of the cataract tissue is due to lack of medical care, as well as living an extremely difficult life in a hot, sunny climate that takes a toll on the eyes.

I've always had a yearning to go to the places where people needed help. I think many people in my field do. I recall one of our staff coming to me during a recent visit, saying 'There's a lady here who has waited all day to see you.' We continued with some surgeries, then I saw her at the end of the day. This dear woman had been sitting in a chair, outside, in the sun all day. Her sole purpose was to bring me a thank-you note and present it to me in person. The people there are so appreciative. That kind of thing is one of the reasons I got into medicine in the first place.

Katherine Burleson Fuchs, Ophthalmic Technician

My trip to Nicaragua with Dr. John Parker was a crash course, you might say, because I had been working for only a couple of months at that point. I feel like I learned so much because of the sheer number of things we had to do. We screened about 200 patients for cataract surgery and corneal transplant during the first day at the national hospital.

The first year was difficult because we were set up in the courtyard under bright sunlight. The next time we set up in a classroom adjacent to the building. Each day we walked to the hospital we would see children sleeping on top of boxes or digging through trash for food. This is one of the most impoverished areas in the world.

The thing that always amazes and touches me is the warmth and gratitude of that community. After patients undergo a successful surgery, they are so expressive of their gratitude. It's so humbling. Their families have so little, but they would come back to the hospital to bring us gifts and food. Dr. Parker has invited me to go to Nicaragua every year since then. It's an opportunity I recommend to anyone who gets the chance.

Above: Michael Callahan, MD (left), with Rudy Vargas, MD (center) and clinic staff.
Right: John Parker, MD, performs a surgical procedure.

Cindy Ratliff, Office Manager

My first visit to Nicaragua to participate in the Friends of Rudy project was a gift from Dr. Callahan for 30 years of service at the hospital. Once I was there, my job was to get patients on a gurney before surgery. I was proud of the work our teams were doing in this country, of course, and thrilled that I could be a part of giving something of tremendous value to the people there. But I'm just as impressed with what those wonderful people gave back, or I should say, what they taught us in return.

> "I was proud of the work our teams were doing in this country, of course, and thrilled that I could be a part of giving something of tremendous value to the people there. But I'm just as impressed with what those wonderful people gave back, or I should say, what they taught us in return. "
>
> – Cindy Ratliff

We learned so many lessons from those who don't have the blessings we have. For example, instant generosity; I don't recall walking past a single home where we were not invited to share a meal. And the children; I would love to have brought them all home with me! One of my tasks was to distribute donated toys, and quickly it became apparent that I would barely have enough Beanie Babies, or coloring books and crayons, or other toys on some days.

I became concerned about having an age-appropriate toy for each child, and even though by some miracle we always had just the right number of crayons and coloring books, I worried about it. I was always thinking in terms of "having enough."

Then one morning I noticed a little girl was tearing out, one by one, all the pages of the coloring book she was given. When I had a moment free I went in the room to see what she was up to. This precious girl was giving one page and a few crayons to other children in the room so that all of them could enjoy the coloring book. I was so touched by her immediate understanding of sharing.

Above: Katherine Burleson Fuchs poses with a clinic patient.
Right: Clinic volunteers prepare for the day.

I told my great-granddaughter about that little girl when I returned. Later, just before my next trip to Nicaragua, she came to me to ask if she could share her crayons and coloring books with the children there. I also told both my grandsons, who play baseball, that I saw kids in the villages so poor that they were playing with sticks and rocks to make a game for the group, yet it was their parents who had offered us meals. Both my grandsons wrote stories about that for classroom assignments.

That's why I feel like I brought as many gifts back with me as I took. So many beautiful lessons that I will never forget, and that continue to touch my family. When I first asked Dr. Callahan what in the world I could offer if I travelled with the FOR group, he said, 'Just your smile.' That was a nice thing for him to say, but let me tell you, I returned from Nicaragua with a much bigger smile.

Richard M. Feist, MD

I think most of us here have some innate instinct to help others, and I think we get more from the experience than the people we go down there to help. I've made 15 or 16 visits. For the first few years, the national eye hospital was closed, and the roads were still in terrible shape from the wars with the Contras and Sandinistas. It was difficult to transport equipment to the hospital, but as things improved we were able to get more resources shipped there and put in place, so now we are able to take cases we could never have treated in the early days. The success of Friends of Rudy has been tremendous. In the time I have been participating, we have gone from not treating retina cases at all to performing retinal surgery.

Teaching is a big part of what we do there. The residents are engaged in every aspect, from examining patients and screening for surgical candidates to performing procedures and surgeries. We work side by side on all the cases we treat.

Nothing makes you more confident as a surgeon than performing procedures in an unfamiliar place, with less equipment, fewer resources, and more difficult cases. It's how we learn to be comfortable with whatever circumstances fate throws at us. Because we're blessed with so many resources here at Callahan Eye Hospital, and with so many colleagues who can participate and support us in treating patients, it's only in places like Nicaragua we can learn to do a lot with a little, under trying circumstances.

We also might discover an area where we excel or gain a new interest. We have at least two residents at UAB who have decided to become retina specialists based on their experience with Friends of Rudy. All around, the experience with FOR makes us better physicians after we get back home.

Karen Burleson, AVP Human Resources

Our first trip was to Ecuador in 2011. I'm not a medical staff member. I help patients get to where they need to go, help them get undressed or dressed for surgery, and I assist with the surgery schedule and locate whatever materials the doctors need. I'm just really an extra pair of hands, whether that's with patient care or organizational tasks.

Of the entire wonderful experience, I think I was most taken with how much gets done under less-than-ideal circumstances. I'm accustomed to a modern health care environment with almost unlimited resources, and there are regulatory issues with every treatment, every patient visit, or every procedure. Down there you just roll with it and do what needs to be done.

It's impressive, not just how our doctors respond so well to that setting, but that they get excellent outcomes for so many patients. You can gain a real appreciation for what we otherwise might take for granted at Callahan, where patients have access to all kinds of support if they are vision-impaired. A serious condition means a lifestyle change, of course, but for our patients in Nicaragua, low vision can be a matter of life or death. If they can't see to work, they have nothing to fall back on.

Letter from a Grateful Patient

We are the parents and family members of Oscar Joel Miranda Martinez, an adolescent of 15 years who lives with us in Punta Gorda, Bluefields, and who was a fortune beneficiary of a cornea transplant in his right eye. The surgical intervention was performed by the Brigada Medica Extranjera who thankfully came to Granada in February, 2015.

The objective of this letter is to express our immense gratitude and appreciate for dedicating your valuable time to this act that is so important to us, as we are people of very low income and we live in very remote location.

It is the general opinion of everyone and every member of our family that it would have been very difficult to collect the funds necessary to travel out of the country and pay for such a costly operation.

That is why we consider this operation a miracle of Our Lord Jesus Christ, with you and your team of specialists being the instruments to fulfill this marvelous act.

Additionally, we would like you to know that the patient is progressing very positively, and we authorize you to use these sincere lines of appreciation in the way you see fit, such as sharing with other families that have family members in similar situations.

To finalize, we only have left to say that we hope that your heart can understand what written words don't express sufficiently.

Please let every member of Brigada Medica Extranjera that operated on our family member know how appreciative we are.

Gabriel Miranda Ortega, Father of Joel Miranda
Ermlia Martinez Olivar, Mother of Joel Miranda

Dinner in the Dark gave diners some understanding of what it means to be visually impaired.

A Lifetime of Insights Gained From a Few Hours Without Sight

For 23 Birmingham diners one June evening in 2015, Dinner in the Dark was a real eye-opening experience, especially since the diners were blindfolded. The event gave sighted individuals some understanding of what it means to be visually impaired.

"Dinner in the Dark was designed to raise awareness about what it is like to live — just for a brief moment — with an eye condition that interrupts basic activities such as eating," says Laura Dreer, PhD, associate professor in the Department of Ophthalmology at the University of Alabama at Birmingham and the event organizer.

The event, held at the popular Highlands neighborhood restaurant Rojo Birmingham, was hosted by UAB Connections, a support group for people with visual impairments. Among the participants were caregivers of members of the group, along with UAB ophthalmologists, residents, and technicians.

Each was blindfolded outside the restaurant and then led inside to a table. They were told to envision their place setting as a clock: knife at 3 o'clock; water glass just above it; salsa at 11 o'clock. Volunteer wait staff at Rojo patiently read dinner choices to the diners, excluding from the menu fajitas, and, by default, any sizzling hot plates.

Spatial relationships were confused. Most diners had no idea where they were in the restaurant, or even which direction they were facing. Many said good communication was a must. Nonverbal cues were not possible, but conversation — and listening — improved. No one wasted time looking at their smartphone. Most of all, diners realized that losing the sense of sight is profoundly challenging.

"I've come to appreciate the amount of memory it takes to recall where things are," says participant Russell Read, MD, professor of ophthalmology at UAB. "It was difficult to navigate to where my water glass was, and to find the tortilla chips while not sticking my fingers in the salsa."

Read was one of several UAB ophthalmologists who participated, realizing that this was an unprecedented opportunity to better understand the reality their patients face.

> "It gives us a little bit of perspective on what our patients go through and what they encounter in their everyday lives. We get some insight about how much their visual impairment affects their everyday activities through something as simple as sitting down to eat dinner."
>
> – Ryan Burton, MD

"It's figuratively an eye-opening experience," Read says. "We get so caught up as doctors in the technology and the science of taking care of people that we forget about the human aspect of things. So it's an incredibly valuable experience, even if it's just for one night."

"It gives us a little bit of perspective on what our patients go through and what they encounter in their everyday lives," says Ryan Burton, MD, a UAB ophthalmology resident. "We get some insight about how much their visual impairment affects their everyday activities through something as simple as sitting down to eat dinner."

Each table in the Rojo private dining room held two or three blindfolded participants, along with a support group member with a real visual impairment. Volunteers stood by to assist, but were told to let the participants learn for themselves.

"It's been incredible going from table to table and watching the interactions with the support group members, their family members, the residents, technicians, and the doctors," Dreer says. "This is an educational experience for all of us that cannot be duplicated in a doctor's office or at Callahan Eye Hospital."

It was educational and challenging for sure, but the night was also fun.

"I wanted a salad, but ordered finger food because I was sure I wouldn't be able to negotiate getting salad into my mouth," says Torrey DeKeyser, executive director of the EyeSight Foundation of Alabama, which funded the event. "I didn't dare scoop up salsa with my tortilla chips; I just dipped. A couple of people told me they felt as if they were dropping salsa on themselves," and I told them, 'Well, you actually are.' Fortunately, we had bibs."

Afterward, Dreer proclaimed the first-time event a tremendous success and said UAB Connections has plans to expand the concept.

"We'll build on this in the future and host other events at other restaurants, or stage different activities," Dreer says. "We might do things with recreation or leisure that are also fun and challenging. We want to branch out and do this again, for the public, our residents, trainees and technicians, and our support group members and their families."

Dr. Read sums up the overall response from the participants: "I'm in awe of people who have to deal with vision loss all the time."

ADVANCED EXPERTISE

Lions Clinic Expansion Brings More Capacity, New Equipment

The Alabama Lions Eye Clinic, housed in the UAB Callahan Eye Hospital, has again expanded its space as part of an ongoing effort to provide greater access to underserved Alabamians in need of eye care. It's another small but significant example of how Callahan is giving back to the community.

A full remodeling of the clinic was completed in July 2014, allowing for better management of patients in the emergency department and at the Lions Eye Clinic, while also providing additional emergency capability. The renovated space features new exam chairs, including two designed to allow wheelchair access, and an array of new diagnostic equipment. This latest improvement now provides an additional lane.

For a clinic that treated more than 4,000 patients last year, any additional space makes a positive impact, according to Dara Cook, an ophthalmology technician for the Lions Eye Clinic.

"This addition gives a total of six lanes, one of which we use for workup," Cook says. "The new room has already made a huge difference in our ability to handle the flow of patients. During one shift we now have the ability to see as many as 35 or more patients on average."

Kristen Jijelava, MD, has also seen immediate benefits from the addition of the new lane.

"It has shortened wait times, increased the number of patients we can see in a day, and allowed for more patient-physician interaction," Jijelava says. "Overall, the clinic runs more smoothly since the addition, and all of us – patients, staff, and physicians – are very grateful."

The addition of the new lane is one more chapter in a seven-decade history of partnership by which Lions Clubs International Foundation (LCIF), the Lions Clubs of Alabama, and Callahan have provided vision care to underserved populations. Through the Lions Club's efforts to secure funds, and with the dedication of staff and faculty, the Lions Eye Clinic expands its capacity to help patients regardless of their socioeconomic status.

FACULTY LISTING

MICHAEL A. ALBERT JR., MD

EDUCATION:
Medical School: West Virginia University School of Medicine
Residency: University of Alabama at Birmingham
Fellowship: Retina Consultants of Alabama
TITLE: Associate Professor
CLINICAL SPECIALTY: Retina and vitreous

ANN MARIE ARCINIEGAS-BERNAL, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: Henry Ford Hospital, Detroit, Mich.
Fellowship: W.K. Kellogg Eye Center, University of Michigan
TITLE: Assistant Professor
CLINICAL SPECIALTY: Pediatrics

RITA ARMITAGE, MD

EDUCATION:
Medical School: University of Kentucky
Residency: University of Alabama at Birmingham
TITLE: Assistant Professor
CLINICAL SPECIALTY: Comprehensive

J. WAID BLACKSTONE, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
TITLE: Assistant Professor
CLINICAL SPECIALTY: Comprehensive

MICHAEL A. CALLAHAN, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of California, San Francisco
Fellowship: Indiana University
TITLE: Professor
CLINICAL SPECIALTY: Comprehensive

MARTIN S. COGEN, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
Fellowship: James Hall Eye Center/Scottish Rite Children's Hospital
TITLE: Chief of Division of Pediatric Ophthalmology and Strabismus, Professor
CLINICAL SPECIALTY: Pediatric Ophthalmology and Strabismus

R. JEFFREY CRAIN, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
TITLE: Director, Birmingham Veterans Affairs Medical Center Ophthalmology Service; Associate Professor
CLINICAL SPECIALTY: Comprehensive

CHRISTINE A. CURCIO, PHD

EDUCATION:
Doctoral Training: University of Rochester
Postdoctoral Training: Boston University, School of Medicine; University of Washington School of Medicine
TITLE: Professor
RESEARCH INTEREST: Age-related macular degeneration, validation of clinical imaging

DAWN K. DECARLO, OS, MS, MSPH

EDUCATION:
Doctoral Degree: University of Alabama at Birmingham, School of Optometry
Master's Degrees: University of Alabama at Birmingham
Residency: Hines Central Blind Rehabilitation; Chicago West Side Veterans Administration Medical Center
TITLE: Director, UAB Center for Low Vision Rehabilitation; Associate Professor
CLINICAL SPECIALTY: Low vision rehabilitation
RESEARCH INTEREST: Low vision rehabilitation, pediatric vision impairment

J. CRAWFORD DOWNS, PHD

EDUCATION:
Master's Degrees: Tulane University
Doctoral Degree: Tulane University
Postdoctoral Fellowship: LSU Eye Center, Louisiana State University
TITLE: Vice Chair of Research; Director, Ocular Biomechanics and Biotransport Program; Professor
RESEARCH INTEREST: Ocular biomechanics, glaucoma

LAURA DREER, PHD

EDUCATION:
Master's Degree: University of Hartford
Doctoral Degree: Central Michigan University
Postdoctoral Training: Duke University Medical Center; University of Alabama at Birmingham
TITLE: Associate Professor
RESEARCH INTEREST: Adjustment to chronic health conditions; development of health promotion interventions

ANDREW W. EVERETT, MD

EDUCATION:
Medical School: University of South Alabama
Residency: University of Alabama at Birmingham
Fellowship: University of Alabama at Birmingham
TITLE: Assistant Professor
CLINICAL SPECIALTY: Comprehensive

MASSIMO ANTONIO FAZIO, PHD

EDUCATION:
Master's Degree: University of Calabria, Calabria, Italy
Doctoral Degree: University of Calabria, Calabria, Italy
Postdoctoral Fellowship: Devers Eye Institute, Portland, Oregon
TITLE: Assistant Professor
RESEARCH INTEREST: Ocular biomechanics, glaucoma

RICHARD M. FEIST, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Illinois, Eye and Ear Infirmary
Fellowship: University of Iowa
TITLE: Associate Professor
CLINICAL SPECIALTY: Retina and vitreous

PRISCILLA FOWLER, MD

EDUCATION:
Medical School: University of South Alabama
Residency: University of Alabama at Birmingham
Fellowship: Wills Eye Institute
TITLE: Director, Cornea Service; Assistant Professor
CLINICAL SPECIALTY: Cornea

PAUL D. GAMLIN, PHD

EDUCATION:
Doctoral Degree: State University of New York Stony Brook
Postdoctoral Training: University of Alabama at Birmingham
TITLE: Professor
RESEARCH INTEREST: Neural control of eye movements

CHRISTOPHER A. GIRKIN, MD, MSPH, FACS

EDUCATION:
Medical School: University of Arkansas
Residency: University of Alabama at Birmingham
Fellowship: Wilmer Eye Institute, Johns Hopkins University; Shiley Eye Center, University of California, San Diego
TITLE: EyeSight Foundation of Alabama Chair; Chief Medical Officer, UAB Callahan Eye Hospital; Professor
CLINICAL SPECIALTY: Glaucoma
RESEARCH INTEREST: Clinical and basic research into glaucoma, health disparities

SARAH GORDON, OD

EDUCATION:
Doctoral Degree: University of Alabama at Birmingham, School of Optometry
TITLE: Assistant Professor
CLINICAL SPECIALTY: Primary eye care

RAFAEL GRYTZ, PHD

EDUCATION:
Master's Degree: Ruhr University Bochum, Germany
Doctoral Degree: Ruhr University Bochum, Germany
Postdoctoral Training: Devers Eye Institute, Portland, Oregon
TITLE: Assistant Professor
RESEARCH INTEREST: Growth and remodeling mechanisms in myopia, keratoconus, and glaucoma

D. WADE JOINER, MD

EDUCATION:
Medical School: University of South Alabama
Residency: University of Alabama at Birmingham
Fellowship: New York Eye and Ear Infirmary
TITLE: Associate Professor
CLINICAL SPECIALTY: Glaucoma

LANNING B. KLINE, MD

EDUCATION:
Medical School: Duke University
Residency: McGill University
Fellowship: Bascom Palmer Eye Institute, University of Miami; Montreal Neurological Institute
TITLE: Professor
CLINICAL SPECIALTY: Neuro-ophthalmology

MIYOUNG KWON, PHD

EDUCATION:
Doctoral Degree: University of Minnesota
Postdoctoral Training: University of Southern California; Schepens Eye Research Institute, Harvard Medical School
TITLE: Assistant Professor
RESEARCH INTEREST: Low vision and brain research

VIRGINIA LOLLEY, MD, FACS

EDUCATION:
Medical School: Tulane University School of Medicine
Residency: University of Alabama at Birmingham
TITLE: Assistant Professor
CLINICAL SPECIALTY: Comprehensive

JOHN O. MASON, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
Fellowship: Wills Eye Hospital, Philadelphia, Pennsylvania
TITLE: Associate Professor
CLINICAL SPECIALTY: Retina and vitreous

ANDREW MAYS, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
Fellowship: University of Florida
TITLE: Associate Professor
CLINICAL SPECIALTY: Glaucoma

CECIL JAMES MCCOLLUM, MD

EDUCATION:
Medical School: University of Alabama at Birmingham
Residency: University of Alabama at Birmingham
Fellowship: Duke University
TITLE: Director of Emergency Services, Clinical Assistant Professor
CLINICAL SPECIALTY: Emergency services; cornea

SARA MULLINS, MD

EDUCATION:
Medical School: LSU Health Sciences Shreveport
Residency: University of Alabama at Birmingham
TITLE: Instructor
CLINICAL SPECIALTY: Comprehensive

LINA NAGIA, DO

EDUCATION:
Residency: Valley Hospital Medical Center, Las Vegas, NV
Fellowships: Koch Eye Associates, Warwick, RI; Michigan State University
TITLE: Assistant Professor
CLINICAL SPECIALTY: Neuro-ophthalmology
RESEARCH INTEREST: Neuro-ophthalmic and optic nerve diseases

CYNTHIA OWSLEY, PHD, MSPH

EDUCATION:
Master's Degree: University of Alabama at Birmingham
Doctoral Degree: Cornell University
Postdoctoral Training: Northwestern University
TITLE: Nathan E. Miles Chair of Ophthalmology; Director, Clinical Research Unit; Vice Chair of Research Administration; Professor
RESEARCH INTEREST: Aging-related vision impairment and eye disease; vision and driving; improving eye care access and quality for underserved populations

RUSSELL W. READ, MD, PHD

EDUCATION:
Residency: University of Washington Seattle
Fellowship: Doheny Eye Institute, University of Southern California
TITLE: Max and Lorayne Cooper Professor for Ophthalmology Residency Training
CLINICAL SPECIALTY: Uveitis/ocular inflammatory disease
RESEARCH INTEREST: Role of complement in ocular diseases, including uveitis and macular degeneration

LINDSAY RHODES, MD

EDUCATION:
Medical School: Northwestern University Feinberg School of Medicine
Residency: University of Alabama at Birmingham
Fellowship: University of Alabama at Birmingham
TITLE: Assistant Professor
CLINICAL SPECIALTY: Glaucoma
RESEARCH INTEREST: Health services research; novel methods for care delivery, such as telemedicine

CAROL ROSENSTIEL, OD, FAAO

EDUCATION:
Doctoral Degree: University of Alabama at Birmingham, School of Optometry
TITLE: Director, Contact Lens Service; Associate Professor
CLINICAL SPECIALTY: Primary eye care and contact lens services

BRIAN C. SAMUELS, MD, PHD

EDUCATION:
Medical School: Indiana University
Residency: University of Alabama at Birmingham
Fellowship: Duke University
TITLE: Assistant Professor
CLINICAL SPECIALTY: Glaucoma
RESEARCH INTEREST: Role of the central nervous system in the development and progression of glaucoma

HAROLD SKALKA, MD, FACS

EDUCATION:
Medical School: New York University
Residency: New York University
Fellowship: New York University
TITLE: Professor
CLINICAL SPECIALTY: Electrophysiology

JASON C. SWANNER, MD, FACS

EDUCATION:
Medical School: University of South Alabama College of Medicine
Residency: University of Alabama at Birmingham
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CLINICAL SPECIALTY: Glaucoma

MARTIN THOMLEY, MD

EDUCATION:
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CLINICAL SPECIALTY: Retina and vitreous

MICHAEL S. VAPHIADES, DO

EDUCATION:
Medical School: University of New England
Medical Internship: Brown University
Residency: Loyola University
Fellowship: Michigan State University
TITLE: Chief, Neuro-Ophthalmology and Electrophysiology Services; Professor
CLINICAL SPECIALTY: Neuro-ophthalmology

SHU-ZHEN WANG, PHD
EDUCATION:
Doctoral Degree: Virginia Polytechnic Institute & State University
Postdoctoral Training: Virginia Polytechnic Institute & State University; Wilmer Eye Institute, Johns Hopkins University School of Medicine
TITLE: Professor
RESEARCH INTEREST: Photoreceptor regeneration in the mammalian eye

C. DOUGLAS WITHERSPOON, MD, FACS
EDUCATION:
Medical School: St. Louis University
Residency: University of Alabama at Birmingham
Fellowship: University of Tennessee
TITLE: Professor
CLINICAL SPECIALTY: Retina and vitreous; ocular trauma
RESEARCH INTEREST: Retina and vitreous; ocular trauma

JEFF YEE, MD, MS
EDUCATION:
Master's Degree: UCLA
Medical School: University of California-Irvine
Residency: University of South Florida
TITLE: Medical Director, Lions Eye Clinic; Associate Professor
CLINICAL SPECIALTY: Comprehensive

YUHUA ZHANG, PHD
EDUCATION:
Master's Degree: Chinese Sciences Academy, China
Doctoral Degree: Tianjin University, China
Postdoctoral Training: Beijing Institute of Technology; Auckland University, New Zealand
TITLE: Assistant Professor
RESEARCH INTEREST: adaptive optics high-resolution retinal imaging; age-related macular degeneration

Secondary Faculty

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PRIMARY APPOINTMENT: Department of Medicine, Division of Gerontology & Geriatric Medicine
TITLE: Professor

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TITLE: Chair; Professor

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TITLE: Associate Professor

JOHN JOHNSTONE, PHD
PRIMARY APPOINTMENT: Department of Computer and Information Sciences
TITLE: Associate Professor

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TITLE: Professor

GERALD MCGWIN, MS, PHD
PRIMARY APPOINTMENT: Department of Epidemiology
TITLE: Professor

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PRIMARY APPOINTMENT: Department of Pathology and Cell Biology
TITLE: Professor

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PRIMARY APPOINTMENT: Department of Vision Sciences
TITLE: Director, Vision Science Research Center; Professor

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PRIMARY APPOINTMENT: Department of Computer and Information Sciences
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TITLE: Assistant Professor

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Callahan Eye Hospital Medical Staff Physicians

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Evans Bailey, MD
Kristin Bains, MD
William Baker, MD
Gwendolyn Boyd, MD
Brandon Brooks, MD
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Ryan Burton, MD
Jonathan Cappel, MD
Tekuila Carter, MD
Lucy Chapman, MD
Bradley Coker, MD
Artemus Cox III, MD
Jack Crawford, MD
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Jason Crosson, MD
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Jeffrey Dobyns, DO
Michelle Downing, MD
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Susan Eiland, MD
Joel Feinstein, MD
Michael Froelich, MD
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Kathleen Gee, MD
Tyler Hall, MD
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James Hunter Jr., MD
Christopher Kelly, MD
Stephen Kelly, MD
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Darrell Prestridge, DO
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Benjamin Roberts, MD
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Jeffrey Simmons, MD
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David Skier, MD
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Joshua Smith, MD
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Benjamin Tuck, MD
Mercy Udoji, MD
Andrew Velazquez, MD
Matthew Vicinanzo, MD
Stacy Wade, MD
Brant Wagener, MD
Marsha Wakefield, MD
Robin Walters, MD

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Vice Chair of Research Administration

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Max and Lorayne Cooper Endowed Professor for Residency Training

VIRGINIA LOLLEY, MD, FACS
Director of Medical Student Education

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RETT GROVER, MSHA
Chief Operating Officer,
UAB Callahan Eye Hospital & Clinics

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AVP Human Resources/Risk Management

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Executive Director of HR

LACINDA RIESLAND
Executive Director, IT Infrastructure
UAB Callahan Eye Hospital & Clinics

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Chief Financial Officer

MARTIN SMITH, MSHA
Operations Administrator
UAB Callahan Eye Hospital & Clinics

JACKIE WOOD, MED
Senior Director of Development

2015 – 2016 Board of Directors

The UAB Callahan Eye Hospital and Ophthalmology Services Foundation would like to recognize the members of their boards of directors for their dedicated service. Their leadership and guidance have positively impacted the growth and success of both organizations, and we greatly appreciate their invaluable contributions.

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UAB Callahan Eye Hospital, Chief Medical Officer

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UAB Department of Ophthalmology
Administrative Associate

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Lazarus Capital Partners
Board Memeber

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UAB Callahan Eye Hospital
President & Chief Executive Officer

SELWYN VICKERS, MD
UAB, Senior Vice President;
UAB School of Medicine, Dean

Publications

AGE-RELATED MACULAR DEGENERATION

Ach T, Tolstik E, Messinger JD, Zarubina AV, Heintzmann R, **Curcio CA**. Lipofuscin re-distribution and loss accompanied by cytoskeletal stress in retinal pigment epithelium of eyes with age-related macular degeneration. *Investigative Ophthalmology Visual Science* 2015. PMID 25758814.

Curcio CA. Balaratnasingam C, Messinger JD, Yannuzzi LA, Freund KB. Correlation of type 1 neovascularization associated with acquired vitelliform lesion in the setting of age related macular degeneration. *American Journal of Ophthalmology*. PMID 26255578.

Litts KM, Messinger JD, Dellatorre K, Yannuzzi LA, Freund KB, **Curcio CA**. Clinicopathological correlation of outer retinal tubulation in age-related macular degeneration. *JAMA Ophthalmology* 2015. PMID 25742505.

Litts KM, Messinger JD, **Zhang Y**, Freund KB, **Curcio CA**. Inner segment remodeling and mitochondrial translocation in degenerating cones of age-related macular degeneration, including outer retinal tubulation. *Investigative Ophthalmology and Visual Science* 2015. PMID 25758815.

Pang C, Messinger JD, Zanzottera EC, Freund KB, **Curcio CA**. The Onion Sign in neovascular age-related macular degeneration corresponds to cholesterol crystals. *Ophthalmology*. PMID 26298717.

Schaal KB, Freund KB, Litts KM, **Zhang Y**, Messinger JD, **Curcio CA**. Outer retinal tubulation in age-related macular degeneration: optical coherence tomographic findings correspond with histology. *Retina* 2015. PMID 25635579.

Smith RT, Post R, Johri A, Lee M., Ablonczy Z, **Curcio CA**, Ach T, Sajda P. Simultaneous decomposition of multiple hyperspectral datasets: fluorophore signal recovery in the retinal pigment epithelium (RPE). *Biomed Opt Express* 2014. PMID 25574430.

Suzuki, M., **Curcio CA**, Mullins, RF, Spaide, RF, 2015. Refractile drusen: clinical imaging and candidate histology. *Retina* 2015. PMID 25768253.

Zanzottera EC, Messinger JD, Ach T, Smith RT, **Curcio CA**. Subducted and Melanotic cells in advanced age-related macular degeneration are derived from retinal pigment epithelium. *Investigative Ophthalmology and Visual Science* 2015. PMID 26024109.

Zanzottera EC, Messinger JD, Ach T, Smith RT, Freund KB, **Curcio CA**. The Project MACULA retinal pigment epithelium grading system for histology and optical coherence tomography in age-related macular degeneration. *Investigative Ophthalmology and Visual Science* 2015. PMID 25813989.

Owsley C, Huisingh C, Clark ME, Jackson GR, **McGwin G Jr.** Comparison of visual function in older eyes in the earliest stages of age-related macular degeneration to those in normal macular health. *Current Eye Research* 2015. PMID 25802989.

DIABETIC RETINOPATHY

Tapley JL, **McGwin G Jr**, Ashraf AP, MacLennan PA, Callahan K, Searcey K, **Witherspoon CD**, Saaddine J, **Owsley C**. Feasibility and efficacy of diabetic retinopathy screen among youth with diabetes in a pediatric endocrinology clinic: A cross-sectional study. *Diabetology and Metabolic Syndrome* 2015. PMID 26136849.

EPIDEMIOLOGY

Owsley C, Wood JM, **McGwin G Jr**. A roadmap for interpreting the literature on vision and driving. *Survey of Ophthalmology* 2015. PMID 25753389.

GENE THERAPY

Yan RT, He L, Zhan W, **Wang SZ**. Induction of ectopic retina-like tissue by transgenic expression of neurogenin. *PLoS One* 2015. PMID 25635399.

GLAUCOMA

Downs, JC. Optic nerve head biomechanics in aging and disease. *Experimental Eye Research* 2015. PMID 25819451.

Estrovich IE, Shen C, Chu Y, **Downs JC**, Gardiner S, Straiko M, Mansberger SL: Schiotz tonometry accurately measures intraocular pressure in Boston Type 1 keratoprosthesis eyes. *Cornea* 2015. PMID 25782403.

Lockwood H, Reynaud J, Gardiner SK, Grimm JL, Libertiaux V, **Downs JC**, Yang H, Burgoyne CF. Lamina cribrosa microarchitecture in normal monkey eyes Part 1 - Methods and initial results. *Investigative Ophthalmology and Visual Science*. 2015. PMID 25650423.

Murphy-Ullrich JE and **Downs JC**. The Thrombospondin1-TGF-β Pathway and Glaucoma. *Journal of Ocular Pharmacology and Therapeutics* 2015. PMID 26352161

Chauhan BC, Danthurebandara VM, Sharpe GP, Demirel S, **Girkin CA**, Mardin CY, Scheuerle AF, Burgoyne CF. Bruch's membrane opening minimum rim width and retinal nerve fiber layer thickness in a normal white population: A multicenter study. *Ophthalmology* 2015. PMID 26198806.

Dreer LE, **Owsley C**, Campbell L, Gao L, Wood A, **Girkin CA**. Feasibility, patient acceptability, and preliminary efficacy of a culturally informed health promotion program to improve medication adherence among African Americans: Glaucoma Management Optimism for African Americans Living with Glaucoma (GOAL). *Current Eye Research 2015*. PMID 25625187.

Girkin CA, Nievergelt CM, Kuo JZ, Maihofer A, Huisingh C, Liebmann JM, Ayyagari R, Weinreb RN, Ritch R, Zangwill LM, None AS. Biogeographic Ancestry in the African Descent and Glaucoma Evaluation Study (ADAGES): Association with Corneal and Optic Nerve Structure. *Investigative Ophthalmology and Visual Science* 2015. PMID 25744975.

Publications

Khachatryan N, Medeiros FA, Sharpsten L, Bowd C, Sample PA, Liebmann JM, **Girkin CA**, Weinreb RN, Miki A, Hammel N, Zangwill LM. The African Descent and Glaucoma Evaluation Study (ADAGES): Predictors of visual field damage in glaucoma suspects. *American Journal of Ophthalmology* 2015. PMID 25597839.

Kuo JZ, Zangwill LM, Mederos FA, Liebmann JM, **Girkin CA**, Hammel N, Rotter J, Weinreb RN. Quantitative trait locus analysis of SIX1-SIX6 with retinal nerve fiber layer thickness in individuals of European descent. *American Journal of Ophthalmology* 2015. PMID 25849520.

Li Z, Allingham RR, **Girkin CA**, Vithana EN. A common variant near TGFBR3 is associated with primary open angle glaucoma. *Human Molecular Genetics* 2015. PMID 25861811.

Owsley C, **Rhodes LA**, **McGwin G, Jr.**, Mennemeyer ST, Bregantini M, Patel N, Wiley DM, LaRussa F, Box D, Saaddine J, Crews JE, **Girkin CA**. Eye Care Quality and Accessibility Improvement in the Community (EQUALITY) for adults at risk for glaucoma: study rationale and design. *Int J Equity Health* 2015. PMID 26582103.

McGwin G Jr, Huisingh C, Jain SG, **Girkin CA**, **Owsley C**. Binocular visual field impairment in glaucoma and at-fault motor vehicle collisions. *Journal of Glaucoma 2015*. PMID 25642648.

HEALTH DISPARITIES

Owsley C, **McGwin G, Jr.**, Lee DJ, Lam BL, Friedman DS, Gower EW, Haller JA, Hark LA, Saaddine J. Innovative Network for Sight Research Group. Diabetes eye screening in urban settings serving minority populations: detection of diabetic retinopathy and other ocular findings using telemedicine. *JAMA Ophthalmol* 2015.

IMAGING

Ross DH, Clark ME, Godara, P, Huisingh C, McGwin G, Owsley C, Litts KM, Spaide RF, Sloan KR, **Curcio CA**. RefMob, a reflectivity feature model-based automated method for measuring four outer retinal hyperreflective bands in optical coherence tomography. *Investigative Ophthalmology Visual Science* 2015. PMID 26132776.

Zhang Q, Lu R, Wang B, Messinger JD, **Curcio CA**, Yao X. Functional optical coherence tomography enables in vivo physiological assessment of retinal rod and cone photoreceptors. *Sci Rep* 2015. PMID 25901915.

Rhodes L, Huisingh C, Johnstone J, **Fazio M**, Smith B, Wang L, Clark M, **Downs JC**, **Owsley C**, Girard MJ, Mari JM, **Girkin CA**. Peripapillary choroidal thickness variation with age and race in normal eyes. *Investigative Ophthalmology and Visual Science* 2015. PMID 25711640.

Rhodes LA, Huisingh C, Johnstone J, **Fazio M**, Smith B, Clark M, **Downs JC**, **Owsley C**, Girard MJ, Mari JM, **Girkin CA**. Variation of laminar depth in normal eyes with age and race. *Invest Ophthalmol Vis Sci.* 2014. PMID 25414182

Yu Y, Zhang T, Meadway A, Wang X, **Zhang Y**. High-speed adaptive optics for imaging of the living human eye. *Opt Express* 2015. PMID 26368408.

Zhang T, Godara P, Blanco, E., Griffin R, Wang X., **Curcio CA**, **Zhang Y**. Variability in human cone topography assessed by adaptive optics scanning laser ophthalmoscopy (AOSLO). *American Journal of Ophthalmology* 2015. PMID 25935100.

MYOPIA/PRESBYOPIA

Grytz R, Siegwart JT. Changing material properties of the Tree Shrew sclera during minus lens compensation and recovery. *Investigative Ophthalmology and Visual Science* 2015. PMID 25736788.

NEURO-OPHTHALMOLOGY

Weisfeld-Adams JD, Desai N, Brodie SE, Cho C, **Curcio CA**, Lublin F, Rucker JC. Optic neuropathy in late-onset neurodegenerative Chediak-Higashi syndrome. *British Journal of Ophthalmology.* PMID 26307451.

Nagia L, Lemos J, Abusamra K, Cornblath WT, Eggenberger ER. Prognosis of ocular myasthenia gravis: Retrospective multicenter analysis. *Ophthalmology* 2015. PMID 25892018.

Nagia L, Doyle JI, Hackney JR, **Vaphiades MS**, Kline LB, Levin MH. Second chances. *Survey of Ophthalmology* 2015. PMID 26079932.

Wall M, Falardeau J, Fletcher WA, Granadier RJ, Lam BL, Longmuir RA, Patel AD, Bruce BB, He H, McDermott MP, **NORDIC Idiopathic Intracranial Hypertension Study Group**. Risk factors for poor visual outcome in patients with idiopathic intracranial hypertension. *Neurology* 2015. PMID 26245929.

OCULAR ONCOLOGY

Aaberg TM Jr, Cook RW, Oelschlager K, Maetzold D, Rao PK, **Mason JO III**. Current clinical practice: differential management of uveal melanoma in the era of molecular tumor analyses. *Retinal Cases & Brief Reports* 2014. PMID 25587217.

PEDIATRIC VISION IMPAIRMENT

Penix K, Swanson MS, **DeCarlo DK**. Nystagmus in pediatric patients: interventions and patient-focused perspectives. *Clinical Ophthalmology* 2015. PMID 26345377.

Publications

RETINA AND VITREOUS

Tian L., Kazmierkiewicz KL, Bowman AS., Li M, **Curcio CA**, Stambolian, D. Transcriptome of the human retina, retinal pigmented epithelium and choroid. *Genomics* 2015. PMID 25645700.

Mason JO III, Patel SA. A case of hypotrichosis with juvenile macular dystrophy. *Retinal Cases and Brief Reports* 2015. PMID 25621871.

Mason JO III, Patel SA, **Feist RM**, **Albert MA Jr**, Huisingh C, **McGwin G Jr**, **Thomley ML**. Ocular neovascularization in eyes with a central retinal artery occlusion or a branch retinal artery occlusion. *Clinical Ophthalmology* 2015. PMID 26089631.

Mason LB, **Mason JO III**. Bilateral isolated choroidal melanocytosis. *Retina Cases Brief Reports* 2015. PMID 26200387.

TRAUMATIC BRAIN INJURY

Triebel KL, Novack TA, Kennedy R, Martin RC, **Dreer LE**, Raman R, Marson DC. Neurocognitive models of recovery of medical decision making capacity in traumatic brain injury across injury severity. *Journal of Head Trauma and Rehabilitation* 2015. PMID 26394290.

Williams M, Elliott TR, Bogner J, **Dreer LE**, Arango-Lasprilla JC, Kolakowsky-Hayner SA, Pretz C, Lequerica A, Perrin PB. Trajectories of life satisfaction over the first ten years after traumatic brain injury: Race, gender, and functional impairment. *Journal of Head Trauma Rehabilitation* 2015. PMID 25699619.

VISION AND EYE MOVEMENTS

McDougal DH, **Gamlin PD**. Autonomic control of the eye. *Comprehensive Physiology* 2015. PMID 25589275.

Ward MK, Bolding MS, Schultz KP, **Gamlin PD**. Mapping the macaque superior temporal sulcus: functional delineation of vergence and version eye movement-related activity. *Journal of Neuroscience* 2015. PMID 25972171.

VISION IMPAIRMENT AND LOW VISION

Elliott AF, **McGwin G Jr**, **Kline LB**, **Owsley C**. Vision impairment among older adults residing in subsidized housing communities. *The Gerontologist* 2015. PMID 260557711.

Kwon, M, Bao, P, Millin, R, & Tjan, BS. Radial-tangential anisotropy of crowding in the early visual areas. *Journal of Neurophysiology* 2015. PMID 25122703.

Grants & Awards

CHRISTINE A. CURCIO, PHD

Hyperspectral Imaging of the Normal and Age-Related Macular Degeneration; NIH/New York University; 04/01/2013-03/31/2016

Subcellular basis of PSOCT originally part of “Visualizing Ageing in the Eye: A Personalized Strategy for Preserving Vision in the Ageing Population in Europe”; Medical University of Vienna; 07/19/2015 – 04/18/2017

DAWN K. DECARLO, OD, MS, MSPH

Reading and Pediatric Vision Impairment; EyeSight Foundation of Alabama; 07/01/2010-09/30/2015

Prognostic Indicators for Reading in Pediatric Vision Impairment; Administration for Community Living/Department of Health and Human Services; 09/30/2015 – 09/29/2018

J. CRAWFORD DOWNS, PHD

Age- and Race-related Differences in Optic Nerve Head Structure and Biomechanics; NEI/NIH/DHHS (Contact PI); 04/01/2013 – 03/31/2016

IOP-Related Force and Failure in the Optic Nerve Head; Subcontract NIH/DHHS; Legacy Health System; 11/15/2012-06/30/2016

IOP and OPP Fluctuation as Risk Factors for Glaucoma; NEI/NIH/DHHS; 05/01/2015 – 04/30/2018

Vision Science Research Center P30 Core Grant – Research Programming and Computer Analysis Core; NEI/NIH/DHHS; Awarded through UAB School of Optometry; 08/01/2010 – 07/31/2016

LAURA DREER, PHD

Cognitive Behavioral Therapy (CBT) for Caregivers of Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) Service Members with Traumatic Brain Injury (TBI); Administration for Community Living/DHHS; 04/01/2015-09/29/2016

Continuation: Mental Health Services for Persons and Families with Vision Impairments; EyeSight Foundation of Alabama; 07/01/2014-12/31/2015

Enhancing Glaucoma Medication Adherence Among African Americans; NEI/NIH/DHHS; 06/01/2015- 05/31/2020

Grants & Awards

RICHARD FEIST, MD

GX 29176 A Phase III, Multicenter, Randomized, Double-Masked, Sham-Controlled Study to Assess the Efficacy and Safety of Lampalizumab Administered Intravitreally to Patients with Geographic Atrophy Secondary to Age Related Macular Degeneration; F. Hoffmann-La Roche Ltd.; 11/04/2014- 11/03/2017

PAUL D. GAMLIN, PHD

Research to Prevent Blindness Disney Award for Amblyopia Research; Research to Prevent Blindness; 06/13/2014-06/12/2019

AGTC (Applied Genetic Technologies Corporation); 08/01/2014-07/31/2016

Motor Unit Diversity in Horizontal Eye Movement Control; NEI/NIH/DHHS; 08/01/2012-07/31/2017

Developing Efficient AAAV Vectors For Photoreceptor Targeting Via The Vitreous; Subcontract: NIH/DHHS; University of Florida; 06/01/2015-05/31/2020

Midbrain Circuitry for Neuronal Control of Gaze; Subcontract: NIH/DHHS; University of Mississippi Medical Center; 04/01/2015 – 03/31/2020

UAB CSA: Melanopsin Photosensitivity and Psychopathology; Subcontract: NIH/DHHS; University of Pittsburg; 09/14/2014 – 05/31/2015

CHRISTOPHER A. GIRKIN, MD, MSPH, FACS

Unrestricted Grant; Research to Prevent Blindness; 01/01/2013- 12/31/2015

African Descent and Glaucoma Evaluation (ADAGES) II: Glaucoma Progression; Subcontract: NIH/DHHS; University of California, San Diego; 02/01/2010- 01/31/2016

Age- and Race-Related Differences in Optic Nerve Head Structure and Biomechanics; NEI/NIH/DHHS (Co-PI); 04/01/2013-03/31/2016

ADAGES III: Contribution of Genotype to Glaucoma Phenotype; Subcontract: NIH/DHHS; University of California, San Diego; 09/01/2013 – 08/31/2018

RAFAEL GRYTZ, PHD

Quantifying Collagen Remodeling of the Optic Nerve Head; Bright Focus Foundation; 07/01/2015-06/30/2017

CYNTHIA OWSLEY, PHD, MSPH

Aging and ARM: Dark Adaptation Impairment; NIA/NIH/DHHS; 03/15/2008-02/29/2016

Inflammatory, Cholesterol and Genetic Characteristics in Older Adults in Normal Retinal Health as Potential Biomarkers for the Incident Development of Early Age-Related Maculopathy; EyeSight Foundation of Alabama; 07/01/2010 – 06/30/2016

Improving Access to and Quality of Eye Care in an At-Risk, Underserved Population; CDC/DHHS; 09/30/2010 – 09/29/2016

Natural History of Dark Adaptation in Participants with Intermediate Age-Related Macular Degeneration; Genentech; 10/19/2012 – 04/18/2016

Older Drivers and Vision Impairment: Naturalistic Driving Studies; NEI/NIH; 04/01/2014 – 03/31/2019

LINDSAY RHODES, MD

Patient Preferences Regarding Conventional versus Telemedicine Glaucoma Care; Pilot Project of Center for Translational Research on Aging and Mobility; National Institute on Aging/NIH; 09/30/2014 – 05/31/2019

BRIAN C. SAMUELS MD, PHD

Hypothalamic Control of IOP, ICP, and the Translaminar Pressure Gradient; NEI/NIH/DHHS; 09/30/2013 – 07/31/2017

NASA - Microgravity-Driven Optic Nerve/Sheath Remodeling Simulator; Subcontract: NASA; Georgia Institute of Technology; 10/01/2013 – 09/30/2016

MICHAEL S. VAPHIADES, DO

A Prospective Case-crossover Study to Evaluate the Possible Association Between the Use of PDE5 Inhibitors and the Risk of Acute Nonarteritic Anterior Ischemic Optic Neuropathy (NAION); Eli Lilly and Company; 10/22/2013- 10/21/2016

SHU-ZHEN WANG, PHD

Generating photoreceptors by reprogramming RPE cells; NEI/NIH; 01/01/2011 – 12/31/2015

YUHUA ZHANG, PHD

Near Infrared Detector for Advanced Ophthalmology; NIH/DHHS Radiation Monitoring Devices, Inc; 09/01/2012 – 03/31/2015

In vivo ultra-structure of chorioretinal disease; NEI/NIH/DHHS; 01/01/2015- 12/31/2019

Invited Lectures & Presentations

APPENDICES

CHRISTINE A. CURCIO, PHD

Invited lecturer. “Fundus autofluorescence: what are we looking at?” American Academy of Ophthalmology, Retina Sub-specialty Day, October 18, 2014

Moderator. RPE Cell Biology,” 3rd Biennial MEEI-Schepens Symposium on Age-related Macular Degeneration, October 24, 2014

Co-organizer. “Biogenesis of AMD’s specific lesions: the oil spill in Bruch’s membrane
and beyond” Symposium of the Low Vision Section, American Optometric Academy, November 11, 2014

Invited faculty. “Sub-cellular sources of OCT reflectivity: pathology & experimental studies.” Second International Congress on En Face OCT Imaging, Rome, Italy, December 12, 2014

Invited faculty. “Subcellular Basis of How RPE Autofluorescence Varies in AMD.” Angiogenesis, Exudation, and Degeneration 2015, Bascom Palmer Eye Institute, Miami, February 7, 2015

Invited faculty. “The RPE Catalogue: a comprehensive grading system for RPE morphology in AMD.” International Retinal Imaging Symposium (IRIS) III, University of California at Los Angeles, March 28, 2015

Invited lecturer. “Imaging the retinal pigment epithelium in aging and age-related macular degeneration.” University of California at Berkeley, School of Optometry, Oxyopia Seminar, March 30, 2015

Invited faculty. (Lecture 1) “Subcellular basis of variation in fundus autofluorescence in age-related macular degeneration.” (Lecture 2) “Imaging the retinal pigment epithelium by optical coherence tomography in age-related macular degeneration.” University of Kentucky Department of Ophthalmology, Translational Medicine Mini-symposium, April 17, 2015

Co-organizer (with I. Lenygel). “Calcium in AMD: a new take on an old story.” Special Interest Group, annual meeting of Association for Research in Vision and Ophthalmology, May 6, 2015

Speaker. “Major druse components are lipids and calcium: histopathology and in culture.” Special Interest Group “Calcium in AMD: a new take on an old story”, Annual meeting of Association for Research in Vision and Ophthalmology, May 6, 2015

Invited lecturer. “Imaging-histology correlations in neovascular age-related macular degeneration.” Annual Clinical and Research Symposium, UAB Department of Ophthalmology, May 29, 2015

Invited faculty. “Histopathologic findings in the evolution of atrophy in AMD.” Classification of Atrophy meeting, Capri, Italy, June 7, 2015

Invited lecturer. “Cholesterol, lipoproteins, and AMD’s specific lesions.” Scientific Input Engagement meeting on Macular Degeneration; Merck Research Laboratories, Newark, NJ, August 13, 2015

Invited lecturer. “AMD discovery through validated imaging of retinal pigment epithelium.” Medical University of Vienna Department of Ophthalmology and Optometry, September 8, 2015

Invited participant. “Clinicopathologic correlation: borders of atrophy.” Classification of Atrophy meeting, Baden-Baden, Germany, September 10, 2015

Invited lecturer. “Visualizing RPE fate in age-related macular degeneration through histology and optical coherence tomography.” VI International Symposium of the German Ophthalmological Society (DOG) on Age-related Macular Degeneration, Baden-Baden, Germany, September 11, 2015

Session co-moderator. “Neurobiology of the outer retina.” VI International Symposium of the German Ophthalmological Society (DOG) on Age-related Macular Degeneration, Baden-Baden, Germany, September 12, 2015

Guest lecturer. “Bioengineering Research Partnership - Hyperspectral Identification of Fundus Fluorophores in Health and Disease.” Corporate Research and Technology; Carl Zeiss AG, Jena, Germany, September 14, 2015

DAWN K. DECARLO, OD, MS, MSPH

Invited speaker. “Evaluation and treatment of the child with vision impairment.” American Academy of Optometry Annual Meeting, New Orleans, LA, October 7, 2015

Invited speaker. “Low Vision Rehabilitation for Patients with AMD.” American Academy of Optometry Annual Meeting, New Orleans, LA, October 9, 2015

J. CRAWFORD DOWNS, PHD

Invited lecturer. “Changes in the Lamina Cribrosa: Glaucoma Versus Compressive Optic Neuropathy.” American Glaucoma Society Meeting, San Diego CA, February 26, 2015

Invited lecturer. “Perfusion Pressure: Continuous Telemetry Measurement of Blood Pressure and Bilateral IOP.” Association for Ocular Pharmaceuticals and Therapeutics meeting, Charleston, SC, March 1, 2015

Visiting professor. “Ocular Biomechanics in Aging and Disease.” University of Calabria, Cosenza, Italy, June 17, 2015

LAURA DREER, PHD

Invited Lecturer. “Development of a Lifestyle, Telemedicine Health Promotion Program for People with Traumatic Brain Injuries and Their Families.” 2015 Mid-Year Division 22 Rehabilitation Psychology (American Psychological Association) conference, San Diego, CA, February 2015

MASSIMO ANTONIA FAZIO, PHD

Invited Lecturer. “Scleral Stiffness Changes with Age and Race in Human Eyes.” Association for Ocular Pharmacology and Therapeutics (AOPT), Charleston, SC, February 26, 2015

Invited Lectures & Presentations

PAUL D. GAMLIN, PHD

Invited speaker. “Intrinsically-photosensitive Ganglion Cells in the Primate Retina: Anatomy, Physiology and Behavioural Roles.” 31st International Pupil Colloquium, Pembroke College, University of Oxford, September 13-17, 2015

Invited speaker. “Neural control of eye movements in depth: Electrophysiological and fMRI studies” Institut de Neuroscience de la Timone, Aix-Marseille University, Marseille, France, September 21, 2015

CHRISTOPHER A. GIRKIN, MD, MSPH

Program chair. Annual Meeting of the American Glaucoma Society, San Diego, CA, February 25-March 1, 2015

Program chair. Joint Meeting of the American Glaucoma Society and North American Neuro-ophthalmology meeting, San Diego, CA, February 25, 2015

Invited lecturer. Point-counterpoint with Harry Quigley, “IOP-lowering will ALWAYS be part of glaucoma therapy.” Joint Meeting of the American Glaucoma Society and North American Neuro-ophthalmology meeting, San Diego, CA, February 25, 2015

RAFAEL GRYTZ, PHD

Invited speaker. “Collagen crosslinking using genipin diminishes the cyclic softening response of the sclera in myopia developing tree shrews.” 15th International Myopia Conference, Wenzhou, China, September 25, 2015

Co-organizer. “Topics in Computational Biomechanics”. Mini-symposium, 13th U.S. National Congress on Computational Mechanics, San Diego, CA

LANNING B. KLINE, MD

Breakfast with the Experts. “Glaucomatous versus nonglaucomatous visual loss: a neuro-ophthalmic perspective.” Annual meeting of the American Academy of Ophthalmology, Chicago, Illinois, October 2014

Instructor. “Curbside Consultation in Neuro-Ophthalmology.” Annual meeting of the American Academy of Ophthalmology, Chicago, Illinois, October 2014

Visiting professor. Department of Ophthalmology. University of Southern California School of Medicine, November 2014

Invited lecturer. “Who deserves a second chance?” Frank B. Walsh Symposium, Annual Meeting of North American Neuro-Ophthalmology Society, San Diego, CA, February 2015

MIYOUNG KWON, PHD

Invited speaker. “Plasticity in human oculomotor control and peripheral vision training.” Emory Eye Center, Emory University, and VA R&D Center, Atlanta, GA, May 20, 2015

Invited speaker. “Perceptual issues in low vision” Department of Psychology, University of Minnesota, MN, July 16, 2015

CYNTHIA OWSLEY, PHD, MSPH

Invited presentation. “Should my patient still be driving?” American Glaucoma Society, San Diego, CA, February 28, 2015

Invited speaker. “Driving with bioptic telescopes for persons with vision impairment.” Emory Eye Center, Emory University, and VA R&D Center, Atlanta, GA, May 20, 2015

Invited speaker. “Dark adaptation as a functional marker for age-related macular degeneration.” Annual Clinical and Research Symposium, UAB Department of Ophthalmology, May 29, 2015

Invited lecture. “Vision impairment and driving,” Southeast Eye Meeting, Miramar Beach, FL, July 23, 2015

Invited lecture. “A population-based study on visual risk factors for motor vehicle collision involvement and their relevance as screening tests for licensure” The Eye, The Brain, and The Auto International Research Conference, Dearborn, MI, September 9, 2015

MICHAEL S. VAPHIADES, DO

Neuro-ophthalmology cases. Alabama Osteopathic Medical Association, 25th Annual Emerald Coast Conference, Sandestin, FL, July 26, 2015

Invited Lecturer. “Who deserves a second chance?” Frank B. Walsh Symposium, Annual Meeting of North American Neuro-Ophthalmology Society, San Diego, CA, February 2015

Invited Lecturer. “Requiem for a Cabinet Maker” Frank B. Walsh Symposium, Annual Meeting of North American Neuro-Ophthalmology Society, San Diego, CA, February 2015

Invited Lecturer. “The Man with No Face” Frank B. Walsh Symposium, Annual Meeting of North American Neuro-Ophthalmology Society, San Diego, CA, February 2015

YUHUA ZHANG, PHD

Invited Lecturer. “Adaptive optics imaging of macular degeneration” Ophthalmology Department, Louisiana State University School of Medicine, September 21, 2015

Invited Lecturer. “In-vivo ultrastructure of age-related macular degeneration.” UAB Howard Hughes course, Phenotyping Human Disease, University of Alabama at Birmingham, June 16, 2015

World-renowned Israeli artist Yaccov Agam returned to UAB to sign his visionary artwork.

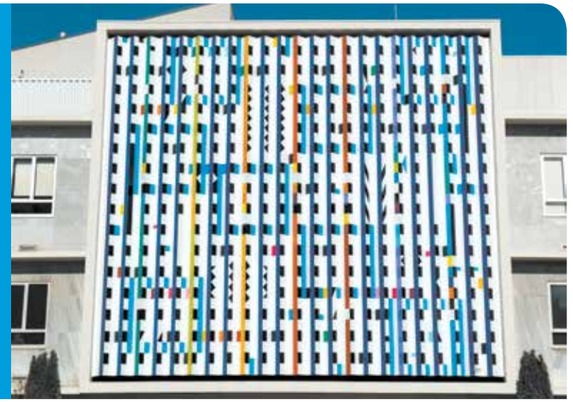
Colorful Agam Sculpture Back in Place at Callahan

“Complex Vision” has returned to its place on the front of Callahan Eye Hospital at the University of Alabama at Birmingham. The kinetic sculpture, originally installed in 1976, was taken down for restoration in April 2014. The sculpture was created by famed artist Yaacov Agam, often called the father of kinetic art.

“Alston Callahan, the founder of the hospital and the primary force behind acquiring ‘Complex Vision,’ had a passion for art and a passion to help people with eye disease,” says Brian Spraberry, CEO of Callahan Eye Hospital. “He wanted to give them an experience they could appreciate.”

Under the guidance of Agam himself, officials at Callahan contracted Art Creations and Renovations, a company specializing in restoring Agam works, to restore the badly weathered and faded sculpture to its original vibrant glory. Crews disassembled the 30x30-foot sculpture and shipped it to the company’s studio in Florida.

> "This is here not only for the patients but also for the community. It's part of the culture of the Eye Hospital. This piece has become synonymous with who we are as a hospital and a part of UAB Medicine."
>
> – Brian Spraberry
> President & CEO, UAB Callahan Eye Hospital



The colorful Agam sculpture back in place on the front of UAB Callahan Eye Hospital.

Just shy of a year later, it came back. Reinstallation began March 26, 2015, and the final panel was put in place March 30.

"Complex Vision" comprises 69 aluminum panels, each 9 feet, 9 inches long by 13 inches wide and weighing roughly 50 pounds. The panels were stripped of the old paint and acid-washed. Etching primer and sealers were applied before the panels were repainted with the original colors approved by Agam himself. A clear coat that will protect the sculpture for years was then applied.

On July 1, Yaacov Agam traveled to Birmingham from his home in Paris for the rededication of Complex Vision. Mr. Agam rode a hydraulic lift to the base of the sculpture and used a stencil and four paint colors to sign his name near the spot he originally signed it four decades ago.

"This is here not only for the patients but also for the community," Spraberry says. "It's part of the culture of the Eye Hospital. This piece has become synonymous with who we are as a hospital and as part of UAB Medicine."

Restoring famous sculptures is not normally part of the job description for hospital CEOs, says Spraberry, who worked with Agam and Art Creations and Renovations to create a detailed blueprint of "Complex Vision" to aid in any future restoration.

"So we have the colors, the layout, all of the particulars agreed to by the artist and by the technician," he says. "We now have a working document so that someone 50 years from now, if they needed to rebuild this, could restore it to the original specifications that the artist had in mind even back to 1976."

"Complex Vision" has been restored to its original glory, providing both patients and passersby the opportunity to visually interact with the artwork the way it was originally intended in 1976. As one of the few eye hospitals in the country devoted to sight restoration, Callahan provides departing patients an opportunity to see something as beautiful as "Complex Vision". Its rejuvenation reminds us all that seeing clearly is a precious gift.

POWERFUL PARTNERSHIPS

Sustaining the Vision

The original "Complex Vision" sculpture was made possible by the late Mr. Marvin Engel and Mrs. Ruth Engel as a memorial to their parents, who were patients of UAB Callahan Eye Hospital. The Engel Foundation has contributed generously to our restoration efforts, continuing the Engels' legacy of supporting both the arts and Callahan Eye Hospital. Other benefactors of the restoration include our foundation partners – the International Retinal Research Foundation and The EyeSight Foundation of Alabama – along with numerous individual and employee donors.

SEEING THE IMPACT

Low-Vision Support Fund Advances Patient Care, Research

GORRIE FAMILY GIFT SUPPORTS ALIE B. GORRIE LOW VISION INITIATIVE

For those with low vision, tasks as simple as reading, writing, or driving can be incredibly challenging. Those affected may rely on others for help with daily activities that others take for granted and often struggle to achieve independence.

Alie B. Gorrie

"One of the real challenges we see is connecting people with information," says Jim Gorrie, CEO of Birmingham-based construction firm Brasfield & Gorrie.

The Gorrie family has personally experienced the challenges of life with low vision. Alison and Jim Gorrie's daughter, Alie B. Gorrie, was diagnosed as an infant with optic nerve hypoplasia, a form of vision impairment caused by underdeveloped optic nerves. The condition can cause a variety of vision problems, including a lack of peripheral vision and even blindness. Alie B.'s vision is severely impaired in one eye and measures 20/80 in the other.

During the past 22 years, the Gorries have become dedicated advocates for vision research. Most recently, the family gave $500,000 to the Alie B. Gorrie Low Vision Support Fund in the UAB Department of Ophthalmology.

Jim says the family's personal journey through diagnosis and treatment was made easier by the doctors at UAB Medicine, especially Alie B.'s doctor of 22 years, Martin Cogen, MD, Chief of the Division of Pediatric Ophthalmology and Strabismus, and Dawn DeCarlo, OD, Director of the UAB Center for Low Vision Rehabilitation, a collaborative effort between UAB's Department of Ophthalmology and School of Optometry.

"Dr. DeCarlo is a wonderful professional who has spent hundreds of hours with us as we explored how to live with low vision and then later how to help others," Jim says. "We had significant help to explore any and every possible option for Alie B. However, we realize that many families may not be able to access the system."

In 2008, Alie B. created Songs for Sight, a series of musical events to raise money, awareness, and understanding for low vision. Her efforts have generated more than $1 million for the UAB Center for Low Vision Rehabilitation, and in 2014, Songs for Sight was awarded the inaugural Hall Thompson Hero for Sight Award by Sight Savers America.

"We were very thankful for our doctors and advocates at UAB who helped us navigate the challenges that exist for people with low vision," Jim says. "We are very fortunate to have such a comprehensive resource right here in Birmingham. Part of our continued work will be to help develop peer groups and general information to raise awareness of options for families who may not know where to turn."

Dr. DeCarlo says for children with vision impairment who don't know others with low vision, simply meeting other kids who have been through some of the same struggles can be incredibly empowering. The Songs for Sight Youth Low Vision Support group is run by the Center for Low Vision Rehabilitation and provides educational, recreational, and peer support opportunities to the families of children with vision impairment. Funding also helps provide orientation and mobility services that assist patients in navigating their environments more independently and safely.

"These services are not covered by insurance, and there is very little availability elsewhere, with long wait times for services," Dr. DeCarlo says. "The funds also allow financially needy patients to receive devices, even high-tech bioptics and electronic magnification, which will enhance the quality of their lives."

The Low Vision Support Fund also contributes to groundbreaking research. Jim is particularly excited about gene therapy research being conducted at UAB.

"We don't pretend to understand it, but it is encouraging to hear the optimism that exists at UAB," Jim says. "UAB is at a very exciting point in its history, and we are pleased to be in a position to make a meaningful gift in an area we are so connected to."

Jim says he hopes the funding will continue to raise awareness of options for those families that may not know where to turn.

"At the end of the day, we hope that the Low Vision Support Fund will help families get the help they need and deserve," Jim says. "Through our previous efforts with Songs for Sight, we know the importance of raising awareness, and we also believe that there continues to be a large unmet need in Alabama. We have seen significant progress in this area through UAB and other great support organizations such as Sight Savers, The Lions Club, and Impact Alabama, and we are excited to continue to support these efforts."

> "We are very fortunate to have such a comprehensive resource right here in Birmingham. Part of our continued work will be to help develop peer groups and general information to raise awareness of options for families who may not know where to turn."
>
> – Jim Gorrie,
> CEO of Brasfield & Gorrie

POWERFUL PARTNERSHIPS

Songs for Sight

Songs for Sight, an organization benefiting low-vision and eye research, hosted an event for children and teens with low vision at Birmingham's McWane Center on Saturday, Sept. 12. More than 40 families attended the event, which featured structured learning opportunities and a resource fair, an IMAX movie, and access to the McWane Science Center's adventure exhibits.

Songs for Sight was created to raise awareness and funds for the UAB Center for Low Vision Rehabilitation. The organization was started by Alie B. Gorrie, a patient of the center, and since its inception in 2008 Songs for Sight has raised $1 million. In addition to youth support group activities, Songs for Sight helps the center provide eligible patients with electronic video magnification devices and orientation and mobility services, as well as funding for low-vision research.

VISION FOR THE FUTURE

UAB Ophthalmology has a bright outlook for the future. As proud as we are of our accomplishments thus far, we truly believe the most meaningful advancements are yet to come and within our grasp.

The support of visionary philanthropic partners provides the potential for major breakthroughs in the treatment and care of blinding disease. With your support, we can achieve a brighter, healthier future.

OUR PRIORITIES

FACULTY SUPPORT
Foster an environment of collaboration and innovation by retaining and recruiting top physicians and scientists.

RESEARCH AND INNOVATION
Accelerate the pace of discovery and efficiently translate key findings from bench to bedside.

RESIDENT EDUCATION
Equip the next generation of ophthalmologists with a high degree of skill and lifelong thirst for knowledge.

ENHANCING FACILITIES
Expand access to the highest-quality patient care and research through focused enhancements to facilities.

PROGRAMMATIC SUPPORT
Strengthen our outreach programs that serve the needs of the community.

Thanks to support from donors large and small, we have made significant progress toward our ultimate goal of improving health by alleviating blinding disease. This generosity has served as a catalyst in the following key areas:

- **INNOVATIVE RESEARCH**
  Support for innovative ideas allowed investigators to launch promising new research programs.
- **YOUNG SCIENTISTS**
  Philanthropic commitment jumpstarted the early stages of promising careers for young scientists.
- **TOP TALENT**
  Gifts attracted world-class research talent to UAB.
- **EDUCATION AND TRAINING**
  Investments in education enhanced training for the next generation of ophthalmologists.
- **ADVANCED PATIENT CARE**
  Facility and equipment improvements provided the latest in vision care to patients at all income levels.

SEEING THE IMPACT

the CAMPAIGN for UAB

GIVE SOMETHING | CHANGE EVERYTHING

HOW TO HELP

Contact us to learn more about where your help is needed most.

JACKIE WOOD, Senior Director of Development

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Ways to Give:

Make a gift online, a simple and secure way to make an immediate impact: **www.uabmedicine.org/perspective**
Speak with our development office: **205.325.8526**
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The $1 billion Campaign for UAB is a visionary plan to align our resources with our aspirations and includes significant support for the School of Medicine. While strengthening our position as one of the nation's most productive and dynamic academic medical centers, the Campaign's success will change the world through the knowledge we teach, discover, and translate into patient care.

1B

CAMPAIGN GOAL: $1 BILLION

As of October 31, 2015

$636,370,788

$412,390,058*

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UAB MEDICINE
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