A PUBLICATION OF EMORY EYE CENTER

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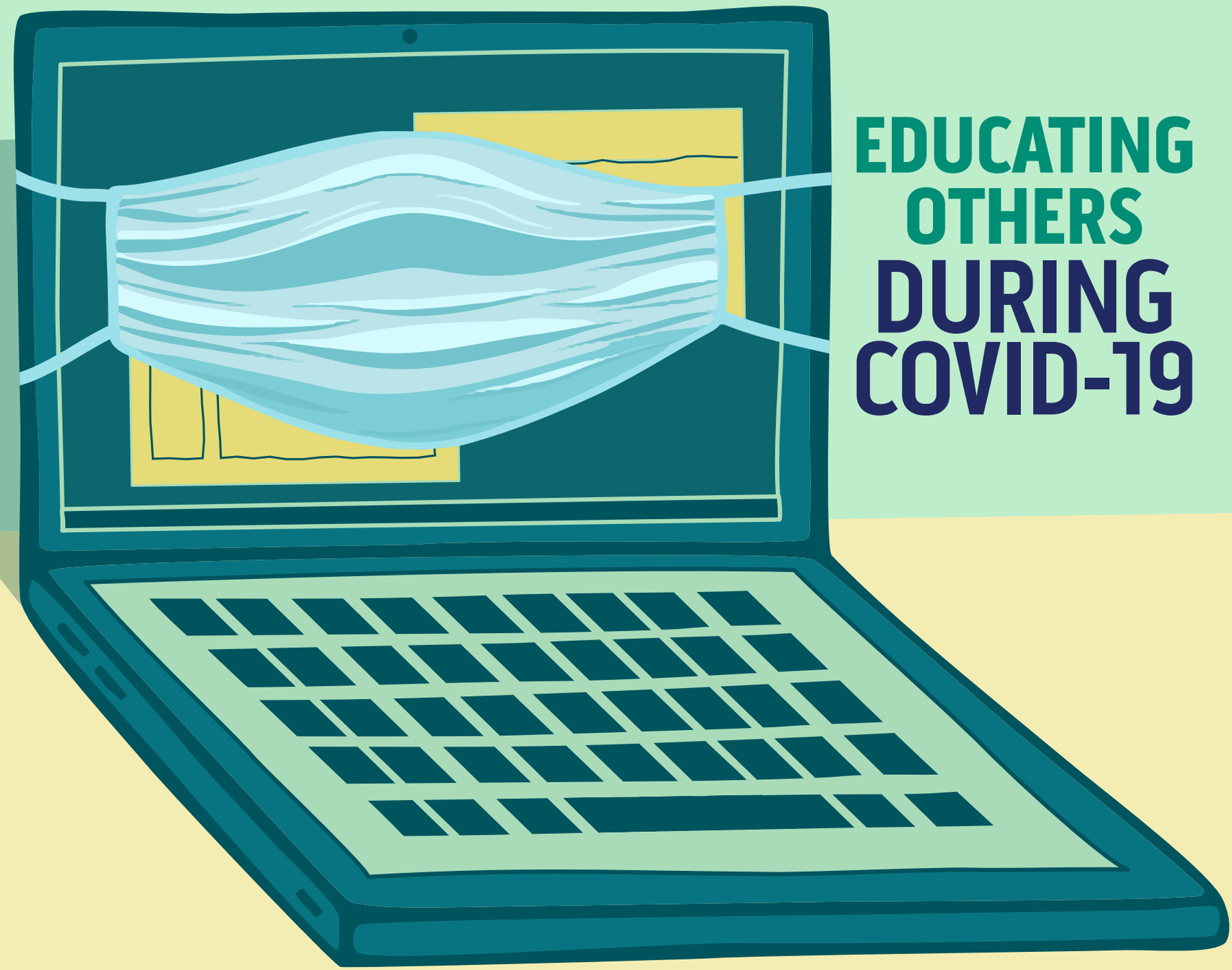
2021



EDUCATING OTHERS DURING COVID-19

WELCOME TO THE 2021 ISSUE OF EMORY EYE MAGAZINE. We hope you enjoy the latest edition of our magazine, as it is filled with lots of exciting stories and updates on what's happening at the Emory Eye Center.

2020 has been an unprecedented year for all of us. As we reflect on last year, we have endured many abrupt changes including a large part of the country being forced to shut down due to the COVID-19 pandemic. The state of Georgia declared a Public Health State of Emergency and as a result, Emory University / Emory Healthcare made the tough decision to treat only essential and urgent patients and stop elective care last spring. This was done to limit the spread of COVID-19 and keep the members of our community—but, most importantly, our patients as safe as possible. Since then, we have carefully increased our clinical care to include all prior services with extra precautions (and now with vaccinations as well) to keep our patients, staff, and providers safe.

Despite the impact of the COVID-19 pandemic, Emory Eye Center has continued to excel in what we do best: education. Although the pandemic caused us to temporarily pause in-person clinical care services, this time has provided us with the opportunity to shift our approach on how we educate and train our residents and fellows—tomorrow's ophthalmologists. We have shifted the way we taught, educated, and trained our fellows and residents including conducting lectures and seminars—to a virtual environment. We used this enhanced virtual approach to compliment our outstanding clinical and research training.

Many of our faculty members have continued to serve as mentors and train others, especially in the area of research. One such faculty member is John M. Nickerson, PhD, research scientist and director of research, who has been with the Emory Eye Center since 1991. You'll read more about him on page 8.

We're also excited to share the story of Tymeisha French, a patient at Emory Eye Center, who now has a promising future. Since a very young age, Miss French has lived with keratoconus, a condition in which the cornea of the eye thins and bulges outward into a cone shape. You'll read about her journey with corneal cross-linking treatment, a new surgical procedure for individuals with keratoconus. It is stories like these that make us most proud of what we do.

We thank you for supporting the Emory Eye Center and for trusting us to be your primary eye care and vision provider.

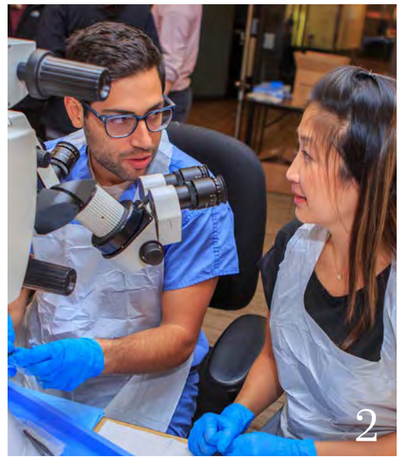
Allen D. Beck, MD
Chair and Director, Emory Eye Center
F. Phinizy Calhoun Sr. Chair of Ophthalmology

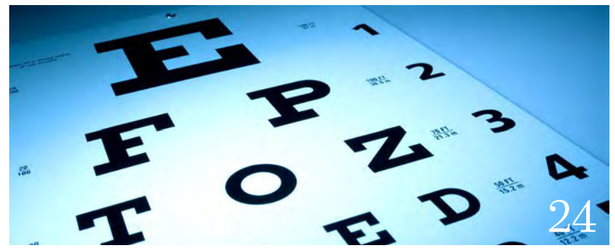
CORONAVIRUS DISEASE 2019 (COVID-19) STATEMENT

All work was completed in accordance with the CDC, federal, state, local, and healthcare facility guidelines for practicing preventive actions to reduce the risk of virus transmission, including daily health screenings and temperature checks, and proper social distancing. Portions of this magazine contain images that were taken prior to the COVID-19 pandemic.

The Emory Eye Center is part of Emory University School of Medicine and Emory Healthcare, both of which are components of Emory's Woodruff Health Sciences Center.

EMORY EYE CENTER





EMORY EYE MAGAZINE

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LEADING the WAY

EDUCATING OTHERS DURING THE COVID-19 PANDEMIC

Emory Eye Center residents and fellows adjusted to the way they worked and learned. This included wearing surgical face masks during wet labs and social distancing when possible.

When the novel coronavirus (SARS-CO-V2), the virus that causes the disease COVID-19, caused a nationwide and worldwide pandemic in March 2020, much of the world stopped. Due to the virus's high level of transmission and severity of the disease, many countries around the world tried to stop the spread of the virus with unprecedented responses such as travel restrictions, limited in-person interactions and social distancing measures, curfews and quarantines, and forced many schools and other educational institutions to shift to remote learning.

The COVID-19 pandemic also changed ophthalmic education, in efforts to keep faculty, staff and medical students safe. Despite this, the faculty of Emory Eye Center (EEC) continued to teach and educate others in a safe way through virtual education and learning–which is in line with the Emory Eye Center mission–proves that education is at the forefront of what we do.

Preparing for the Alternative

Each year, Emory University School of Medicine students, residents, fellows, and doctoral candidates enroll in the department's education program for an opportunity to learn and train under the leadership of EEC faculty.

However, in March 2020, the coronavirus pandemic halted the way ophthalmic education had been previously taught. Prior to the pandemic, medical students were given the opportunity to learn about the field of ophthalmology by studying under Emory Eye Center faculty, participating in seminars and conferences, and gaining exposure to the field by being in hospitals and interacting with patients.

One prime example of the faculty's commitment to education was the shift to online ophthalmic education for medical students in the early part of the COVID-19 pandemic.

Emily Graubart, MD, director of comprehensive ophthalmology and director of medical student education, Yousuf Khalifa, MD, chief of service of ophthalmology at Grady Memorial

Hospital, and the help of two fourth-year medical students, Sarah DeVaro and Ogul Uner developed a four-week, teleophthalmology elective for medical students to continue their education remotely to reduce the spread and risk of contracting the coronavirus.

"The teleophthalmology elective was created as a novel elective for all of our medical students so they could continue to be engaged in the field of ophthalmology, since we were unable to involve them in traditional preclinical and clinical activities," Graubart says.

The course consisted of online self-study materials, student presentations, chart review assignments, case-based discussions with faculty, and a telehealth experience with a patient, which was a valuable part of the core curriculum.

"We wanted to make sure the elective was structured so our medical students could continue to learn about the field of Ophthalmology and become familiar with major eye conditions and diseases, participate in our weekly Grand Rounds sessions, and attend lectures dedicated to them that would help them confirm that ophthalmology was a field they were interested in and passionate about," Graubart says.

The course was especially valuable for third- and fourth-year medical students. Because these medical students are nearing the end of their program, they traditionally gain valuable, hands-on experience by being in hospitals and interacting with patients. For example, prior to the COVID-19 pandemic, students participated in clinical activities such as conducting eye exams for patients while being observed by a faculty member and observing during surgical procedures.

However, EEC faculty found an alternative way for this to be possible: through telehealth patient appointments. Using technology such as Zoom—a video communications tool used for video and audio conferencing—medical students can collaborate with Emory Eye Center faculty during remote appointments with the patients and conduct screening

Continued

The residency program's success is attributed to Terri Trotter, residency program coordinator, who deeply cared about the career of every student that enrolled the program and alumni. She retired from her role as coordinator after 31 years of service to Emory Eye Center in January 2021.

EMORY EYE CENTER RESIDENT GRADUATION

Emory Eye Center held its first ever virtual scientific session in June 2020. The session was conducted virtually. Residents and fellows presented their final projects to participants while faculty served as preceptors.

Valerie Biousse, MD, vice chair of faculty development, diversity, and inclusion delivered the Henry F. Edelhauser Translational Research Lectureship entitled, "Don't miss opportunities!"

The class of 2020 residents celebrate their graduation (l-r): John Paul Gorham, MD; Robert Bjerregaard, MD; David Levine, MD; Sara Branson, MD; Julia Kang, MD; Alexandria Li, MD; and (center) Jeremy Jones, MD, residency program director.

Face-to-face interactions with patients as shown here were limited during the coronavirus pandemic; however the quality level of care stayed the same. Emory Eye Center faculty resorted to creative ways to interact with and treat patients, including virtual and telehealth appointments.

eye exams, and even diagnose some eye conditions without being in the same room as the patient.

Tanya O'Donnell, training specialist and telehealth/telemedicine facilitator for the Emory Eye Center, is one of the staff members who helped to start up the telehealth elective with the team.

"Dr. Soroosh Behshad and I worked together to try out the different platforms to see which one worked best and created a presentation for the physicians to help better understand telemedicine's place in ophthalmology and working within EMA to meet all of the rapidly changing telemedicine requirements," she explains. "I provided one-on-one training to most of the physicians to set up their virtual rooms and had a practice visit with almost each one. I did a lot of troubleshooting with the physicians in the early days while we were working out the kinks and created the workflow to get the physicians started and trained with telemedicine."

"I also worked with Dr. Graubart to raise awareness with the faculty of the need for inclusion of the medical students to observe telemedicine visits in the department," O'Donnell says. "I worked with elective coordinator Rose Smith, patient access operations manager Leanne Roberts, and medical student clerkship teaching assistant Ogul Uner, to keep everyone apprised of which physicians had telemedicine visits they could attend."

The telehealth educational program was the first of its kind in the nation and was rated very highly by the 18 students who were enrolled in the course.

"Although there were other programs that offered exposure to medical ophthalmology, we were the only program in the country that added the component for our students to see patients in a virtual platform," Graubart says. "It was important to show our students the triumphs and challenges of telemedicine in ophthalmology."

Before the pandemic, many residents benefited from the hands-on training from faculty like comprehensive ophthalmologist Maria Aaron, MD, (right) and glaucoma specialist Jeremy Jones, MD, (second from left).

"This may be something we can do in the future or at least portion in the future by offering them a virtual elective they can complete on their own time as well as see patients in clinic or virtually when care continues."

When asked about some of the lessons learned, Graubart says, "There are certain parts of online learning resources that allowed us, as faculty, to interact in a more in-depth manner than we normally do with our students. There are parts of the curriculum we can incorporate into our overall ophthalmic educational program in the future."

Leading By Example

In addition to educating medical students, residents and fellows, and doctoral students, EEC faculty are often sought out by other experts in the field due to their experience and expertise.

In March 2020, several members of the Emory Eye Center's retina and uveitis service team organized a virtual EEC COVID-19 town hall to connect with other providers in the region. Many of the participants included retina and uveitis providers from around the world.

"One thing that I thought was unique about a virtual COVID-19 town hall for the community, was that it was a good way for us to communicate about the science, cases and lessons learned for all of us while caring for patients during the pandemic and throughout," Steven Yeh, MD, uveitis and retina specialist, says. "In addition, the town hall was a great opportunity for the retina and uveitis service team to connect with other retina providers in the region and give a situation report on COVID-19."

The EEC COVID-19 town hall was organized by Yeh with Allen Beck, MD, director and chair of the Eye Center, and several members of the retina team including G. Baker Hubbard, III, MD, Ghazala O'Keefe, MD, and Purnima Patel, MD.

During the town hall, some of the topics included: understanding the virus and implications with personal protective equipment, understanding telemedicine cases, learning how to treat patients with COVID-19 cases and/or persons under investigation and understanding surgical considerations that are related to COVID-19 as well as learning how to correctly wear PPE during patient interactions.

Besides the didactic and practical discussion of the COVID-19 town hall, Jessica Shantha, MD, Rachel Shah, MD, and Yeh developed protocols and guidance for ophthalmologists and staff to follow when interacting with adult and children patients with COVID-19 and Persons Under Investigation.

"The feedback from the retina community was very positive," Yeh says. "There was so much uncertainty at the time. Together we learned how to navigate patient care, which is important to think about since there are so many issues to be concerned about."

"A patient may have an emergency or pre-operative concern and it is our duty to care for the patient without that patient feeling stigmatized. This took up much of the discussion. By having these conversations, it allowed us to really frame the issue with what was to come up next."

Learning From the Past

Yeh and Shantha also have considerable experience treating patients with highly transmissive viruses. Both doctors treated patients during the Ebola virus crisis in 2014 and treated Ebola virus disease patients during the Ebola outbreak in Sierra Leone, Liberia, and more recently in the Democratic Republic of the Congo.

"There's a number of important lessons learned. Unless a health system has been prepared for a wide-scale infectious disease threat it is difficult to fully understand the issues."

"Understanding emerging infectious diseases, patient and provider needs and learning these lessons on the fly will help our systems evolve from a big-picture, vision-health system standpoint," Yeh says.

"Understanding the virus is highly transmissible and the potential for viral residence in the tear film are key factors that emphasize the importance of rigorous protocols that include PPE management. These are considerations Dr. Shantha and I have worked on in detail from 2015 because of Ebola virus."

"Even through the pandemic, we have to learn how to have our health systems continue to function. We want to be mindful of safety but as healthcare providers, we all have a role to play in managing infectious disease threats, overcrowding and important lessons we all must think about. We don't want to stigmatize patients and we still want to provide a high level of care—and keep the patient comfortable."

"We have a responsibility to utilize our expertise to inform our colleagues and the community about best practices and continue the discussion about how to lead these efforts," Yeh says.

COLLABORATING WITH THE AMERICAN ACADEMY OF OPHTHALMOLOGY

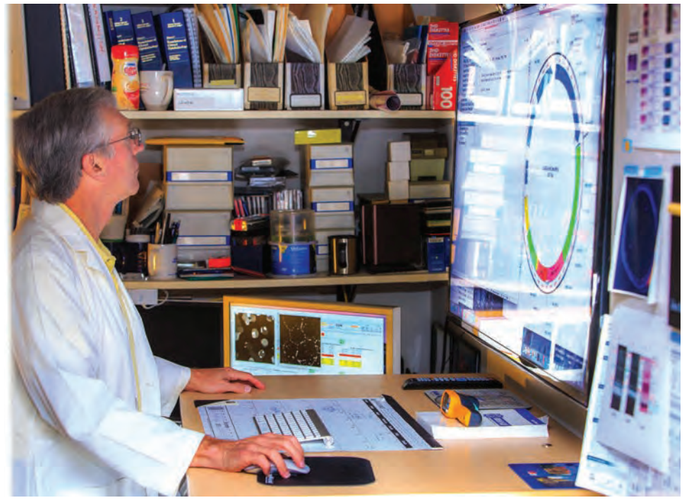
Emory Eye Center ophthalmologists Steven Yeh, MD, and Purnima Patel, MD, served on committees for the American Academy of Ophthalmology (AAO). Both Yeh and Patel were involved in developing communications around COVID-19 safety protocols and reviewed scientific and clinical content on COVID-19 that was published on AAO's website.

They also collaborated with AAO leadership, James Chodosh, MD, MPH, the Edith Ives Cogan Professor of Ophthalmology at Harvard Medical School's Department of Ophthalmology, a member of Harvard's PhD program in virology and an expert in cornea and external disease at Massachusetts Eye and Ear, to develop clinical and scientific communications to roll out to ophthalmologists all over the world on how to keep their practices, patients and staff safe during the pandemic.

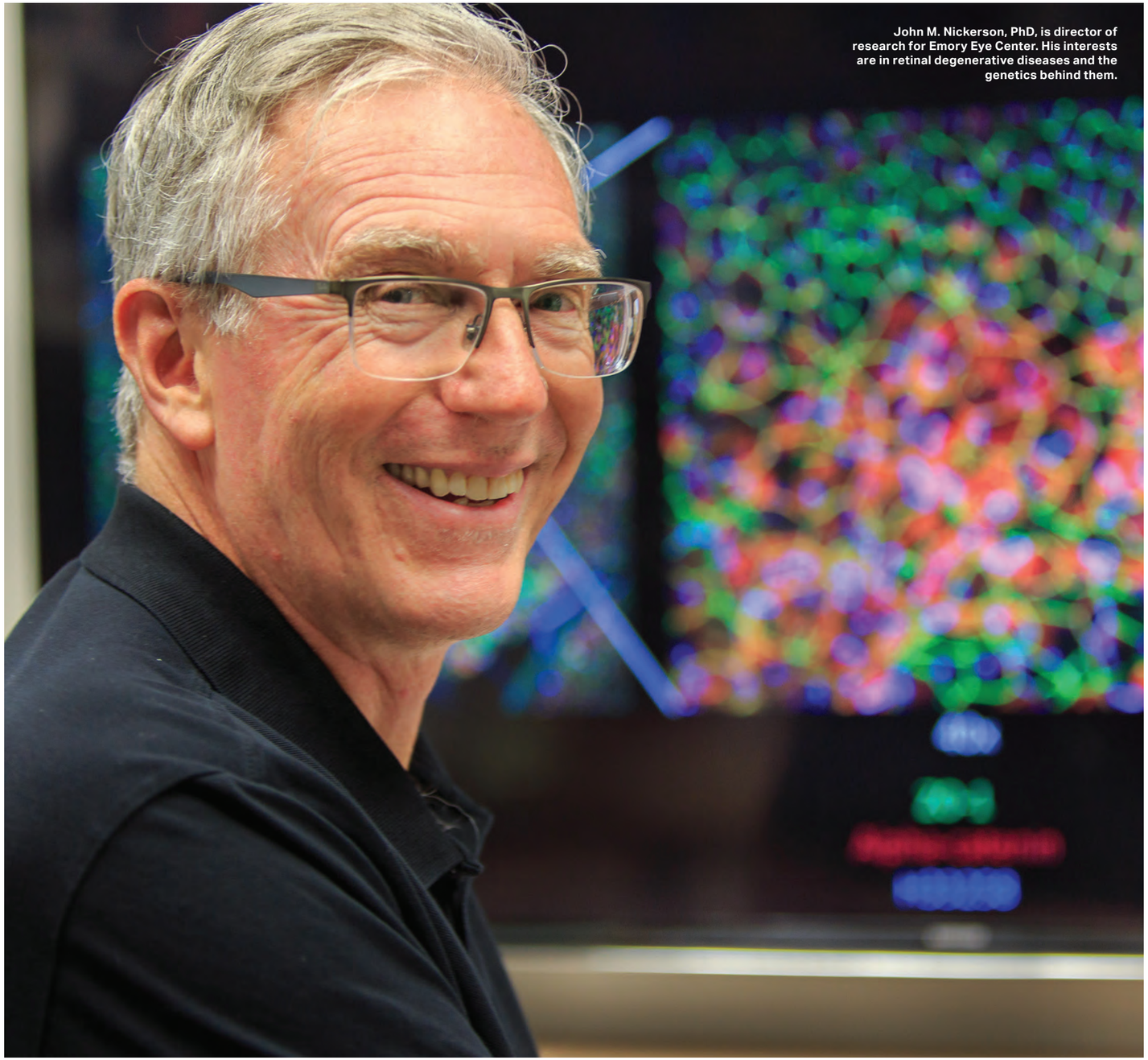
During the pandemic, AAO has shared important ophthalmology-specific information related to COVID-19. Many of these communications were referred to as guidelines on resuming ophthalmic care and ophthalmic preparedness protocols for COVID-19.

To date, there have been more than 1 million views worldwide by ophthalmologists on the AAO website (www.aao.org/covid-19) which has continued to increase during the pandemic.

ON THE SHOULDERS OF A **MENTORING GIANT:**



JOHN M. NICKERSON, PHD



John M. Nickerson, PhD, is director of research for Emory Eye Center. His interests are in retinal degenerative diseases and the genetics behind them.


This image was taken prior to the COVID-19 pandemic.

Most know the value of a great mentor. When it comes to Emory Eye Center (EEC) faculty mentoring others, one name stands out: John M. Nickerson, PhD. Nickerson, professor and director of research and vice director of the Atlanta Vision Research Community, has mentored a number of students who seek a career in the field of vision research.

Setting the Foundation

But, before he knew he'd become a mentoring giant at EEC, Nickerson got his start in 1981 by serving as a senior fellow and biologist at the National Institutes of Health (NIH).

"I got my start in vision research at NIH as a senior fellow under the leadership of Joram Piatigorsky, PhD, who suggested I study DNA technologies. I, then, completed my post-doctoral fellowship with Dr. Piatigorsky studying the biology of the lens. I examined all the various sorts of ways lenses of the human eye turned cloudy. From there, I started working on my dissertation and looking at how plotting proteins were being synthesized and how lens crystallin proteins were being synthetized for one system to another."

Nickerson attributes much of his training to Piatigorsky, who was a highly regarded scientist in the field of research at the time. "Dr. Piatigorsky was a brilliant and creative scientist and that was my other real attraction to the program; he was thinking in ways that was different from other people in the field. It struck me as an opportunity to go to NIH and change from studying the liver to the lens."

He received his bachelor's degree at Massachusetts Institute of Technology, his master's degree from Michigan State University, his PhD from the University of Texas Medical Branch and completed a postdoctoral fellowship at the NIH.

He joined Emory Eye Center in 1991.

Nickerson's core research area focuses on retinal degenerative diseases and the genetics behind them. His focus area is to study pharmacological and gene therapy approaches to slowing or preventing these degenerations. As of late, Nickerson's research interest areas are understanding retinal proteins and their expression in normal animals and in animal models exhibiting characteristics of human eye diseases.

In 2013, the Association for Research in Vision and Ophthalmology (ARVO) awarded Nickerson, PhD, the prestigious Gold Fellow status and served as the ARVO Awards Committee chair later that year. In 2009, he was tapped as an ARVO Silver Fellow, having served on several ARVO committees and in leadership roles over the years.

Nickerson is a founding and current editor-in-chief of Molecular Vision, a peer-reviewed journal dedicated to the dissemination of research results in molecular biology, cell biology and the genetics of the visual system. The journal is rated in the top five of a field of 32 competing journals and is routinely used as an open access exemplar by the National Library of Medicine and The National Institutes of Health Library.

He also currently serves on the editorial boards of The Journal of Ocular Biology, Diseases, and Informatics and Clinical Optometry. He is active on numerous national and international committees and has served institutionally as well as at Emory on the University's Library Policy Committee. He is a prolific manuscript reviewer for numerous scientific publications.

A sought-after lecturer and visiting professor, Nickerson has been an invited speaker to universities across the United States as well as to international conferences. He has published more than 80 research articles, and numerous book chapters and abstracts.

PARTNERING FOR SUCCESS

From its inception in 1964, Emory Eye Center's scientific research laboratory has been home to award-winning scientists who dedicate their lives to understanding catastrophic eye diseases that affect people worldwide. Their scientific discoveries have significantly contributed to treatments for patients with conditions such as eye cancer, hereditary cataracts, diabetic retinopathy, age-related macular degeneration, idiopathic intracranial hypertension, and more. To support this ongoing work, visit **eyecenter.emory.edu/giving**.

Dr. Nickerson thrived on working with students and explaining the complexities of vision research.

Training Future Research Scientists

However, despite all of his training, awards and accolades, it all comes back to what he enjoys doing most: mentoring junior and senior research scientists. For many research scientists, a part of their job is to transition from obtaining a degree to learning the skills necessary to manage a lab and becoming a member of faculty, either as an assistant and associate professor. Nickerson is right there to help them along the way.

"The most satisfying thing to me is when the mentee manages me better than I manage them. Then, I know they are truly ready," Nickerson says.

Throughout the span of 30 years, he has mentored more than 20 pre- and post-doctoral students while at NIH and, today, he continues to mentor students at EEC. In fact, one of his first mentees was current EEC faculty member and researcher, Jeffrey Boatright, PhD. "Dr. Boatright—right from the get-go—has always been a valued colleague. It was obvious immediately that he was a rising star. All I had to do was to get out of the way," Nickerson says.

"I always look forward to the opportunity to mentor, grow and develop the careers of junior and senior researchers, all while helping to reinvigorate the research program," Nickerson says. "We have great opportunities to not only grow the department, but to grow the area of vision research."


This image was taken prior to the COVID-19 pandemic.

Expanding Vision Research

With so many exciting changes happening in the future for vision research, Nickerson thinks it is a great time for others to get involved in the field. As the current director of research at EEC, Nickerson plays a role in not only mentoring pre- and post-doctoral students, but he also oversees growing the research department, which is housed on the second floor of clinic building B on the Emory University's main campus.

The area has been renovated to welcome future researchers and ultimately grow the department's research program (see page 33). Over the next 5 years, he has plans to grow the department to include six new junior and senior faculty members.

"I am excited that we are spiffing up this new space that hasn't been renovated since the building was built 40 years ago. As for progress on the renovation, we completely gutted our existing area and created something completely from scratch for a better, more collaborative work and research space. We are encouraging researchers to not only work by themselves, but to work in groups and teams. Over the next few years, we also want to highlight the work that we are doing in several key areas: Age-related macular degeneration (AMD), diabetic retinopathy, glaucoma, ocular oncology, uveal melanoma. It is my hope that we can build upon what we have and create teams for each of these great projects," Nickerson says.

INSPIRING OTHERS

Allen D. Beck

MD, director of Emory Eye Center and chair of ophthalmology

"John has been a vital and productive member of the Emory Eye Center research team for many years. Dr. Nickerson is now our director of research, having served for ten years as our vice director in his very capable way.

He has made innumerable contributions to our knowledge of the basic mechanisms of ocular disease states and has come up with innovative strategies for effective interventions.

But, Dr. Nickerson's most obvious accomplishment is founding Molecular Vision, an electronic journal that ranks among the top vision research journals. However, I think the training and mentorship of many pre-doctoral candidates and post-doctoral fellows is what stands out in my mind. Our own Dr. Jeffrey Boatright is a prime example of his wonderful mentorship abilities."

Hans E. Grossniklaus

MD, MBA, vice chair of translational research, director of the L.F. Montgomery Pathology Laboratory, and founding director of ocular oncology and pathology service at Emory Eye Center

"Dr. Nickerson came from the National Institutes of Health (NIH) to the Emory Eye Center several years after I arrived. He had already established himself as the world's expert on interphotoreceptor retinoid binding protein (IRBP).

John has accomplished many things during his career, including establishing—with Drs. Jeffrey Boatright and Bob Church—the first all-digital medical journal, Molecular Vision, leading a weekly meeting on data session for all labs at the Eye Center, leading the Biology of the Eye Course, training numerous PhD students and fellows, including Dr. Boatright, obtaining virtually continuous NIH funding, establishing a Southeastern Vision Research Seminar and now leading our departmental Core Grant and Training Grant.

John's research is insightful and impeccable; he freely shares his time and expertise; and he is a wonderful colleague.

He has greatly helped me with research and professional advice, including critiquing grants, and ensuring scientific rigor. I thank John for all he has done for me and the Emory Eye Center."

Salma Ferdous

PHD Candidate, laboratory of Dr. Nickerson

"Dr. Nickerson has been an amazing mentor and my success as a PhD student is really the product of his mentorship. He is an incredible scientist who is invested in the lives and careers of his personnel and is flexible with his time and expectations. This flexibility has allowed me to grow independently as a vision scientist, while still being able to go to him anytime I need help. Under his guidance, I have been able to obtain independent grant funding, contribute to several publications, develop skills both inside and outside of the lab and ultimately fall in love with vision science."

Bre Shelton

MA, pre-doctoral research scientist, laboratory of Dr. Nickerson

"I've always been told to, 'choose a mentor based on who you want to be because 1) they reflect the things you value in your science and 2) they will help guide your professional development'. Under Dr. Nickerson's mentorship and leadership, I've learned the things that he values, both in his research and in the members of his lab. His brand of leadership puts emphasis on the power of listening and reflection, the importance of elegant but simple experiments in the discovery of complex interactions and learning from those who may have a different perspective on a concept than you do.

As a mentor, Dr. Nickerson recognizes my accomplishments, encourages me to challenge my comfort zone, gives me room to make mistakes, gives me the freedom to follow my ideas, and constructive criticism when I need it. All these things have enhanced my experience as a researcher in visual sciences, and I'm sure will propel me forward in my career ambitions."

Steven L. Bernstein

MD, PhD, professor and vice chair of research, department of Ophthalmology and Visual Sciences, Anatomy and Neurobiology, University of Maryland School of Medicine

"John was my lab supervisor and mentor during my stay at the NEI from 1990 until he moved to Emory. I was sorry to see him go. His calm, common sense, dry good humor, and excellent research vision helped me along my own path to becoming an independent researcher. His overall understanding of the eye research field has never failed to impress me, and during my earlier years, I never talked with John without learning something relevant about how to navigate the world of Academic research.

We have remained friends, and I treasure his friendship. John is never impressed with power, only with the wisdom of the person who wields it, and is himself an excellent researcher, lab chief, and director of students. As a lab chief myself, I often try to use his approach in dealing with students and in the lab, and I am amazed that what seems so easy for him, is actually a delicate dance of understanding people's personalities and sensitivity to their needs. Emory is lucky to have him."

T. Michael Redmond

PhD, senior investigator and chief, Laboratory of Retinal Cell & Molecular Biology, National Eye Institute

"John was tenured at the National Eye Institute (NEI) in the mid-1980s when I was a young post-doctoral student there, at the dawn of ocular molecular biology. He had been recruited from the NEI laboratory of Joram Piatigorsky, a true pioneer of ocular molecular biology, and his project was to clone interphotoreceptor retinoid binding protein (IRBP), an important protein of the retina. I was a protein biochemist working on the biochemistry of IRBP in another group, but I wanted to learn molecular biology to expand my skillset. John and his group were welcoming and, most importantly, fun to work with! So, for my part, I determined IRBP protein sequences to guide and validate his group's IRBP gene sequencing, and in return John trained me in the techniques of molecular biology.

At the time, IRBP was the largest protein ever whose gene was cloned. As a testament to John's well-known generosity in training/mentorship, this training has stood me in good stead in my career. These early interactions certainly have extended into a fruitful collaboration and friendship: over the past 30 years we have shared co-authorship on 15 papers, and many, many good times in science!"

CREATING A **NETWORK** OF care

Emory Eye Center partners with various eye care organizations to establish an eye care network to prevent blindness for those who need it most.

Imagine needing vision care but not being able to get the care you need because you don't know where to find an ophthalmologist or struggle to find reliable transportation to get to an eye care center.

Additionally, many healthcare organizations conduct vision screenings but oftentimes lack the resources to get their patient to a provider for follow-up treatment. The patient is left with a known vision condition that needs to be diagnosed, cared for, and treated but has no method of finding that care.

Unfortunately, these are some of the common challenges many rural Georgians or low-income, at-risk individuals experience.

Emory Eye Center (EEC), in partnership with Georgia Vision 2020, aims to bridge these gaps and help Georgians get the vision care and treatment they need—through a network-based, telehealth program called the Georgia Vision Network.

Developed by Jacquelyn O'Banion, MD, MSc., a comprehensive ophthalmologist at EEC and director of Global Ophthalmology Emory, the Georgia Vision Network seeks to create a web of care—connecting patients in need of eye care services with eye care professionals and organizations equipped to provide those services.

"Everyone deserves access to quality vision care. The state of Georgia is very spread out and has a very poor public transportation system. Just because someone lives in a rural area shouldn't mean they can't be provided with a basic level of care from an eye professional," O'Banion says. "Another issue we've noticed is that many patients can't drive to the eye doctor especially if they have a debilitating condition such as diabetes or age-related macular degeneration. This places a limit on how they can receive the care they need."

Two graduate students began laying the groundwork for the program with projection studies. In 2016, Laney Williams, then a medical student at the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, completed a projection study that examined how many Georgians will be visually impaired or blind and determined the leading causes of these conditions through the year 2050.

Using those projections, in 2018, Alexandrea Williams, Rollins School of Public Health Class of 2019, and a graduate assistant development coordinator, collected available eye care services (in both ophthalmology and optometry) and coupled the results with access to

Continued

IT IS ESTIMATED THAT ...

13% OF PATIENTS CURRENTLY LACK ACCESS TO AFFORDABLE VISION CARE

52 GA COUNTIES CURRENTLY LACK AN EYE HEALTH PROVIDER

33% OF GEORGIAN COUNTIES LACK EYE CARE SERVICES

THERE WILL BE A **220%** INCREASE IN VISION IMPAIRMENT IN GEORGIA BY 2050

52% INCREASE IN CONDITIONS SUCH AS DIABETIC RETINOPATHY

IN 2018, **13.7%** OF GEORGIANS WERE UNINSURED (3RD HIGHEST IN THE U.S.)

IN APRIL 2020, THE UNEMPLOYMENT RATE REACHED AS HIGH AS **12.6%**

SOURCES: 1. Kelly E, Wen Q, Haddad D, O'Banion J. Effects of an Aging Population and Racial Demographics on Eye Disease Prevalence: Projections for Georgia Through 2050. American Journal of Ophthalmology. 2020;210:35-40. 2. Williams A, O'Banion J. Through the Lens of Spatial Access to Care: The State of Georgia's Vision. Submitted. 3. Lynch MG, Maa AY. The Use of Telemedicine to Extend Ophthalmology Care. JAMA ophthalmology. 2016;134(5):543-544.

public transportation by county–and cross-mapped that information with Laney's projections to create a "Map of Need" by county.

"My project examined the county-level availability of eye health professionals—ophthalmologists and optometrists—and public transportation in Georgia in relation to projected increase in the prevalence of blindness and visual impairment in Georgia residents, aged 40 years and older," says Alexandrea Williams.

"I spent a couple of months identifying certified ophthalmologists and licensed optometrists in Georgia and conducted extensive Google searches to locate each practitioner's office, as well as counties with public transportation. This project highlighted that there may be reduced availability of both resources in Georgia's rural counties, which may impact Georgia's rural residents' ability to access timely eye care."

Through the Georgia Vision Network, patients will go through a vision screening offered by certified vision screening organizations like Prevent Blindness Georgia, Georgia Lions Lighthouse Foundation, and others. The screening will also include a needs assessment to determine if they qualify for any existing patient assistance programs. The information is stored in a HIPAA-secured portal and database which will be used to connect the patient with a network of local eye care providers who can perform routine eye services or more complex eye care if necessary.

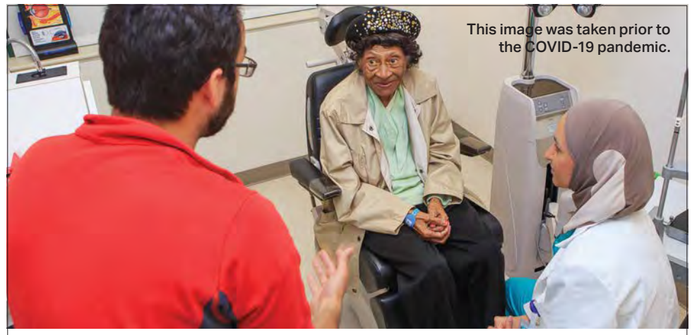
"Through this program, we eventually can treat our patients in one place instead of having to send them to five different places to get the care they need," O'Banion says.

Although in its development stage, O'Banion anticipates the program will eventually incorporate a mobile ophthalmology service.

One such opportunity would involve EEC partnering with Georgia Lighthouse, who developed a fully outfitted van to perform comprehensive examinations but lacks the professional and technological help to enhance capacity ophthalmic care. Partnerships like this would allow the program to function as a mobile eye clinic and bring services ranging from routine vision screenings to comprehensive eye care directly to the patient.

"Without intervention, Georgia is expected to have 226,000 people who are visually impaired and another 100,000 that are blind," O'Banion says.

"This is a 220% increase in visual impairment which significantly outpaces the anticipated U.S. increase of 150%." "Georgia also ranks third in the U.S. for those without health insurance, which can only be expected to increase due to the impact of COVID. It will take a concerted and collaborative effort to bring services to those in need and prevent Georgia residents from becoming visually impaired."



This image was taken prior to the COVID-19 pandemic.

PREVENTING VISION LOSS FOR ALL GEORGIANS

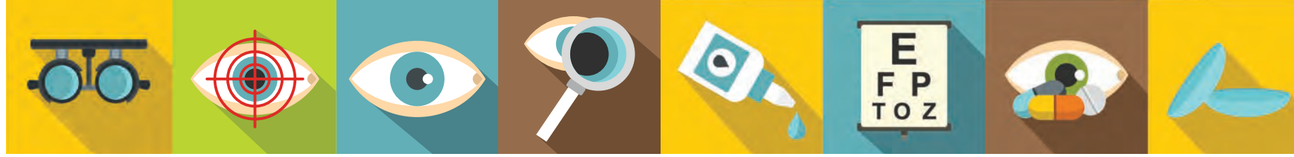
Georgia Vision 2020 is a network of vision service providers collaborating to prevent visual impairment and helping Georgians achieve their full visual potential through health promotions and education, service delivery, and advocacy.

The organization's vision is to create a world in which no Georgian is needlessly blind or visually impaired and where those with unavoidable vision loss can achieve their full potential through universal access to comprehensive eye care services.

The Georgia 2020 Network is made up of the following organizations:

- **Atlanta Lions Club**
- **Center for the Visually Impaired**
- **Emory Eye Center**
- **The Georgia Lions Lighthouse Foundation**
- **Georgia Eye Bank**
- **Georgia Optometric Association**
- **Georgia Society of Ophthalmology**
- **Prevent Blindness Georgia**
- **Savannah Center for the Blind and Visually Impaired**

For more information about Georgia Vision 2020, visit: www.gavision2020.org.



Emory Eye Center Faculty Give Back at Community Health Clinic With Remote Area Medical

Emory Eye Center optometrists Mary Carlton, OD, and Kristen Thelen, OD, FAAO, are dedicated to ensuring their patients have healthy vision. Outside of their work at Emory, they provide eye care to underserved and uninsured men, women and children at nationwide healthcare clinics sponsored by Remote Area Medical (RAM).

RAM is a Knoxville, Tennessee-based nonprofit provider of free mobile medical clinics. Their mission is to prevent pain and alleviate suffering by providing free, quality healthcare to those in need.

Many volunteer professionals provide free dental, vision and medical services to underserved and uninsured men, women and children. The RAM website mentions 155,000 volunteers—licensed dental, vision and medical professionals—have treated more than 800,000 individuals and delivered more than $150 million worth of free care.

"Volunteering with RAM brings a special level of fun and fulfillment to my life," Thelen says. "The highly-supported clinics are organized and efficient. We can provide high-quality eye care while getting to know an entirely new community. It's always fun connecting with new people and lending a helping hand."

Thelen began volunteering with RAM as an optometry student in 2011. She later invited Carlton to join.

"Dr. Thelen approached me in 2018 to volunteer with her for a RAM clinic in Virginia. I was hesitant at first, but once there, I was amazed at the number of volunteers at the clinic, both professionals and members from the community," Carlton says.

Mary S. Carlton, OD

Kristen Thelen, OD, FAAO

"The clinics were extremely well organized. All the necessary equipment was set up and optometrists, ophthalmologists and optometry students participated in patient care," Carlton says.

The day begins with the clinic parking lot opening to the public no later than midnight on the first night of the event. Each incoming patient is assigned a ticket and served by their ticket number when clinic doors open. Doors usually open for patients at 6 a.m.

Dental, vision and medical services are provided to patients on a first-come, first-serve basis. Due to time constraints, patients may opt to choose between dental and vision services, although medical services are offered to all patients.

When a patient chooses the vision option, they are seen by Carlton, Thelen or another optometrist, at a designated station. A thorough eye examination is performed to determine the presence of vision-related problems. For simple cases, patients are given medicine or an eyeglasses prescription and can pick up a free pair of eyeglasses the same day.

"After the patients receive the exams, they are sent to a full-service on-site optical lab to have their eyeglasses made," Carlton explains. "For continued care, we were provided a list of community eye doctors who would follow up with the patients at no additional cost."

"I enjoyed the experience so much, I signed up for my second trip to Tennessee," Carlton says. "I love to give back to patients that are in need."

Mission trips are made possible by Emory through the Shared Operating and Unit Performance (SOUP) program. Each year, Emory University and Emory Healthcare support additional individual and programmatic clinical and academic initiatives.

WORKING THROUGH A NEW NORMAL:

Providing vision care, treating children during COVID

Emory Eye Center pediatric ophthalmologists are expertly trained to work with children. Working with young patients can bring its own set of challenges on a normal day as children require an extra level of care, but when the coronavirus pandemic—a novel coronavirus (SARS-CO-V2), the virus that causes the disease COVID-19—swept the country in March 2020 eye and vision care for young patients added a new level of complexity.

"For the first time ever, we essentially closed our clinic," says Amy K. Hutchinson, MD, a pediatric ophthalmologist for Emory Eye Center and Children's Healthcare of Atlanta (CHOA) at Egleston. "In the beginning, we didn't know how extensive the impact from COVID-19 would be, so we restricted visits to patients that needed emergency or urgent care."

The pediatric ophthalmology service at Emory Eye Center provides comprehensive, compassionate care for children and their vision ranging from general eye exams to treatment of the most complex childhood eye diseases

Continued

and disorders. They are uniquely situated to collaborate with other Center specialists on the diagnosis and treatment of children's visual problems.

Hutchinson provides outpatient (office visits, short clinical visits) vision care at the Center and inpatient consultations (medical eye exams and treatment administered to patients who are currently hospitalized) at CHOA. In addition, Dr. Hutchinson performs weekly and time sensitive retinopathy of prematurity screening exams in the neonatal ICU, which continued uninterrupted during the pandemic.

Retina specialist Baker Hubbard III, MD, provides care for young patients with retinoblastoma (RB), a kind of eye cancer. "RB patients must have regular laser treatments, or they risk progression of tumors that may threaten their vision or even their lives," he says. "With that in mind, we carefully continued care for patients with active RB even during the weeks when most things were completely shut down. We would examine them under anesthesia in the operating room and then they would go to the oncology unit for chemotherapy. This was our usual routine and we never stopped."

The pediatric ophthalmology service at Emory Eye Center provides comprehensive, compassionate care of children's vision ranging from general eye exams to treatment of the most complex childhood eye diseases and disorders.

Pediatric specialist Sarah Dille Lee, OD, MSPH, FAAO, joined the Eye Center's faculty in April 2020. Due to her expertise managing complex eye conditions in children, she began to see patients whose appointments were canceled early on during the pandemic.

"As a new provider without an established patient base, my role was to see the children that needed to be seen sooner. However, the hardest part has been figuring out all the appropriate referrals and how a new clinic operates while the operation seems to be changing weekly for everyone based on the changing health recommendations," Lee says.

She continues, "Working with the pediatric ophthalmology team has been great as everyone has been helpful and worked as a team to get these children the best care possible and point me in the right direction of where to send the children. I don't have any experience working at Emory that hasn't included COVID-19, so this is my normal."

A few months later the clinic began to reopen, Hutchinson and her team began to see patients that required more routine care. However, because of the coronavirus pandemic, the team raised a new level of caution for themselves and for their patients.

"We understood the major decisions we had to make as our clinic reopened for business. If we thought it was safe for a patient to postpone a routine exam, we did." Hutchinson says.

"The waiting room looked different—with seats blocked off and spaced at least 6 feet apart. We had to be mindful of how we kept the exam rooms occupied—this meant keeping the patients isolated in exam rooms or spaced out as much as possible in the main waiting room to allow for social distancing measures."

Due to the new patient and visitor guidelines put in place by Emory, one adult could accompany a child patient during an office visit. "During a slit lamp exam, we required the doctor, patient and their visitor to wear a mask to reduce the chances of spreading the virus," Hutchinson says. "Most adult patients will wear a mask to their visit—for children, however—it is difficult for them to keep their mask on because they don't fully understand what's going on."

"If the waiting room got too crowded, we were prepared to ask patients to wait in their cars, but, luckily, we did not have to resort to those measures," Hutchinson says. "Just before the patient enters the exam room, each room is cleaned and sanitized, and our exam instruments are wiped down," Hutchinson explains.

"It is still is very strange to not be able to give high fives or hugs to my patients, but that will probably be the norm for a while now," Lee says.

Despite the changes that took place during the coronavirus pandemic, EEC doctors continued to adapt and care for those who need it most, oftentimes putting their own health on the line.

"The CHOA nursing staff is amazingly effective at making children and families comfortable and at reducing stress," Hubbard says. "We owe these nurses a huge debt of gratitude for their work under normal circumstances and that is even more true during COVID."

The Emory Eye Center's Pediatric Ophthalmology service provides comprehensive, compassionate care of children's vision, from birth-17 years of age, that range from general eye exams to treatment of the most complex childhood eye diseases and disorders.Our pediatric ophthalmologists are uniquely situated for collaboration with other Eye Center specialists on the diagnosis and treatment of children's visual problems.

(left) Physician Phoebe Lenhart, MD, shares a smile with a young patient adjusting to his new corrective lenses.

All images were taken before the COVID-19 pandemic.

A SAVING *grace*

A NEW TECHNIQUE HELPS RESTORE A YOUNG PATIENT'S VISION

As a young girl, Tymeisha French and her mother, Emmalee Cooper, noticed her eyes looked different and she struggled with poor vision. "I couldn't see anything—a person's eyes, nose, mouth or ears. I could only see the outline of a person standing there and the rest of it was blurry," French says. "I was bullied at school because of the shape of my eye."

The 16-year-old high school student also works as a cashier at a local restaurant to help pay for her family's bills. Though French now confidently uses the small computer screen to complete orders and check out customers just last year these tasks were impossible due to her worsening vision.

After several visits to multiple eye doctors and no formal diagnosis, a friend referred French and her mother to the Emory Eye Center to meet with cornea specialist Soroosh Behshad, MD, MPH, who also serves as the Center Chief at Emory St. Joseph's. French was diagnosed with a progressive eye disease called keratoconus—a condition in which the clear tissue on the front of the eye (also known as the cornea) thins and bulges outward into a cone shape.

Treatment for keratoconus involves placing a specialty contact lens on the eye while a corneal specialist monitors the condition of the cornea. However, the disease later advances to a stage where specialty contact lenses are ineffective, and the patient must undergo a corneal transplant.

In 2016, the Food and Drug Administration approved a new treatment technique called corneal collagen cross-linking (CXL). "CXL is a minimally invasive outpatient procedure designed to treat progressive keratoconus and other similar conditions causing weakness of the cornea," Behshad explains. "The CXL procedure strengthens and stabilizes the cornea by creating new collagen fibers within the cornea."

(left) During the CXL procedure, vitamin b2 drops are applied and a controlled ultraviolet-A light shines directly onto Tymeisha's eye. (below) Cornea specialist Soroosh Behshad, MD, MPH, performs the corneal collagen cross-linking procedure on one of Tymeisha's eyes.

During the CXL procedure, liquid riboflavin (vitamin b2) drops are applied and a controlled ultraviolet-A light shines directly on to the patient's eye. This causes new corneal collagen cross-links to develop. Those cross-links cause collagen rod-like structures, or fibrils, to shorten and thicken, leading to a stiffer, stronger cornea. "The procedure takes about one hour, and we numb the patient's eye ahead of time so there is no pain or discomfort," Behshad says.

All potential candidates with corneal conditions are thoroughly evaluated by a cornea specialist. This evaluation includes a routine eye exam; a detailed corneal mapping of the cornea; and measurement of corneal thickness, which determines if they're a candidate for the CXL procedure.

As for the cost, the CXL procedure is not covered by insurance companies. Patients must often pay the full cost—about $5,000-$10,000 per eye—out of pocket.

French required CXL treatment in both eyes.

In late 2019, Melanie Smith, the Center's CXL coordinator, set up a conference call with French and her family to share news that her CXL procedure was paid for in full by a generous donation to the Emory Eye Center. "The room filled with screams of joy, mixed with tears of happiness and relief. This was truly a moving and memorable experience for our entire team," Smith says.

> **"The room filled with screams of joy, mixed with tears of happiness and relief. This was truly a moving and memorable experience for our entire team."** —Melanie Smith

If a patient requires surgery on both eyes, a cornea specialist recommends treating one eye at a time. This gives the eye time to stabilize and minimize risk of infection during the healing process. French's first procedure was completed in January 2020.

The recovery phase usually takes about one week for the eye to heal. "Patients commonly experience ocular discomfort and potentially light sensitivity for the first one to three days," Behshad says. "To help reduce this discomfort, a bandage contact lens is placed on the eye after the procedure, which stays in place for the first two to four days and is removed at the first post-operative visit. Their vision continues to improve each day and typically stabilizes around one week."

"Tymeisha was seen four days following the procedure, a second time the following week, and every month since her first procedure," Behshad says. "Her vision has continued to improve every visit. In addition, we hoped the outcome of Tymeisha's procedure would stabilize her cornea and keep her keratoconus from getting worse, but—the great news is—since the procedure, her cornea and vision have both improved."

French is now enjoying life with her improved vision.

"It's been great to hear about her new successes, both in school and at work," Behshad says. "Since the procedure on her first eye, she has become so much more confident. I'm looking forward to proceeding with her second eye, thanks to the support from our donors."

PICTURE PERFECT

Emory Eye Center neuro-ophthalmologists Valérie Biousse, MD, and Nancy Newman, MD, were part of the research team that led the groundbreaking research.

This image was taken prior to the COVID-19 pandemic.

Research team uses artificial intelligence to detect abnormalities in the optic nerve

New findings published by Emory Eye Center neuro-ophthalmologists, Nancy J. Newman, MD and Valérie Biousse, MD, along with an international consortium of researchers from the Brain and Optic Nerve Study with Artificial Intelligence (BONSAI) group and Singapore National Eye Centre show that an artificial intelligence deep-learning system can accurately detect papilledema and other non-papilledema optic disc abnormalities from ocular fundus photographs.

Their research, "Artificial intelligence to detect papilledema from ocular fundus photographs" was published in the New England Journal of Medicine in April 2020. The work was a collaborative effort between Emory Eye Center neuro-ophthalmologists and a group of researchers representing 24 centers in 15 countries around the world, led by Singapore Professor Dan Milea, MD, PhD, and Singapore engineers under the direction of Professor Tien Yin Wong, MD, PhD.

The study examines the use of a deep-learning system, or a special computer algorithm, to detect the optic disc, the visible portion of the optic nerve, and classify it as normal, papilledema (swelling of the optic disc specifically due to increased pressure in and around the brain) or another optic disc abnormality, using photographs of the back of the eye (ocular fundus).

"Examining the ocular fundus is an integral part of the physical examination that should be performed in many clinical settings where expert eye-care specialists are frequently not immediately available," says Newman. "Recognizing abnormalities of the optic nerve is particularly important in emergency departments and neurologic and primary care clinics, where detection of papilledema can reveal vision- and life-threatening conditions of elevated intracranial pressure such as brain tumors and clots in the veins of the brain."

"Ocular fundus photographs can remove the need for direct examination of the eye using an ophthalmoscope—an instrument non-ophthalmologists find difficult to use and rarely employ," Newman explains. "However, just taking these photographs is not enough. Currently, someone must interpret the optic nerve appearance either on-site or via telemedicine, potentially delaying correct diagnosis and management. This artificial intelligence deep-learning system automatically and immediately correctly classifies the appearance of the optic disc without any additional clinical information."

The research used 15,846 photographs from individuals of multiple ethnicities. The study showed that a deep-learning system can accurately differentiate between abnormal optic discs and normal optic discs 99% of the time, and between papilledema and normal optic discs 98% of the time. Further studies will investigate the use of this system in a web-based application that can be used for immediate interpretation of photographs obtained in real-life settings.

"With more testing, our hope is that the Singapore engineers will eventually create a simple screening tool that is low-cost, easy to use and only requires photographs of a person's eyes in a clinic or emergency department," says Biousse. "This screening could allow serious neurologic problems to be quickly identified and treated, and potentially save a patient's vision or life. Such a tool would help diagnose patients without having them travel to an eye clinic – a particularly important concern now, considering the COVID-19 pandemic."

Newman currently serves as director of the Neuro-Ophthalmology service at the Emory Eye Center, where she maintains the LeoDelle Jolley Chair of Ophthalmology. She also holds the positions of professor of Ophthalmology and Neurology and instructor in Neurological Surgery at the Emory University School of Medicine.

Biousse is a professor in the Neuro-Ophthalmology service at the Emory Eye Center. She is the Cyrus H. Stoner professor of Ophthalmology, and she also holds the position of professor in the department of Neurology. She serves as the department of Ophthalmology's vice-chair for Faculty Development, Diversity, Equity, and Inclusion.

The research was funded by the Singapore National Medical Research Council and the SingHealth Duke-NUS Ophthalmology and Visual Sciences Academic Clinical Program.

EEC INVESTIGATES HOW COVID AFFECTS THE EYE

It is widely known that SARS-CoV-2, a novel coronavirus that causes the disease COVID-19, has a significant impact on the body's upper and lower respiratory tract, but did you know the virus may also have an impact on the surface of the eye?

Evidence of ocular impact from COVID-19 has not yet been well studied. Emory Eye Center retina specialists Jessica Shantha, MD, Steven Yeh, MD, and a team of experts from Woodruff Health Sciences Center were awarded a Synergy Grant to study how COVID-19 affects the surface of the eye.

"Several case studies have detected SARS-CoV-2 on the surface of the eye, typically in association with conjunctivitis," Yeh says.

The research project entitled, "COVID-19 and the Eye: Surveillance of ophthalmic disease, viral persistence, and immune response" will allow Shantha, Yeh and a multidisciplinary team of investigators from several Emory Uinversity School of Medicine departments including Infectious Disease, Emory Vaccine Center, and Rollins School of Public Health to investigate how COVID-19 may affect the eye. Ophthalmic findings, particularly focused on retinal disease, are also being assessed as well.

"Given that COVID-19 affects multiple organ systems (e.g., cardiovascular, kidney, hematologic / coagulation pathways), a better understanding of how it affects retinal vessels may also provide insight into some of the mechanisms of the disease that likely involves both direct viral infection and inflammatory pathways," Yeh says. "The Synergy Grant will provide funding for future grant proposals related to COVID-19 and other emerging infectious diseases."

"Additionally, more rigorous studies are needed to assess whether the virus may persist on the ocular surface with the potential for disease transmission to individuals who may be in contact with tear film, including ophthalmologists. The Centers for Disease Control and Prevention recently recommended eye protection for all health care providers—further highlighting the importance of the ocular surface as a route of viral transmission."

DETECTION AND PREVENTION OF DIABETIC RETINOPATHY

Recent studies have indicated that retinal neuronal dysfunction in diabetes precedes the classical vascular changes that are the hallmark of diabetic retinopathy. In order to prevent progression of early retinal changes in diabetes to retinopathy, it is essential to identify diagnostic markers and molecular changes that are associated with the later development of retinopathy.

Research conducted at the Atlanta VA Medical Center in collaboration with Emory Eye Center faculty has led to the identification of signature electroretinographic changes that precede diabetic retinal vascular abnormalities.

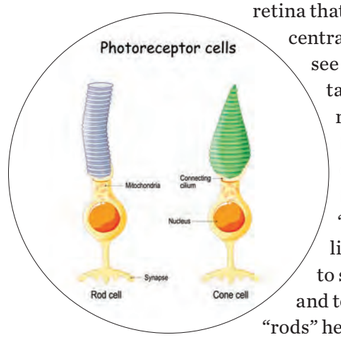
Machelle Pardue, PhD, professor of Biomedical Engineering at Georgia Tech and research career scientist at the Atlanta VAMC, EEC researcher Michael Iuvone, PhD, and retina specialist Andrew Hendrick, MD, have identified depletion of dopamine, a retinal neurotransmitter, as a potential mediator of early retinal neuronal dysfunction, and pharmacotherapeutic replacement of dopamine with L-DOPA treatment delays the progressive loss of visual function.

A preliminary human study also showed that L-DOPA improved retinal function in diabetic patients prior to development of vascular abnormalities. Although more research is needed, these studies suggest that L-DOPA or related drugs may be useful in preventing the development of severe diabetic retinopathy, the most common cause of vision loss in working-age adults.

GENE THERAPY MAY HELP TREAT INHERITED RETINAL DISEASES

Vitreoretinal surgeon and ophthalmic geneticist Nieraj Jain, MD, has studied the long-term effects of degenerative retinal diseases of the eye, particularly those that impact the macula.

The retina is a thin layer of tissue that lines the back wall of the eye. The macula is the central area of the retina that is responsible for our central vision, allowing us to see details and perform tasks such as reading and recognizing faces. Inside the retina are photoreceptor cells that are in the shape of "cones" and "rods" that respond to light. The "cones" help us to see during the daytime and to see colors, and the "rods" help us to see at night.



"As the eye ages, genetic factors and environmental exposures—such as smoking and ultraviolet light exposure—can result in damage to retinal cells," Jain says. "This leads to vision disorders in some individuals that are known as retinal degenerations."

By using novel technologies to evaluate the structure and function of the retina, Emory Eye Center researchers are able to diagnose and unearth unique features of retinal degenerations. This leads to a better understanding of the underlying disease process and impact on vision, allowing us to better tailor potential therapies.

In a paper that garnered Best Original Paper honors at the 2018 American Academy of Ophthalmology Annual Meeting, Jain described a new condition that he termed "pentosan polysulfate maculopathy." This retinal degeneration is associated with use of the drug pentosan polysulfate (Trade name: Elmiron). This medication has been widely prescribed for nearly 25 years, and until this time no one had recognized that it was associated with a vision-threatening retinal degeneration.

"Scientists have made great strides in genomic technologies. I am looking forward to seeing how these technologies translate into new therapies for previously untreatable inherited retinal diseases," Jain says. "I am optimistic that we will be seeing more FDA-approved therapies for these diseases in the coming years, and proud that the Emory Eye Center will play a part in this important work."

SIMPLE EXERCISE MAY LEAD TO BETTER VISION

Research in recent years has shown that regular physical activity can lead to several health benefits—improved energy levels, lower blood pressure, weight loss. But did you know that regular physical activity can also help your eyes as you age?

Emory Eye Center researchers are studying how regular exercise or physical activity may lead to improved vision or delay the progression of vision-related conditions such as age-related macular degeneration (AMD) and diabetic retinopathy.

"Our research in several animal models indicates that even very modest exercise—possibly the equivalent of a person taking a daily 20- to 30-minute walk—can significantly preserve vision," says Emory Eye Center researcher Jeffrey Boatright, PhD.

Boatright and his team conducted studies in rodents with retinal conditions to test whether simple exercise can protect retinal function and vision. "We find that running on treadmills or running wheels protected the vision in mouse and rat models of AMD, retinitis pigmentosa (RP), and diabetic retinopathy," Boatright says.

The team, in collaboration with Katie Bales, PhD, postdoctoral researcher at Atlanta VA Medical Center (VAMC), Machelle Pardue, PhD, professor of Biomedical Engineering at Georgia Tech and research career scientist at the Atlanta VAMC, and Joe Nocera, PhD, associate professor in the department of Neurology at Emory University School of Medicine, are now testing the effects of stationary bicycle riding ("spinning") in elderly patients with AMD. In this study, subjects spin for 45 minutes three times per week for six months. Several retinal, visual and systemic assessments are made over this span.

Afterwards, the results will be compared against subjects who underwent identical experiences but substituted stretching exercises for spinning. Similar experiments in Dr. Nocera's lab demonstrated that this spinning regimen significantly protected against cognitive decline in advanced-age subjects.

Emory Eye Center Receives **HUMANITARIAN AWARD** From Sidra Tree Foundation

Physicians Natalie Weil, MD, Soroosh Behshad, MD, MPH, and former Emory Eye Center chief resident John Paul Gorham, MD, provided much-needed eye care for many Syrian refugees during their mission trip to Jordan. (right photo) Dr. Weil makes a difference in many young patient's lives. These images were taken prior to the COVID-19 pandemic.

Emory Eye Center providers Soroosh Behshad, MD, MPH, and Natalie C. Weil, MD, received the Sidra Tree Foundation Project Award from the Sidra Tree Foundation. Dr. Behshad is a cataract and cornea surgeon in the section of Cornea, External Disease and Refractive Surgery and serves as chief of Ophthalmology Services at Emory Saint Joseph's Hospital. Dr. Weil, a pediatric and adult strabismus surgeon, is an assistant professor in the section of Pediatric Ophthalmology.

The Sidra Tree Foundation Project Award recognizes non-profit or academic institutions that provide ophthalmic care and skills-transfer. The award, which includes a $50,000 grant, will be used to further their efforts to provide eye care to Syrian refugees at the Za'taari refugee camp in Jordan.

"This grant will allow for increased surgical training of local ophthalmology partners to aid in a more sustainable program to provide subspecialty eye care to both refugees and local Jordanians in need," Behshad says.

"We are ecstatic to continue our work abroad and deliver care to this needy population," Weil says. "This is another step forward to develop comprehensive ophthalmic services for refugees in Jordan with an emphasis on subspecialty eye care to children."

Since 2017, Drs. Behshad and Weil and their team have performed close to 4,000 eye exams and over 700 surgeries and procedures, with more than half of these patients being children.

Their work is a part of Emory Eye Center's Global Ophthalmology Emory (GO-Emory) program, which was established by the Center in 2011. The mission of the GO-Emory program is to prevent vision loss in Georgia and around the world through clinical service, research, and education.

"The work of Drs. Behshad and Weil perfectly encapsulates the GO-Emory mission by providing sustainable system strengthening that will improve eye care delivery in Jordan for years to come," says Jacquelyn O'Banion, MD, MSc, a comprehensive ophthalmologist at Emory Eye Center and director of GO-Emory. "It focuses on the needs of the population and utilizes GO-Emory knowledge and expertise to provide quality eye care."

NATIONAL EYE INSTITUTE RENEWS $1 MILLION CORE GRANT FOR 5 YEARS, SOLIDIFYING THE FUTURE OF RESEARCH AT THE EYE CENTER

In continued support of Emory Eye Center's mission to train future ophthalmologists and research scientists, the National Eye Institute (NEI), part of the National Institutes of Health (NIH), has renewed its T32 institutional training grant for the next five years, totaling a little more than $1 million, with the direct costs from the first year of the grant totaling $208,570.

The T32 institutional training grant is the longest continuously funded training grant from the NEI. The first grant was awarded to support Emory Eye Center research in September 1984.

John Nickerson, PhD, director of research, says the grant will help to fund the training of individuals who aspire to be great vision scientists and ophthalmologists.

The grant will fund the training of four predoctoral fellows and one postdoctoral fellow who are selected annually to conduct basic research, experimental research, or clinical-oriented research in the areas of vision sciences and ophthalmology. The funding of the grant will also help cover expenses associated with the fellows such as tuition, supplies, the opportunity to travel to or participate in ophthalmology conferences, seminars, workshops, and continuing medical education courses at no cost, and also provides a research stipend. In addition, most of the fellows' Emory University-related fees are covered by the grant such as tuition and health care insurance.

"The purpose of this grant is to train predoctoral and postdoctoral fellows to become the next generation of academic vision sciences and ophthalmology faculty researchers," Nickerson says. "While in training, the fellows are required to maintain specific certain requirements to remain on the grant."

In addition to being involved in research, the trainees conduct presentations, participate in webinars, attend weekly grand rounds lectures or vision research seminars and oftentimes are charged with managing the logistics of an event or inviting seminar speakers to speak to or engage with participants.

"Young trainees bring a different view and perspective on a subject or a problem," he explains. "Another benefit from this method of training is that the students bring a real excitement to research projects, and they often bring new techniques into the lab from other fields."

Neuro-ophthalmologist Michael Dattilo, MD, PhD, a fellowship program alumni and current EEC faculty member, reflects on his time as a fellow while conducting research on the T32 grant.

"The T32 Vision Training Grant at Emory allowed me to begin to transition from my clinical fellowship in neuro-ophthalmology to a career as a clinician-scientist," he says. "The grant provided me with a year of protected research time to expand my research experiences and to generate preliminary data to support an NIH sponsored K08 application. In addition, presentation of my data at national conferences has resulted in a number of national and international collaborations."

"Training grants are all about the future. It offers a legacy well beyond the individual projects that the students work on," Nickerson says. "It will not only influence the field of research for a long time, but generations of scientists."

Charles "Chuck" Wright, PhD
scientific program director,
The National Eye Institute

Training tomorrow's scientists

From 2007-2013, I was a graduate student in Dr. Nickerson's laboratory at the Emory Eye Center. I was attracted to vision research because of the unique opportunities and challenges in finding treatments for retinal degenerative diseases, many of which led to irreversible blindness, and most of which have no effective treatments.

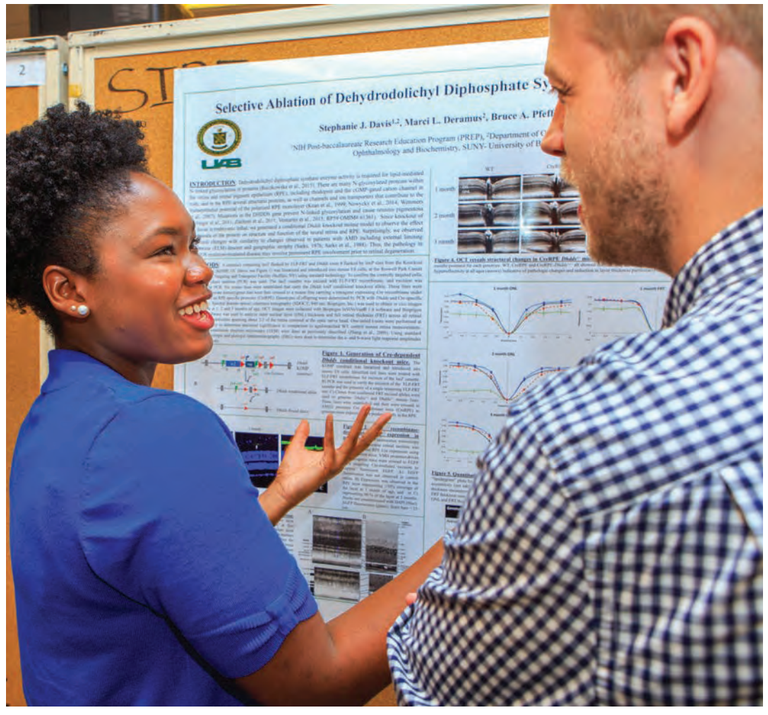
A critical part of a young scientist's development is learning how to write grant applications, and the NEI T32 application was the first grant application I had written. After graduating from Emory University with my PhD in Genetics and Molecular Biology, I went on to a postdoctoral fellowship position at the University of Kentucky where my work was published in prestigious journals like The Proceedings of the National Academy of Sciences and Nature Biotechnology before moving to the Washington, D.C. area to work in science policy. I am now a scientific program director at NEI, and I'll be overseeing research awards that go to investigators to fund their work. I believe none of my successes would have been possible without that initial T32 award, and I am now a proud contributor to the vision research enterprise.

Emory Eye Center Hosted Fourth Annual Southeastern VISION RESEARCH CONFERENCE

Emory Eye Center hosted the fourth annual Southeastern Vision Research Conference (SEVRC) on December 7-8, 2020. The event was held in collaboration with two other vision research groups from Vanderbilt University Medical Center and the University of Alabama at Birmingham. The virtual, two-day seminar was a way for research scientists to celebrate an exchange of excellence in vision research and science.

"We highlighted topics that were ready for further investigation among new collaborators," says John M. Nickerson, PhD, professor of ophthalmology and director of research at Emory Eye Center. "Each institution has world leaders in various phases of vision sciences and ophthalmology. We learned greatly from these world experts."

Keynote speakers Jay Neitz, PhD, professor of ophthalmology and adjunct professor of Biological Structure at the University of Washington, and Maureen Neitz, PhD, Ray H. Hill Endowed Chair in Ophthalmology and professor in the department of ophthalmology at the University of Washington, delivered the keynote lecture entitled, "A solution to the world-wide myopia epidemic."



Stephanie J. Davis, graduate research assistant at University of Alabama at Birmingham discusses her work with Felix Struebing, PhD, former EEC postdoctoral fellow, at a SEVRC poster session. This image was taken prior to the COVID-19 pandemic.

These images were taken prior to the COVID-19 pandemic.

Dr. Jay Neitz holds a doctorate in biopsychology from the University of California, Santa Barbara. His graduate work was conducted in the laboratory of Gerald Jacobs, PhD, with a focus on understanding how the human visual system works using color vision as a model.

Dr. Maureen Neitz, a graduate of the University of California, Santa Barbara, directs a research laboratory investigating the genetic basis of normal vision and vision disorders.

Both of their specialty interests focus on understanding how the human visual system operates by studying the entire process of seeing from genes to behavior. They have discovered how genetic mutations influence the most common vision problems that affect modern humans, including myopia and colorblindness.

SEVRC attendees learned from various speakers, presentations, posters and collaborated with vision research scholars on all aspects of vision science—molecular, disease, cognitive, imaging, and more. Junior faculty, predoctoral and postdoctoral researchers also had an opportunity to present their case abstracts, collaborate and share their ideas.

Members of the program committee included Nickerson and Michael Iuvone, PhD, professor and vice director of research, Emory Eye Center; Christine Curcio, PhD, professor and director of AMD Histopathology Lab and Tim Kraft, PhD, professor and interim associate dean for research, University of Alabama Birmingham; Tonia Rex, PhD, professor and associate director for research and David Calkins, PhD, professor and vice chair and director of research, Vanderbilt Eye Institute.

Emory Eye Center researcher Jeffrey Boatright, PhD, and Machelle Pardue, PhD, professor of biomedical engineering at Georgia Tech and research career scientist at the Atlanta VAMC, also moderated the sessions.

Emory Eye Center will celebrate 150 years in 2022!

Emory Eye Center has a rich history, tracing its roots back to a time when the practice of ophthalmology was just beginning in the South—and in the United States. The year was 1872. The Eye Center's inception began with Abner W. Calhoun, MD, the region's first specialist of the eye and ear, who came to Atlanta Medical College in 1854. That college later became Emory University School of Medicine in 1915.

Since then, Emory Eye Center has blossomed into being a recognized leader in high quality patient care, excellent education, and innovative research. Most of all, Emory Eye Center has been consistently named as one of the best ophthalmology centers in the nation.

Emory Eye Center will celebrate and commemorate its 150th anniversary in 2022 with special exhibitions, programs, and a special look back on where it all began.

We're tops again!

Emory Eye Center is once again recognized as one of the top ophthalmology centers in the nation, according to the prestigious U.S. News & World Report's 2020-21 rankings of American's top hospitals.

"We are honored to be listed as a high performing ophthalmology center again," says Allen D. Beck, MD, chair and director of the Emory Eye Center. "The Eye Center continues to grow, and we've had more patient visits last year than we've ever had before."

"My vision for Emory Eye Center is to become a top ten eye center based on reputation, grant funding, and

quality metrics like patient satisfaction," he adds.

The Center has consistently earned a high performing nod as one of the "Best Hospitals for Ophthalmology," earning a spot on the list each year since ophthalmology rankings began in 1998.

Emory Eye Center sees more than 150,000 patient visits each year in four locations: Emory University Hospital main campus, Emory University Hospital Midtown's Medical Office Tower, Emory Saint Joseph's Hospital and Emory Johns Creek Physicians Plaza.

As a recognized leader in patient care, the Center's internationally recognized physicians see patients for clinical care ranging from wellness exams to the treatment of the most complex eye diseases and disorders. The clinic's ophthalmic specialties include services in cornea; glaucoma; neuro-ophthalmology; ocular oncology and pathology; oculoplastics; pediatric ophthalmology; vitreoretinal surgery and diseases; and uveitis. The Eye Center also offers optometry, low vision, and specialty contact lens services.

The Emory Healthcare Network was well represented on the 2020 U.S. News & World Report list. Emory University Hospital was ranked the number 1 hospital in Georgia and in metro Atlanta. Emory Saint Joseph's Hospital ranked number 2 in Georgia and metro Atlanta, and Emory University Hospital Midtown ranked number 5 in Georgia and number 4 in metro Atlanta. Within a state or metro area, regional rank is determined by a hospital's performance in the national rankings' analysis and by its score across nine procedure and condition areas evaluated.

Eight specialties at Emory University Hospital were nationally ranked this year: cancer; cardiology; endocrinology; gastroenterology/gastrointestinal; geriatrics; nephrology; neurology/neurosurgery; and urology. High performing specialties at Emory included ophthalmology, pulmonology, and orthopedics.

The U.S. News rankings are released every year and help guide patients to hospitals that deliver outstanding care medical areas. This year's list recognizes and honors the efforts of the nation's health professionals who have stepped up during the COVID-19 pandemic, oftentimes putting themselves at great risk.

Eight Emory Eye Center faculty recognized for their excellence

Eight Emory Eye Center faculty members were recognized at the Emory University School of Medicine's (SOM) Celebration of Faculty Excellence ceremony on Wednesday, Oct. 28, 2020. Each year, the School of Medicine honors faculty in a variety of categories for the excellence of their work, teaching, distinguished service, mentoring, and leadership.

Emory Eye Center honorees were noted for accomplishments during the past year including publishing awards, faculty promotions, research, professional society involvement, and more.

Leadership Positions and Promotions

Valérie Biousse, MD – elected President of the North American Neuro-Ophthalmology Society (NANOS)

Jeffrey Boatright, PhD – elected chair of the CET 1-Study Section Panel, Vision Research Program and chair of the Novel Medical Therapies, Early Translational Research Program Study Section, Foundation Fighting Blindness (FFB).

Emily Graubart, MD – elected President, Association of University Professors of Ophthalmology, Medical Student Educators Council

Purnima Patel, MD – elected Editor-in-Chief, American Academy of Ophthalmology's Ophthalmic News and Education (ONE) Network

Three faculty members were promoted to the ranking of associate professor in Ophthalmology; **Jeremy Jones**, MD; **H. Joon Kim**, MD; and **Jason Peragallo**, MD.

Hidden Gem Award

Another notable award was the Hidden Gem award. Faculty members who are noted as "Hidden Gems" were nominated by their departments in recognition of their outstanding, but often unnoticed or unrecognized, contributions to Emory or beyond.

Natalie Weil, MD, assistant professor in the pediatric ophthalmology section, was the recipient of the 2020 Hidden Gem Award. As Allen D. Beck, chair and director of Emory Eye Center, says, "Dr. Weil is a compassionate, generous, engaged physician who embodies the Emory mantra that 'we are all in this together'. She is actively engaged in service projects for the underserved locally and globally."

He adds, "Prior to the COVID-19 pandemic, she traveled to Jordan every 6 months to provide Syrian refugees with eye care and established a vision screening program. Dr. Weil regularly volunteers at the Clarkston community clinic and organized a volunteer vision screening for World Sight Day in 2018 and 2019."

"Dr. Weil uses her technical skills to advance the service, such as creating and maintaining a Google calendar for the service and starting a weekly zoom teaching conference for pediatric ophthalmology. She also put in place a strabismus surgery curriculum / wet lab for Emory residents and in Ethiopia and conducts the pediatric Ophthalmic Knowledge Assessment Program (OKAP) review every year."

Dr. Weil joined the Emory Eye Center in September 2015. Her clinical areas of interest are pediatric ophthalmologic issues and adult strabismus.

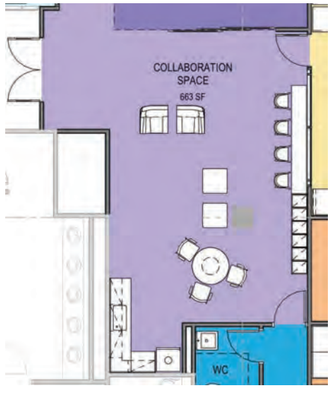
"I want to congratulate the faculty who were honored during the Emory Celebration of Faculty Excellence," says Beck. "Our faculty serve as leaders in numerous national organizations related to vision care and research. It is a pleasure to work with such a distinguished group."

Faculty were honored during Emory's faculty recognition week, October 26-30, 2020. Due to the COVID-19 pandemic, this year's Faculty of Excellence ceremony was held virtually.

Emory Eye Center's research area gets an update

The research area, which sits on the second floor of clinic building B on Emory University's Clifton Road campus, is being renovated. The newly renovated space will include six new laboratories for the research scientists and extra space for students, fellows, and laboratory staff. There also will be a shared space for common instruments, workspaces, and meeting areas.

The goal of the renovation is to increase laboratory findings and turn those findings into treatments for eye diseases and for the prevention of blindness. The Eye Center has plans to grow the research team and will recruit new research scientists to fill the new space over the next several years. The research team consists of research director John M. Nickerson,



PhD; research vice-director Michael Iuvone, PhD; J. H. Boatright, PhD; Eldon E. Geisert, PhD; and Hua Yang, MD, PhD. The renovations are expected to be completed spring 2021.

3 Emory Eye Center Providers Earn Doctors' Day Nominations

In honor of National Doctors' Day in March 2020, the Emory University School of Medicine Recognitions Committee asked for nominations of doctors who demonstrate dedication to improving the health and well-being of our patients and community through the care they provide, the research they conduct, and/or their efforts to teach and inspire young doctors.

Those receiving nominations were:

Mary S. Carlton, OD, joined Emory Eye Center in 2007. She is a board-certified optometrist in the section of Comprehensive Ophthalmology, Vision and Optical Services. Her concentration is in primary eye care and fitting contact lenses in both adults and children. Comments from her Doctors' Day nominations included:

"Dr. Carlton has exceptional diagnostic efficiency."

"She always has exceptional interpersonal communication."

"Dr. Carlton has exceptional empathy."

Emily Graubart, MD, joined Emory Eye Center in 2008. She currently services as director of comprehensive services and as director of Medical Student Education and of the Ophthalmology Clerkship for the department of Ophthalmology. Her interests include cataract and laser surgery, and medical management of glaucoma and microinvasive glaucoma surgery. Her nomination comments included:

"Dr. Graubart is an excellent cataract surgeon who is dedicated to improving the sight of her patients."

"She is the director of the comprehensive service and works well with her colleagues developing ways to improve the patient experience."

"She is also a leader in medical student education and has been nationally recognized by the Association of University Professors of Ophthalmology."

Vitreoretinal surgeon and ophthalmic geneticist **Nieraj Jain**, MD, first joined Emory Eye Center's Vitreoretinal Surgery and Diseases section in 2015. His clinical interests include macular diseases, retinal detachment, and inherited retinal diseases such as Stargardt dystrophy and retinitis pigmentosa. His nominations read:

"Dr. Jain is very passionate about patient care."

"He is easy to consult with."

"Dr. Jain is kind-hearted."

Emory Eye Center physicians top the list

Eight Emory Eye Center physicians were named top doctors in Atlanta magazine's annual Top Doctors® July 2020 issue.

Earning recognition were:

Maria Aaron, MD (comprehensive ophthalmology)
Allen D. Beck, MD (glaucoma)
Valérie Biousse, MD (neuro-ophthalmology)
Hans E. Grossniklaus, MD, MBA (ocular oncology and pathology)
G. Baker Hubbard III, MD (retina)
Nancy J. Newman, MD (neuro-ophthalmology)
Priyanka Sood, MD (comprehensive ophthalmology)

Ted H. Wojno, MD (oculoplastics)

The publication's annual Top Doctors list was compiled by the New York-based research firm Castle Connolly Medical Ltd., whose physician-led team of researchers follow a rigorous screening process to select doctors named to the list. Castel Connolly was founded in 1991.

For the July 2020 Top Doctors feature, hundreds of Atlanta metro-area doctors were asked to name their most respected colleagues. The process sought nominations not only of physicians who excel in academic medicine and research but also those who exhibit excellence in patient care.

The 2020 list includes 1,002 physicians representing 62 specialties. Nearly half of the physicians are associated with Emory: Emory Healthcare physicians, Emory Healthcare Network physicians, Emory University School of Medicine faculty and Emory medical staff physicians.

Emory Eye Center adds a new faculty member

Sarah Dille Lee, OD, MSPH, FAAO, joined Emory Eye Center's faculty in April 2020. She is a pediatric specialist in the department's Optometry Section. Lee received her Doctor of Optometry degree from the School of Optometry at University of Alabama at Birmingham (UAB), where she also served as a faculty member. She earned her MS in Health Behavior from the UAB School of Public Health. She earned a bachelor's degree with honors in biology from the University of Georgia. Lee's postgraduate medical training included a residency in pediatrics at SUNY College of Optometry in New York, NY.

Lee has served as an investigator for many National Eye Institute (NEI-funded) studies. She has participated in many clinical studies through the Pediatric Eye Disease Investigator Group that studied strabismus (exotropia, esotropia), amblyopia, hyperopia, myopia, etc.

Much of her graduate work involved having access to care for children with autism and working with children with autism in an eye care setting.

Lee also has been involved in research involving children with mild traumatic brain injuries and eye function and coordination. She also specializes in helping children with special needs and children with binocular vision disorders (eye teaming and focusing).

Her clinical interests include amblyopia, refractive errors, myopia control, and strabismus.

EMORY EYE CENTER FACULTY RECEIVE NUMEROUS RECOGNITIONS

Soroosh Behshad, MD, MPH, received the Ophthalmology Service Award from the Jordanian Ophthalmology Society in January 2020. Behshad serves as chief of Emory Eye Center at Emory Saint Joseph's Hospital.

Valérie Biousse, MD, serves as president of the North American Neuro-Ophthalmology Society. Their mission is dedicated to achieving excellence in care of patients with neuro-ophthalmic diseases by the support and promotion of education, research, and the practice of neuro-ophthalmology.

Researcher **Jeffrey Boatright**, PhD, was appointed to the Scientific Advisory Board of the Foundation Fighting Blindness. He also served as chairman on the CET-1 Study Section Panel, of the Vision Research Program for the Department of Defense.

Emily Graubart, MD, serves as president of the Association of University Professors of Ophthalmology of Medical Student Educators Council. The MSEC provides an opportunity for the Medical Student Educators to address issues pertinent to their position, and to produce and plan related educational materials.

EMORY EYE CENTER FACULTY RECEIVE NUMEROUS RECOGNITIONS

Hans E. Grossniklaus, MD, MBA, was installed as chair of the American University Professors of Ophthalmology Fellowship Compliance Committee in April 2020. This committee oversees ophthalmology fellowships across the United States. He will serve a four-year term.

G. Baker Hubbard, III, MD, was inducted into the American Ophthalmological Society. The AOS, which was established in 1864, is the oldest continually meeting national physician specialty society in the United States. Members of the AOS include many of the top ophthalmologists in the United States.

Jeremy K. Jones, MD, serves as president of the Georgia Society of Ophthalmology. The GSO is the only statewide organization representing Georgia ophthalmologists and their patients. The GSO's activities include legislative advocacy, continuing medical education for ophthalmologists, and public education about important eye health care concerns.

Mary Lynch, MD, professor of ophthalmology, has received the Distinguished Alumna Award from Johns Hopkins University School of Medicine. The award is one of the highest honors bestowed by Johns Hopkins and recognizes "those alumni and trainees who have brought credit to the university through their personal, professional or humanitarian achievements."

April Maa, MD, was the recipient of the Unsung Hero award from the American Academy of Ophthalmology. She also received the Secretariat Award for Federal Affairs from AAO.

Neuro-ophthalmologist **Nancy J. Newman**, MD, was the 2020 Donald Baxter Lecturer for Montreal Neurological Institute, McGill University. She also received the Distinguished Clinical Achievement Award from the Harvard Medical School Department of Ophthalmology.

Prethy Rao, MD, MPH was the recipient of a 2020 Research to Prevent Blindness/American Academy of Ophthalmology Award for IRIS Registry Research.

Purnima S. Patel, MD, was appointed editor-in-chief of the American Academy of Ophthalmology's Online Educations (ONE) Network. She was also elected to serve on the Women in Ophthalmology Board of Trustees and serve as chair of the Georgia Society of Ophthalmology Continuing Medical Education Committee.

Jason H. Peragallo, MD, received the American Association for Pediatric Ophthalmology and Strabismus Honor Award. Peragallo is an assistant professor of ophthalmology for the Eye Center's sections of Neuro-Ophthalmology, Pediatric Ophthalmology and Adult Strabismus.

Susan Primo, OD, MPH, FAAO, director of Optometry Services and Low Vision Services, was appointed to the National Eye Institute's Low Vision and Quality of Life panel.

Uveitis and retina specialist **Jessica Shantha**, MD, was the recipient of the American Academy of Ophthalmology's Artemis Award. First awarded in 2014, the Artemis Award recognizes a young ophthalmologist Academy member who has demonstrated care and service of an exemplary degree to his/her patients.

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On June 5, 2020, several Emory Eye Center faculty and staff took part in the "White Coats for Black Lives" vigil, an event spearheaded by Emory University School of Medicine students.