



FARBER RESEARCH TEAM EXPLORES BIG DATA

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"WILLS EYE SAVED MY VISION" PAGE 4



PETER & RUTH LAIBSON ESTABLISH ENDOWED CORNEA LECTURE

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From **Our Leaders**



JULIA A. HALLER, MDJOSEPH P. BILSONOphthalmologist-in-ChiefChief Executive Officer

reetings and welcome to the Winter 2022/2023 issue of *Eye Level*. We want to wish everyone a very happy, healthy New Year!

This is also an opportune time to express gratitude to our Wills Eye family for all you do to make possible everything achieved over the past year. We would not be where we are today without our entire medical team, administrative staff, friends, and supporters. Together, we ensure that Wills continues to be the world's premier eye hospital, providing our patients with extraordinary care and the latest advances in treatment.

We never lose sight of the hospital's nearly 200-year mission: to care for those in need and improve the quality of life in the Philadelphia community and beyond.

Our 13th annual Give Kids Sight Day (GKSD), held at the hospital on October 15, in partnership with OneSight EssilorLuxottica Vision Foundation, Thomas Jefferson University, and the School District of Philadelphia, is a prime example of our unwavering commitment to our

community. We provided free vision screenings to more than 195 uninsured and underinsured children, ages 6 to 17. In early December, 155 children returned to Wills Eye to pick up their two free pairs of prescription glasses. Many have appointments for follow-up care with our specialists.

This issue's cover story (pages 2 and 3) takes you behind the scenes with Leslie G. Hyman, PhD, Vice Chair of Research and Director of the Vickie and Jack Farber Vision Research Center at Wills Eye, and her work with the American Academy of Ophthalmology's IRIS® Registry. Wills is one of just four institutions chosen to be part of this collaborative consortium. Dr. Hyman and her research team have already completed several studies, laying the "big data" building blocks to advance this novel field of ophthalmology. On page 1, meet Ajay E. Kuriyan, MD, of the Wills Eye Retina Service and Mid Atlantic Retina. He is the recipient of three highly competitive research grants and was one of the big clan of Wills honorees named to the "40 Under 40" by *Ophthalmology Management*.

Our courageous patient, Kristy Lafferty (page 4), shares her inspiring story of coming to Wills Eye and Drs. Haller and Reza after years of struggling with diabetic retinopathy.

And on page 5, you'll learn about the generosity of Dr. Peter and Ruth Laibson, in the form of a newly established

"We would not be where we are today without our entire medical team, administrative staff, friends, and supporters. Together, we ensure that Wills continues to be the world's premier eye hospital."

endowed lecture, inaugurated this past October during our "Controversies in Cornea" Saturday Update.

We are filled with pride over the commitment and caliber of our staff, including the addition in 2022 of four new attending physicians and an amazing class of both residents and fellows. Wills Eye continues to attract the best and the brightest!

In addition to record-breaking clinical successes, in the last fiscal year, our faculty published more than 180 research papers, dozens of book chapters, and hundreds of abstracts.

Looking ahead to the coming year, we anticipate groundbreaking research advances, and innovations in diagnostic and surgical technologies. Wills Eye continues to lead the world in the fight to enhance and preserve sight.

Wishing you the very best of health in 2023!

Eye Level

NEWS & VIEWS FROM WILLS EYE HOSPITAL WINTER 2022/2023 ©2022 Wills Eye Hospital NEWSLETTER TEAM: Jan L. Apple, Editor-in-Chief/Writer Rebecca J. Elias, Assistant Editor Christine J. Scully, Writer Karen White, KMHWhiteDesign.com PHOTOGRAPHY: Roger Barone Bill Romano Jack Scully To contact *Eye Level*, email Jan L. Apple at japple@willseye.org



Visit the **Wills Eye Knowledge Portal** to register for the latest in continuing medical education, conferences, lectures, and more. **willseye.cloud-cme.com**

MEET AJAY E. KURIYAN, MD

Dr. Kuriyan joined the **WILLS EYE RETINA SERVICE** and **MID ATLANTIC RETINA** in 2019. He is the recipient of three highly competitive research grants and was named one of "40 Under 40" by *Ophthalmology Management*.

Q. Why Wills Eye and Mid Atlantic Retina?

A. It's truly a privilege to be part of Wills Eye and Mid Atlantic Retina. I chose this path because of the exceptional opportunities with clinical and surgical care, research, and teaching at the highest level in retina.

We are fortunate to have unbelievable clinical and surgical volume for our research projects from investigator-initiated studies to clinical trials. It's amazing to collaborate with accomplished basic science researchers, such as Nancy Philp, PhD, of Sidney Kimmel Medical College at Thomas Jefferson University.

The conferences and lecture series at Wills Eye Hospital enable the Retina Service team to learn from each other and notable guest lecturers. There are highly skilled and talented colleagues in all of the services at Wills, an incredible advantage when managing complex patients.

Q. What do you hope to accomplish through these research grants?

A. The Alcon Research Institute's Young Investigator Award, the Macula Society's Mills and Margaret Cox Research Award, and the Retina Society Research Award all fund a collaborative translational research project focused on proliferative vitreoretinopathy (PVR) pathogenesis. PVR is the most common cause of retinal detachment surgery failure and occurs in up to 10 percent of patients. There are currently no treatments for this disease process. This project leverages the unique ability of Wills Eye Hospital to access patient surgical tissue samples and, together with Dr. Philp, to study a novel aspect of the disease's pathogenesis.

We hope these grants will help us identify novel treatments for PVR and solidify the translational research infrastructure between Wills and Jefferson.

Q. What inspired you to become a physician and specifically an ophthalmologist/ retina specialist?

A. During my youth, my older sister, who has asthma, made frequent trips to the doctor. I was deeply impacted by the special role physicians have in their patients' lives. In medical school, I developed a strong appreciation of ophthalmology as a specialty. The mix of medical and surgical treatments, the art of the ophthalmic exam, <u>elegant surgeries</u>,



and tangible benefits of ocular interventions on vision and quality of life, all played a role in my decision.

The ability to non-invasively image the eye and deliver treatments locally make ophthalmology a field that is ripe for rapid advancement. During residency, I gravitated toward retina pathology. I enjoy retina conferences, which feature a mix of surgical videos, clinical trial results, and translational research. You get the best of both worlds in retina clinics: longstanding relationships with patients, such as those requiring regular intravitreal injections and those needing short-term treatments, like laser for retinal tears. In the operating room, every case is unique. It's an exciting time to be a retina specialist.

Q. How do you feel about being named one of "40 Under 40," in recognition of your talent and as a future leader in ophthalmology?

A. It was an honor to be named to this list, but it's really a reflection of all my family members and professional mentors who have supported me throughout my life and career. I am indebted to my medical school mentor at the University of Rochester, Dr. Steven Feldon. He was my first role model in ophthalmology and continues to be a source of inspiration. I was lucky to have outstanding clinical, surgical, and research mentors during residency and fellowship at Bascom Palmer Eye Institute.

My colleagues at Mid Atlantic Retina and Wills Eye Hospital are remarkable. My trainees and mentees ask great questions and motivate me to keep learning. Lastly, it is my patients who entrust me with their eye care and are the reason I strive to better understand and manage retina diseases through research.

FAST FACTS

AJAY E. KURIYAN, MD

Age: 39

Career Highlight: One of the team ophthalmologists for the Philadelphia 76ers, 2021–2022

Spouse: Tuma Favorite Food: Home-cooked Indian Children: Asha, 7; Ashish, 6 Favorite Hobby: Basketball Favorite Music: 90s hip-hop Favorite Ritual: Bedtime routine with kids

Wills Eye Research Team Leads the Way in Analyzing BIG DATA

ONE OF JUST FOUR INSTITUTIONS IN AAO'S GROUNDBREAKING IRIS® REGISTRY

ith over 700 million electronic records, the American Academy of Ophthalmology's (AAO) Intelligent Research in Sight (IRIS®) is the largest medical specialty registry in the world. And Wills Eye Hospital is one of just four academic institutions in the United States with full access to this vital trove of information.

"The IRIS[®] Registry is an incredibly powerful resource with amazing potential to help shape patterns of eye care for the future," said Leslie G. Hyman, PhD, an ocular epidemiologist and Vice Chair of Research and Director of the Vickie and Jack Farber Vision Research Center at Wills Eye, who oversees numerous pioneering projects utilizing the expansive

data set. The registry contains the records of more than 70 million patients (anonymously to comply with HIPAA) and data from about 17,000 practices (ophthalmologists and allied eye care providers) across the country.

Wills Eye and the other institutions — University of Washington, Stanford University, and Massachusetts Eye and Ear/Harvard Ophthalmology — form the IRIS Registry Analytic Center Consortium in collaboration with AAO. The registry has enabled Dr. Hyman and her research team to collaborate with investigators at Wills Eye and other centers on novel topics across an array of subspecialties.

"The availability of this large database presents a remarkable opportunity to advance knowledge in ophthalmology through studies of rare eye conditions, treatment outcomes using real world clinical data, and investigations of disparities in eye care patterns," she said.

Leslie G. Hyman, PhD, standing, collaborates with her research team to plan a new IRIS® Registry analysis. Dr. Hyman joined Wills Eye in 2016 after serving as Head of the Division of Epidemiology and Biostatistics, Department of Family, Population & Preventive Medicine at New York's Stony Brook Medicine, Stony Brook University. She has led groundbreaking studies and published more than

250 papers, abstracts, and book chapters throughout

"The IRIS[®] Registry is an incredibly powerful resource with amazing potential to help shape patterns of eye care for the future."

–Leslie G. Hyman, PhD

her career. With expertise in observational epidemiologic research and clinical trials, much of her work has focused on identifying the etiology, risk factors, and treatment of some of the leading causes of visual impairment and blindness.

Dr. Hyman explained that AAO launched the IRIS Registry in 2014 to help clinicians track quality metrics and assist practices with reporting requirements. Tracking was done using MIPS – the Merit Based Incentive Payment System. Clinical quality measures were then submitted to the Centers for Medicare and Medicaid Services (CMS) for reimbursement.

ical Representation of Potential IRIS Codebas

COVER STORY

After a few years, as the volume of patient records grew, elaborated Dr. Hyman, AAO realized that IRIS had evolved into an incredibly rich database. So, they expanded its application to include scientific discovery.

Wills was among a select group of specialty institutions to apply for full access to the IRIS Registry. Dr. Hyman led the highly competitive application process at Wills Eye, working closely with Dr. Julia Haller, Dr. Allen Ho, and a team of colleagues. Acceptance into the consortium required specific skills and qualifications. "In addition to clinical expertise, we needed to be proficient at working with large data sets and the many intricacies that entailed," said Dr. Hyman, who recruited a team of data scientists, biostatisticians, and programmers. Wills Eye was selected and access began in late 2019. Since that time, the team has been intensely focused on multiple studies. Several have been completed, and at least 10 more are under way.

One study, led by Michael Morano, MD, a recent graduate of Sidney Kimmel Medical College, examined the risk factors associated with retinal tears after cataract surgery (one of the most common surgical procedures in the U.S.). This study received a 2022 "Best Poster" Award from AAO for its novel findings.

Other research has included examining the risks and associated factors related to thyroid eye disease (TED), visual outcomes in traumatic eye injuries leading to rupture of the eye globe, prevalence of eyelid cancers and their associated factors, and disparities in the use of eye injections to treat retinal vein occlusion.

"Each study has provided new information that helps inform patient management," said Dr. Hyman. One example is with TED, often associated with Graves' disease. Dr.



Hyman described TED as a relatively rare condition that can have a devastating impact on an individual's appearance and vision. "We wanted to learn more about its epidemiology," she said, "such as its preva-



Qiang "Ed" Zhang, PhD, gives a lecture on biostatistics to residents at Wills Eye Hospital.

lence in different age, gender, race, and ethnicity groups, as well as the frequency of complications."

Previous research found two peak ages for TED disease onset. "In our analyses, we found one peak age of prevalence, which varied by race and ethnic group," said Dr. Hyman, "with the highest prevalence among African Americans." These findings raised questions about the different patterns and led the Wills team to conduct a small pilot study in collaboration with colleagues at LV Prasad Eye Institute in Hyderabad, India, consisting of 30 patients in the U.S. and 30 in India to compare the two populations.

IRIS® TEAM SETS SIGHTS ON FUTURE

"The IRIS Registry opens up new ways of thinking and piecing together many parts of a puzzle," explained Dr. Hyman. "Some questions can be answered, but we need to also consider limitations typical of large data based on electronic medical records.

"Having a rich data set can help us understand the patterns of diseases and in the long-term this can translate to more precise diagnoses as well as better patient management, education, and guidance."

In a world increasingly driven by big data and artificial intelligence, Dr. Hyman is excited about the future of the registry. The IRIS team is working toward the goal of merging eye imaging data with clinical data. "The power of that is huge," she said. "We are literally at the forefront of innovation in the field of ophthalmology."

Research Team (from left): Qiang "Ed" Zhang, PhD, Lead Biostatistician; Danielle Trappanese, PhD, Senior Research Program Administrator; Leslie G. Hyman, PhD, Vice Chair of Research and Director, Vickie and Jack Farber Vision Research Center; Luke Alonoso, Data Scientist; Maurizio Tomaiuolo, PhD, Data Scientist.

The Vickie and Jack Farber Vision Research Center at Wills Eye

The transformational philanthropy of Vickie and Jack Farber has propelled the research efforts of Wills Eye to new levels. With combined gifts totaling \$7 million, the Farbers' generosity has enabled Wills Eye physicians and researchers to continue their pursuit of better treatment and cures in all areas of eye disease.

The Farbers both came from modest upbringings in Philadelphia and have experienced the debilitating impact of loved ones touched by neurodegenerative diseases. With their unwavering commitment to vision research and giving back, in 2018, the research center was named in their honor.

Led by internationally recognized epidemiologist, Leslie G. Hyman, PhD, the Vickie and Jack Farber Vision Research Center at Wills Eye fosters a vibrant, collaborative, intellectually stimulating environment focused on the clinical and translational science of ocular disease. It aims to preserve vision through preventing, treating, and curing eye disease.



To learn more, visit willseye.org/research

Note: As we were going to press, we received the very sad news that Jack Farber had passed away on December 7. Our deepest condolences and prayers go out to Vickie, Ellen, and the entire Farber family. Read more about Jack's legacy at **willseye.org/jackfarber**

"WILLS EYE SAVED MY VISION"

risty Lafferty finds unparalleled joy in seeing the faces of her three dogs, checking the time on her phone, and peering into her husband's light blue eyes. "It makes me really emotional," said Kristy, who for three decades has faced nearly insurmountable odds to retain her vision.

"I was not about to give up," explained the 55-year-old who resides in Worton on the Eastern Shore of Maryland with her husband of 28 years, Todd Bramble. In fact, "never give up" is a motto she's adhered to throughout her life.

"I was diagnosed with Type 1 diabetes when I was seven months old," said Kristy, dependent upon insulin ever since.

At 27, Kristy started having difficulty driving at night; her vision was becoming blurry. She visited an ophthalmologist in Maryland, who informed her that her retinas were hemorrhaging. He performed several laser surgeries

to control the bleeding. Within a year, her vision started to worsen. "The surgery caused a lot of scarring," said Kristy, who remembers the day things took a turn for the worse. "I was driving home over the Delaware Memorial Bridge. In a split second, I knew major things were happening with my vision." The following morning, Kristy, accompanied by her mother, visited an

ophthalmologist in South Jersey. "He told me I'd be blind in no time," recalled Kristy, who wasn't about to accept this as her fate.

Kristy was experiencing the debilitating impact of diabetic retinopathy, the most common cause of blindness in working-age Americans. It is caused by diabetic damage to the blood vessels of the light sensitive tissue at the back of the eye (the retina).

Kristy had to stop working. At the time, she and Todd, a long-haul trucker, lived on two-plus acres of land in Sudlersville, Maryland, surrounded by dogs, cats, horses, goats, and chickens. Her animals became a source of healing. She visited numerous specialists over the years and underwent operations to remove cataracts and repair detached retinas in both eyes. Her left eye eventually went totally blind. A silicone oil bubble that had been placed in her right eye caused her pressure to rise, and she developed glaucoma. Following another unsuccessful surgery, she decided to seek care at Wills Eye. "I knew they were the best eye hospital in the world," said Kristy, a South Jersey native.

In January 2020, Kristy had her first appointment with Julia A. Haller, MD, Ophthalmologist-in-Chief and retina specialist. "I heard she was brilliant; I loved her as soon as I met her," recalled Kristy, who felt the same about glaucoma specialist Reza Razeghinejad, MD (Dr. Reza). "He's the most compassionate, caring man. I can't say enough about either of them and all the nurses and medical staff."

Dr. Haller explained that Kristy had end-stage diabetic retinopathy: "She was legally blind and what vision she did have was literally hanging by a thread. Surgery would



Kristy Lafferty (right), with her husband, Todd Bramble.

"I would not be where I am today without Drs. Haller and Reza. They are amazing."

-Kristy Lafferty

present risks, but we couldn't just stand by and let her go totally blind in that eye too."

In June 2020, Drs. Haller and Reza performed a complex, combined surgical procedure. Dr. Haller replaced the silicone oil bubble and removed tractional membranes that had formed over the retina, while Dr. Reza placed a valve shunt (drainage tube) in the front of her eye to control the pressure.

"My vision has been getting a little bit better every day," said Kristy, whose regimen includes monthly injections of Avastin by Carl H. Park, MD, of the Wills Eye Retina Service in Wilmington, Delaware.

"Kristy is a remarkable woman," said Dr. Haller. "She's incredibly brave and resilient.



Julia A. Haller, MD, presenting at a Wills Eye lecture.



Reza Razeghinejad, MD, holds up a valve shunt (drainage tube), used in surgeries to treat glaucoma.

It's a miracle that we were able to get her to this point."

Kristy now wears special tinted, anti-glare glasses that help with her sensitivity to light. She navigates around her house with independent confidence. "I would not be where I am today without Drs. Haller and Reza," she said. "They are amazing!"



The first **Wills "Eye on Diabetes" Day** took place on September 17. More than 70 community members, with scheduled appointments, received free diabetic eye screenings. The goal of the initiative is to identify and treat diabetic eye disease before it progresses to vision loss and blindness.

THE PETER R. AND RUTH LAIBSON ENDOWED CORNEA LECTURESHIP ENSURING A LEGACY FOR FUTURE GENERATIONS

hen Peter Laibson, MD, joined the medical staff at Wills Eye Hospital in 1965, he was their first full-time physician fellowship-trained in cornea. At the time, the subspecialty was in its infancy.

It would not be a stretch to describe the Cornea Service's Director Emeritus as a pioneer in the field. The 89-year-old Dr. Laibson grew the service to become a world-class leader in corneal transplants and the discovery and treatment of corneal diseases. His impact on the subspecialty through groundbreaking research and clinical achievements (he performed around 8,000 corneal transplants during his career) cannot be understated. And like the revered mentors that helped shape his professional path, so too has he impacted the physicians of the future.

"I'm very passionate about ophthalmic, and especially corneal, education," said Dr. Laibson, who trained hundreds of residents and fellows during his 47-year tenure at Wills. In 1967, he created the first corneal fellowship at Wills Eye. He and his wife, Ruth Laibson, later established an endowed corneal fellowship, now one of three at the hospital. Although he officially retired in 2012, his deep interest in the field remains.

To ensure that the advancement in cornea will live on, the couple recently established the **Peter R. and Ruth Laibson Endowed Cornea Lectureship**. The inaugural lecture took place at the Fall 2022 Cornea Update at Wills Eye in late October. The featured speaker, Guillermo Amescua, MD, shared the latest developments in the management of inherited and acquired ophthalmic diseases as well as emerging therapies and screening modalities.

From left: Peter Laibson, MD; Guillermo Amescua, MD; and Ruth Laibson at the inaugural endowed lecture in October 2022 at Wills Eye Hospital.

About half of Dr. Laibson's clinical practice was dedicated to transplants, the other half to infections and diseases of the cornea. "My major interest was in treating infections of the cornea due to viruses such as herpes simplex, herpes zoster,

"An enriched educational experience for residents and fellows has been the hallmark of the Cornea Service since its inception, and we are incredibly proud to have been part of that. It is our hope that this legacy will continue for future generations."

-Peter and Ruth Laibson

"We are delighted to establish this lectureship, which will enhance the exposure of Wills practitioners to new ideas and concepts in the field," said the Laibsons. "An enriched educational experience for residents and fellows has been the hallmark of the Cornea Service since its inception, and we are incredibly proud to have been part of that. It is our hope that this legacy will continue for future generations."

Dr. Laibson, who also served as medical director of the Lions Eye Bank of Delaware Valley for 50 years until his retirement from that position in 2017, reflected on the remarkable changes he has witnessed over the decades: "When I first began, the corneal transplant took an hour, and it was about a year before a patient's vision improved. Today, it's a very different procedure. In most cases, it takes about 20 minutes, requires very few or no sutures, and patients usually see well within days." and adenovirus," said Dr. Laibson. He noted that among its many innovations, the Cornea Service was the first to recognize a bacterial disease from wearing contact lenses overnight, and helping to discover corneal dystrophies in families, requiring transplants.

Throughout his career, Dr. Laibson published more than 345 academic papers, many in collaboration with his colleagues and fellows. In fact, being a mentor has been a great source of pride. Some of his fellows were from other countries and brought their acquired

expertise back to their medical communities. As a result, Dr. Laibson has lectured in Brazil, Chile, Argentina, Japan, Hong Kong, India, Europe, and Israel, to name a few.

Dr. Laibson, born and raised in Brooklyn, New York, graduated in 1959 from the State University of New York, Downstate Medical Center. He attended Harvard Medical School's Basic Science Course in Ophthalmology, followed by a residency at Wills Eye Hospital and a corneal fellowship at Massachusetts Eye and Ear Infirmary. "This was the first major corneal fellowship in the U.S.," said Dr. Laibson. "It was started by Claes Dohlman, MD, a giant in the field, my mentor, and my very close friend." The Laibsons recently visited Boston to celebrate Dr. Dohlman's 100th birthday.

"The evolution in the corneal field has truly been phenomenal," said Dr. Laibson.



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